Financial Review 2021

For the Year Ended December 31, 2021

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AGC
Your Dreams, Our Challenge

CONSOLIDATED ELEVEN-YEAR SUMMARY

AGC Inc. and Consolidated Subsidiaries
For the years ended December 31

(Unit: Millions of yen)

	Note	2021/12 IFRS	2020/12 IFRS	2019/12 IFRS	2018/12 IFRS	2017/12 IFRS
Operating Results						
Net sales		**¥1,697,383**	¥1,412,306	¥1,518,039	¥1,522,904	¥1,463,532
Operating profit		**206,168**	75,780	101,624	120,555	119,646
Profit before tax		**210,045**	57,121	76,213	128,404	114,424
Profit for the year attributable to owners of the parent	3	**123,840**	32,715	44,434	89,593	69,225
Segment Information						
Sales to external customers						
Glass Operations		**¥ 732,230**	¥ 648,394	¥ 740,920	¥ 756,160	¥ 733,953
Electronics Operations		**303,049**	283,025	265,215	250,285	260,626
Chemicals Operations		**629,487**	449,739	474,417	482,097	435,145
Ceramics/Other Operations		**32,615**	31,145	37,485	34,361	33,807
Financial Position						
Total assets		**¥2,666,031**	¥2,534,458	¥2,335,415	¥2,235,776	¥2,228,560
Total current assets		**915,271**	860,962	742,612	733,196	722,522
Property, plant and equipment		**1,323,868**	1,246,885	1,177,691	1,108,934	1,060,601
Total current liabilities		**599,408**	563,898	482,490	463,098	455,288
Total equity/Total net assets		**1,481,380**	1,243,039	1,282,636	1,253,604	1,289,895
Non-controlling interests in consolidated subsidiaries		**167,219**	127,897	125,538	116,399	105,860
Per Share Data (Yen)						
Basic — EPS	4	**¥ 559.11**	¥ 147.84	¥ 200.85	¥ 399.51	¥ 302.12
Diluted — EPS	5	**557.10**	147.24	199.95	397.58	300.65
Cash dividends		**210.00**	120.00	120.00	115.00	(Note 7)
Equity/Net assets	7	**5,930.27**	5,038.52	5,229.58	5,141.43	5,239.70
Other Data						
Return on equity (ROE)	8	**10.2%**	2.9%	3.9%	7.7%	6.1%
Interest-bearing debt	9	**¥ 603,194**	¥ 787,960	¥ 602,843	¥ 541,780	¥ 489,085
Depreciation and amortization		**166,756**	143,716	143,361	121,668	128,226
Capital expenditures		**216,503**	241,348	207,661	230,598	165,095
Research and development expenses		**49,444**	46,444	47,450	45,755	43,912
Number of shares issued and outstanding (Thousands of shares)	10	**227,441**	227,441	227,441	227,441	235,177
Number of employees		**55,999**	56,179	55,598	54,101	53,224

Notes:
1. The Company maintains its accounting records in Japanese yen. The U.S. dollar amounts included in this consolidated eleven-year summary represent the arithmetical results of translating Japanese yen to U.S. dollars on the basis of ¥115.02=US$1, the approximate exchange rate as of December 31, 2021. The inclusion of such U.S. dollar amounts is solely for convenience and is not intended to imply that Japanese yen amounts have been or could be converted, realized or settled in U.S. dollars at ¥115.02=US$1 or at any other rate.
2. The Company has prepared consolidated financial statements in accordance with International Financial Reporting Standards ("IFRS") from the fiscal year ended December 31, 2013 instead of Japanese Generally Accepted Accounting Principles ("JGAAP"). The date of transition to IFRS was January 1, 2012.
3. (IFRS): Under IFRS, profit for the year is presented before deducting non-controlling interests. For comparison, the Company shows profit for the year attributable to owners of the parent.
4. (IFRS): Based on profit for the year attributable to owners of the parent. Effective July 1, 2017, the Company consolidated its common shares at a ratio of five shares to one share. Basic earnings per share is calculated on the assumption that the consolidation of shares has been conducted at the beginning of the preceding fiscal year.
5. (IFRS): Based on profit for the year attributable to owners of the parent. Effective July 1, 2017, the Company consolidated its common shares at a ratio of five shares to one share. Diluted earnings per share is calculated on the assumption that the consolidation of shares has been conducted at the beginning of the preceding fiscal year.

(Unit: Millions of yen) (Unit: Thousands of U.S. dollars)

2016/12	2015/12	2014/12	2013/12	2012/12	2013/12	2012/12	2011/12	2021/12
IFRS	IFRS	IFRS	IFRS	IFRS	JGAAP	JGAAP	JGAAP	**IFRS**
¥1,282,570	¥1,326,293	¥1,348,308	¥1,320,006	¥1,189,952	¥1,320,006	¥1,189,956	¥1,214,672	**$14,757,286**
96,292	71,172	62,131	79,894	101,751	70,725	92,945	165,663	**1,792,453**
67,563	84,522	41,163	44,381	74,998	36,653	68,970	143,359	**1,826,161**
47,438	42,906	15,913	16,139	48,433	10,333	43,790	95,290	**1,076,682**
¥ 679,071	¥ 691,411	¥ 684,607	¥ 664,239	¥ 562,140	¥ —	¥ 562,140	¥ 553,339	**$ 6,366,110**
257,069	286,858	317,378	334,710	341,407	—	341,412	385,041	**2,634,750**
314,392	315,636	314,694	287,960	254,086	—	254,086	245,056	**5,472,848**
32,037	32,388	31,628	33,096	32,316	—	32,316	31,235	**283,559**
¥1,981,451	¥1,991,262	¥2,077,338	¥2,120,629	¥1,916,394	¥2,119,664	¥1,899,373	¥1,691,556	**$23,178,847**
673,436	637,546	627,178	682,179	638,873	695,240	651,248	606,774	**7,957,494**
937,869	982,296	1,066,193	1,059,946	956,806	1,060,777	957,661	842,563	**11,509,894**
377,490	346,157	355,999	448,018	368,852	457,928	372,816	419,410	**5,211,337**
1,168,743	1,163,767	1,180,490	1,145,145	960,747	1,151,870	996,949	850,460	**12,879,325**
73,305	69,594	67,364	57,929	52,443	58,295	53,243	41,444	**1,453,825**
¥ 205.14	¥ 37.12	¥ 13.77	¥ 13.97	¥ 41.90	¥ 8.94	¥ 37.88	¥ 81.90	**$ 4.86**
204.26	36.97	13.58	13.73	39.45	8.58	35.12	75.88	**4.84**
18.00	18.00	18.00	18.00	26.00	18.00	26.00	26.00	**1.83**
4,736.59	946.48	963.04	940.69	786.01	944.47	815.04	698.51	**51.56**
4.3%	3.9%	1.4%	1.6%	5.8%	1.0%	5.0%	11.8%	**10.2%**
¥ 433,968	¥ 468,733	¥ 499,257	¥ 575,014	¥ 538,600	¥ —	¥ 540,846	¥ 483,297	**$ 5,244,253**
121,803	137,381	137,199	135,751	117,856	—	117,856	110,056	**1,449,800**
126,025	125,103	118,169	138,480	155,329	—	155,334	152,705	**1,882,307**
39,212	38,927	44,758	46,882	47,074	—	48,360	46,442	**429,873**
1,186,705	1,186,705	1,186,705	1,186,705	1,186,705	—	1,186,705	1,186,705	**1,977,404**
50,963	50,852	51,114	51,448	49,961	—	49,961	50,957	**486,863**

6. Effective July 1, 2017, the Company consolidated its common shares at a ratio of five shares to one share. For fiscal year 2017, the interim dividends per share were 10 yen which is before taking into account the consolidation of shares, and the scheduled year-end dividends per share are 55 yen which is after taking into account the consolidation of shares.
7. (IFRS): Based on equity attributable to owners of the parent. Effective July 1, 2017, the Company consolidated its common shares at a ratio of five shares to one share. Equity attributable to owners of the parent per share is calculated on the assumption that the consolidation of shares has been conducted at the beginning of the preceding fiscal year.
8. (IFRS): Return on equity attributable to owners of the parent.
9. Interest-bearing debt comprises short-term bank loans, long-term bank loans due within one year, commercial paper, bonds, long-term bank loans, and lease obligations.
10. Effective July 1, 2017, the Company consolidated its common shares at a ratio of five shares to one share. The number of shares issued and outstanding is calculated on the assumption that the consolidation of shares has been conducted at the beginning of the current fiscal year.

The discussion and analysis herein of sales and operating profit are based on reportable segment information. Sales for reportable segments include all inter-segment transactions.

Scope of Consolidation

Number of consolidated subsidiaries: 206
Major subsidiaries:
AGC Techno Glass Co., Ltd., Ise Chemicals Corporation, AGC Glass Europe, AGC Flat Glass North America, Inc.

Currency Fluctuations

The Japanese yen weakened against the U.S. dollar and the euro during fiscal year 2021. The year-end yen-U.S. dollar rate was ¥115.02=US$1.00, compared with ¥103.50=US$1.00 in fiscal year 2020, and the year-end yen-euro rate was ¥130.51=€1.00, compared with ¥126.95=€1.00 in the previous fiscal year.

Overview of the Period Ended December 31, 2021

■ Overview

During the fiscal year ended December 31, 2021 (January 1, 2021 to December 31, 2021), the global economy surrounding the AGC Group ("the Group") was affected by the COVID-19 pandemic. From around July, supply chains were affected due to the resurgence of infections in some regions such as Southeast Asia, but there were signs of recovery overall from around November. Nevertheless, the global economic growth rate slowed in the second half of 2021 as a result of the resurgence of infections caused by new variants of the virus, the impact on supply chains from shortages of semiconductors and other components, and rising prices for raw materials and fuel, including natural gas and crude oil.

The Group formulated its Vision 2030 long-term management strategy in February 2021. Under the strategy, the Group aims to create sustainable economic and social value by shifting to an optimal business portfolio with two pillars consisting of both Core Businesses for ensuring stable sources of earnings over the long term and Strategic Businesses in high-growth fields. To ensure that it achieves the objectives of its Vision 2030 long-term management strategy, the Group formulated its AGC plus-2023 medium-term management plan extending from January 1, 2021 until December 31, 2023. Key strategies under the plan involve further pursuing ambidextrous management by deepening the Core Businesses and exploring the Strategic Businesses, promoting sustainability management, and gaining competitiveness by accelerating digital transformation (DX).

During the fiscal year ended December 31, 2021, the first year of the medium-term management plan, in the life sciences business, which is positioned as a strategic business, the Group made decisions on increasing production capacity with respect to gene and cell therapy CDMO at its Italian site and with respect to synthetic agrochemical and pharmaceutical CDMO at a site in Japan. The Group also acquired a gene and cell therapy facility in the United States. In Core Businesses, the Group decided to integrate and reorganize three chlor-alkali companies on the Indochina peninsula with the aim of strengthening the chlor-alkali business base in Southeast Asia. The Group also completed the transfer of the architectural glass business in North America, thereby steadily implementing its transformation to an optimal business portfolio.

Amid this operating environment, the chlor-alkali & urethane business of the Core Businesses contended with rising selling prices of vinyl chloride resin and other products in Southeast Asia. In the architectural glass business, selling prices increased primarily in Europe and shipments also rose, despite the impact from rising natural gas prices. In the automotive glass business, despite the impact from semiconductor shortages and other factors, shipments increased after having fallen significantly during the previous fiscal year due to the COVID-19 pandemic. In the Strategic Businesses, operating results gained steadily amid an increase in shipments of life science products, optoelectronic materials, and semiconductor-related products.

As a result, the Group posted net sales of ¥1,697.4 billion, up ¥285.1 billion or 20.2% from the previous fiscal year. Operating profit increased by ¥130.4 billion, or 172.1%, from the previous fiscal year to ¥206.2 billion. Profit before tax increased by ¥152.9 billion, or 267.7%, from the previous fiscal year to ¥210.0 billion as a result of the Group having recorded a gain on the transfer of the architectural glass business in North America, in addition to the increase in operating profit, and despite having recorded impairment losses on fixed assets in the automotive glass business in Europe and the printed circuit board materials business. Meanwhile, profit for the year attributable to owners of the parent increased by ¥91.1 billion, or 278.5%, from the previous fiscal year to ¥123.8 billion.

■ Consolidated Net Sales

Consolidated net sales were ¥1,697.4 billion in fiscal year 2021.

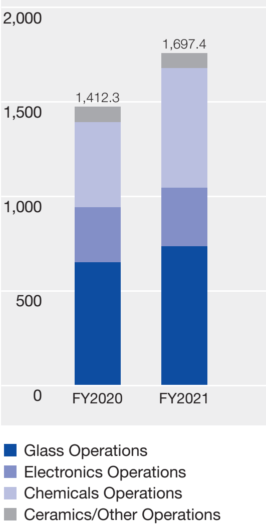
By reportable segment, the Glass Operations recorded sales of ¥734.3 billion in the year under review. Shipments of architectural glass increased amid a trend of recovery from the impact of the COVID-19 pandemic, mainly in Europe and Indonesia. Selling prices also increased significantly in Europe and South America. Although the Group transferred the North American architectural glass business in August 2021, sales of architectural glass were higher than in the previous fiscal year because the foregoing factors underlying the increase in sales exceeded the amount of decrease attributable to the business transfer. In the automotive glass business, sales increased after having fallen significantly during the previous fiscal year due to the COVID-19 pandemic, despite the impact from shortages of semiconductors and other components on automotive production.

Sales in the Electronics Operations were ¥312.0 billion. In the display business, sales increased from the previous fiscal year due to an increase in shipments of specialty glass for display applications, and despite lower shipments of LCD glass substrates. In the electronic materials business, sales increased from the previous fiscal year due to more shipments of EUV lithography photomask blanks and other semiconductor-related products as well as optoelectronic materials, and despite a situation where U.S.-China trade friction weighted on shipments of printed circuit board materials.

Sales in the Chemicals Operations were ¥630.8 billion. In the chlor-alkali & urethane business, sales increased from the previous fiscal year owing to higher selling prices for vinyl chloride resin and caustic soda. In the fluorochemical & specialty business, sales increased from the previous fiscal year due to recovery in shipments of fluorine-related products for use in automobiles, which had been sluggish due to the COVID-19 pandemic, and signs of recovery in shipments of fluorine-related products for use in aircraft from the third quarter of the fiscal year. In the life science business, sales increased from the previous fiscal year due to an increase in the number of contracts for biopharmaceuticals, including COVID-19-related products, in addition to an increase in the number of contracts for synthetic agrochemicals and pharmaceuticals.

Sales by Reportable Segment

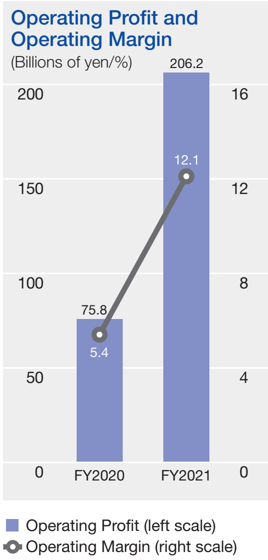
(Billions of yen)

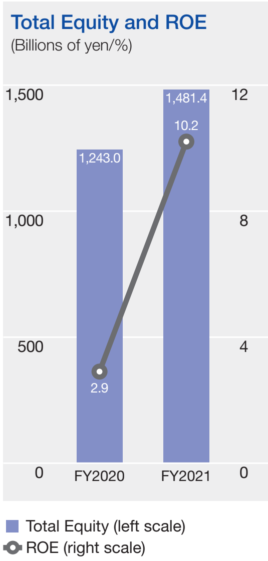


Sales by Reportable Segment

(Unit: Millions of yen)

	FY2020	**FY2021**
Glass Operations	¥ 650,965	**¥ 734,257**
Electronics Operations	289,353	**312,019**
Chemicals Operations	451,156	**630,792**
Ceramics/Other Operations	81,122	**79,392**
Corporate or Elimination	(60,291)	**(59,078)**
Net sales	¥1,412,306	**¥1,697,383**





■ Profit and Expenses

Cost of sales increased by ¥131.1 billion or 12.5% to ¥1,184.4 billion from the previous fiscal year. The cost-to-sales ratio stood at 69.8%.

Cost of Sales and SG&A Expenses

(Unit: Millions of yen)

	FY2020	FY2021
Cost of sales	¥1,053,243	**¥1,184,383**
Cost-to-sales ratio	74.6%	**69.8%**
Gross profit	359,062	**512,999**
SG&A expenses	283,867	**309,123**
SG&A expenses as a percentage of net sales	20.1%	**18.2%**

Operating profit, the net result of gross profit minus selling, general and administrative (SG&A) expenses and share of profit of associates and joint ventures accounted for using equity method, was ¥206.2 billion, up ¥130.4 billion or 172.1% year on year. The operating margin increased from 5.4% to 12.1%.

Other expenses were ¥52.6 billion, compared with ¥22.8 billion in fiscal year 2020.

Impairment losses of ¥34.5 billion, losses on disposal of non-current assets of ¥6.7 billion and expenses for restructuring programs of ¥5.2 billion were recorded.

In addition, the Group recorded a foreign exchange gain, net of ¥11.0 billion, compared to a ¥3.6 billion foreign exchange gain in the previous fiscal year.

Moreover, gains on transfer of business of ¥28.0 billion were recorded in connection with the transfer of the architectural glass business in North America.

Profit before tax increased by ¥152.9 billion year on year to ¥210.0 billion.

Consequently, profit for the year attributable to owners of the parent was ¥123.8 billion, up ¥91.1 billion or a 278.5% increase from ¥32.7 billion in the previous fiscal year. Basic earnings per share increased by 278.2% year on year from ¥147.84 to ¥559.11. ROE increased by 7.3 percentage points to 10.2%.

Profit

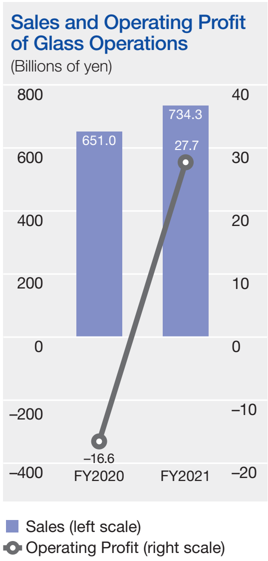
(Unit: Millions of yen)

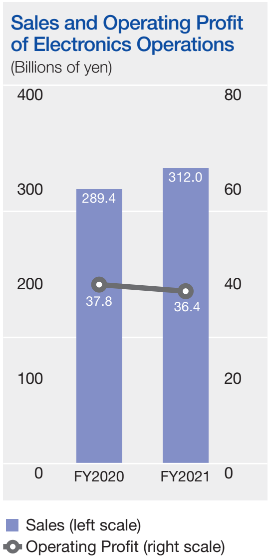
	FY2020	FY2021
Operating profit	¥75,780	**¥206,168**
Operating margin	5.4%	**12.1%**
Profit before tax	57,121	**210,045**
Profit for the year attributable to owners of the parent	32,715	**123,840**
Percentage of net sales	2.3%	**7.3%**
Per share data (Yen)		
—Net income—basic	147.84	**559.11**
—Net income—diluted	147.24	**557.10**
Return on equity (ROE)	2.9%	**10.2%**

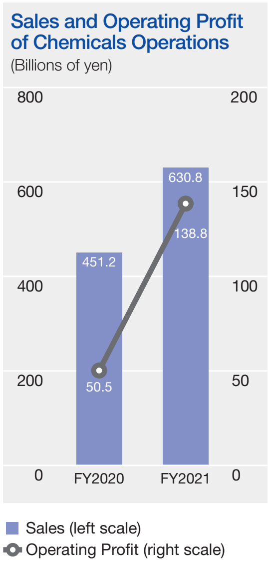
Performance by Reportable Segment

■ Glass Operations

Shipments of architectural glass increased amid a trend of recovery from the impact of the COVID-19 pandemic, mainly in Europe and Indonesia. Selling prices also increased significantly in Europe and South America. Although the Group transferred the North American architectural glass business in August 2021, sales of architectural glass were higher than in the previous fiscal year because the foregoing factors underlying the increase in sales exceeded the amount of decrease attributable to the business transfer. In the automotive glass business, sales increased after having fallen significantly during the previous fiscal year due to the COVID-19 pandemic, despite the impact from shortages of semiconductors and other components on automotive production.







As a result, net sales of the Glass Operations for the fiscal year were ¥734.3 billion, an increase of ¥83.3 billion, or 12.8%, from the previous fiscal year owing to the abovementioned factors underlying the increase in sales as well as euro appreciation. Operating profit was ¥27.7 billion, an increase of ¥44.3 billion from the previous fiscal year despite higher natural gas prices in Europe, owing to the foregoing factors underlying the increase in sales, fixed cost reductions associated with structural reform in Europe, and lower manufacturing costs due to improvement in capacity utilization at production facilities.

■ Electronics Operations

In the display business, sales increased from the previous fiscal year due to an increase in shipments of specialty glass for display applications, and despite lower shipments of LCD glass substrates. In the electronic materials business, sales increased from the previous fiscal year due to more shipments of EUV lithography photomask blanks and other semiconductor-related products as well as optoelectronic materials, and despite a situation where U.S.-China trade friction weighted on shipments of printed circuit board materials.

As a result, net sales from the Electronics Operations for the fiscal year were ¥312.0 billion, up ¥22.7 billion or 7.8% from the previous fiscal year. Operating profit was ¥36.4 billion, down ¥1.4 billion or 3.8% from the previous fiscal year, owing to factors such as an increase in depreciation associated with start-up of new facilities for LCD glass substrates and semiconductor-related products as well as the impact of foreign exchange, and despite the foregoing factors with positive effects on sales.

■ Chemicals Operations

In the chlor-alkali & urethane business, sales increased from the previous fiscal year owing to higher selling prices for vinyl chloride resin and caustic soda. In the fluorochemical & specialty business, sales increased from the previous fiscal year due to recovery in shipments of fluorine-related products for use in automobiles, which had been sluggish due to the COVID-19 pandemic, and signs of recovery in shipments of fluorine-related products for use in aircraft from the third quarter of the fiscal year. In the life science business, sales increased from the previous fiscal year due to an increase in the number of contracts for biopharmaceuticals, including COVID-19-related products, in addition to an increase in the number of contracts for synthetic agrochemicals and pharmaceuticals.

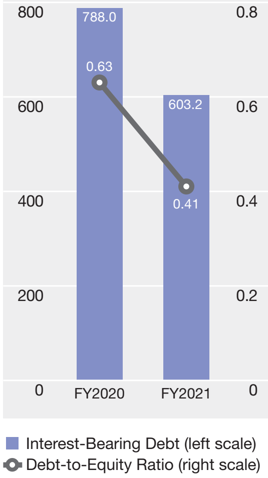
As a result, net sales of the Chemicals Operations for the fiscal year were ¥630.8 billion, up ¥179.6 billion or 39.8% from the previous fiscal year. Operating profit was ¥138.8 billion, up ¥88.3 billion or 174.9% from the previous fiscal year.

Sales and Operating Profit by Reportable Segment

(Unit: Millions of yen)

	FY2020	**FY2021**
Glass Operations		
Sales	¥650,965	**¥734,257**
Operating profit	(16,579)	**27,747**
Operating margin	—%	**3.8%**
Electronics Operations		
Sales	289,353	**312,019**
Operating profit	37,797	**36,362**
Operating margin	13.1%	**11.7%**
Chemicals Operations		
Sales	451,156	**630,792**
Operating profit	50,477	**138,756**
Operating margin	11.2%	**22.0%**

Interest-Bearing Debt and Debt-to-Equity Ratio
(Billions of yen/Times)



* Debt-to-Equity Ratio = Interest-Bearing Debt/Total Equity

Equity Attributable to Owners of the Parent Ratio
(%)

Assets, Liabilities and Equity

We continue to adhere to a policy of maintaining appropriate liquidity, securing the funds necessary to conduct our operations and ensuring the soundness of our balance sheet. With the aim of facilitating the stable procurement of long-term funds, we have obtained an A– rating from Standard & Poor's, an A2 rating from Moody's Investors Service and an AA– rating from Rating and Investment Information, Inc.

Total assets as of the end of the fiscal year under review were ¥2,666.0 billion, up ¥131.6 billion from the end of the previous fiscal year. This increase was mainly due to an increase in inventories and property, plant and equipment.

Total liabilities as of the end of the fiscal year under review were ¥1,184.7 billion, down ¥106.8 billion from the end of the previous fiscal year. This decrease was mainly due to a decrease in interest-bearing debt.

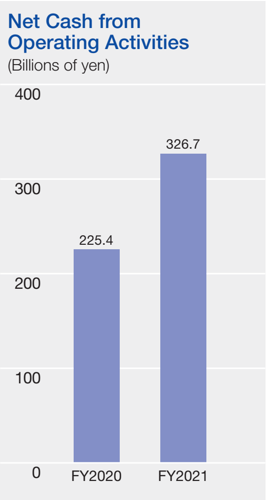
Total equity as of the end of the fiscal year under review was ¥1,481.4 billion, up ¥238.3 billion from the end of the previous fiscal year. This increase was mainly because of greater retained earnings resulting from net profit.

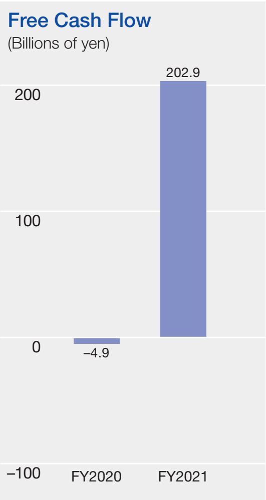
As a consequence of the above, the equity attributable to owners of the parent ratio for fiscal year 2021 increased by 5.3 percentage points from 44.0% to 49.3%. Equity attributable to owners of the parent per share increased from the previous fiscal year to ¥5,930.27.

Summary of Assets, Liabilities and Equity

(Unit: Millions of yen)

	FY2020	**FY2021**
Total assets	¥2,534,458	**¥2,666,031**
Total current assets	860,962	**915,271**
Inventories	274,835	**330,101**
Property, plant and equipment	1,246,885	**1,323,868**
Total current liabilities	563,898	**599,408**
Interest-bearing debt	787,960	**603,194**
Total equity	1,243,039	**1,481,380**
Equity attributable to owners of the parent ratio	44.0%	**49.3%**
Equity attributable to owners of the parent per share (Yen)	5,038.52	**5,930.27**
Debt-to-equity ratio (Times)	0.63	**0.41**





Cash Flows

The free cash flow for the fiscal year under review, which is the sum of cash flows from operating activities and investing activities, was positive ¥202.9 billion (negative ¥4.9 billion in the previous year) mainly due to an increase in profit before tax and proceeds from sale of other financial assets. Cash and cash equivalents at end of year (net cash) decreased ¥40.3 billion or 17.1% from the end of the previous year to ¥195.8 billion mainly due to repayment of long-term interest-bearing debt and payment of dividends in financing activities.

■ Cash Flows from Operating Activities

Net cash from operating activities for the fiscal year under review was ¥326.7 billion, up ¥101.3 billion or 45.0% from the previous year.

■ Cash Flows from Investing Activities

Net cash used in investing activities for the fiscal year under review was ¥123.8 billion, down ¥106.5 billion or 46.2% from the previous year. This expenditure was mainly due to purchase of property, plant and equipment.

■ Cash Flows from Financing Activities

Net cash used in financing activities for the fiscal year under review was ¥252.3 billion (revenue of ¥128.4 billion in the previous year). This expenditure was mainly due to repayment of long-term interest-bearing debt and payment of dividends.

Summary of Cash Flow Statements

(Unit: Millions of yen)

	FY2020	**FY2021**
Net cash from operating activities	¥ 225,392	**¥ 326,713**
Profit before tax	57,121	**210,045**
Depreciation and amortization	143,716	**166,756**
Net cash from investing activities	(230,248)	**(123,787)**
Purchase of property, plant and equipment and intangible assets	(191,469)	**(210,572)**
Free cash flow	(4,855)	**202,926**
Net cash from financing activities	128,443	**(252,259)**
Effect of exchange rate changes on cash and cash equivalents	(1,246)	**9,039**
Net increase (decrease) in cash and cash equivalents	122,340	**(40,294)**
Cash and cash equivalents at beginning of year	113,784	**236,124**
Cash and cash equivalents at end of year	236,124	**195,830**

Business Risks

Set out below are risks associated with the Group's operations and other risks that may materially influence the decisions of investors to invest in the Group. However, this section does not include all possible risks relating to the Group; there may exist additional risks not stated below. Any such risks are also likely to influence investors' decisions.

Having identified these risks, the Group has established the AGC Group Enterprise Risk Management Basic Policies, which define the Group's basic policies concerning risk management, and has formulated a system for risk management and crisis response.

Forward-looking statements in this section are based on information available as of March 30, 2022.

(1) Economic conditions in markets in which the Group's products are sold

Demand for the Group's products is impacted by trends in industries such as construction and building materials, automobiles, electronics, displays, and chemicals. The Group's products are supplied throughout the world, for example in Asia, the United States and Europe, as well as in Japan, and sales are therefore influenced by local economic conditions. Although the Group is working hard to build an earnings structure that is resilient to changes in the business environment by improving productivity and reducing fixed and variable costs, through falling sales volumes and prices, its performance and financial position are susceptible to declining demand from the industries as well as economic downturns in the regions where its products are primarily sold.

The situation in each segment is as follows.

1) Glass

In the Glass segment, the Group has established development and production bases in Japan/Asia, Europe and the Americas and supplies products throughout the world. Demand for architectural glass is correlated with construction investment, which varies with economic conditions in each region and country. Accordingly, earnings in this business could be impacted by fluctuations in demand for architectural glass. In addition, demand for automotive glass is influenced by automobile sales volume, which is correlated with factors such as economic fluctuations in each region and country. Accordingly, earnings in this business could be impacted by fluctuations in demand for automotive glass.

2) Electronics

Products in the display business are used in LCD TVs, smartphones, and tablets, etc. In the LCD glass substrate business, changes in the market shares of panel manufacturers, which are the Group's customers, shifts in market trends, and other developments are expected to occur. The Group has been working to expand sales based on its customer portfolio. Nonetheless, customer and market trends could have an impact on the profitability of the display business. In the electronic materials business, the Group's main customers are companies involved in industries such as semiconductors and optoelectronics. The performance of these customers depends on market trends in areas such as semiconductors, smartphones, communications infrastructure and industrial equipment. For this reason, earnings in the electronic materials business could be influenced by the impact of these trends.

3) Chemicals

In chlor-alkali products, the Group has established production bases primarily in Japan and Southeast Asia, where progress is being made on infrastructure development, and is expanding its business. Demand for these products is mainly correlated with economic growth rates and capacity utilization in core industries in each region and country. Accordingly, earnings in this business could be impacted by fluctuations in demand for chlor-alkali products. In the fluorochemicals & specialty business, the Group's main customers are companies involved in transportation equipment, semiconductor and construction industries. Accordingly, earnings in the fluorochemicals & specialty business could be impacted by market trends in these industries. In the life science business, the Group is greatly impacted by business conditions and the development status of new products in the pharmaceuticals and agrochemicals industries. Accordingly, earnings in the life science business could be impacted by these trends.

(2) Expansion of overseas operations

The Group, in addition to its operations in Japan, has overseas operations, including exports and imports of products and manufacturing abroad. The risks associated with these global business activities include deteriorating political and economic conditions, the imposition of regulations on exports and imports and foreign investments, unexpected changes in laws and regulations, the worsening of public security, economic sanctions between countries, and the occurrence of social turmoil or other disruptions due to terrorist attacks, war, infectious diseases or other factors in the countries and regions where the Group operates. For its part, the Group carefully monitors factors such as political and economic conditions and regulatory trends in each country and region and strives to mount effective responses appropriate to the situation. However, the occurrence of these events may hinder the Group's overseas operations and have a serious effect on its performance and financial position.

(3) Competitive edge and development and commercialization of new technologies and products

In every field in which the Group operates, there are competitors supplying products similar to those of the Group. Accordingly, to maintain its competitive edge, the Group is striving to identify the needs of customers, and to develop and commercialize new technologies and products. However, should the Group fail to appropriately respond to technical changes and customer needs or take too long to develop and commercialize new technologies and products, growth could be hampered and profitability could decline. This may significantly impact the Group's performance and financial position.

(4) Manufacturing

The Group strives to carry out preventive maintenance on all plant equipment and facilities, and it is working to strengthen priorities such as systems for safety review and maintenance and repair of equipment and facilities. If there are any serious production disruptions, this could have a significant impact on the Group's performance and financial position.

(5) Procurement of production materials and resources

If there are fluctuations in the prices of electricity, fuel gas, heavy oil or raw materials used in the Group's production activities, the Group's performance and financial position could be affected. The Group hedges the risk of price fluctuations for certain raw materials and fuel through instruments such as commodity contracts. Nevertheless, the Group may be unable to completely eliminate the impact of rising raw material and fuel prices. Additionally, as part of the Group's production activities, the Group uses certain special raw materials, supplies and other resources for which suppliers are limited. The Group considers alternative materials and strives to promote the purchasing of such raw materials, supplies and other resources from multiple suppliers. However, if the supply of these materials tightens or is delayed, or price fluctuations occur, the Group's performance and financial position may be greatly affected.

(6) Government regulations

In the countries and regions where it operates, the Group is subject to the local government approval and authorization of investments, regulations on exports and imports, and laws governing commercial transactions, labor, patents, taxation, foreign exchange, and other issues. The Group will closely monitor trends in amendments to relevant laws and regulations and strive to gather information. Meanwhile, amendments to relevant laws and regulations may significantly influence the Group's performance and financial position.

(7) Environmental regulations

The Group designates the environment as an element of the Our Shared Values component of its AGC Group Vision. The Group accordingly complies with all applicable laws and regulations related to the environment while furthermore striving to protect the global environment by mitigating environmental impacts associated with its operations through such means as setting and implementing voluntary control standards that are more stringent than legal and regulatory benchmarks. In addition, the Group actively engages in initiatives across its entire value chain with respect to addressing climate change, making effective use of resources, and conserving natural capital with the aim of helping to achieve global environmental and business sustainability.

Nevertheless, the Group may potentially be subject to opportunity loss due to deterioration of its reputation or social credibility if it is unable to address the following items: increasingly stringent regulations in respective countries and geographic regions for conforming to regulations on greenhouse gas emissions and otherwise addressing climate change, setting targets for reducing greenhouse gas emissions in alignment with the Paris Agreement and other international initiatives, and mounting stakeholder demands for the Group to contribute to decarbonization through its business activities. In addition, the Group could potentially incur costs and other outlays required to ensure its compliance with such regulations and requirements.

Meanwhile, the Group could find itself faced with an incident involving environmental pollution or other such unintended developments potentially arising due to emissions from the Group's manufacturing processes, chemical substances contained in its products, or other such causes. Such a scenario could affect the Group's profit and loss in terms of the need for it to bear costs associated with deteriorated social credibility, environmental remediation and treatment, compensation for loss or damage, or other measures. The Group's profit and loss could also be affected under a scenario where it becomes subject to additional costs or capital investment required to address environmental regulations that have been revised and strengthened in respective countries and regions, or otherwise under a scenario of impeded product development, production, sales, services, and other business activities.

(8) Product liability

The Group is making every effort to ensure that products are of the highest quality, according to their individual characteristics. Despite these efforts, the possibility remains that quality problems may occur because of unanticipated factors, prompting a major recall, for example. This could substantially influence the Group's performance and financial position.

(9) Intellectual property rights

The Group endeavors to acquire intellectual property rights that are useful for its present business activities and future operations alike, while investigating the rights and business conditions of third parties, in order to prevent intellectual property issues from arising. However, there is the possibility that the Group will have disputes with third parties over intellectual property or that third parties will infringe the Group's intellectual property rights. This has the potential to materially influence the Group's performance and financial position.

(10) Litigation and legal procedures

There is always a risk that other firms, corporate groups, or individuals may take legal actions against the Group with respect to its operations at home and abroad. As of March 30, 2022, there were some lawsuits and legal proceedings pending. If these lawsuits and proceedings result in an unfavorable outcome for the Group, its performance and financial position may be significantly impacted.

(11) Effect of natural disasters and accidents

The Group endeavors to prevent occupational accidents and other accidents involving equipment and facilities, such as production machinery, through the establishment and operation of a systematic management system for occupational safety and health, and for industrial safety and security, along with efforts to promote and ensure machinery safety, and to manage inspections, maintenance and repairs. However, the Group faces the risk of unforeseeable events such as a severe occupational accident, serious fire, explosion or leakage incident.

Regarding preparedness for natural disasters, the Group has assessed risks concerning earthquakes, high winds, flooding and other natural events at its major bases, and has drawn up business continuity plans for bases that are exposed to significant hazards. Despite these efforts, the Group faces the risk of unforeseeable events such as damage to production facilities and the suspension of product shipments due to severed transportation networks, as a result of natural disasters such as major earthquakes, typhoons, and floods.

If production is suspended temporarily or for an extended period in the Group or the Group's supply chain as a result of the occurrence of such unforeseen events, the supply of products to customers may be disrupted given that alternative production is not possible for certain products, and this could have a significant impact on the Group's performance and financial position.

(12) Exchange rate fluctuations

The Group manufactures and sells products worldwide, and converts transaction accounts in local currencies, including sales, costs, and assets, into Japanese yen when preparing its consolidated financial statements. Even if the values of these items remain unchanged in local currency terms, they may change when converted into Japanese yen depending on exchange rates.

The Group also manufactures products at its facilities worldwide, including Japan, and exports the products to a number of countries. The Group generally procures raw materials and sells products in the local currency of each country/region, but there are some product sales and material purchases denominated in foreign currencies. Accordingly, fluctuations in exchange rates influence the prices of materials the Group procures and the pricing for its products. The Group implements measures such as hedge transactions to address short-term exchange rate fluctuations, along with striving to reduce risk through steps such as conducting production from production bases located globally. Despite these efforts, the Group's performance and financial position could be impacted heavily as a result of large movements in exchange rates.

(13) Retirement benefit obligations

The Group calculates costs for employee retirement benefits and obligations based on actuarial assumptions of the returns on pension funds and a specific discount rate. If the actuarial assumptions and results diverge substantially because of deterioration in the market environment for pension fund management, future costs for retirement benefits will increase, and this may seriously impact the Group's performance and financial position.

(14) Fixed assets, goodwill and intangible assets

If impairment losses occur in the Group's fixed assets, goodwill and intangible assets because of a drop in profitability, the Group's performance and financial position may be substantially impacted.

The automotive glass business in Europe has recognized recurring operating losses from the previous period and the business environment has deteriorated primarily due to a decrease in automotive production volume caused by the spread of COVID-19 and insufficient supply of semiconductors, which resulted in an indication of impairment for the cash-generating unit to which its property, plant and equipment belong.

Considering the financial results outlook and prospects for recoverability going forward, the Group recognized impairment losses of ¥18,668 million.

In addition, the Group identified indications of impairment, including a marked decrease in profitability, for goodwill in certain operations of the printed circuit board materials business, which is included in the Electronics segment, given diminished demand in the Chinese market largely due to the effects of U.S.-China trade friction. Considering the financial results outlook and prospects for recoverability going forward, the Group recognized impairment losses of ¥14,761 million.

The goodwill and intangible assets arising from the acquisition of the super-high-end Copper Clad Laminate (CCL) business and industrial films business are included in the corresponding amount for the Electronics segment. In testing for the impairment of cash-generating units including these goodwill and intangible assets, the Group carried out impairment tests. As a result of the impairment tests, no impairment loss was recognized. However, the recoverability is subject to the impact of economic conditions and other factors in the market going forward.

(15) Information security

Information systems are now playing an extremely important role in the Group's business activities, and the Group strives to protect its information assets, such as systems and data. Moreover, the Group implements measures to prevent security incidents and measures to minimize the impact of such incidents when they occur. However, if important operations are interrupted or confidential data is leaked and so forth due to a natural disaster, cyberattack, unauthorized access, or other unforeseen situation, this may have a significant impact on the Group's performance and financial position.

1 FINANCIAL STATEMENTS (IFRS)

Consolidated Financial Statements (IFRS)

i) Consolidated Statements of Financial Position

(Unit: Millions of yen)

	Note	FY2020 (as of December 31, 2020)	**FY2021 (as of December 31, 2021)**
ASSETS			
Current assets			
Cash and cash equivalents	5, 25	¥ 236,124	**¥ 195,830**
Trade receivables	6, 25	266,177	**295,161**
Inventories	7	274,835	**330,101**
Other receivables	6, 25	62,468	**65,472**
Income taxes receivable		5,169	**3,518**
Other current assets	25	16,186	**25,186**
Total current assets		860,962	**915,271**
Non-current assets			
Property, plant and equipment	8, 10	1,246,885	**1,323,868**
Goodwill	9	118,063	**112,916**
Intangible assets	9	72,660	**69,913**
Investments in associates and joint ventures accounted for using equity method	11	32,014	**31,197**
Other financial assets	25	130,919	**116,624**
Deferred tax assets	12	25,944	**27,611**
Other non-current assets		47,008	**68,628**
Total non-current assets		1,673,495	**1,750,759**
Total assets		¥2,534,458	**¥2,666,031**

(Unit: Millions of yen)

	Note	FY2020 (as of December 31, 2020)	**FY2021 (as of December 31, 2021)**
LIABILITIES AND EQUITY			
LIABILITIES			
Current liabilities			
Trade payables	13, 25	¥ 151,874	**¥ 196,435**
Short-term interest-bearing debt	14, 25	106,884	**36,820**
Long-term interest-bearing debt due within one year	14, 25	87,163	**88,599**
Other payables	13, 25	186,310	**199,169**
Income taxes payable		12,426	**42,411**
Provisions	15	1,563	**1,207**
Other current liabilities	25	17,676	**34,764**
Total current liabilities		563,898	**599,408**
Non-current liabilities			
Long-term interest-bearing debt	14, 25	593,912	**477,774**
Deferred tax liabilities	12	35,153	**35,814**
Post-employment benefit liabilities	16	64,736	**53,805**
Provisions	15	12,353	**12,064**
Other non-current liabilities	25	21,363	**5,782**
Total non-current liabilities		727,519	**585,241**
Total liabilities		1,291,418	**1,184,650**
EQUITY			
Share capital	18	90,873	**90,873**
Capital surplus	18	83,501	**81,621**
Retained earnings	18	818,701	**927,830**
Treasury shares	18	(28,170)	**(26,933)**
Other components of equity	18	150,236	**240,769**
Total equity attributable to owners of the parent		1,115,142	**1,314,161**
Non-controlling interests		127,897	**167,219**
Total equity		1,243,039	**1,481,380**
Total liabilities and equity		¥2,534,458	**¥2,666,031**

ii) Consolidated Statements of Profit and Consolidated Statements of Comprehensive Income (Consolidated Statements of Profit)

(Unit: Millions of yen)

	Note	FY2020 (Jan. 1 through Dec. 31, 2020)	**FY2021 (Jan. 1 through Dec. 31, 2021)**
Net sales	20	¥ 1,412,306	**¥ 1,697,383**
Cost of sales	21	(1,053,243)	**(1,184,383)**
Gross profit		359,062	**512,999**
Selling, general and administrative expenses	21	(283,867)	**(309,123)**
Share of profit of associates and joint ventures accounted for using equity method	11	584	**2,292**
Operating profit		75,780	**206,168**
Other income	21	6,743	**56,672**
Other expenses	21	(22,812)	**(52,592)**
Business profit		59,711	**210,247**
Finance income	22	5,903	**6,533**
Finance costs	22	(8,492)	**(6,735)**
Net finance costs		(2,589)	**(202)**
Profit before tax		57,121	**210,045**
Income tax expenses	23	(15,957)	**(50,982)**
Profit for the year		¥ 41,164	**¥ 159,062**
Attributable to owners of the parent		¥ 32,715	**¥ 123,840**
Attributable to non-controlling interests		8,448	**35,222**
Earnings per share			
Basic earnings per share (Yen)	24	¥ 147.84	**¥ 559.11**
Diluted earnings per share (Yen)	24	147.24	**557.10**

(Consolidated Statements of Comprehensive Income)

(Unit: Millions of yen)

	Note	FY2020 (Jan. 1 through Dec. 31, 2020)	**FY2021 (Jan. 1 through Dec. 31, 2021)**
Profit for the year		¥ 41,164	**¥159,062**
Other comprehensive income			
Components of other comprehensive income that will not be reclassified to profit or loss, net of tax			
Remeasurement of the net defined benefit liability (asset)	19	(41)	**24,397**
Net gain (loss) on revaluation of financial assets measured at FVTOCI(Note)	19	(3,258)	**9,360**
Share of other comprehensive income of associates and joint ventures accounted for using equity method	11, 19	(2)	**16**
Total		(3,302)	**33,774**
Components of other comprehensive income that may be reclassified to profit or loss, net of tax			
Net gain in fair value of cash flow hedges	19	1,173	**4,744**
Exchange differences on translation of foreign operations	19	(42,349)	**77,819**
Share of other comprehensive income of associates and joint ventures accounted for using equity method	11, 19	—	**(0)**
Total		(41,175)	**82,563**
Other comprehensive income, net of tax		(44,478)	**116,338**
Total comprehensive income for the year		¥ (3,314)	**¥275,401**
Attributable to owners of the parent		¥ (6,426)	**¥231,244**
Attributable to non-controlling interests		3,111	**44,156**

Note: FVTOCI: Fair Value Through Other Comprehensive Income

iii) Consolidated Statements of Changes in Equity

(Unit: Millions of yen)

FY2020 (Jan. 1 through Dec. 31, 2020)	Note	Equity attributable to owners of the parent					
						Other components of equity	
		Share capital	Capital surplus	Retained earnings	Treasury shares	Remeasurement of net defined benefit liability (asset)	Net gain (loss) on revaluation of financial assets measured at FVTOCI (Note)
Balance as of January 1, 2020		¥90,873	¥92,593	¥811,589	¥(28,468)	¥(31,445)	¥55,786
Changes in equity							
Comprehensive income							
Profit for the year		—	—	32,715	—	—	—
Other comprehensive income	19	—	—	—	—	241	(3,257)
Total comprehensive income for the year		—	—	32,715	—	241	(3,257)
Transactions with owners							
Dividends	18	—	—	(26,591)	—	—	—
Acquisition of treasury shares	18	—	—	—	(13)	—	—
Disposal of treasury shares	18	—	—	(143)	311	—	—
Changes in ownership interests in subsidiaries without loss of control		—	(1,442)	—	—	—	—
Transfer from other components of equity to retained earnings		—	—	1,131	—	—	(1,131)
Share-based payment transactions	17	—	(218)	—	—	—	—
Others (business combinations and others)		—	(7,431)	—	—	—	—
Total transactions with owners		—	(9,091)	(25,603)	297	—	(1,131)
Balance as of December 31, 2020		¥90,873	¥83,501	¥818,701	¥(28,170)	¥(31,203)	¥51,397

Note: FVTOCI: Fair Value Through Other Comprehensive Income

(Unit: Millions of yen)

FY2020 (Jan. 1 through Dec. 31, 2020)	Note	Equity attributable to owners of the parent					
		Other components of equity					
		Net gain (loss) in fair value of cash flow hedges	Exchange differences on translation of foreign operations	Total	Total	Non-controlling interests	Total equity
Balance as of January 1, 2020		¥ (665)	¥166,833	¥190,510	¥1,157,097	¥125,538	¥1,282,636
Changes in equity							
Comprehensive income							
Profit for the year		—	—	—	32,715	8,448	41,164
Other comprehensive income	19	1,104	(37,231)	(39,142)	(39,142)	(5,336)	(44,478)
Total comprehensive income for the year		1,104	(37,231)	(39,142)	(6,426)	3,111	(3,314)
Transactions with owners							
Dividends	18	—	—	—	(26,591)	(4,291)	(30,883)
Acquisition of treasury shares	18	—	—	—	(13)	—	(13)
Disposal of treasury shares	18	—	—	—	167	—	167
Changes in ownership interests in subsidiaries without loss of control		—	—	—	(1,442)	(559)	(2,001)
Transfer from other components of equity to retained earnings		—	—	(1,131)	—	—	—
Share-based payment transactions	17	—	—	—	(218)	—	(218)
Others (business combinations and others)		—	—	—	(7,431)	4,098	(3,332)
Total transactions with owners		—	—	(1,131)	(35,528)	(753)	(36,281)
Balance as of December 31, 2020		¥ 439	¥129,602	¥150,236	¥1,115,142	¥127,897	¥1,243,039

(Unit: Millions of yen)

FY2021 (Jan. 1 through Dec. 31, 2021)	Note	Equity attributable to owners of the parent: Share capital	Capital surplus	Retained earnings	Treasury shares	Other components of equity: Remeasurement of net defined benefit liability (asset)	Net gain (loss) on revaluation of financial assets measured at FVTOCI (Note)
Balance as of January 1, 2021		**¥90,873**	**¥83,501**	**¥818,701**	**¥(28,170)**	**¥(31,203)**	**¥ 51,397**
Changes in equity							
Comprehensive income							
Profit for the year		—	—	123,840	—	—	—
Other comprehensive income	19	—	—	—	—	24,276	9,370
Total comprehensive income for the year		—	—	123,840	—	24,276	9,370
Transactions with owners							
Dividends	18	—	—	(31,045)	—	—	—
Acquisition of treasury shares	18	—	—	—	(586)	—	—
Disposal of treasury shares	18	—	—	(537)	1,823	—	—
Changes in ownership interests in subsidiaries without loss of control		—	1,242	—	—	—	—
Transfer from other components of equity to retained earnings		—	—	16,870	—	—	(16,870)
Share-based payment transactions	17	—	(655)	—	—	—	—
Others (business combinations and others)		—	(2,467)	—	—	—	—
Total transactions with owners		—	(1,879)	(14,712)	1,237	—	(16,870)
Balance as of December 31, 2021		**¥90,873**	**¥81,621**	**¥927,830**	**¥(26,933)**	**¥ (6,927)**	**¥ 43,896**

Note: FVTOCI: Fair Value Through Other Comprehensive Income

(Unit: Millions of yen)

FY2021 (Jan. 1 through Dec. 31, 2021)	Note	Equity attributable to owners of the parent: Other components of equity: Net gain (loss) in fair value of cash flow hedges	Exchange differences on translation of foreign operations	Total	Total	Non-controlling interests	Total equity
Balance as of January 1, 2021		**¥ 439**	**¥129,602**	**¥150,236**	**¥1,115,142**	**¥127,897**	**¥1,243,039**
Changes in equity							
Comprehensive income							
Profit for the year		—	—	—	123,840	35,222	159,062
Other comprehensive income	19	4,513	69,245	107,404	107,404	8,934	116,338
Total comprehensive income for the year		4,513	69,245	107,404	231,244	44,156	275,401
Transactions with owners							
Dividends	18	—	—	—	(31,045)	(3,821)	(34,867)
Acquisition of treasury shares	18	—	—	—	(586)	—	(586)
Disposal of treasury shares	18	—	—	—	1,285	—	1,285
Changes in ownership interests in subsidiaries without loss of control		—	—	—	1,242	(1,012)	230
Transfer from other components of equity to retained earnings		—	—	(16,870)	—	—	—
Share-based payment transactions	17	—	—	—	(655)	—	(655)
Others (business combinations and others)		—	—	—	(2,467)	—	(2,467)
Total transactions with owners		—	—	(16,870)	(32,226)	(4,834)	(37,060)
Balance as of December 31, 2021		**¥4,952**	**¥198,847**	**¥240,769**	**¥1,314,161**	**¥167,219**	**¥1,481,380**

iv) Consolidated Statements of Cash Flows

(Unit: Millions of yen)

	Note	FY2020 (Jan. 1 through Dec. 31, 2020)	**FY2021 (Jan. 1 through Dec. 31, 2021)**
Cash flows from operating activities			
Profit before tax		¥ 57,121	**¥ 210,045**
Depreciation and amortization		143,716	**166,756**
Impairment losses		1,213	**34,450**
Interest and dividend income		(5,702)	**(5,826)**
Interest expenses		7,620	**6,424**
Share of profit of associates and joint ventures accounted for using equity method		(584)	**(2,292)**
Loss on sale or disposal of non-current assets		9,378	**4,324**
Increase in trade receivables		(3,328)	**(18,280)**
Decrease (increase) in inventories		11,691	**(48,647)**
Increase (decrease) in trade payables		(605)	**36,226**
Others		24,574	**(21,646)**
Subtotal		245,095	**361,533**
Interest and dividends received		6,244	**6,663**
Interest paid		(7,786)	**(6,569)**
Income taxes paid and refund	23	(18,160)	**(34,913)**
Net cash from operating activities		225,392	**326,713**
Cash flows from investing activities			
Purchase of property, plant and equipment and intangible assets		(191,469)	**(210,572)**
Proceeds from sale of property, plant and equipment		4,404	**4,776**
Purchase of other financial assets		(33,106)	**(42,107)**
Proceeds from sale and redemption of other financial assets		20,911	**73,040**
Purchase of subsidiaries or other businesses	26	(27,019)	**—**
Proceeds from sale of subsidiaries or other businesses		—	**49,599**
Others		(3,969)	**1,476**
Net cash from investing activities		(230,248)	**(123,787)**
Cash flows from financing activities			
Changes in short-term interest-bearing debt	14	28,896	**(73,868)**
Proceeds from borrowing or issuing long-term interest-bearing debt	14	228,064	**63,673**
Repayment or redemption of long-term interest-bearing debt	14	(99,167)	**(205,619)**
Payments for acquisition of subsidiary's interests from non-controlling interests		(2,001)	**(1,271)**
Proceeds from non-controlling interests		3,540	**—**
Acquisition of treasury shares	18	(13)	**(586)**
Dividends paid	18	(26,591)	**(31,045)**
Dividends paid to non-controlling interests		(4,291)	**(3,821)**
Others		6	**280**
Net cash from financing activities		128,443	**(252,259)**
Effect of exchange rate changes on cash and cash equivalents		(1,246)	**9,039**
Net increase (decrease) in cash and cash equivalents		122,340	**(40,294)**
Cash and cash equivalents at beginning of year	5	113,784	**236,124**
Cash and cash equivalents at end of year	5	¥ 236,124	**¥ 195,830**

Note 1: Reporting entity

AGC Inc. (the "Company") is a company domiciled in Japan. The consolidated financial statements of the Company as of and for the year ended December 31, 2021 comprise the Company and its subsidiaries (the "Group"), and interests in associates and jointly controlled entities, etc. (the "Group entities").

The Group is engaged in business activities primarily in the areas of Glass Operations, Electronics Operations, and Chemicals Operations. Please see Note 4 "Segment information" for details on the Group's businesses.

Note 2: Basis of preparations

(1) Statement of compliance with IFRS

The Group's consolidated financial statements have been prepared in accordance with International Financial Reporting Standards ("IFRS"), based on the stipulations of Article 93 of the Ordinance on Consolidated Financial Statements. The Group's consolidated financial statements satisfy all of the requirements for a "Specified Company" prescribed by Article 1-2 of the Ordinance on Consolidated Financial Statements.

On March 30, 2022, the consolidated financial statements were approved by President & CEO Yoshinori Hirai and Representative Director & CFO Shinji Miyaji.

(2) Basis of measurement

The consolidated financial statements have been prepared on a historical cost basis, except for the following significant items on the consolidated statements of financial position:

— Derivative financial instruments are measured at fair value.
— Equity instruments are measured at fair value.
— Contingent consideration liabilities are measured at fair value.
— Defined benefit pension plan assets and liabilities are measured at the present value of defined benefit obligations less the fair value of the plan assets.

(3) Presentation currency

The consolidated financial statements are presented in Japanese yen. The currency unit is millions of yen, with figures less than one million yen rounded down.

(4) Use of estimates and judgments

The preparation of consolidated financial statements in accordance with IFRS requires management to make judgments, estimates and assumptions that affect the adoption of accounting policies and the reported amounts of assets, liabilities, income and expenses. Actual results could differ from these estimates.

The estimates and their underlying assumptions are reviewed continuously. Changes in accounting estimates are recognized prospectively.

The following notes include information about the judgements made in applying accounting policies that have the most significant effect on the amounts in the financial statements, and uncertainty of assumptions and estimates as of December 31, 2021 that have a significant risk of resulting in a material adjustment to the carrying amounts of assets and liabilities in the year ending December 31, 2022.

— Estimates of useful lives and residual values of property, plant and equipment and intangible assets (See Note 3 "Significant accounting policies" (6) (7), Note 8 "Property, plant and equipment" and Note 9 "Goodwill and intangible assets")
— Calculation of the value in use in cash-generating units, the smallest unit of measurement for impairment of property, plant and equipment, goodwill and intangible assets (See Note 3 "Significant accounting policies" (9), Note 8 "Property, plant and equipment" and Note 9 "Goodwill and intangible assets")
— The recoverability of deferred tax assets (See Note 3 "Significant accounting policies" (16) and Note 12 "Deferred tax assets and liabilities")
— Actuarial assumptions for defined benefit pension plans (See Note 3 "Significant accounting policies" (11) and Note 16 "Employee benefits")

(5) Changes in accounting policies

The significant accounting policies adopted for the Group's consolidated financial statements are the same as those for the consolidated financial statements for the year ended December 31, 2020, with the exception of the items described below.

The following are the accounting standards applied by the Group from fiscal year 2021, in compliance with each transitional provision. The effect of the application of the following standards on the Group's consolidated financial statements is immaterial.

IFRS	Title	Summaries of new IFRS and amendments
IFRS 16 (amended in May 2020)	Leases	COVID-19-related Rent Concessions

Note 3: Significant accounting policies

(1) Basis of consolidation

i) Business combinations

Business combinations are accounted for using the acquisition method when control is obtained. The Group recognizes goodwill as any excess of the aggregate of the consideration transferred, the amount of any non-controlling interest and, in the case of a business combination achieved in stages, the acquisition-date fair value of the equity interest of the acquiree previously held by the acquirer, over the net of the acquisition-date amounts of the identifiable assets acquired from the acquiree and the liabilities assumed.

If the consideration transferred is lower than the latter net amount, the Group immediately recognizes the difference as profit or loss.

Impairment test of goodwill is conducted annually, regardless of any indication of impairment. (See (9) "Impairment of non-financial assets").

Business combinations of entities under common control are accounted for based on carrying amounts. These business combinations are those in which all the combining entities or businesses are ultimately controlled by the same party or parties both before and after the business combination, and that control is not transitory.

ii) Subsidiaries

Subsidiaries are entities controlled by the Group. A subsidiary is controlled when the Group is exposed or has rights to variable returns from its involvement with the investee, and has the ability to use power over the investee to affect those returns. The accounting policies of subsidiaries have been adjusted in order to ensure conformity with the accounting policies adopted by the Group, as necessary.

iii) Non-controlling interests

The components of profit or loss and other comprehensive income are attributed to owners of the parent and non-controlling interests. Of transactions giving rise to a change in the interest between the Company and the non-controlling interests of a subsidiary, for transactions that do not result in a loss of control, changes in the non-controlling interests in the subsidiary and the net amount of consideration paid (or received) are recognized directly in equity, and are not recognized as goodwill or as profit or loss.

iv) Investments in associates and joint ventures

An associate is an entity over which the Group has significant influence over its financial and operating policies, but does not exercise control of it. Significant influence is presumed to exist when the Group holds 20% or more of the voting rights in another entity. Considering not only the ratio of the voting rights, but also other elements, such as participation in management, an associate is included if the Group can exercise significant influence.

A joint venture is a joint arrangement whereby the parties that have joint control of the arrangement have rights to the net assets of the arrangement.

Investments in associates and joint ventures are recognized at cost initially on acquisition and are subsequently accounted for using the equity method (hereinafter "Investments in associates and joint ventures accounted for using equity method"). Any differences between the investment on the investment date and the corresponding equity of the investee are included in the carrying amount of the investment as goodwill. The consolidated financial statements reflect the investments in associates and joint ventures' share of profit or loss and other comprehensive income of the investee from the date on which the Group obtains significant influence until the end of the reporting period. In the event that the Group's burden of loss exceeds the investment in the investee, the carrying amount of the Group's share is reduced to zero. Except for when the Group incurs obligations or makes payments on behalf of the equity-accounted investee, the Group shall recognize no further loss.

Goodwill that forms part of the carrying amount of investments in associates and joint ventures is not separately recognized, and therefore is not tested for impairment separately. Instead, whenever there is any objective evidence that an investment in an associate or joint venture may be impaired, the entire carrying amount of the investment is tested for impairment as a single asset.

v) Transactions eliminated on consolidation

All intergroup balances, transactions and unrealized gains and losses arising from intragroup transactions are eliminated in preparing the consolidated financial statements.

Unrealized losses are eliminated only to the extent that there is no evidence of impairment.

(2) Foreign currency

i) Foreign currency transactions

Foreign currency transactions are translated into functional currencies of the individual Group entities by applying the rates of exchange prevailing at the dates of transactions. Monetary assets and liabilities denominated in foreign currencies are translated into the respective functional currencies at the prevailing exchange rates at the reporting date. Foreign exchange differences on translation are recognized as profit or loss. Exchange differences for any gains or losses on the assets and liabilities recognized in other comprehensive income are recognized in other comprehensive income.

Non-monetary assets and liabilities measured in terms of historical cost in foreign currencies are translated at the exchange rate at the date of the transaction.

ii) Foreign operations

Assets and liabilities of foreign operations, including goodwill and fair value adjustments arising on the acquisition of foreign operations, are translated into functional currency at the exchange rates prevailing at the reporting date. Income and expenses of foreign operations are translated into functional currency at the average exchange rate for the period.

(3) Financial instruments

The Group recognizes financial instruments on the contract date when the Group becomes a party to the contractual provisions of the instrument.

The Group derecognizes a financial asset in the following circumstances:

— When the contractual rights to receive the cash flows from the financial asset expire; or

— When the contractual rights to receive the cash flows from the financial asset in transactions in which substantially all the risks and rewards of ownership of the financial asset are transferred to another entity.

In regard to transferred financial assets, the Group recognizes any retained interest of the transferred financial asset as a separate asset or liability.

Financial assets and financial liabilities are offset and presented as a net amount on the consolidated statements of financial position only when the Group has a legally enforceable right to set off the recognized amounts and intends either to settle on a net basis or to realize the asset and settle the liability simultaneously.

i) Non-derivative financial assets

The Group holds non-derivative financial assets that are classified into financial assets measured at amortized cost, financial assets measured at fair value through other comprehensive income and financial assets measured at fair value through profit or loss.

Financial assets measured at amortized cost

Financial assets are classified as financial assets measured at amortized cost if the following two conditions are met:

— The foregoing financial assets are held within a Group business model whose objective is to hold the assets in order to collect contractual cash flows from the assets; and

— The contractual terms of the foregoing financial assets give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.

The foregoing financial assets are initially recognized at fair value plus directly attributable transaction costs except for trade receivables, etc., that do not contain a significant financing component. The trade receivables, etc., that do not contain a significant financial component are initially recognized plus transaction cost. After initial recognition, the financial assets are measured at amortized cost using the effective interest method.

Financial assets measured at fair value through other comprehensive income

The Group designates equity instruments as financial assets measured at fair value through other comprehensive income when an irrevocable election has been made on initial recognition to measure the gains and losses arising from changes in the fair value of such instruments in other comprehensive income.

When the foregoing financial assets measured at fair value through other comprehensive income are derecognized through sale, etc., the cumulative gains or losses are reclassified from other components of equity to retained earnings.

Financial assets measured at fair value through profit or loss

The Group measures financial assets at fair value and recognizes any changes in the fair value of such assets as profit or loss, unless the foregoing financial assets are classified as financial assets measured at amortized cost or financial assets measured at fair value through other comprehensive income.

Impairment of financial assets

At the end of each reporting period, the Group evaluates whether the credit risk on financial assets has increased significantly since the initial recognition. If the credit risk of a financial asset has increased significantly, the allowance for such financial assets is measured at an amount equal to the lifetime expected credit losses. If the credit risk has not increased significantly, the allowance for such financial assets is measured at an amount equal to the 12-month expected credit losses.

However, with regards to trade receivables and contract asset that do not contain a significant financing component, the allowance is always measured at an amount equal to the lifetime expected credit losses. In estimating the allowance, expected credit losses of certain financial assets are measured on a collective basis such as every past due date.

The Group determines if credit risk has increased significantly by evaluating changes in default risk after initial recognition with reference to factors including significant downgrading of ratings, stopping transaction due to delayed receivable, and other indications of insolvency. If it is more than 90 days past due, the Group determines that default is occurred.

In measuring credit losses, the Group uses reasonable and supportable information on the past events, current conditions and forecasts on future economic conditions, which is available without undue cost or effort at the reporting date.

The Group assesses a credit-impairment based on objective evidence such as a borrower’s significant financial difficulty, etc. When it is reasonably determined that all or part of the financial assets are not collectable, the carrying amount of financial assets is directly written off.

ii) Non-derivative financial liabilities

The Group recognizes non-derivative financial liabilities that are classified into financial liabilities measured at amortized cost and contingent consideration liabilities.

Financial liabilities measured at amortized cost

The Group recognizes the following as financial liabilities measured at amortized cost: trade payables, other payables, and interest-bearing debts (borrowings, commercial paper, corporate bonds, and bonds with subscription rights to shares (excluding share subscription rights)), among other items.

The foregoing financial liabilities are initially recognized at fair value less directly attributable transaction costs. After initial recognition, non-derivative financial liabilities are measured at amortized cost using the effective interest method.

The Group derecognizes financial liabilities when the obligation specified in the contract is exempted, cancelled or expired.

Contingent consideration liabilities

The Group recognizes contingent consideration liabilities in business combinations as financial liabilities measured at fair value through profit or loss. The foregoing financial liabilities are measured at fair value, with changes recognized in profit or loss.

iii) Bonds with subscription rights to shares

The Group classifies proceeds from the issue of bonds with subscription rights to shares into a liability component and an equity component based on the issuing conditions.

Upon initial recognition, the liability component of bonds with subscription rights to shares is initially recognized at the fair value of similar liabilities without equity conversion options. The equity component is initially recognized as the total fair value of the bonds with subscription rights to shares less the fair value of the liability component. The transaction cost related to the issue of the bonds with subscription rights to shares is prorated according to the ratio of the initial carrying amounts of the liability and equity components on initial recognition, and deducted from the amounts of the liability and equity components.

After initial recognition, the liability component of the bonds with subscription rights to shares is measured at amortized cost using the effective interest method. The equity component of the bonds with subscription rights to shares is not remeasured.

iv) Derivative financial instruments (including hedge accounting)

The Group holds derivative financial instruments to hedge mainly foreign currency exchange risk, interest rate risk, and commodity price risk.

The Group initially recognizes derivative financial instruments at fair value, with the related transaction costs recognized in profit or loss when incurred. After initial recognition, derivative financial instruments are measured at fair value, with changes in fair value accounted for as follows, depending on whether or not derivatives qualify for hedge accounting:

(Derivatives not qualifying for hedge accounting)

Changes in the fair value of derivative financial instruments which do not qualify for hedge accounting are recognized in profit or loss.

(Derivatives qualifying for hedge accounting)

When applying hedge accounting, at the inception of hedges, the Group formally designates and documents hedging relationships to which hedge accounting is applied and the objectives and strategies of risk management for undertaking hedges.

At the inception of hedges, the Group evaluates whether or not the hedging instrument can be predicted to be effective. Thereafter, the Group continuously evaluates whether the derivative is highly effective in offsetting changes in future cash flows from the hedged items.

The Group applies cash flow hedges by designating qualified derivative financial instruments as hedging instruments. Cash flow hedges are designed to hedge exposure to variations in cash flows that are attributable to a particular risk associated with recognized assets or liabilities or highly probable forecast transactions which will affect profit or loss.

The effective portion of gains or losses on hedging instruments is recognized in other comprehensive income. The amounts recognized in other comprehensive income are reclassified to profit or loss in the consolidated reporting periods when the cash flows of the hedged items affect profit or loss. The ineffective portion of changes in the fair value of hedging instruments is recognized in profit or loss.

Hedge accounting is discontinued prospectively when: the hedging instrument expires or is sold, terminated, or exercised; the hedge no longer meets the criteria for hedge accounting; a forecast transaction is no longer expected to occur; or the hedging designation is revoked. A hedge designation may not be voluntarily revoked unless there is a change in the risk management objective. Therefore, if a hedging relationship ceases to meet the hedge effectiveness requirement relating to the hedge ratio, but the risk management objective for that designated hedging relationship remains the same, the Group adjusts the hedge ratio of the hedging relationship so that it meets the hedge effectiveness requirement again.

v) Equity

Ordinary shares

Ordinary shares are classified as equity. Incremental costs (net of tax) directly attributable to the issue of ordinary shares or stock options are deducted from equity.

Treasury shares

If the Company purchases treasury shares, the consideration paid, including net of directly attributable transaction costs and tax, is recognized as a deduction from equity. If the Company disposes of treasury shares, any gains or losses arising from the disposal of treasury shares are recognized in equity.

(4) Cash and cash equivalents

Cash and cash equivalents comprise cash on hand, bank deposits available for withdrawal on demand, and short-term investments due within three months or less, which are readily convertible into cash and subject to insignificant risk of changes in value.

(5) Inventories

Inventories are measured at the lower of cost and net realizable value. The cost of inventories is measured based on the moving average method, and includes costs of purchase and costs of conversion (including fixed and variable manufacturing overheads). Net realizable value is the estimated selling price in the ordinary course of business less the estimated costs of completion and the estimated costs necessary to make the sale.

(6) Property, plant and equipment

i) Recognition and measurement

Property, plant and equipment is presented at cost less accumulated depreciation and accumulated impairment losses.

Cost of property, plant and equipment includes any costs directly attributable to the acquisition of the asset. The cost of self-constructed assets includes material costs, direct labor costs, direct costs attributable to bringing the asset to the location and conditions necessary for its intended use, and the cost of dismantling, removing, and restoring the asset, as well as borrowing costs that satisfy the requirements for being capitalized.

After acquisition of property, plant and equipment, the Group recognizes costs as the carrying amount of an asset only if it is probable that future economic benefits associated with the item will flow to the Group and the cost can be measured reliably.

Differences between the carrying amount and the consideration received for the disposal of property, plant and equipment are recognized in profit or loss.

ii) Depreciation

Depreciation of property, plant and equipment excluding non-depreciable property, plant and equipment, such as land, is computed under the straight-line method over the estimated useful lives of each item and the depreciable amount which is the cost of the asset less its residual value.

The estimated useful lives of major property, plant and equipment are as follows:

— Buildings and structures: 10 to 50 years
— Machinery, equipment and vehicles: 4 to 15 years
— Tools, fixtures and fittings: 2 to 15 years

The depreciation methods, estimated useful lives and residual values are reviewed at the end of each reporting period, and changed when necessary.

Due to changes in the business environment and other factors, it may be necessary to revise useful lives and residual values, which may have a significant impact on the amounts of property, plant and equipment in the consolidated financial statements in the year ending December 31, 2022.

(7) Goodwill and intangible assets

i) Goodwill

Goodwill may be recognized on the acquisition of a subsidiary. The measurement of goodwill on initial recognition is shown in (1) i) "Business combinations."

After initial recognition, goodwill is measured at cost less any accumulated impairment losses. Measurement of goodwill impairment is shown in (9) "Impairment of non-financial assets."

ii) Research and development expenses

Expenditure related to research activities to obtain new scientific or technical knowledge and understanding are recognized as an expense when incurred.

Expenditure on development activities is capitalized as an intangible asset if it is reliably measurable, products or processes are technically and commercially feasible, it is probable to generate future economic benefits, and the Group has an intention and adequate resources to complete those assets and use or sell them. Other expenditure is recognized as an expense when incurred.

Capitalized development expenditure is presented at cost less any accumulated amortization and accumulated impairment losses.

iii) Intangible assets other than goodwill acquired through business combinations

Intangible assets acquired through business combinations and recognized separately from goodwill are initially measured at fair value as of the acquisition date. After initial recognition, the foregoing intangible assets are presented at cost less any accumulated amortization and accumulated impairment losses.

iv) Other intangible assets

Other intangible assets are initially recognized at cost. After initial recognition, intangible assets with finite useful lives are presented at cost less any accumulated amortization and accumulated impairment losses. Intangible assets with indefinite useful lives are presented at cost less any accumulated impairment losses.

v) Amortization

Amortization of intangible assets with finite useful lives is recognized as an expense under the straight-line method over their estimated useful lives from the date when the assets are available for use. The estimated useful lives of major intangible assets with finite useful lives are as follows:

— Patents and trademarks: 5 to 10 years
— Software: 5 years
— Customer relationships: 7 to 30 years

The amortization methods and useful lives are reviewed at the end of each reporting period and changed when necessary.

Due to changes in the business environment and other factors, it may be necessary to revise useful lives which may have a significant impact on the amounts of intangible assets in the consolidated financial statements in the year ending December 31, 2022.

(8) Leases

The Group, in accordance with IFRS 16, has determined whether a contract is, or contains, a lease, at the inception of the contract. A contract is determined to be a lease or contain a lease, if the contract conveys the right to control the use of an identified asset for a period of time in exchange for a consideration.

When a contract is determined to be a lease or contain a lease, the Group initially recognizes a right-of-use asset and a lease liability at the commencement date of the contract. A lease liability is initially measured at the discounted present value of unpaid lease payments at the commencement date of the contract. The right-of-use asset is initially measured at cost, which comprises the amount of the initial measurement of the lease liability, any initial direct costs incurred and prepaid lease payments, etc. The right-of-use asset is regularly depreciated over the economic life or the lease term of the underlying asset, whichever is shorter, from the commencement date of the contract. The Group does not recognize right-of-use assets and lease liabilities for leases with a lease term of 12 months or less or when the underlying assets are of low value, and recognizes lease payments as an expense on a straight-line basis over the lease term. In the consolidated statement of financial position, the right-of-use assets are included in Property, plant and equipment, and lease liabilities are included in Long-term debt due within one year or Long-term debt.

(9) Impairment of non-financial assets

At the end of each reporting period, the Group assesses the carrying amounts of non-financial assets, excluding inventories and deferred tax assets, to determine whether there is any indication of impairment of each asset or the cash-generating unit to which the asset belongs. If any such indication exists, impairment of each asset or each cash-generating unit is tested. Goodwill is tested annually, regardless of any indication of impairment.

Assets that are not individually tested are integrated into the smallest identifiable group of assets that generates cash inflows from continuing use that are largely independent of the cash inflows from other assets or groups of assets (cash-generating unit). When testing for impairment of goodwill, the goodwill is allocated to a group of cash-generating units which are not larger than an operating segment and represent the lowest level at which the goodwill is monitored for internal management purposes.

The recoverable amount of an asset or a group of cash-generating units is the higher of its fair value less costs to disposal and its value in use. In calculating an asset's value in use, estimated future cash flows are discounted to the present value using a pre-tax discount rate that reflects the time value of money and the risks specific to the asset.

If the carrying amount of an asset or a cash-generating unit exceeds the recoverable amount, an impairment loss is recognized. The impairment loss recognized with respect to a cash-generating unit is allocated first to reduce the carrying amount of any goodwill allocated to the cash-generating unit, and then to the other assets of the unit on a pro-rata basis based on the carrying amount of each asset in the unit.

An impairment loss on other non-financial assets recognized in prior periods is reversed if there are indications of the possibility of reversing such an impairment loss and if the recoverable amount exceeds the carrying amount as a result of an estimation of the recoverable amount. An impairment loss is reversed up to the carrying amount that would have been determined if there had been no impairment loss recognized for the asset in prior years and depreciation or amortization had been continuously recognized up to the reversal. An impairment loss for goodwill is not reversed in subsequent periods.

(10) Non-current assets held for sale

The Group classifies an asset or asset group which is expected to be recovered through a sale transaction rather than through continuous use as a non-current asset or disposal group held for sale when the following conditions are met: it is highly probable that the asset or asset group will be sold within one year, the asset or asset group is available for immediate sale in its present condition, and there is assurance of a plan to sell the asset or asset group. In such cases, the non-current asset is not depreciated or amortized and is measured at the lower of its carrying amount and its fair value less costs to sell.

(11) Employee benefits

Employee benefits include post-employment benefit plans, short-term employee benefits, and share-based payments. Post-employment benefit plans comprise defined benefit plans and defined contribution plans.

i) Defined benefit plans

Obligations for defined benefit plans are recognized as the present value of defined benefit obligations less the fair value of any plan assets.

The present value of the defined benefit obligation and service cost, etc. are calculated based on actuarial assumptions. Actuarial assumptions require estimates and judgments about various variables such as discount rates.

The present value of defined benefit obligations is calculated annually by qualified actuaries using the projected unit credit method. The discount rates are based on the market yields of high quality corporate bonds at the end of each reporting period that have terms consistent with the discount period, which is established as the estimated term of the post-employment benefit obligations through to the estimated dates for payments of future benefits in every fiscal year.

Actuarial gains and losses are recognized immediately in other comprehensive income when incurred, while past service costs and gains or losses on settlement are recognized in profit or loss.

Actuarial assumptions may be affected by consequences of uncertain economic conditions changes in the future or by the revision or promulgation of related laws and regulations. If a revision becomes necessary, it may have a significant impact on the amount of defined benefit pension plan assets and liabilities in the consolidated financial statements in the year ending December 31, 2022.

ii) Defined contribution plans

Expenses related to post-employment benefits for defined contribution plans are expensed as the related services are provided.

iii) Short-term employee benefits

Short-term employee benefit obligations are measured on an undiscounted basis and are recognized as expenses as the related service is provided.

For bonus payments, a liability is recognized for the amount expected to be paid under short-term cash bonuses if the Group has a present legal or constructive obligation to pay this amount as a result of past service provided by the employee, and the obligation can be estimated reliably.

iv) Share-based payments

The Company provided the Group's directors, executive officers, and other employees with stock options, which grant the holder the right to purchase the Company's stock until the year ended December 31, 2017. The fair value of stock options at the grant date is recognized in profit or loss over the vesting period from the grant date, with a corresponding increase in equity.

The Group has elected to adopt the exemptions of IFRS 1 First-time Adoption of International Financial Reporting Standards ("IFRS 1"). Accordingly, the Group has elected not to retrospectively apply IFRS 2 Share-based Payment ("IFRS 2") to stock options granted after November 7, 2002 that vested before the transition date to IFRS.

The Company has employed a framework referred to as the Board Incentive Plan Trust (hereinafter referred to as the "BIP Trust") as equity-settled share-based payment arrangement granted to directors and executive officers (excluding non-residents of Japan). The shares of the Company held by the BIP Trust are recognized as treasury shares. The Company recognizes the consideration in profit or loss measured at the grant-date fair value of its shares, with corresponding increase in equity over the vesting period of the awards.

(12) Provisions

A provision is recognized when the Group has a reasonably estimable legal or constructive obligation as a result of a past event, and it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation. Where the effect of the time value of money is material, the estimated future cash flows are discounted to the present value using a pre-tax rate that reflects the time value of money and the risks specific to the liability. The unwinding of the discount is recognized as finance costs.

The Group has established a provision for restructuring costs arising from restructuring actions to improve the business structure and the reorganization of certain operations. Such costs are recognized when they can be reasonably estimated and include an expansion in the severance compensation program.

(13) Revenue

The Group recognizes revenue based on the following five-step model.

Step 1: Identify the contract with a customer
Step 2: Identify the performance obligations in the contract
Step 3: Determine the transaction price
Step 4: Allocate the transaction price to the performance obligations in the contract
Step 5: Recognize revenue when the entity satisfies a performance obligation

The Group sells a range of products including architectural glass, automotive glass, glass substrates for displays, electronic materials, chlor-alkali & urethane, fluorochemicals & specialty chemicals, and life science products. For the sales of these products, revenue is recognized upon delivery of these products as its performance obligation is satisfied when customers obtain control over these products at the time of delivery. For revenue associated with construction works such as the installation of architectural glass, and contract development and manufacturing services for biological active pharmaceutical ingredient (API), revenue is recognized according to the progress toward completion of the performance obligation. Progress toward completion is measured by the input method based on the costs incurred, etc. Also, revenue is measured based on the consideration specified in contracts with customers, less discounts, rebates, returned products, and other items.

(14) Operating profit and business profit

"Operating profit" in the Group's consolidated statements of profit or loss is an indicator that facilitates continuous comparisons and evaluations of the Group's business performance. Main items of "other income" and "other expenses" are foreign exchange gains and losses, gains on sale of non-current assets, losses on disposal of non-current assets, impairment losses and expenses for restructuring programs. "Business profit" includes all income and expenses before finance income, finance costs and income tax expenses.

(15) Finance income and finance costs

Finance income mainly comprises interest income, dividend income and gains on hedging instruments that are not recognized in other comprehensive income. Interest income is recognized as incurred using the effective interest method. Dividend income is recognized as of the date when the Group's right to receive payment is established.

Finance costs mainly comprise interest expenses and losses on hedging instruments that are not recognized in other comprehensive income.

(16) Income tax

Income tax comprises current income tax and deferred income tax. These are recognized in profit or loss, except to the extent that it relates to a business combination, or items recognized directly in equity or in other comprehensive income.

Current income tax is measured at the amount that is expected to be paid to or refunded from the taxation authorities using the tax rates enacted or substantively enacted at the end of the reporting period.

Deferred income tax is recognized on temporary differences between the carrying amounts of assets and liabilities for accounting purposes and their tax basis, using the tax rates that are expected to apply to the period when the temporary differences will reverse, based on tax laws that have been enacted or substantively enacted by the end of the reporting period. Deferred tax assets are recognized for all deductible temporary differences, and the carry forward of unused tax losses and unused tax credits to the extent that it is probable that future taxable profit will be available against which they can be utilized. Deferred tax assets are reviewed at the end of each reporting period and are recognized only to the extent that it is probable that the tax benefits can be realized.

However, deferred tax assets are not recognized if the initial recognition of an asset or liability in a transaction that is not a business combination affects neither accounting profit nor taxable profit at the time of the transaction.

Deductible temporary differences associated with investments in subsidiaries, associates and interests in joint arrangements are recognized only to the extent of the following circumstances:

— The temporary difference will reverse in the foreseeable future; and
— Taxable profit will be available against which the temporary difference can be utilized.

Deferred tax liabilities are recognized for all taxable temporary differences, in principle.

However, deferred tax liabilities are not recognized in the following circumstances:

— On the initial recognition of goodwill.
— On the initial recognition of an asset or liability in a transaction that is not a business combination affecting neither accounting profit nor taxable profit at the time of the transaction.
— There are taxable temporary differences associated with investments in subsidiaries, associates and interests in joint arrangements to the extent that the parent company is able to control the timing of the reversal of the temporary difference and it is probable that the temporary difference will not reverse in the foreseeable future.

Deferred tax assets and deferred tax liabilities are offset when there is a legally enforceable right to offset current tax assets against current tax liabilities and in either of the following circumstances:

— Income taxes are levied by the same taxation authority on the same taxable entity; or
— Different taxable entities intend either to settle current tax assets and liabilities on a net basis, or to realize the current tax assets and settle the current tax liabilities simultaneously.

Estimates of future taxable income may be affected by a decline in profitability and other factors, which may have a significant impact on the amount of deferred tax assets in the consolidated financial statements in the year ending December 31, 2022.

(17) Earnings per share

Basic earnings per share is calculated by dividing profit for the year attributable to owners of the parent by the weighted average number of ordinary shares outstanding during the period, adjusted by the number of treasury shares during the period.

Diluted earnings per share is calculated by adjusting the effects of all dilutive potential ordinary shares.

(18) New standards and interpretations not yet adopted

New standards, interpretations, and amendments to standards and interpretations that have not been adopted in the year ended December 31, 2021, and which the Group has yet to apply to the preparation of the consolidated financial statements, are mainly as follows.

The potential impacts on the consolidated financial statements by the application of standards and interpretations are currently being evaluated and cannot be estimated as of the date of the report.

IFRS	Title	Effective date (annual periods beginning on or after)	Adoption by the Group (annual periods ending)	Summaries of new IFRS and amendments
IAS 16 (amended in May 2020)	Property, Plant and Equipment	January 1, 2022	Fiscal year ending December 2022	Property, Plant and Equipment – Proceeds before Intended Use
IAS 37 (amended in May 2020)	Provisions, Contingent Liabilities and Contingent Assets	January 1, 2022	Fiscal year ending December 2022	Onerous Contracts – Cost of Fulfilling a Contract
IFRS 3 (amended in May 2020)	Business Combinations	January 1, 2022	Fiscal year ending December 2022	Reference to the Conceptual Framework
IAS 1 (amended in July 2020)	Presentation of Financial Statements	January 1, 2023	Fiscal year ending December 2023	Classification of Liabilities as Current or Non-current
IAS 1 (amended in February 2021)	Presentation of Financial Statements	January 1, 2023	Fiscal year ending December 2023	Disclosure of Accounting Policies
IAS 8 (amended in February 2021)	Accounting Policies, Changes in Accounting Estimates and Errors	January 1, 2023	Fiscal year ending December 2023	Definition of Accounting Estimates
IAS 12 (amended in May 2021)	Income Taxes	January 1, 2023	Fiscal year ending December 2023	Deferred Tax related to Assets and Liabilities arising from a Single Transaction

Note 4: Segment information

The Group's reportable segments are components of the Group for which discrete financial information is available, and whose operating results are reviewed regularly by the Group's chief operating decision maker to make decisions about resources to be allocated to the segment and assess performance.

The Group has five in-house companies by product and service: Architectural Glass Europe & Americas, Architectural Glass Asia Pacific, Automotive, Electronics and Chemicals. Each in-house company operates worldwide, formulating comprehensive domestic and overseas strategies for its products and services. (Effective July 1, 2021, the Group divided the Building & Industrial Glass Company into the Architectural Glass Europe & Americas Company covering Europe and the United States and the Architectural Glass Asia Pacific Company covering Japan and elsewhere in Asia.)

The Architectural Glass Europe & Americas, Architectural Glass Asia Pacific and Automotive in-house companies share the same float glass manufacturing facilities (glass melting furnaces) etc., which are the primary assets and are situated at the highest point in the supply chain. The three in-house companies share assets and liabilities, with such sharing subject to supply and demand variance with respect to production and sales. Given this situation, it is difficult to divide financial statements for the three in-house companies. Therefore, the Group prepares the financial statements of the Architectural Glass Europe & Americas, Architectural Glass Asia Pacific and Automotive in-house companies as components of the Glass segment. In addition, decisions on allocating management resources are closely tied to respective operating results and are an integral element of performance evaluations. As such, the Group takes a collaborative approach to maximizing its profits, having established the Glass Segment Council, which enlists the involvement of each in-house company president and primarily seeks to maximize overall production and maintain synergies in the Glass segment. Considering these circumstances, The Glass segment serves as a reportable segment encompassing results of the Architectural Glass Europe & Americas, Architectural Glass Asia Pacific and Automotive in-house companies.

Thus, the Group has three reportable segments: Glass, Electronics, and Chemicals.

The main products of each reportable segment are as follows:

Reportable segment	Main products
Glass	Float flat glass, Figured glass, Polished wired glass, Low-E glass, Decorative glass, Fabricated glass for architectural use (Heat Insulating/shielding glass, Disaster-resistant/Security glass, Fire-resistant glass, etc.), Automotive glass, Cover glass for car-mounted displays, etc.
Electronics	LCD glass substrates, OLED glass substrates, Specialty glass for display applications, Display related materials, Glass for solar power system, Fabricated glass for industrial use, Semiconductor process materials, Optoelectronic materials, Printed circuit board materials, Lighting glass products, Laboratory use ware, etc.
Chemicals	Polyvinyl chloride, Vinyl chloride monomer, Caustic soda, Urethane, Fluorinated resins, Water and oil repellents, Gases, Solvents, Pharmaceutical and agrochemical intermediates and active ingredients, Iodine-related products, etc.

(1) Reportable segments

FY2020 (Jan. 1 through Dec. 31, 2020)

(Unit: Millions of yen)

	Reportable segment						
	Glass	Electronics	Chemicals	Ceramics/ Others	Total	Adjustments	Amount reported on consolidated financial statements
Sales to external customers	¥648,394	¥283,025	¥449,739	¥31,145	¥1,412,306	¥ —	¥1,412,306
Inter-segment sales or transfers	2,570	6,327	1,416	49,976	60,291	(60,291)	—
Total sales	650,965	289,353	451,156	81,122	1,472,597	(60,291)	1,412,306
Segment profit [Operating profit]	(16,579)	37,797	50,477	4,226	75,922	(142)	75,780
Profit for the year	—	—	—	—	—	—	41,164
Other items							
Depreciation and amortization	50,968	47,896	43,004	1,927	143,796	(79)	143,716
Impairment losses [Non-financial assets]	883	262	197	—	1,343	—	1,343
Capital expenditure	64,141	80,686	95,216	1,536	241,581	(232)	241,348
Investments in associates and joint ventures accounted for using equity method	25,032	1,338	2,428	3,215	32,014	—	32,014

The amounts of inter-segment sales or transfers are primarily based on market prices and manufacturing costs.

“Ceramics/Others” mainly handles ceramics products, logistics and financial services.

Moreover, the above amounts of impairment losses (non-financial assets) include the amounts of impairment losses recorded as expenses for restructuring programs.

FY2021 (Jan. 1 through Dec. 31, 2021)

(Unit: Millions of yen)

	Reportable segment						
	Glass	Electronics	Chemicals	Ceramics/ Others	Total	Adjustments	Amount reported on consolidated financial statements
Sales to external customers	**¥732,230**	**¥303,049**	**¥629,487**	**¥32,615**	**¥1,697,383**	**¥ —**	**¥1,697,383**
Inter-segment sales or transfers	**2,026**	**8,970**	**1,304**	**46,777**	**59,078**	**(59,078)**	**—**
Total sales	**734,257**	**312,019**	**630,792**	**79,392**	**1,756,461**	**(59,078)**	**1,697,383**
Segment profit [Operating profit]	**27,747**	**36,362**	**138,756**	**3,497**	**206,363**	**(195)**	**206,168**
Profit for the year	**—**	**—**	**—**	**—**	**—**	**—**	**159,062**
Other items							
Depreciation and amortization	**53,721**	**61,195**	**49,958**	**1,991**	**166,866**	**(110)**	**166,756**
Impairment losses [Non-financial assets]	**19,022**	**15,401**	**26**	**—**	**34,450**	**—**	**34,450**
Capital expenditure	**50,307**	**70,168**	**94,180**	**2,150**	**216,806**	**(303)**	**216,503**
Investments in associates and joint ventures accounted for using equity method	**22,029**	**1,487**	**4,011**	**3,669**	**31,197**	**—**	**31,197**

The amounts of inter-segment sales or transfers are primarily based on market prices and manufacturing costs.

"Ceramics/Others" mainly handles ceramics products, logistics and financial services.

Moreover, the above amounts of impairment losses (non-financial assets) include the amounts of impairment losses recorded as expenses for restructuring programs.

(2) Products and services

Disclosure is omitted as the same information is shown in segment information.

(3) Major customers

Disclosure is omitted as sales to external customers did not exceed 10% to any single external customer.

(4) Geographical segments

The analysis of sales by geographical area for the years ended December 31, 2020 and 2021 is as follows:

(Unit: Millions of yen)

	FY2020 (Jan. 1 through Dec. 31, 2020)	**FY2021 (Jan. 1 through Dec. 31, 2021)**
Japan	¥ 496,412	**¥ 544,520**
Asia	448,875	**579,850**
America	154,532	**175,015**
Europe	312,485	**397,997**
Total	¥1,412,306	**¥1,697,383**

Note: Sales are based on the location of each company, and "Brazil" is included in "America."

The analysis of non-current assets by geographical area as of December 31, 2020 and 2021 is as follows:

(Unit: Millions of yen)

	FY2020 (as of December 31, 2020)	**FY2021 (as of December 31, 2021)**
Japan	¥ 417,546	**¥ 416,129**
Asia	667,452	**696,967**
America	101,616	**109,407**
Europe	298,002	**292,629**
Total	¥1,484,617	**¥1,515,134**

Notes: 1. Non-current assets do not include "Investments in associates and joint ventures accounted for using equity method," "other financial assets" and "deferred tax assets."

2. Non-current assets are based on the location of assets, and Brazil is included in "America."

Note 5: Cash and cash equivalents

(Unit: Millions of yen)

	FY2020 (as of December 31, 2020)	**FY2021 (as of December 31, 2021)**
Cash on hand and deposits	¥251,494	**¥209,761**
Negotiable certificates of deposit	5	**5**
Time deposits due over three months	(15,375)	**(13,936)**
Total	¥236,124	**¥195,830**

The balances of cash and cash equivalents on the consolidated statements of financial position as of December 31, 2020 and 2021 agree to the respective balances on the consolidated statements of cash flows.

Note 6: Trade and other receivables

Trade receivables

(Unit: Millions of yen)

	FY2020 (as of December 31, 2020)	**FY2021 (as of December 31, 2021)**
Notes receivable	¥ 17,461	**¥ 17,077**
Accounts receivable	251,100	**280,633**
Allowance account for credit losses	(2,385)	**(2,548)**
Total	¥266,177	**¥295,161**

The Group's exposure to currency risk with respect to trade receivables, and impairment losses, are presented in Note 25 "Financial instruments."

Other receivables

	FY2020 (as of December 31, 2020)	**FY2021 (as of December 31, 2021)**
	(Unit: Millions of yen)	
Other accounts receivable	¥15,082	**¥16,920**
Others	47,386	**48,552**
Total	¥62,468	**¥65,472**

Note 7: Inventories

	FY2020 (as of December 31, 2020)	**FY2021 (as of December 31, 2021)**
	(Unit: Millions of yen)	
Merchandise and finished goods	¥107.310	**¥130,330**
Work in progress	58,799	**62,660**
Raw materials and supplies	108,725	**137,110**
Total	¥274,835	**¥330,101**

The amount of write-downs of inventories recognized as expenses and the amount of reversal of write-downs are as follows:

	FY2020 (Jan. 1 through Dec. 31, 2020)	**FY2021 (Jan. 1 through Dec. 31, 2021)**
	(Unit: Millions of yen)	
Amount of write-downs of inventories recognized as expenses	¥(6,614)	**¥(7,839)**
Amount of reversal of write-downs	5,966	**6,738**

Note 8: Property, plant and equipment

(1) Reconciliation

"Construction in progress" includes expenditures on property, plant and equipment under construction.

The amount in "additions" for each property, plant and equipment includes the amount which is transferred from "construction in progress."

"Depreciation" is recorded in "cost of sales" and "selling, general and administrative expenses" on the consolidated statements of profit or loss.

FY2020 (Jan. 1 through Dec. 31, 2020)

Cost

(Unit: Millions of yen)

	Buildings and structures	Machinery, equipment and vehicles	Tools, fixtures and fittings	Land	Construction in progress	Total
Balance as of January 1	¥755,778	¥2,182,365	¥141,358	¥91,397	¥128,778	¥3,299,677
Additions	71,571	115,130	10,989	2,470	36,452	236,615
Acquisitions due to business combinations	1,535	987	80	0	21	2,625
Disposals or sales	(21,553)	(61,192)	(7,792)	(1,154)	(712)	(92,405)
Net foreign exchange differences on translation	(10,568)	(30,073)	(1,724)	(954)	(1,287)	(44,609)
Others	100	(536)	(899)	(23)	35	(1,323)
Balance as of December 31	¥796,863	¥2,206,680	¥142,011	¥91,735	¥163,288	¥3,400,579

Accumulated depreciation and impairment losses

(Unit: Millions of yen)

	Buildings and structures	Machinery, equipment and vehicles	Tools, fixtures and fittings	Land	Construction in progress	Total
Balance as of January 1	¥(425,259)	¥(1,570,382)	¥(118,844)	¥(3,778)	¥(3,720)	¥(2,121,985)
Depreciation	(29,538)	(93,387)	(9,158)	(1,009)	—	(133,093)
Impairment losses	(238)	(963)	(17)	(124)	—	(1,343)
Disposals or sales	19,607	52,049	7,001	413	174	79,246
Net foreign exchange differences on translation	3,938	16,488	1,561	17	174	22,180
Others	433	(439)	554	24	729	1,302
Balance as of December 31	¥(431,057)	¥(1,596,634)	¥(118,902)	¥(4,457)	¥(2,642)	¥(2,153,694)

Carrying amounts

(Unit: Millions of yen)

	Buildings and structures	Machinery, equipment and vehicles	Tools, fixtures and fittings	Land	Construction in progress	Total
Balance as of January 1	¥330,518	¥611,982	¥22,513	¥87,618	¥125,058	¥1,177,691
Balance as of December 31	¥365,806	¥610,046	¥23,108	¥87,277	¥160,646	¥1,246,885

FY2021 (Jan. 1 through Dec. 31, 2021)

Cost

(Unit: Millions of yen)

	Buildings and structures	Machinery, equipment and vehicles	Tools, fixtures and fittings	Land	Construction in progress	Total
Balance as of January 1	**¥796,863**	**¥2,206,680**	**¥142,011**	**¥91,735**	**¥163,288**	**¥3,400,579**
Additions	**45,371**	**167,542**	**11,839**	**790**	**(18,993)**	**206,550**
Acquisitions due to business combinations	**—**	**48**	**22**	**—**	**—**	**70**
Disposals or sales	**(20,405)**	**(90,039)**	**(6,682)**	**(2,225)**	**(1,659)**	**(121,013)**
Net foreign exchange differences on translation	**33,271**	**111,124**	**6,150**	**3,334**	**10,461**	**164,342**
Others	**(111)**	**1,804**	**88**	**(47)**	**24**	**1,758**
Balance as of December 31	**¥854,990**	**¥2,397,159**	**¥153,429**	**¥93,587**	**¥153,121**	**¥3,652,288**

Accumulated depreciation and impairment losses

(Unit: Millions of yen)

	Buildings and structures	Machinery, equipment and vehicles	Tools, fixtures and fittings	Land	Construction in progress	Total
Balance as of January 1	**¥(431,057)**	**¥(1,596,634)**	**¥(118,902)**	**¥(4,457)**	**¥(2,642)**	**¥(2,153,694)**
Depreciation	**(31,943)**	**(112,475)**	**(10,193)**	**(874)**	**—**	**(155,486)**
Impairment losses	**(3,325)**	**(16,023)**	**(68)**	**(372)**	**(63)**	**(19,853)**
Disposals or sales	**15,882**	**72,075**	**6,200**	**366**	**13**	**94,538**
Net foreign exchange differences on translation	**(14,664)**	**(73,404)**	**(5,139)**	**(169)**	**(141)**	**(93,518)**
Others	**(323)**	**(1,618)**	**(631)**	**19**	**2,150**	**(404)**
Balance as of December 31	**¥(465,431)**	**¥(1,728,080)**	**¥(128,736)**	**¥(5,487)**	**¥ (683)**	**¥(2,328,419)**

Carrying amounts

(Unit: Millions of yen)

	Buildings and structures	Machinery, equipment and vehicles	Tools, fixtures and fittings	Land	Construction in progress	Total
Balance as of January 1	**¥365,806**	**¥610,046**	**¥23,108**	**¥87,277**	**¥160,646**	**¥1,246,885**
Balance as of December 31	**¥389,559**	**¥669,079**	**¥24,693**	**¥88,099**	**¥152,437**	**¥1,323,868**

2) Impairment losses

Property, plant and equipment is grouped into a cash-generating unit, based on business units. The cash-generating unit is the smallest identifiable group of assets that generates cash inflows that are largely independent of the cash inflow from other assets or groups of assets.

The recoverable amount of a cash-generating unit is recorded as the higher of its fair value less costs of disposal and its value in use. Value in use is calculated based on the following major assumptions.

On an annual basis, future cash flows for each cash-generating unit are based on the most recent budgets and medium-term business forecasts, while future cash flows for subsequent periods take into account the growth potential of businesses. The cash flow projection periods are set appropriately according to the business of each cash-generating unit.

The discount rate applied to each cash-generating unit is calculated mainly based on the pre-tax weighted average cost of capital, and adjusted to properly reflect risks and other factors related to the business using information from external and internal sources.

During the year ended December 31, 2020, the Group recognized the following impairment losses.

The Group recognized indications of impairment, due to significant decrease in profitability in the group of assets of the Automotive glass included in the Glass segment and of various businesses included in the Electronics segment and the Chemicals segment. This was mainly due to sluggish market conditions and other market developments. Due to the downturn of market conditions and changes, the Group recognized an impairment loss of ¥1,343 million. The recoverable amounts are mainly based on fair value less costs of disposal, but a part is based on value in use and calculated by discounting estimated future cash flow to the present value. The discount rate (pre-tax) used to calculate value in use is 15%.

During the year ended December 31, 2021, the Group recognized the following impairment losses.

The automotive glass business in Europe has recognized recurring operating losses from the previous period and the business environment has deteriorated primarily due to a decrease in automotive production volume caused by the spread of the novel coronavirus disease (COVID-19) and insufficient supply of semiconductors, which resulted in an indication of impairment for the cash-generating unit to which its property, plant and equipment belong. Due to revisions to the business plan and the discount rate from the previous fiscal year, the Group performed an impairment test. As a result, since the recoverable amount (¥57,816 million) calculated based on the value in use was below the carrying amount of the cash-generating unit, the Group recognized an impairment loss of ¥16,523 million on property, plant and equipment. (The impairment loss including goodwill and intangible assets was ¥18,668 million; see Note 21 “Classification of expenses by nature.”) In the five-year business plan of the automotive glass business in Europe, which formed the basis for estimating the value in use, the key assumptions were the prospects for an increase in sales volume on the premise that automotive production volume would gradually recover from the impact of shortages in the supply of semiconductors, improved productivity, and cost reductions. In addition, the discount rate (pre-tax) used to determine the outcome of the impairment test was 12%.

In addition, the Group has identified indications of impairment including decreases in profitability with respect to certain cash-generating units mainly included in the Electronics segment, largely due to sluggish and changing markets. Accordingly, the Group has recognized an impairment loss of ¥3,330 million, upon having taken into account the financial results outlook and prospects for recoverability going forward.

Impairment losses are included in “other expenses” on the consolidated statements of profit or loss.

Property, plant and equipment reported on the Group’s consolidated statements of financial position may become subject to impairment loss if a recoverable amount of any such asset has fallen below the carrying amount due to lower profitability or other such circumstances going forward. Such a scenario could significantly affect the amount of property, plant and equipment on the Group’s consolidated financial statements in the year ending December 31, 2022.

Note 9: Goodwill and intangible assets

(1) Reconciliation

Cost

(Unit: Millions of yen)

	FY2020 (Jan. 1 through Dec. 31, 2020)			
		Intangible assets		
	Goodwill	Customer relationships	Other	Total
Balance as of January 1	¥124,659	¥42,482	¥135,829	¥178,311
Additions	—	—	4,733	4,733
Additions through business combinations	13,545	9,433	59	9,493
Disposals or sales	—	—	(1,511)	(1,511)
Net foreign exchange differences on translation	1,182	(641)	753	112
Others	—	—	320	320
Balance as of December 31	¥139,387	¥51,274	¥140,186	¥191,460

	(Unit: Millions of yen)			
	FY2021 (Jan. 1 through Dec. 31, 2021)			
		Intangible assets		
	Goodwill	Customer relationships	Other	Total
Balance as of January 1	**¥139,387**	**¥51,274**	**¥140,186**	**¥191,460**
Additions	**—**	**—**	**9,952**	**9,952**
Additions through business combinations	**—**	**—**	**—**	**—**
Disposals or sales	**—**	**—**	**(3,732)**	**(3,732)**
Net foreign exchange differences on translation	**4,852**	**3,103**	**3,884**	**6,987**
Others	**114**	**—**	**—**	**—**
Balance as of December 31	**¥144,354**	**¥54,377**	**¥150,290**	**¥204,668**

Accumulated amortization and impairment losses

	(Unit: Millions of yen)			
	FY2020 (Jan. 1 through Dec. 31, 2020)			
		Intangible assets		
	Goodwill	Customer relationships	Other	Total
Balance as of January 1	¥(20,713)	¥(5,216)	¥(103,131)	¥(108,347)
Amortization	—	(2,919)	(7,703)	(10,622)
Impairment losses	—	—	—	—
Disposals or sales	—	—	1,295	1,295
Net foreign exchange differences on translation	(610)	15	(824)	(808)
Others	—	—	(316)	(316)
Balance as of December 31	¥(21,323)	¥(8,120)	¥(110,679)	¥(118,800)

	(Unit: Millions of yen)			
	FY2021 (Jan. 1 through Dec. 31, 2021)			
		Intangible assets		
	Goodwill	Customer relationships	Other	Total
Balance as of January 1	**¥(21,323)**	**¥ (8,120)**	**¥(110,679)**	**¥(118,800)**
Amortization	**—**	**(3,348)**	**(7,921)**	**(11,269)**
Impairment losses	**(9,693)**	**(2,350)**	**(2,552)**	**(4,903)**
Disposals or sales	**—**	**—**	**3,557**	**3,557**
Net foreign exchange differences on translation	**(741)**	**(566)**	**(2,499)**	**(3,065)**
Others	**320**	**—**	**(273)**	**(273)**
Balance as of December 31	**¥(31,438)**	**¥(14,387)**	**¥(120,368)**	**¥(134,755)**

Carrying amounts

	(Unit: Millions of yen)			
	FY2020 (Jan. 1 through Dec. 31, 2020)			
		Intangible assets		
	Goodwill	Customer relationships	Other	Total
Balance as of January 1	¥103,946	¥37,265	¥32,698	¥69,964
Balance as of December 31	¥118,063	¥43,153	¥29,506	¥72,660

	(Unit: Millions of yen)			
	FY2021 (Jan. 1 through Dec. 31, 2021)			
		Intangible assets		
	Goodwill	Customer relationships	Other	Total
Balance as of January 1	**¥118,063**	**¥43,153**	**¥29,506**	**¥72,660**
Balance as of December 31	**¥112,916**	**¥39,990**	**¥29,922**	**¥69,913**

Amortization is recorded in “cost of sales” and “selling, general and administrative expenses” on the consolidated statements of profit or loss.

(2) Impairment test of cash-generating units including goodwill

The total carrying amount of goodwill allocated to each cash-generating unit is as follows:

(Unit: Millions of yen)

	FY2020 (as of December 31, 2020)	**FY2021 (as of December 31, 2021)**
Glass	¥ 25,275	**¥ 24,277**
Electronics	36,478	**29,630**
Chemicals	56,309	**59,008**
Total	¥118,063	**¥112,916**

The recoverable amount of goodwill allocated to each cash-generating unit is mainly calculated based on value in use. Assumptions for value in use are presented in Note 8 "Property, plant and equipment."

The Group acquired AGC Biologics A/S and AGC Biologics, Inc. and AGC Biologics S.p.A., a contract development and manufacturing organization (CDMO) offering biological active pharmaceutical ingredient (API) and gene and cell therapy pharmaceuticals manufacturing services. The goodwill in connection with these acquisitions is included in the corresponding amount for the Chemicals segment. As of December 31, 2020 and 2021, the amount is ¥50,337 million and ¥52,908 million, respectively. In testing for the impairment of goodwill from this acquisition, the Group calculated the value in use by adding the perpetuity value to the future five-year cash flows, which takes into account the average growth rate of the biopharmaceutical market (estimated at 8%), expansion of production capacity through the introduction of a new type of culture facility for the development and manufacture of gene and cell therapy drugs on contract, and growth due to synergy effects within the Group. In addition, the discount rates (pre-tax) used to determine the outcome of the impairment test were 12% and 15% for the years ended December 31, 2020 and 2021, respectively. In the event that the growth rate falls below the projected rate, or the discount rate increases by 9 percentage points and 15 percentage points during the years ended December 31, 2020 and 2021, respectively, an impairment loss could be incurred.

The goodwill arising from the acquisition of the super high-end Copper Clad Laminate (CCL) business and industrial films business (the "super high-end CCL business and other.") is included in the corresponding amount for the Electronics segment. The amounts were ¥22,416 million and ¥22,911 million as of December 31, 2020 and 2021, respectively. (As of December 31, 2021, the amount of intangible assets was ¥7,243 million and the carrying amount of cash-generating units including this goodwill and intangible assets was ¥31,975 million.) In testing for the impairment of cash-generating units including this goodwill, the Group calculated the value in use by discounting to present value the estimated future cash flows based on the five-year business plan prepared by management and considering the growth prospects of business thereafter. Since the recoverable amount of ¥37,956 million exceeded the carrying amount of cash-generating units including goodwill and intangible assets, no impairment loss was recognized.

In testing for the impairment of goodwill from this acquisition, the Group calculated the value in use by adding the perpetuity value to the future five-year cash flows, considering increase in sales volume of the products for the super high-end CCL business by acquiring market share through market expansion as well as the measures to increase sales; and a rise in the profit margin by improving productivity. In addition, the discount rates (pre-tax) used to determine the outcome of the impairment test were 13% and 15% in the years ended December 31, 2020 and 2021, respectively. In the event that the growth rate falls below the projected rate, or the discount rate increases by 3 percentage point and 3 percentage points during the years ended December 31, 2020 and 2021, respectively, an impairment loss could be incurred.

The main discount rates (pre-tax) used for impairment tests for cash-generating units including goodwill, except for the above, ranged from 6 to 13% and 6 to 14% for the years ended December 31, 2020 and 2021, respectively.

There were no impairment losses regarding goodwill recognized during the year ended December 31, 2020.

During the fiscal year ended December 31, 2021, the Group recognized the following impairment losses.

The Group identified indications of impairment, including a marked decrease in profitability, for goodwill in certain operations of the printed circuit board materials business, which is included in the Electronics segment, given diminished demand in the Chinese market largely due to effects of U.S.-China trade friction. Considering the financial results outlook and prospects for recoverability going forward, the Group recognized impairment losses on goodwill of ¥8,161 million. (The impairment loss including property, plant and equipment and intangible assets was ¥14,761 million; see Note 21 "Classification of expenses by nature.") The recoverable amount was calculated by discounting future cash flows using a discount rate of 14% based on the value in use.

In addition, the Group has identified indications of impairment including decreases in profitability with respect to certain cash-generating units of the architectural glass and automotive glass businesses, included in the Glass segment, largely due to sluggish and changing markets. Accordingly, the Group has recognized an impairment loss of ¥1,531 million, upon having into account the financial results outlook and prospects for recoverability going forward.

Impairment losses are included in "other expenses" on the consolidated statements of profit or loss.

Goodwill reported on the Group's consolidated statements of financial position may become subject to impairment loss if a recoverable amount of any such asset has fallen below the carrying amount due to lower profitability or other such circumstances going forward. Such a scenario could significantly affect the amount of goodwill on the Group's consolidated financial statements for the following fiscal year.

(3) Impairment losses of intangible assets

There were no impairment losses recognized during the year ended December 31, 2020.

During the year ended December 31, 2021, the Group recognized an impairment loss of ¥4,903 million for several business units included in the Glass segment and Electronics segment.

Impairment losses are included in and shown as "other expenses" on the consolidated statements of profit or loss.

Intangible assets reported on the Group's consolidated statements of financial position may become subject to impairment loss if a recoverable amount of any such asset has fallen below the carrying amount due to lower profitability or other such circumstances going forward. Such a scenario could significantly affect the amount of intangible assets on the Group's consolidated financial statements in the year ending December 31, 2022.

Note 10: Leases

The Group leases certain buildings, production facilities, etc. and accounts for them based on the terms of contract.

(1) Right-of-use assets

(Unit: Millions of yen)

	FY2020 (Jan. 1 through Dec. 31, 2020)				
	Buildings and structures	Machinery, equipment and vehicles	Tools, fixtures and fittings	Land	Total
Additions	¥26,364	¥ 1,939	¥ 550	¥ 1,932	¥ 30,786
Depreciation	(8,317)	(2,924)	¥(399)	(1,009)	(12,650)
Balance as of December 31	¥50,353	¥ 9,146	¥ 657	¥ 9,372	¥ 69,530

(Unit: Millions of yen)

	FY2021 (Jan. 1 through Dec. 31, 2021)				
	Buildings and structures	Machinery, equipment and vehicles	Tools, fixtures and fittings	Land	Total
Additions	**¥10,137**	**¥ 2,883**	**¥ 599**	**¥ 252**	**¥ 13,874**
Depreciation	**(9,039)**	**(3,212)**	**(467)**	**(874)**	**(13,755)**
Balance as of December 31	**¥53,760**	**¥ 9,170**	**¥ 819**	**¥ 7,377**	**¥ 71,128**

(2) Lease liabilities

The contractual maturity of the lease liabilities is described in Note 25 "Financial instruments (3) Liquidity risk."

(3) Amounts recognized in profit or loss

(Unit: Millions of yen)

	FY2020 (Jan. 1 through Dec. 31, 2020)	**FY2021 (Jan. 1 through Dec. 31, 2021)**
Interest on lease liabilities	¥(1,661)	**¥ (2,261)**
Expenses related to short-term leases and leases of low-value assets	(8,234)	**(12,773)**

(4) Amounts recognized in the consolidated cash flow statement

Total cash outflows for leases are ¥21,665 million and ¥16,337 million for the years ended December 31, 2020 and 2021, respectively.

Note 11: Equity method affiliates

The carrying amounts of investments accounted for using the equity method are as follows:

(Unit: Millions of yen)

	FY2020 (as of December 31, 2020)	**FY2021 (as of December 31, 2021)**
Investments in associates and joint ventures accounted for using equity method	¥32,014	**¥31,197**

Share of profit and other comprehensive income of associates and joint ventures accounted for using the equity method are as follows:

(Unit: Millions of yen)

	FY2020 (Jan. 1 through Dec. 31, 2020)	**FY2021 (Jan. 1 through Dec. 31, 2021)**
Share of profit of associates and joint ventures accounted for using equity method	¥584	**¥2,292**
Share of other comprehensive income of associates and joint ventures accounted for using equity method	(2)	**16**
Total	¥582	**¥2,308**

During the years ended December 31, 2020 and 2021, there was no individually significant associate or joint venture accounted for using the equity method.

Note 12: Deferred tax assets and liabilities

(1) Unrecognized deferred tax assets

The Group recognizes deferred tax assets, taking into account deductible temporary differences, projected future taxable profit and tax planning. However, deferred tax assets have not been recognized for the following items:

(Unit: Millions of yen)

	FY2020 (as of December 31, 2020)	**FY2021 (as of December 31, 2021)**
Carry-forwards of unused tax losses	¥376,834	**¥346,108**
Deductible temporary differences	331,182	**309,220**
Total	¥708,016	**¥655,328**

The amounts of carry-forwards of unused tax losses, for which deferred tax assets have not been recognized, and the expiries of the carry-forwards are as follows:

(Unit: Millions of yen)

	FY2020 (as of December 31, 2020)	**FY2021 (as of December 31, 2021)**
1st year	¥ 3,780	**¥ 3,501**
2nd year	4,444	**2,874**
3rd year	4,340	**1,212**
4th year	8,795	**3,262**
5th year and thereafter	355,473	**335,256**
Total	¥376,834	**¥346,108**

(2) Unrecognized deferred tax liabilities

As of December 31, 2020 and 2021, the total amounts of taxable temporary differences for which deferred tax liabilities have not been recognized, which relate to investment in subsidiaries, associates and interest in joint arrangements, were ¥125,850 million and ¥135,808 million, respectively.

The Group has not recognized deferred tax liabilities relating to the preceding taxable temporary differences because it is able to control the timing of the reversal of the temporary difference and it is probable that the temporary difference will not reverse in the foreseeable future.

(3) Recognized deferred tax assets and liabilities

Deferred tax assets and liabilities were attributable to the following items:

(Unit: Millions of yen)

	FY2020 (as of December 31, 2020)	**FY2021 (as of December 31, 2021)**
Deferred tax assets		
Post-employment benefit liabilities	¥ 9,904	**¥ 8,208**
Depreciation	4,683	**10,025**
Impairment losses	1,201	**1,122**
Carry-forwards of unused tax losses	23,007	**24,760**
Lease liabilities	13,890	**14,097**
Others	25,906	**18,583**
Total deferred tax assets	78,593	**76,798**
Deferred tax liabilities		
Financial assets measured at fair value through other comprehensive income	(21,305)	**(17,319)**
Gain on establishment of trust for retirement benefits	(5,770)	**(5,034)**
Depreciation	(20,481)	**(22,215)**
Deferred capital gain reserve	(3,873)	**(3,923)**
Right-to-use assets	(13,862)	**(13,801)**
Others	(22,510)	**(22,706)**
Total deferred tax liabilities	(87,803)	**(85,001)**
Net deferred tax assets	¥ (9,209)	**¥ (8,203)**

(4) Increase and decrease of deferred tax assets and liabilities

Increase and decrease of deferred tax assets and liabilities are as follows:

(Unit: Millions of yen)

	FY2020 (as of December 31, 2020)	**FY2021 (as of December 31, 2021)**
Balance as of January 1 (net amount)	¥(20,549)	**¥ (9,209)**
Recognized in profit or loss	5,896	**6,742**
Recognized in other comprehensive income	(22)	**(11,533)**
Others (business combinations and others)	5,466	**5,797**
Balance as of December 31 (net amount)	¥ (9,209)	**¥ (8,203)**

Note 13: Trade and other payables

Trade payables

(Unit: Millions of yen)

	FY2020 (as of December 31, 2020)	**FY2021 (as of December 31, 2021)**
Notes payable	¥ 10,140	**¥ 11,663**
Trade accounts payable	141,734	**184,772**
Total	¥151,874	**¥196,435**

Other payables

(Unit: Millions of yen)

	FY2020 (as of December 31, 2020)	**FY2021 (as of December 31, 2021)**
Other accounts payable	¥ 73,837	**¥ 76,801**
Accrued expenses	40,614	**47,510**
Others	71,858	**74,856**
Total	¥186,310	**¥199,169**

Note 14: Interest-bearing debt

(Unit: Millions of yen)

	FY2020 (as of December 31, 2020)	**FY2021 (as of December 31, 2021)**
Short-term bank loans	¥102,229	**¥ 36,820**
Commercial paper	4,654	**—**
Long-term bank loans due within one year	75,815	**76,668**
Short-term lease liabilities	11,347	**11,930**
Total current liabilities	194,047	**125,419**
Long-term bank loans	473,162	**357,173**
Corporate bonds	59,885	**59,910**
Long-term lease liabilities	60,865	**60,689**
Total non-current liabilities	593,912	**477,774**
Total interest-bearing debt	¥787,960	**¥603,194**

Please see Note 25 "Financial instruments" for further information on the Group's interest rate risk, currency risk, and liquidity risk. Assets pledged as collateral are presented in Note 28 "Collateral."

(1) Bonds

Company	Name of bond	Date of issuance	**As of January 1, 2021** (Millions of yen)	**As of December 31, 2021** (Millions of yen)	Interest rate (% annum)(Note 2)	Collateral	Date of maturity
Asahi Glass Co., Ltd.	14th straight bond	Jun. 3, 2013	**¥19,981**	**¥19,989**	1.01	None	Jun. 2, 2023
Asahi Glass Co., Ltd.	15th straight bond	May 29, 2017	**19,951**	**19,959**	0.31	None	May 28, 2027
AGC Inc.	1st straight bond	Oct. 12, 2018	**19,952**	**19,962**	0.23	None	Oct. 10, 2025
Total(Note 1)	—	—	**¥59,885 (—)**	**¥59,910 (—)**	—	—	—

Notes: 1. The component figures disclosed in parentheses in the "As of January 1, 2021" and "As of December 31, 2021" columns represent balances due within one year.
2. The interest rate column shows the coupon rates applicable to each bond. Accordingly, these rates are different from the effective annual interest rates.

(2) Borrowings

As of December 31, 2021, the weighted average effective interest rate for "short-term bank loans," "long-term bank loans due within one year" and "long-term bank loans" are 1.1%, 0.4% and 0.6% per annum, respectively.

The maturities of "long-term bank loans" are from 2023 to 2031.

(3) Liabilities arising from financing activities

The changes of liabilities arising from financing activities are as follows:

(Unit: Millions of yen)

	FY2020 (Jan. 1 through Dec. 31, 2020)				
	Borrowings	Commercial paper	Corporate bonds	Lease liabilities	Total liabilities arising from financing activities
Balance as of January 1	¥463,978	¥ 24,594	¥59,859	¥ 54,409	¥602,843
Cash flows	189,431	(19,867)	—	(11,769)	157,794
Non-cash changes					
Increase in finance lease liabilities	—	—	—	30,209	30,209
Foreign exchange differences	(2,420)	(72)	—	(944)	(3,436)
Changes in the scope of consolidation	217	—	—	1,071	1,289
Others	—	—	25	(764)	(738)
Balance as of December 31	¥651,207	¥ 4,654	¥59,885	¥ 72,213	¥787,960

	(Unit: Millions of yen)				
	FY2021 (Jan. 1 through Dec. 31, 2021)				
	Borrowings	Commercial paper	Corporate bonds	Lease liabilities	Total liabilities arising from financing activities
Balance as of January 1	**¥ 651,207**	**¥ 4,654**	**¥59,885**	**¥ 72,213**	**¥ 787,960**
Cash flows	**(194,427)**	**(5,049)**	**—**	**(16,337)**	**(215,814)**
Non-cash changes					
Increase in finance lease liabilities	**—**	**—**	**—**	**14,252**	**14,252**
Foreign exchange differences	**13,883**	**394**	**—**	**3,716**	**17,994**
Changes in the scope of consolidation	**—**	**—**	**—**	**(86)**	**(86)**
Others	**—**	**—**	**25**	**(1,137)**	**(1,111)**
Balance as of December 31	**¥ 470,662**	**¥ —**	**¥59,910**	**¥ 72,620**	**¥ 603,194**

Note 15: Provisions

	(Unit: Millions of yen)	
	FY2020 (as of December 31, 2020)	**FY2021 (as of December 31, 2021)**
Provisions for restructuring costs	¥ 593	**¥ 154**
Other provisions	969	**1,052**
Total current liabilities	¥ 1,563	**1,207**
Provisions for restructuring costs	¥ 5,008	**¥ 4,757**
Other provisions	7,345	**7,307**
Total non-current liabilities	¥12,353	**¥12,064**

"Other provisions" consists of various provisions for undetermined obligation related to identifiable risks, such as asset retirement obligations and environment-related provisions.

There is no significant balance of asset retirement obligations as of December 31, 2020 and 2021.

A reconciliation of opening and closing balances for each class of provision is as follows:

	(Unit: Millions of yen)		
	FY2021 (Jan. 1 through Dec. 31, 2021)		
	Provisions for restructuring costs	Other provisions	Total
Balance as of January 1	**¥ 5,601**	**¥ 8,314**	**¥13,916**
Amounts increased during the period	**3,797**	**1,755**	**5,552**
Amounts used during the period	**(4,223)**	**(1,136)**	**(5,360)**
Unused amounts reversed during the period	**(419)**	**(781)**	**(1,201)**
Others	**156**	**207**	**364**
Balance as of December 31	**¥ 4,912**	**¥ 8,360**	**¥13,272**

During the year ended December 31, 2021, the Group recognized a provision for restructuring programs measured at estimated future losses arising from restructuring actions such as an expansion in the additional severance compensation program to improve the business structure and the reorganization of certain operations. The timing of the payment may be affected by future business plans.

Note 16: Employee benefits

The Group has the following retirement benefit plans: defined benefit corporate pension plans, employees' pension fund plans, lump-sum severance payment plans, all which are defined benefit pension plans, and defined contribution pension plan.

The level of defined benefit pension plans is determined based on a certain number of points conferred according to an individual employee's contribution during his or her period of service. Asset administration, investment, and benefits are provided mainly by corporate pension funds. The investment yield of the corporate pension is set in consideration of the sustainability of the plan.

(1) Defined benefit plans

The amounts for defined benefit plans recognized on the consolidated statements of financial position are as follows:

(Unit: Millions of yen)

	FY2020 (as of December 31, 2020)	**FY2021 (as of December 31, 2021)**
Present value of defined benefit obligations	¥(374,969)	**¥(370,030)**
Fair value of plan assets	346,282	**376,416**
Total	¥ (28,686)	**¥ 6,386**
Prepaid pension expenses(Note)	¥ 36,049	**¥ 60,191**
Post-employment benefit liabilities	(64,736)	**(53,805)**

Note: Prepaid pension expenses are included in "other non-current assets" on the consolidated statements of financial position.

(Corporate pension plan of the Company)

The Company's pension plan is managed through a legally independent entity AGC Corporate Pension Fund (the "Fund"). The Fund has a Board of Representatives split evenly between representatives selected by the Company and representatives elected by the pension plan members through mutual vote. The representatives elect directors and a controller through mutual vote. After that, the president (the chairman of the Board of Representatives) is selected.

Under the Defined-Benefit Corporate Pension Act, the Company is obligated to make pension contributions to the Fund which provides pension benefits. The directors of the Fund are responsible for faithfully executing operations related to the administration and investment of pension reserves for the Fund in compliance with laws and regulations, any orders issued by the Minister of Health, Labour and Welfare, and the director-generals of Regional Bureaus of Health and Welfare based on laws and regulations, as well as the rules of the Fund and the resolutions of the Board of Representatives. Furthermore, directors are prohibited from engaging in any actions that could hinder proper administration and investment of the pension reserves for the purpose of furthering their own interests or the interests of third parties other than the Fund.

i) Changes in the present value of defined benefit obligations

(Unit: Millions of yen)

	FY2020 (Jan. 1 through Dec. 31, 2020)	**FY2021 (Jan. 1 through Dec. 31, 2021)**
As of January 1	¥(373,076)	**¥(374,969)**
Benefits paid by the plan	18,098	**16,950**
Current service cost	(11,341)	**(11,518)**
Interest cost	(3,341)	**(3,298)**
Past service cost and settlement	(59)	**6,668**
Actuarial gains and losses	(5,914)	**1,214**
Due to changes in demographic assumptions	(4,033)	**(106)**
Due to changes in financial assumptions	(739)	**1,494**
Others	(1,141)	**(173)**
Foreign exchange differences	515	**(5,334)**
Business combinations and disposals	(30)	**50**
Others	180	**206**
As of December 31	¥(374,969)	**¥(370,030)**

The weighted average duration of defined benefit obligations was mainly 16 years and 15 years as of December 31, 2020 and 2021, respectively.

ii) Changes in the fair value of plan assets

(Unit: Millions of yen)

	FY2020 (Jan. 1 through Dec. 31, 2020)	**FY2021 (Jan. 1 through Dec. 31, 2021)**
As of January 1	¥347,448	**¥346,282**
Employer contributions	6,050	**11,073**
Employee contributions	140	**145**
Benefits paid by the plan	(16,507)	**(14,624)**
Interest income(Note)	2,276	**2,154**
Settlement	(15)	**(6,387)**
Income related to plan assets (excluding interest income)	6,857	**32,704**
Foreign exchange differences	202	**5,275**
Business combinations and disposals	10	**—**
Others	(180)	**(206)**
As of December 31	¥346,282	**¥376,416**

Note: Interest income is measured as the fair value of plan assets multiplied by the discount rate.

The Group plans to contribute ¥4,872 million to retirement benefit plans during the year ending December 31, 2022.

In accordance with the rules of the Fund, every five years the Company is required to recalculate the amount of pension contributions, with the end of the Fund's business year set as the record date. This is to maintain the Fund's financial stability into the future.

In the recalculation process, the Company reviews the base rates related to the pension contributions (assumed interest rate, assumed mortality rate, assumed withdrawal rate, assumed salary increase rate, assumed number of new pension plan members, etc.) in order to re-examine the appropriateness of the pension contributions.

iii) Components of plan assets

Plan assets are invested with the aim of ensuring the sustainability of the defined benefit plans. Plan assets are invested mainly in bonds and equities, and are exposed to market risk in each area. The Group has formulated a policy on risk and return targets for the investment of plan assets. The Group properly monitors investment performance, and regularly reviews this policy, taking into account the funding status and market developments surrounding investments.

The components of plan assets are as follows:

(Unit: Millions of yen)

	FY2020 (as of December 31, 2020)			**FY2021 (as of December 31, 2021)**		
	Assets with quoted market prices in an active market	Assets without quoted market prices in an active market (Note)	Subtotal	**Assets with quoted market prices in an active market**	**Assets without quoted market prices in an active market (Note)**	**Subtotal**
Equity securities	¥ 91,399	¥ 50,027	¥141,426	**¥ 84,987**	**¥ 62,387**	**¥147,375**
Bonds	65,096	97,352	162,449	**84,165**	**101,883**	**186,048**
Others	3,072	39,334	42,406	**5,565**	**37,427**	**42,993**
Total	¥159,567	¥186,714	¥346,282	**¥174,718**	**¥201,697**	**¥376,416**

Note: Equity securities include privately placed investment trusts that do not have quoted market prices in an active market, and comprise publicly traded shares in Japan and overseas. Others mainly include cash equivalents and insurance contracts.

iv) Analysis of post-employment benefit expenses

Amounts recognized as expenses related to post-employment benefits are as follows:

(Unit: Millions of yen)

	FY2020 (Jan. 1 through Dec. 31, 2020)	**FY2021 (Jan. 1 through Dec. 31, 2021)**
Current service cost	¥(11,341)	**¥(11,518)**
Interest cost	(3,341)	**(3,298)**
Interest income	2,276	**2,154**
Past service cost and gains or losses on settlement	(74)	**281**
Total	¥(12,481)	**¥(12,381)**

The foregoing expenses are included in "cost of sales," "selling, general and administrative expenses" and certain other accounts on the consolidated statements of profit or loss.

v) Actuarial assumptions

Principal actuarial assumptions as of December 31, 2020 and 2021 are as follows:

	FY2020 (as of December 31, 2020)	**FY2021 (as of December 31, 2021)**
Discount rate (%)	0.6	**0.6**

In addition to the above, actuarial assumptions include future salary increases, the mortality rate and the expected retirement rate.

vi) Sensitivity analysis of actuarial assumptions

The followings are changes in defined benefit obligations that would result from the changes below in the discount rate as of December 31, 2021. This analysis assumes that all other variables are held constant.

(Unit: Millions of yen)

	FY2021 (as of December 31, 2021)
Discount rate (0.5% increase)	**¥ 25,527**
Discount rate (0.5% decrease)	**(29,164)**

(2) Defined contribution plans

Amounts recognized as expenses related to defined contribution plans are as follows:

(Unit: Millions of yen)

	FY2020 (Jan. 1 through Dec. 31, 2020)	**FY2021 (Jan. 1 through Dec. 31, 2021)**
Expenses related to defined contribution plans	¥(2,348)	**¥(2,342)**

The abovementioned expenses are included in "cost of sales" and "selling, general and administrative expenses" on the consolidated statements of profit or loss.

Note 17: Share-based payments

(1) Stock options

i) Description of stock options

Until the year ended December 31, 2017, the Company granted the Group's directors, executive officers and other employees with stock options, which confer the right to purchase the Company's shares. Under the plan, 200 shares of common stock per one stock acquisition right are granted to the grantees. Stock options that are not exercised during the exercisable period will expire.

The general terms and conditions for stock options are as follows. The presentation is based on the numbers when the shares were granted.

Grant date	Number of shares granted	Vesting conditions	Exercisable period	Exercise price (Yen)
July 2, 2007 (Compensation-type)	53,200	(Note 1)	From July 3, 2007 to July 2, 2037 (Note 1)	¥ 1
July 1, 2008 (Compensation-type)	53,000	(Note 1)	From July 2, 2008 to July 1, 2038 (Note 1)	1
July 1, 2009 (Compensation-type)	129,400	(Note 1)	From July 2, 2009 to July 1, 2039 (Note 1)	1
July 1, 2010 (Compensation-type)	86,400	(Note 1)	From July 2, 2010 to July 1, 2040 (Note 1)	1
July 1, 2011 (Compensation-type)	86,000	(Note 1)	From July 2, 2011 to July 1, 2041 (Note 1)	1
July 1, 2011 (Ordinary-type)	35,200	An option holder must remain in continued service from the grant date (July 1, 2011) to the vesting date (June 30, 2014).	From July 1, 2014 to June 30, 2020	4,820
July 2, 2012 (Compensation-type)	204,000	(Note 1)	From July 3, 2012 to July 2, 2042 (Note 1)	1
July 2, 2012 (Ordinary-type)	61,600	An option holder must remain in continued service from the grant date (July 2, 2012) to the vesting date (July 1, 2015).	From July 2, 2015 to July 1, 2021	2,810
March 26, 2013 (Compensation-type)	55,600	(Note 1)	From March 27, 2013 to March 26, 2043 (Note 1)	1
July 1, 2013 (Compensation-type)	118,400	(Note 1)	From July 2, 2013 to July 1, 2043 (Note 1)	1
July 1, 2013 (Ordinary-type)	66,200	An option holder must remain in continued service from the grant date (July 1, 2013) to the vesting date (June 30, 2016).	From July 1, 2016 to June 30, 2022	3,805
July 1, 2014 (Compensation-type)	128,800	(Note 1)	From July 2, 2014 to July 1, 2044 (Note 1)	1
July 1, 2014 (Ordinary-type)	66,000	An option holder must remain in continued service from the grant date (July 1, 2014) to the vesting date (June 30, 2017).	From July 1, 2017 to June 30, 2023	3,035
January 27, 2015 (Compensation-type)	4,800	(Note 1)	From January 28, 2015 to January 27, 2045 (Note 1)	1
July 1, 2015 (Compensation-type)	90,200	(Note 1)	From July 2, 2015 to July 1, 2045 (Note 1)	1
July 1, 2015 (Ordinary-type)	75,200	An option holder must remain in continued service from the grant date (July 1, 2015) to the vesting date (June 30, 2018).	From July 1, 2018 to June 30, 2024	4,000
February 22, 2016 (Compensation-type)	12,200	(Note 1)	From February 23, 2016 to February 22, 2046 (Note 1)	1
July 1, 2016 (Compensation-type)	139,200	(Note 1)	From July 2, 2016 to July 1, 2046 (Note 1)	1
July 1, 2016 (Ordinary-type)	76,000	An option holder must remain in continued service from the grant date (July 1, 2016) to the vesting date (June 30, 2019).	From July 1, 2019 to June 30, 2025	3,260
March 24, 2017 (Compensation-type)	24,200	(Note 1)	From March 25, 2017 to March 24, 2047 (Note 1)	1
July 3, 2017 (Compensation-type)	60,200	(Note 1)	From July 4, 2017 to July 3, 2047 (Note 1)	1

Notes: 1. Vesting conditions and exercisable period
Within the abovementioned exercisable periods, option holders may exercise their subscription rights within 10 years from the day after they lose their position as a director or an executive officer of the Company.

2. Effective from July 1, 2017, the Company consolidated its common shares at a ratio of five shares to one share. The number of shares granted and exercise price are calculated on the assumption that the consolidation of shares has been conducted on the grant date.

ii) Number and average exercise price of stock options

The number and weighted average exercise prices of stock options granted during the period are as follows. The number of stock options is shown after conversion into the number of shares.

	FY2020 (Jan. 1 through Dec. 31, 2020)		**FY2021 (Jan. 1 through Dec. 31, 2021)**	
	Number (Shares)	Weighted average exercise price (Yen)	Number (Shares)	Weighted average exercise price (Yen)
Outstanding as of January 1	1,219,000	¥ 882	**1,121,600**	**¥ 800**
Granted during the period	—	—	**—**	**—**
Forfeited during the period	1,600	3,903	**1,600**	**3,630**
Exercised during the period	61,400	91	**300,200**	**929**
Expired during the period	34,400	4,820	**5,800**	**2,810**
Outstanding as of December 31	1,121,600	¥ 800	**814,000**	**¥ 733**
Exercisable as of December 31	1,121,600	¥ 800	**814,000**	**¥ 733**

The weighted average remaining contractual period was 18.3 years and 18.2 years as of December 31, 2020 and 2021, respectively.

The weighted average share price on the exercise dates of stock options exercised in the years ended December 31, 2020 and 2021 were ¥3,115 and ¥4,807, respectively.

iii) Fair value of stock options

There were no stock options granted during the years ended December 31, 2020 and 2021.

iv) Equity-settled share-based payment transactions for which IFRS 2 is not applied

Out of the description in i) above, due to optional exemptions by IFRS 1, details of stock options for which IFRS 2 has not been applied are as follows:

Grant date	Number of shares granted	Vesting conditions	Exercisable period	Exercise price (Yen)
July 2, 2007 (Compensation-type)	53,200	(Note 1)	From July 3, 2007 to July 2, 2037(Note 1)	¥1
July 1, 2008 (Compensation-type)	53,000	(Note 1)	From July 2, 2008 to July 1, 2038(Note 1)	1
July 1, 2009 (Compensation-type)	129,400	(Note 1)	From July 2, 2009 to July 1, 2039(Note 1)	1
July 1, 2010 (Compensation-type)	86,400	(Note 1)	From July 2, 2010 to July 1, 2040(Note 1)	1
July 1, 2011 (Compensation-type)	86,000	(Note 1)	From July 2, 2011 to July 1, 2041(Note 1)	1

Notes: 1. Vesting conditions and exercisable period

Within the abovementioned exercisable periods, option holders may exercise their subscription rights within 10 years from the day after they lose their position as a director or an executive officer of the Company.

2. Effective from July 1, 2017, the Company consolidated its common shares at a ratio of five shares to one share. The number of shares granted is calculated on the assumption that the consolidation of shares has been conducted on the grant date.

v) Expenses recorded under stock options

There were no expenses recorded under the plan during the years ended December 31, 2020 and 2021 because all the stock options under the plan vested.

(2) Share-based compensation plan that uses a structure called BIP Trust

i) Description of share-based compensation plan that uses a structure called BIP Trust

The Company has introduced a plan to its directors and executive officers (excluding non-residents of Japan; hereinafter referred to as “directors, etc.”). The purpose is to further motivate the contributions to the increase of the Group’s corporate value in the medium to long term, and the achievement of performance targets as set out in the medium-term management plan.

In the plan, the BIP Trust acquires the Company’s shares, and delivers the shares and provides the amount of money equivalent to the value of the shares to directors, etc., based on their positions and the level of achievement of the performance targets and other factors.

ii) Expenses recorded under the share-based compensation plan that uses a structure called BIP Trust

Expenses (Reversals) recorded under the plan were ¥(59) million and ¥354 million during the years ended December 31, 2020 and 2021, respectively.

These expenses were included in “cost of sales” and “selling, general and administrative expenses” on the consolidated statements of profit or loss.

iii) Weighted average fair value of the Company's shares granted during the period

Weighted average fair value of the Company's shares granted during the period is measured based on observable market prices, including expected dividends, etc.

Weighted average fair value of the Company's shares granted was ¥2,938 and ¥3,341 during the years ended December 31, 2020 and 2021, respectively.

Note 18: Equity

(1) Share capital and share premium

(Unit: Thousands of shares)

	Fully paid issued shares (No par value ordinary shares)	
	FY2020 (Jan. 1 through Dec. 31, 2020)	**FY2021 (Jan. 1 through Dec. 31, 2021)**
As of January 1	227,441	**227,441**
Increase (Decrease)	—	**—**
As of December 31	227,441	**227,441**
Number of authorized shares	400,000	**400,000**

Out of the amount generated from the equity transaction, capital surplus consists of the amount which is not included in share capital.

Under the Companies Act of Japan, at least 50% of the proceeds of certain issues of common shares shall be credited to share capital.

(2) Retained earnings

Retained earnings include amounts transferred from accumulated gains or losses recognized in other components of equity upon the sale of financial assets measured at fair value through other comprehensive income.

Furthermore, retained earnings include the amount of accumulated foreign currency translation adjustments that had been recognized based on previous standards (JGAAP), and transferred to retained earnings as of the transition date to IFRS.

(3) Treasury shares

(Unit: Thousands of shares)

	Treasury shares	
	FY2020 (Jan. 1 through Dec. 31, 2020)	**FY2021 (Jan. 1 through Dec. 31, 2021)**
As of January 1	6,181	**6,117**
Decrease due to sales of less-than-one-unit shares	(0)	**(0)**
Increase due to purchases of less-than-one-unit shares	4	**4**
Decrease due to exercise of stock options	(61)	**(300)**
Increase due to market purchases of the BIP Trust	—	**109**
Decrease due to delivery to the beneficiaries of the BIP Trust	(5)	**(92)**
As of December 31	6,117	**5,839**

(4) Other components of equity

The following is a breakdown of other components of equity:

(Unit: Millions of yen)

	FY2020 (as of December 31, 2020)	**FY2021 (as of December 31, 2021)**
Remeasurement of the net defined benefit liability (asset)	¥ (31,203)	**¥ (6,927)**
Net gain on revaluation of financial assets measured at FVTOCI	51,397	**43,896**
Net gain (loss) in fair value of cash flow hedges	439	**4,952**
Exchange differences on translation of foreign operations	129,602	**198,847**
Total	¥150,236	**¥240,769**

Remeasurement of the net defined benefit liability (asset)
Remeasurement of the net defined benefit liability (asset) includes the effects of differences between the actuarial assumptions at the beginning of the period and the actual numbers at the end of the period, and differences between actual income from plan assets and projected interest income from plan assets.

Net gain on revaluation of financial assets measured at FVTOCI
This includes the cumulative amount of net gain (loss) on revaluation of financial assets measured at FVTOCI.

Net gain (loss) in fair value of cash flow hedges
This is the effective portion of the cumulative amount of the net gain (loss) in fair value of cash flow hedges relating to hedge transactions that have not yet been realized.

Exchange differences on translation of foreign operations
These are foreign currency differences arising from the translation of the financial statements of foreign operations.

(5) Dividends
Dividends paid during the years ended December 31, 2020 and 2021 are as follows:

(Year ended December 31, 2020)

Date of approval	Type of share	Total amount of dividends (Millions of yen)	Dividends per share (Yen)	Record date	Effective date
Shareholders' meeting held on March 27, 2020	Ordinary shares	¥13,294	¥60.00	December 31, 2019	March 30, 2020
Board of Directors meeting held on July 31, 2020	Ordinary shares	13,296	60.00	June 30, 2020	September 8, 2020

Notes 1: The year-end dividend based on the resolution of the Shareholders' meeting held on March 27, 2020 includes dividend payment of ¥18 million paid for the shares held by the BIP Trust.
2: The interim dividend based on the resolution of the Board of Directors meeting held on July 31, 2020 includes dividend payment of ¥18 million paid for the shares held by the BIP Trust.

(Year ended December 31, 2021)

Date of approval	Type of share	Total amount of dividends (Millions of yen)	Dividends per share (Yen)	Record date	Effective date
Shareholders' meeting held on March 30, 2021	Ordinary shares	**¥13,297**	**¥60.00**	December 31, 2020	March 31, 2021
Board of Directors meeting held on August 2, 2021	Ordinary shares	**17,747**	**80.00**	June 30, 2021	September 9, 2021

Notes 1: The year-end dividend based on the resolution of the Shareholders' meeting held on March 30, 2021 includes dividend payment of ¥18 million paid for the shares held by the BIP Trust.
2: The interim dividend based on the resolution of the Board of Directors meeting held on August 2, 2021 includes dividend payment of ¥25 million paid for the shares held by the BIP Trust.

Dividends for which the effective date falls in the period subsequent to the fiscal year are as follows:

(Year ended December 31, 2020)

Date of approval	Type of share	Total amount of dividends (Millions of yen)	Dividends per share (Yen)	Record date	Effective date
Shareholders' meeting held on March 30, 2021 . . .	Ordinary shares	¥13,297	¥60.00	December 31, 2020	March 31, 2021

Note: Total amount of dividends includes dividend payment of ¥18 million paid for the shares held by the BIP Trust.

(Year ended December 31, 2021)

Date of approval	Type of share	Total amount of dividends (Millions of yen)	Dividends per share (Yen)	Record date	Effective date
Shareholders' meeting held on March 30, 2022 . . .	Ordinary shares	**¥28,850**	**¥130.00**	December 31, 2021	March 31, 2022

Note: Total amount of dividends includes dividend payment of ¥41 million paid for the shares held by the BIP Trust.

Note 19: Other comprehensive income

Changes in other comprehensive income during the years ended December 31, 2020 and 2021 are as follows:

(Unit: Millions of yen)

	FY2020 (Jan. 1 through Dec. 31, 2020)			**FY2021 (Jan. 1 through Dec. 31, 2021)**		
	Before tax effects	Tax effects	Net amount	Before tax effects	Tax effects	Net amount
Remeasurement of the net defined benefit liability (asset)	¥ 943	¥ (985)	¥ (41)	**¥ 33,918**	**¥ (9,521)**	**¥ 24,397**
Financial assets measured at FVTOCI(Note)	(4,644)	1,386	(3,258)	**11,785**	**(2,424)**	**9,360**
Net gain (loss) in fair value of cash flow hedges	1,572	(398)	1,173	**6,399**	**(1,655)**	**4,744**
Exchange differences on translation of foreign operations	(42,324)	(25)	(42,349)	**75,752**	**2,067**	**77,819**
Share of other comprehensive income of associates and joint ventures accounted for using equity method	(2)	0	(2)	**16**	**(0)**	**16**
Total	¥(44,456)	¥ (22)	¥(44,478)	**¥127,872**	**¥(11,533)**	**¥116,338**

Note: FVTOCI: Fair Value Through Other Comprehensive Income

During the year ended December 31, 2020, there were no reclassification adjustments of exchange differences on translation of foreign operations. During the year ended December 31, 2021, the reclassification adjustments of exchange differences on translation of foreign operations were ¥(7,512) million (before tax effects) and ¥2,024 million (tax effects).

Amounts attributable to non-controlling interests are as follows:

(Unit: Millions of yen)

	FY2020 (Jan. 1 through Dec. 31, 2020)			**FY2021 (Jan. 1 through Dec. 31, 2021)**		
	Before tax effects	Tax effects	Net amount	Before tax effects	Tax effects	Net amount
Remeasurement of the net defined benefit liability (asset)	¥ (305)	¥ 21	¥ (283)	**¥ 96**	**¥ 25**	**¥ 121**
Financial assets measured at FVTOCI(Note)	(5)	1	(3)	**10**	**(3)**	**6**
Net gain (loss) in fair value of cash flow hedges	96	(28)	68	**331**	**(100)**	**230**
Exchange differences on translation of foreign operations	(5,117)	—	(5,117)	**8,574**	**—**	**8,574**
Total	¥(5,331)	¥ (5)	¥(5,336)	**¥9,011**	**¥ (77)**	**¥8,934**

Note: FVTOCI: Fair Value Through Other Comprehensive Income

Note 20: Revenue

(1) Disaggregation of revenue

As disclosed in Note 4 "Segment information," the Group has three reportable segments: Glass, Electronics, and Chemicals. In addition, sales are disaggregated by product groups and geographical segments. The reconciliations of the disaggregated revenue with the Group's sales components are as follows.

i) Disaggregation by product groups

(Unit: Millions of yen)

		FY2020 (Jan. 1 through Dec. 31, 2020)	**FY2021 (Jan. 1 through Dec. 31, 2021)**
Glass	Building & Industrial glass	¥ 324,875	**¥ 381,080**
	Automotive glass	323,519	**351,149**
	Subtotal	648,394	**732,230**
Electronics	Display	177,225	**182,050**
	Electronics materials	105,799	**120,999**
	Subtotal	283,025	**303,049**
Chemicals	Chlor-alkali & urethane	264,087	**390,389**
	Fluorochemical & specialty	105,710	**123,926**
	Life science	79,941	**115,171**
	Subtotal	449,739	**629,487**
Ceramics/Others		31,145	**32,615**
Total		¥1,412,306	**¥1,697,383**

ii) Disaggregation by geographical segments

FY2020 (Jan. 1 through Dec. 31, 2020)

(Unit: Millions of yen)

	Glass	Electronics	Chemicals	Ceramics/Others	Total
Japan/Asia	¥293,130	¥258,735	¥362,276	¥31,145	¥ 945,288
America	100,215	23,237	31,079	—	154,532
Europe	255,048	1,052	56,383	—	312,485
Total	¥648,394	¥283,025	¥449,739	¥31,145	¥1,412,306

Note: Sales by region are based on the location of each company, and "Brazil" is included in "America."

FY2021 (Jan. 1 through Dec. 31, 2021)

(Unit: Millions of yen)

	Glass	Electronics	Chemicals	Ceramics/Others	Total
Japan/Asia	**¥313,165**	**¥274,291**	**¥504,299**	**¥32,615**	**¥1,124,370**
America	**104,637**	**27,516**	**42,860**	**—**	**175,015**
Europe	**314,427**	**1,241**	**82,328**	**—**	**397,997**
Total	**¥732,230**	**¥303,049**	**¥629,487**	**¥32,615**	**¥1,697,383**

Note: Sales by region are based on the location of each company, and "Brazil" is included in "America."

In the Glass segment, the Group sells architectural glass and automotive glass and delivers and installs related products, etc. Main customers are domestic and overseas housing, building and automotive companies.

In the Electronics segment, the Group delivers glass for display such as LCD glass, optoelectronic materials, semiconductor-related products, etc. Main customers are domestic and overseas panel manufactures and electronics companies.

In the Chemicals segment, the Group delivers chlor-alkali & urethane, fluorochemical & specialty chemicals, and life science products, etc. and sells products worldwide through trading companies and the Group's sales companies.

These are accounted for in accordance with the accounting policy described in Note 3 "Significant accounting policies." The consideration for performance obligations is mainly recovered within one year after performance obligations are satisfied. In addition, the consideration for performance obligations does not include a significant financing component.

(2) Contract balances

Information on contract assets and liabilities arising from contracts with customers is as follows:

(Unit: Millions of yen)

	FY2020 (as of December 31, 2020)	**FY2021 (as of December 31, 2021)**
Contract Assets	¥ 946	**¥ 4,556**
Contract Liabilities	39,086	**52,587**

Contract assets primarily relate to the Group's rights to receive consideration for performance obligations that have been completed, but not yet billed for, as of the reporting date. Contract assets are reclassified as receivables when the Group's right to payment becomes unconditional.

Contract liabilities mainly relate to consideration received from customers before the Group delivers products to them, based on receivables management and other considerations. The revenue recognized during the fiscal years ended December 31, 2020 and 2021, included balances of contract liabilities at the beginning of the fiscal years of ¥15,511 million and ¥24,156 million, respectively.

(3) Transaction price allocated to the remaining performance obligations

The Group applies the practical expedients for exemption on disclosure of information on remaining performance obligations that have original expected duration of one year or less. The Group has no significant transactions with original expected duration exceeding one year. In addition, there are no significant amounts in consideration from contracts with customers that are not included in transaction prices.

(4) Assets recognized from the costs of obtaining or fulfilling contracts with customers

There are no assets recognized from the costs of obtaining or fulfilling contracts with customers as of the year ended December 31, 2021. In addition, if the amortization period of the assets that the Group otherwise would have recognized is one year or less, the Group applies the practical expedient of recognizing the incremental costs of obtaining the contract as an expense when incurred.

Note 21: Classification of expenses by nature

The classification of expenses by nature and reconciliation with business profit are as follows:

(Unit: Millions of yen)

	FY2020 (Jan. 1 through Dec. 31, 2020)	**FY2021 (Jan. 1 through Dec. 31, 2021)**
Net sales	¥1,412,306	**¥1,697,383**
Personnel expenses	(304,949)	**(335,558)**
Depreciation and amortization	(143,716)	**(166,756)**
Others	(887,859)	**(988,900)**
Operating profit	75,780	**206,168**
Foreign exchange gain	3,608	**10,955**
Gains on sale of non-current assets	516	**2,361**
Gains on sale of shares of subsidiaries	—	**1,431**
Gains on transfer of business	—	**28,010**
Gain on reclassification of foreign currency translation adjustments for foreign operations due to decision for liquidation	—	**7,504**
Others	2,618	**6,410**
Other income	6,743	**56,672**
Losses on disposal of non-current assets	(9,894)	**(6,685)**
Impairment loss	(1,213)	**(34,450)**
Expenses for restructuring programs	(7,951)	**(5,159)**
Others	(3,752)	**(6,296)**
Other expenses	(22,812)	**(52,592)**
Business profit	¥ 59,711	**¥ 210,247**

The amounts of research and development expenses were ¥46,444 million and ¥49,444 million during the years ended December 31, 2020 and 2021, respectively.

Gains on transfer of business were recorded in connection with the transfer of the architectural glass business in North America.

The total amount of impairment losses included in expenses for restructuring programs was ¥130 million and no amount during the years ended December 31, 2020 and 2021, respectively.

In the fiscal year ended December 31, 2021, the Group recognized impairment losses of ¥18,668 million in the automotive glass business in Europe, which is part of the Glass segment. This breaks down into impairment losses of ¥16,523 million on property, plant and equipment, ¥1,177 million on goodwill, and ¥967 million on intangible assets.

In addition, the Group recognized impairment losses of ¥14,761 million in certain operations of the printed circuit board materials business, which is part of the Electronics segment. This breaks down into impairment losses of ¥2,781 million on property, plant and equipment, ¥8,161 million on goodwill, and ¥3,818 million on intangible assets. The events, circumstances and other factors that led to the recognition of impairment losses are presented in Note 8 "Property, plant and equipment" and Note 9 "Goodwill and intangible assets."

Note 22: Finance income and finance costs

(1) Finance income

(Unit: Millions of yen)

	FY2020 (Jan. 1 through Dec. 31, 2020)	**FY2021 (Jan. 1 through Dec. 31, 2021)**
Interest income	¥2,619	**¥2,536**
Dividend income	3,083	**3,290**
Others	201	**706**
Total	¥5,903	**¥6,533**

(2) Finance costs

(Unit: Millions of yen)

	FY2020 (Jan. 1 through Dec. 31, 2020)	**FY2021 (Jan. 1 through Dec. 31, 2021)**
Interest expense	¥(7,620)	**¥(6,424)**
Others	(872)	**(310)**
Total	¥(8,492)	**¥(6,735)**

Interest income and interest expense are generated primarily from financial assets and financial liabilities measured at amortized cost.

Dividend income is generated mainly from financial assets measured at fair value through other comprehensive income.

Note 23: Income tax expenses

(1) Composition of income tax expenses

(Unit: Millions of yen)

	FY2020 (Jan. 1 through Dec. 31, 2020)	**FY2021 (Jan. 1 through Dec. 31, 2021)**
Current income tax expenses	¥(21,854)	**¥(57,725)**
Deferred income tax expenses	5,896	**6,742**
Total	¥(15,957)	**¥(50,982)**

Deferred income tax expenses include the amounts of the benefits from previously unrecognized tax losses, tax credits, or temporary differences of prior periods that were used to reduce deferred income tax expenses. During the years ended December 31, 2020 and 2021, the amounts of decrease in deferred income tax expenses due to these benefits were ¥500 million and ¥3,413 million, respectively.

There were no material fluctuations in deferred income tax expenses due to changes in tax rates during the years ended December 31, 2020 and 2021.

(2) Income tax recognized in other comprehensive income

Income tax recognized in other comprehensive income is presented in Note 19 "Other comprehensive income."

(3) Reconciliation between effective statutory tax rate and effective income tax rate

Income tax expenses applicable to the Company and its domestic consolidated subsidiaries consist of corporate income tax (national), enterprise tax (local) and resident income tax (local). The effective statutory tax rates calculated by using these taxes for the years ended December 31, 2020 and 2021 are 30.4% and 30.4%, respectively.

Foreign subsidiaries are subject to corporate income tax and other taxes in their respective jurisdiction.

The following is a reconciliation between the effective statutory tax rates and the effective income tax rates for corporate income tax expenses appearing on the consolidated statements of profit or loss.

	FY2020 (Jan. 1 through Dec. 31, 2020)	**FY2021 (Jan. 1 through Dec. 31, 2021)**
Effective statutory tax rate of the Company	30.4%	**30.4%**
Entertainment expenses, etc., nondeductible	1.4	**0.4**
Dividend income, not taxable	(2.1)	**(0.9)**
Difference in tax rates applied to foreign subsidiaries	(7.1)	**(6.1)**
Changes in unrecognized temporary differences	6.3	**(1.0)**
Others	(1.0)	**1.5**
Effective income tax rate after tax effect accounting applied	27.9%	**24.3%**

Note 24: Earnings per share

(1) Basic earnings per share

Basic earnings per share and the basis for calculating basic earnings per share are as follows:

	FY2020 (Jan. 1 through Dec. 31, 2020)	**FY2021 (Jan. 1 through Dec. 31, 2021)**
Profit for the year attributable to owners of the parent (Millions of yen)	¥32,715	**¥123,840**
Weighted average number of ordinary shares outstanding (Thousands of shares)	221,297	**221,496**
Basic earnings per share (Yen)	¥147.84	**¥ 559.11**

(2) Diluted earnings per share

Diluted earnings per share and the basis for calculating diluted earnings per share are as follows:

	FY2020 (Jan. 1 through Dec. 31, 2020)	**FY2021 (Jan. 1 through Dec. 31, 2021)**
Profit for the year attributable to owners of the parent (Millions of yen)	¥32,715	**¥123,840**
Adjustments to profit or loss used to calculate diluted earnings per share (Millions of yen)	—	**—**
Profit or loss used to calculate diluted earnings per share (Millions of yen)	¥32,715	**¥123,840**
Weighted average number of ordinary shares outstanding (Thousands of shares)	221,297	**221,496**
Effects of dilutive potential ordinary shares		
Stock options based on subscription rights (Thousands of shares)	895	**798**
Diluted weighted average number of ordinary shares outstanding (Thousands of shares)	222,193	**222,295**
Diluted earnings per share (Yen)	¥147.24	**¥ 557.10**

Note 25: Financial instruments

(1) Capital management

The Group has adopted return on equity attributable to owners of the parent (ROE) and the debt-to-equity ratio (ratio of interest-bearing debt to equity) as its financial targets. The Group aims to attain those financial targets by improving not only profits but also the asset turnover ratio.

(2) Credit risk

Credit risk is the risk of financial losses to the Group if a counterparty to a financial instrument fails to meet its contractual obligations.

Trade and other receivables including notes receivables, accounts receivables, and other financial assets are exposed to customer credit risks. To manage these risks, each Group company performs due date controls and balance controls for each customer, and identifies and mitigates risks regarding the collection of receivables caused by factors such as deterioration of financial conditions at an early stage, in accordance with each Group entity's credit management rules.

In its derivative transactions, the Group uses only creditworthy financial institutions to reduce its credit risks.

The total carrying amount of financial assets represents the maximum amount of exposure to credit risk.

i) Credit risk exposure

An analysis of the aging of trade receivables, other receivables and other financial assets is as follows:

FY2020 (as of Dec. 31, 2020)

(Unit: Millions of yen)

	FY2020 (as of Dec. 31, 2020)			
		Financial assets of which lifetime expected credit losses are measured as allowance for doubtful accounts		
	Financial assets of which 12-month expected credit losses are measured as allowance for doubtful accounts	Financial assets whose credit risk increased significantly since initial recognition	Financial assets of which expected credit losses are always measured at their expected lifetime as allowance for doubtful accounts	Total
Not past due	¥36,412	¥ —	¥255,542	¥291,955
Past due not later than 30 days	26	—	10,266	10,292
Past due over 30 days but within 90 days	—	12	1,946	1,958
Past due over 90 days	—	5,433	3,795	9,228
Total	¥36,438	¥5,446	¥271,551	¥313,435

FY2021 (as of Dec. 31, 2021)

(Unit: Millions of yen)

	FY2021 (as of Dec. 31, 2021)			
		Financial assets of which lifetime expected credit losses are measured as allowance for doubtful accounts		
	Financial assets of which 12-month expected credit losses are measured as allowance for doubtful accounts	Financial assets whose credit risk increased significantly since initial recognition	Financial assets of which expected credit losses are always measured at their expected lifetime as allowance for doubtful accounts	Total
Not past due	**¥34,671**	**¥ —**	**¥276,132**	**¥310,804**
Past due not later than 30 days	**140**	**—**	**12,793**	**12,933**
Past due over 30 days but within 90 days	**—**	**52**	**5,183**	**5,236**
Past due over 90 days	**—**	**5,555**	**7,245**	**12,801**
Total	**¥34,812**	**¥5,608**	**¥301,355**	**¥341,775**

ii) Allowance for doubtful debts

Changes in the allowance account for credit losses on trade receivables, other receivables and other financial assets are as follows:

There was no significant increase or decrease in gross carrying amount of the financial instruments which contributed to changes in the allowance account for credit losses during the year ended December 31, 2021.

FY2020 (Jan. 1 through Dec. 31, 2020)

(Unit: Millions of yen)

	FY2020 (Jan. 1 through Dec. 31, 2020)			
		Lifetime expected credit losses		
	12-month expected credit losses	Financial assets whose credit risk increased significantly since initial recognition	Financial assets of which expected credit losses are always measured at their expected lifetime as allowance for doubtful accounts	Total
As of January 1	¥246	¥3,123	¥3,527	¥6,897
Write-off	(0)	—	(741)	(742)
Remeasurements	26	471	1,161	1,660
Others	—	—	0	0
As of December 31	¥272	¥3,595	¥3,948	¥7,815

FY2021 (Jan. 1 through Dec. 31, 2021)

(Unit: Millions of yen)

	FY2021 (Jan. 1 through Dec. 31, 2021)			
		Lifetime expected credit losses		
	12-month expected credit losses	Financial assets whose credit risk increased significantly since initial recognition	Financial assets of which expected credit losses are always measured at their expected lifetime as allowance for doubtful accounts	Total
As of January 1	**¥ 272**	**¥3,595**	**¥3,948**	**¥7,815**
Write-off	**(0)**	**—**	**(957)**	**(957)**
Remeasurements	**(184)**	**(138)**	**1,141**	**821**
Others	**—**	**—**	**—**	**—**
As of December 31	**¥ 88**	**¥3,457**	**¥4,132**	**¥7,679**

(3) Liquidity risk

Liquidity risk is the risk that the Group will encounter difficulty in discharging its financial liabilities using cash or other financial assets.

Financial liabilities such as loans and corporate bonds are exposed to liquidity risks. The Group manages these risks by diversifying fund procurement methods, establishing commitment lines with various financial institutions, and keeping an appropriate balance between direct and indirect fund procurements and a proper mixture of short-term and long-term loans and bonds.

An analysis of the contractual maturities of financial liabilities is as follows:

(Unit: Millions of yen)

	FY2020 (as of December 31, 2020)							
	Carrying amount	Contractual cash flows	Due within one year or less	Due between one year and two years	Due between two years and three years	Due between three years and four years	Due between four years and five years	Due after five years
Non-derivative financial liabilities								
Loans payable	¥ 651,207	¥ 663,249	¥181,570	¥ 92,539	¥ 85,898	¥81,803	¥69,973	¥151,464
Commercial paper	4,654	4,669	4,669	—	—	—	—	—
Corporate bonds	59,885	61,323	309	309	20,309	208	20,100	20,087
Finance lease liabilities	72,213	90,244	12,500	10,844	9,384	8,610	7,703	41,200
Total interest-bearing debt	787,960	819,486	199,048	103,693	115,592	90,623	97,777	212,752
Others(Note)	293,530	294,137	275,254	18,883	—	—	—	—
Total	¥1,081,491	¥1,113,624	¥474,302	¥122,576	¥115,592	¥90,623	¥97,777	¥212,752

Note: Others consist of "trade payables," "other payables" and "other non-current liabilities."

	Carrying amount	Contractual cash flows	Due within one year	Due after one year
Derivative financial liabilities				
Foreign exchange contracts	¥2,523	¥2,529	¥1,756	¥ 772
Interest rate contracts	766	697	325	372
Commodity contracts	301	302	172	129
Total	¥3,591	¥3,528	¥2,253	¥1,273

(Unit: Millions of yen)

	FY2021 (as of December 31, 2021)							
	Carrying amount	Contractual cash flows	Due within one year or less	Due between one year and two years	Due between two years and three years	Due between three years and four years	Due between four years and five years	Due after five years
Non-derivative financial liabilities								
Loans payable	**¥470,662**	**¥480,308**	**¥116,498**	**¥ 70,799**	**¥77,840**	**¥54,196**	**¥50,062**	**¥110,910**
Commercial paper	**—**	**—**	**—**	**—**	**—**	**—**	**—**	**—**
Corporate bonds	**59,910**	**60,813**	**309**	**20,208**	**108**	**20,100**	**62**	**20,025**
Finance lease liabilities	**72,620**	**91,317**	**13,873**	**11,598**	**10,389**	**9,192**	**5,617**	**40,645**
Total interest-bearing debt	**603,194**	**632,439**	**130,681**	**102,606**	**88,337**	**83,489**	**55,741**	**171,582**
Others(Note)	**339,677**	**339,932**	**337,874**	**2,058**	**—**	**—**	**—**	**—**
Total	**¥942,871**	**¥972,371**	**¥468,555**	**¥104,664**	**¥88,337**	**¥83,489**	**¥55,741**	**¥171,582**

Note: Others consist of "trade payables," "other payables," "other non-current liabilities," and "other current liabilities."

	Carrying amount	Contractual cash flows	Due within one year	Due after one year
Derivative financial liabilities				
Foreign exchange contracts	**¥2,469**	**¥2,469**	**¥2,469**	**¥ —**
Interest rate contracts	**492**	**491**	**394**	**97**
Commodity contracts	**23**	**23**	**23**	**—**
Total	**¥2,986**	**¥2,985**	**¥2,888**	**¥97**

The Group does not expect the cash flows included in the maturity analysis to occur much earlier than anticipated or to differ significantly from the anticipated monetary amounts.

(4) Currency risk

The Group operates businesses globally, and is therefore exposed to currency fluctuation risks associated with transactions undertaken in currencies other than the functional currency of the individual Group companies. To manage such risks, the Group hedges the risks with foreign exchange forward contracts, currency swap contracts, and other instruments.

The principal exchange rates are as follows:

(Unit: Yen)

	FY2020 (Jan. 1 through Dec. 31, 2020)		**FY2021 (Jan. 1 through Dec. 31, 2021)**	
	Average rate	Rate at the end of the reporting period	Average rate	Rate at the end of the reporting period
U.S. dollars	¥106.82	¥103.50	**¥109.80**	**¥115.02**
Euros	121.81	126.95	**129.89**	**130.51**

i) Currency risk exposure

The Group's maximum amount of exposure to currency fluctuation risk is as follows.

The exposure excludes amounts for which currency fluctuation risk is hedged using foreign exchange forward contracts, currency swap contracts, and other instruments.

	FY2020 (as of December 31, 2020)		**FY2021 (as of December 31, 2021)**	
	Thousands of U.S. dollars	Thousands of euros	Thousands of U.S. dollars	Thousands of euros
Financial instruments dominated in foreign currency	$(196,836)	€840	**$(257,618)**	**€7,203**

ii) Sensitivity analysis of currency fluctuation risk

In the event of a 1% appreciation against the U.S. dollar and euro at the end of the reporting period, the monetary impact of this exchange rate movement on profit before tax is shown below.

This analysis is performed by multiplying the currency fluctuation risk exposures by 1%, assuming that movements in various exchange rates have no impact on other variables (other exchange rates, interest rates, etc.). It was conducted on the same basis as the analysis for the years ended December 31, 2019 and 2020.

(Unit: Millions of yen)

	FY2020 (Jan. 1 through Dec. 31, 2020)	**FY2021 (Jan. 1 through Dec. 31, 2021)**
U.S. dollars (1% yen appreciation)	¥203	**¥296**
Euros (1% yen appreciation)	(1)	**(9)**

(5) Interest rate risk

Interest-bearing debts with floating rates are exposed to interest rate fluctuation risks. For some long-term floating-rate loans, the Group uses derivative transactions (interest rate swaps) as hedging instruments to avoid the interest rate fluctuation risks and convert the floating rates into fixed rates.

i) Exposure to interest rate risk

The Group's exposure to interest rate fluctuation risk is as follows.

The monetary amount of exposure excludes monetary amounts for which currency fluctuation risk is hedged using interest rate swap contracts.

(Unit: Millions of yen)

	FY2020 (as of December 31, 2020)			**FY2021 (as of December 31, 2021)**		
	Due within one year	Due after one year	Total	Due within one year	Due after one year	Total
Loans payable	¥102,229	¥ —	¥102,229	**¥36,820**	**¥ —**	**¥ 36,820**
Commercial paper	4,654	—	4,654	**—**	**—**	**—**
Current interest-bearing debt	¥106,884	¥ —	¥106,884	**¥36,820**	**¥ —**	**¥ 36,820**
Loans payable	¥ 54,860	¥210,477	¥265,338	**¥68,776**	**¥38,631**	**¥107,408**
Non-current interest-bearing debt	¥ 54,860	¥210,477	¥265,338	**¥68,776**	**¥38,631**	**¥107,408**

ii) Sensitivity analysis of interest rate risk

In the event of a 1% interest rate increase, the monetary impact of financial instruments affected by the interest rate movement on profit before tax is shown below.

This analysis is performed by multiplying the currency fluctuation risk exposures by 1%, assuming that movements in various exchange rates have no impact on other variables (other exchange rates, etc.). It was conducted on the same basis as the analysis for the years ended December 31, 2019 and 2020.

(Unit: Millions of yen)

	FY2020 (Jan. 1 through Dec. 31, 2020)	**FY2021 (Jan. 1 through Dec. 31, 2021)**
Floating interest rate financial instruments	¥(3,722)	**¥(1,442)**

(6) Fair value

i) Financial assets and liabilities measured at fair value

The fair value of financial assets and financial liabilities is determined as follows.

(Derivatives)

Foreign exchange contracts are mainly based on forward exchange rates and prices quoted by financial institutions with which contracts are concluded. Interest rate contracts are mainly based on prices quoted by financial institutions with which contracts are concluded.

Commodity contracts are mainly based on prices quoted by counterparties with whom contracts are concluded. In each case, the financial instruments are classified as Level 2 in the fair value hierarchy.

(Financial assets measured at fair value through other comprehensive income)

The Group measures financial assets at fair value when market values are available, and classifies such assets as Level 1 in the fair value hierarchy. The Group estimates fair values of financial instruments whose market values are unavailable using either the discounted future cash flows method, third-party appraisal, or another appropriate measurement technique. Such financial instruments are classified as Level 3 in the fair value hierarchy.

(Financial assets measured at fair value through profit or loss)

The Group measures financial assets at fair value when market values are available, and classifies such assets as Level 1 in the fair value hierarchy. The Group estimates fair values of financial instruments whose market values are unavailable using either the discounted future cash flows method, third-party appraisal, or another appropriate measurement technique. Such financial instruments are classified as Level 3 in the fair value hierarchy.

ii) Financial assets and liabilities measured at amortized cost

The fair value of financial assets and financial liabilities measured at amortized cost is deter-mined as follows.

(Financial assets measured at amortized cost)

Each receivable is categorized by period, and its fair value is the present value of future cash flows discounted by an interest rate that reflects time to maturity and credit risk.

(Loans payable)

As short-term loans payable are settled on a short-term basis, their fair values approximate their carrying amounts.

The fair values of long-term loans payable are calculated by the total sum of the principal and interest discounted by the interest rates that would apply if similar borrowings were conducted anew. For long-term loans payable at floating interest rates, however, the fair values approximate the carrying amounts because the interest rates are adjusted regularly at fixed intervals.

(Corporate bonds)

Fair values of corporate bonds are calculated based on market prices.

(Financial liabilities measured at amortized cost other than the above)

Each payable is categorized by period, and its fair value is the present value of future cash flows discounted by an interest rate that reflects time to maturity and credit risk.

Financial assets and financial liabilities measured at amortized cost are classified as Level 2 in the fair value hierarchy.

The carrying amounts and fair values of financial instruments as of December 31, 2020 and 2021 are as follows:

(Unit: Millions of yen)

	FY2020 (as of December 31, 2020)		**FY2021 (as of December 31, 2021)**	
	Carrying amount	Fair value	Carrying amount	Fair value
Financial assets measured at fair value				
Other current assets and other financial assets				
Derivatives not designated as hedges	¥ 3,314	¥ 3,314	**¥ 6,439**	**¥ 6,439**
Derivatives designated as hedges	761	761	**7,048**	**7,048**
Other financial assets				
Financial assets measured at FVTOCI(Note)	122,250	122,250	**102,452**	**102,452**
Financial assets measured at FVTPL(Note)	—	—	**4,000**	**4,000**
Financial assets measured at amortized cost				
Cash and cash equivalents	236,124	236,124	**195,830**	**195,830**
Trade receivables	266,177	266,177	**295,161**	**295,161**
Other receivables	31,609	31,609	**32,093**	**32,093**
Other financial assets	6,887	6,887	**6,841**	**6,841**
Financial liabilities measured at fair value				
Other current liabilities and other non-current liabilities				
Derivatives not designated as hedges	3,445	3,445	**2,951**	**2,951**
Derivatives designated as hedges	146	146	**34**	**34**
Financial liabilities measured at amortized cost				
Trade payables	151,874	151,874	**196,435**	**196,435**
Interest-bearing debt (short-term and long-term)				
Loans payable	651,207	654,876	**470,662**	**474,210**
Commercial paper	4,654	4,654	**—**	**—**
Corporate bonds	59,885	60,548	**59,910**	**60,472**
Other payables	123,379	123,379	**122,047**	**122,047**
Other current liabilities	—	—	**19,134**	**19,134**
Other non-current liabilities	18,276	18,276	**2,058**	**2,058**

Note: FVTOCI: Fair Value Through Other Comprehensive Income
FVTPL: Fair Value Through Profit or Loss

iii) Fair value hierarchy

The following table is an analysis of financial instruments measured at fair value by valuation methods. The fair value hierarchy categorizes financial instruments into three levels based on inputs used to measure fair value, as follows:

Inputs include stock prices, exchange rates, and interest rates as well as indexes related to commodity prices, etc.

Level 1: quoted prices in active markets

Level 2: Observable prices other than quoted prices included within Level 1

Level 3: inputs not based on observable market data

(Unit: Millions of yen)

	FY2020 (as of December 31, 2020)			
	Level 1	Level 2	Level 3	Total
Derivative financial assets	¥ —	¥4,075	¥ —	¥ 4,075
Derivatives not designated as hedges	—	3,314	—	3,314
Derivatives designated as hedges	—	761	—	761
Equity instruments	111,425	—	10,825	122,250
Financial assets measured at FVTOCI(Note)	111,425	—	10,825	122,250
Debt instruments	—	—	—	—
Financial assets measured at FVTPL(Note)	—	—	—	—
Derivative financial liabilities	—	3,591	—	3,591
Derivatives not designated as hedges	—	3,445	—	3,445
Derivatives designated as hedges	—	146	—	146

Note: FVTOCI: Fair Value Through Other Comprehensive Income
FVTPL: Fair Value Through Profit or Loss

(Unit: Millions of yen)

	FY2021 (as of December 31, 2021)			
	Level 1	Level 2	Level 3	Total
Derivative financial assets	**¥ —**	**¥13,488**	**¥ —**	**¥ 13,488**
Derivatives not designated as hedges	**—**	**6,439**	**—**	**6,439**
Derivatives designated as hedges	**—**	**7,048**	**—**	**7,048**
Equity instruments	**93,690**	**—**	**8,761**	**102,452**
Financial assets measured at FVTOCI(Note)	**93,690**	**—**	**8,761**	**102,452**
Debt instruments	**—**	**—**	**4,000**	**4,000**
Financial assets measured at FVTPL(Note)	**—**	**—**	**4,000**	**4,000**
Derivative financial liabilities	**—**	**2,986**	**—**	**2,986**
Derivatives not designated as hedges	**—**	**2,951**	**—**	**2,951**
Derivatives designated as hedges	**—**	**34**	**—**	**34**

Note: FVTOCI: Fair Value Through Other Comprehensive Income
FVTPL: Fair Value Through Profit or Loss

The presence of any financial instruments subject to significant transfers between fair value hierarchy levels is determined at the end of every period. There were no financial instruments subject to significant transfers between the fair value hierarchy levels during the years ended December 31, 2020 and 2021.

Changes in financial instruments categorized within Level 3 of the fair value hierarchy during the year are as follows:

(Unit: Millions of yen)

	FY2020 (Jan. 1 through Dec. 31, 2020)	**FY2021 (Jan. 1 through Dec. 31, 2021)**
Balance as of January 1	¥ 8,919	**¥10,825**
Purchases	1,797	**4,260**
Sales	(364)	**(1,655)**
Other comprehensive income	611	**(677)**
Other changes	(139)	**8**
Balance as of December 31	¥10,825	**¥12,761**

iv) Equity instruments

Equity instruments such as equity securities are held mainly for the purpose of maintaining and strengthening business relationships over the medium and long terms, and are designated as financial assets measured at FVTOCI. The following is a breakdown of the major stocks within equity instruments and their fair values:

(Unit: Millions of yen)

	FY2020 (as of December 31, 2020)	**FY2021 (as of December 31, 2021)**
Toyota Motor Corporation	¥ 29,059	**¥ 19,497**
Mitsubishi Estate Co., Ltd.	25,093	**18,105**
Suzuki Motor Corporation	14,202	**13,154**
Honda Motor Co., Ltd.	9,783	**10,982**
Mitsubishi Gas Chemical Company, Inc.	10,501	**7,850**
Others	33,612	**32,862**
Total	¥122,250	**¥102,452**

Equity instruments are sold taking into consideration the fair value such as market value of shares and the need to hold shares for business purposes. The fair values of and cumulative gains or losses (Before tax effects) recognized in other components of equity on stocks sold during the years ended December 31, 2020 and 2021 are shown below. The cumulative gains or losses recognized are transferred on sale from other components of equity to retained earnings.

(Unit: Millions of yen)

FY2020 (Jan. 1 through Dec. 31, 2020)		**FY2021 (Jan. 1 through Dec. 31, 2021)**	
Fair value	Cumulative gains or losses (Before tax effects)	Fair value	Cumulative gains or losses (Before tax effects)
¥2,509	¥1,583	**¥32,153**	**¥23,813**

The following is a breakdown of dividend income recognized from equity instruments:

(Unit: Millions of yen)

FY2020 (Jan. 1 through Dec. 31, 2020)		**FY2021 (Jan. 1 through Dec. 31, 2021)**	
Financial assets derecognized during the year	Financial assets held as of the end of the reporting year	Financial assets derecognized during the year	Financial assets held as of the end of the reporting year
¥45	¥3,037	**¥432**	**¥2,858**

(7) Derivatives and hedge accounting

The Group uses commodity futures and foreign exchange forward contracts to hedge variations in cash flows associated with forecast transactions and interest rate swaps and instruments to hedge variations in cash flows associated with loans payable with floating interest rates. The Group uses these derivatives only for transactions justified by actual demand, and does not hold these derivatives for speculative or trading purposes.

When applying hedge accounting, at the inception of hedges, the Group formally designates and documents hedging relationships to which hedge accounting is applied and the objectives and strategies of risk management for undertaking hedges. Moreover, at the inception of hedges, the Group evaluates whether or not the hedging instrument can be predicted to be effective. Thereafter, the Group continuously evaluates whether the derivative is highly effective in offsetting changes in future cash flows from the hedged item.

For the purpose of hedging variations in cash flows associated with raw material and fuel costs, the Group enters into raw material and fuel swap contracts for natural gas, oil and other commodities to hedge the risk of price fluctuations. The Group has determined that there is an economic relationship between the raw materials and fuel it uses, which reflects market prices, and the hedging instruments that are correlated with market prices for raw materials and fuel. The risk of price fluctuations has an impact on the Group's consolidated financial statements through fluctuations in raw material and fuel costs. Therefore, the Group applies hedge accounting by designating only raw material and fuel costs as risk factors. The designated risk factor accounts for most of the risk of price fluctuations. Moreover, at the inception of hedging relationships, the Group sets an appropriate hedge ratio based on the quantity of the hedged item and the quantity of hedging instruments. In principle, the Group sets the hedge ratio so as to obtain a one-to-one relationship between those quantities.

The ineffective portion of hedging instruments arises mainly because changes in the fair value of the hedging instruments are unable to fully cover the fluctuations in the hedged item, namely the fluctuations in raw material and fuel costs.

For the purpose of hedging variations in cash flows associated with foreign currency-denominated forecast transactions, the Group enters into forward exchange contracts to hedge the risk of exchange rate fluctuations. In applying hedge accounting to the above-mentioned risk, the Group confirms that an economic relationship exists between the hedged item and the hedging instrument through a qualitative evaluation of whether the critical terms of the hedged item and the hedging instrument are the same or closely match. This is in order to confirm that the economic relationship is such that the risk of exchange rate fluctuations, which is the hedged item, is offset by changes in the fair value of the hedging instrument.

Details on cash flow hedges for commodity price risk and exchange rate fluctuations risk are as follows:

i) Impact of hedge accounting on the consolidated statements of financial position

As of December 31, 2020 and 2021, the carrying amount of hedging instruments on the consolidated statements of financial position and the changes in the fair value of hedging instruments used as a basis for calculating hedge ineffectiveness are as follows:

(Unit: Millions of yen)

		FY2020 (as of December 31, 2020)		
Type of risk	Hedging instrument	Carrying amount of hedging instrument		Changes in fair value of hedging instrument
Commodity price risk(Note)	Swap contract	Other current assets	¥530	¥(807)
		Other financial assets	231	
		Other current liabilities	73	
		Other non-current liabilities	53	
Exchange rate fluctuations risk	Forward exchange contract	Other current assets	¥ —	¥ 154
		Other financial assets	—	
		Other current liabilities	20	
		Other non-current liabilities	—	

Note: The delivery month of foregoing contracts are expected to mature within three years from December 31, 2020 and most parts of contracts are expected to mature within one year from December 31, 2020.

(Unit: Millions of yen)

		FY2021 (as of December 31, 2021)		
Type of risk	Hedging instrument	Carrying amount of hedging instrument		Changes in fair value of hedging instrument
Commodity price risk(Note)	Swap contract	Other current assets	**¥5,164**	**¥13,456**
		Other financial assets	**1,884**	
		Other current liabilities	**—**	
		Other non-current liabilities	**—**	
Exchange rate fluctuations risk	Forward exchange contract	Other current assets	**¥ —**	**¥ (10)**
		Other financial assets	**—**	
		Other current liabilities	**34**	
		Other non-current liabilities	**—**	

Note: The delivery month of foregoing contracts are expected to mature within three years from December 31, 2021 and most parts of contracts are expected to mature within one year from December 31, 2021.

The notional amount of hedging instruments as of December 31, 2020 and 2021 are as follows:

(Unit: Millions of yen)

Type of risk	Hedging instrument	FY2020 (as of December 31, 2020) Notional amount	**FY2021 (as of December 31, 2021)** Notional amount
Commodity price risk	Swap contract	¥6,741	**¥3,262**
Exchange rate fluctuations risk	Forward exchange contract	¥4,638	**¥8,416**

The changes in value of the hedged items used as the basis for calculating hedge ineffectiveness and the balances remaining in the cash flow hedge reserve as of December 31, 2020 and 2021 are as follows:

(Unit: Millions of yen)

	FY2020 (as of December 31, 2020)	
Type of risk	Changes in value of hedged item	Cash flow hedge reserve
Commodity price risk	¥ 807	¥635
Exchange rate fluctuations risk	¥(154)	¥ (20)

(Unit: Millions of yen)

	FY2021 (as of December 31, 2021)	
Type of risk	Changes in value of hedged item	Cash flow hedge reserve
Commodity price risk	**¥(13,456)**	**¥7,048**
Exchange rate fluctuations risk	**¥ 10**	**¥ (34)**

ii) Impact of hedge accounting on the consolidated statements of profit or loss and consolidated statements of comprehensive income

Profit or loss items recorded on the consolidated statements of profit or loss and consolidated statements of comprehensive income during the years ended December 31, 2020 and 2021 are as follows:

(Unit: Millions of yen)

	FY2020 (Jan. 1 through Dec. 31, 2020)		
Type of risk	Hedging gains or losses that were recognized in other comprehensive income	Hedge ineffectiveness recognized in profit or loss reclassification adjustment	Amount reclassified from cash flow hedge reserve into the cost of inventories as reclassification adjustment
Commodity price risk	¥(807)	¥—	¥(1,442)

(Unit: Millions of yen)

	FY2020 (Jan. 1 through Dec. 31, 2020)		
Type of risk	Hedging gains or losses that were recognized in other comprehensive income	Hedge ineffectiveness recognized in profit or loss reclassification adjustment	Amount reclassified from cash flow hedge reserve into profit or loss as reclassification adjustment
Exchange rate fluctuations risk	¥154	¥—	¥174

During the year ended December 31, 2020, no cash flow hedges were discontinued as a result of not executing forecast transactions within the initially anticipated time period.

(Unit: Millions of yen)

	FY2021 (Jan. 1 through Dec. 31, 2021)		
Type of risk	Hedging gains or losses that were recognized in other comprehensive income	Hedge ineffectiveness recognized in profit or loss reclassification adjustment	Amount reclassified from cash flow hedge reserve into the cost of inventories as reclassification adjustment
Commodity price risk	**¥13,456**	**¥—**	**¥(7,042)**

(Unit: Millions of yen)

	FY2021 (Jan. 1 through Dec. 31, 2021)		
Type of risk	Hedging gains or losses that were recognized in other comprehensive income	Hedge ineffectiveness recognized in profit or loss reclassification adjustment	Amount reclassified from cash flow hedge reserve into profit or loss as reclassification adjustment
Exchange rate fluctuations risk	**¥(10)**	**¥—**	**¥(4)**

During the year ended December 31, 2021, no cash flow hedges were discontinued as a result of not executing forecast transactions within the initially anticipated time period.

Note 26: Business combinations

FY2020 (Jan. 1 through Dec. 31, 2020)

On June 11, 2019, the Group acquired the US-based Taconic's global operations of the Advanced Dielectric Division (ADD), which manufactures and sells super high-end rigid CCL and industrial films. Whereas allocation of the acquisition price was not completed during the first three months of the fiscal year ended December 31, 2020, given that fair value measurement was pending with respect to the assets acquired and liabilities assumed in relation to the business combination, allocation of the acquisition price was completed during the first six months of the fiscal year ended December 31, 2020.

FY2021 (Jan. 1 through Dec. 31, 2021)

There are no significant transactions to disclose.

On July 31, 2020, the Group acquired 93.23% of the common shares of Molecular Medicine S.p.A., which operates in the field of gene and cell therapy. Whereas the Group disclosed provisional amounts with respect the acquisition in the previous fiscal year given that accounting treatment regarding the acquisition price had yet to be finalized, the accounting treatment was finalized during the first three months of the fiscal year ended December 31, 2021. This mainly resulted in an increase in property, plant and equipment and a ¥50 million decrease in goodwill, relative to the provisionally estimated amounts. The following (2)–(5) have been revised from the provisionally estimated amounts.

Acquisition of shares of Molecular Medicine S.p.A.

(1) Outline of the acquisition

1. Name of the acquiree and main business
   Name of the acquiree: Molecular Medicine S.p.A. (now AGC Biologics S.p.A.)
   Main business: Gene / Cell therapy Development / CDMO
2. Main reason for the acquisition
   The Group positions the life science business including the biopharmaceutical CDMO business as one of its strategic businesses, and aims to achieve annual sales of more than ¥100 billion by 2025. With this acquisition of Molecular Medicine S.p.A., the Group will newly enter the field of gene and cell therapy, which is an advanced technology field, and expand the scope of CDMO business not only in synthetic and current biopharmaceuticals but also into gene and cell therapy.
3. Acquisition date: July 31, 2020
4. Legal structure of acquisition: Acquisition of shares
5. Voting rights ratio after acquisition of shares: 93.23%

(2) Consideration transferred

(Unit: Millions of yen)

	Acquisition price
Cash consideration	¥27,782
Total	¥27,782

(3) Acquisition-related costs are ¥885 million and are recognized in "selling, general and administrative expenses" in the consolidated statements of profit or loss.

(4) Amount of goodwill and factors that make up the goodwill

1. Amount of goodwill: ¥13,344 million
   The allocation of the acquisition price has been completed, therefore the amount of goodwill has been fixed.
2. Factors that make up the goodwill
   The goodwill was recognized from reasonable estimates of future excess earning power expected to be generated from the business development.

(5) Assets acquired and liabilities assumed as of the acquisition date

	(Unit: Millions of yen) Fair value
Assets	
Cash and cash equivalents	¥ 1,794
Trade receivables	1,358
Inventories	328
Property, plant and equipment	2,429
Intangible assets	9,482
Deferred tax assets	3,796
Others	498
Total assets	¥19,688
Liabilities	
Trade payables	¥ 1,672
Others	2,528
Total liabilities	¥ 4,200

Note: The fair value of non-controlling interests calculated in proportion to equity in the recognized amounts of the above-mentioned assets and liabilities was ¥1,049 million.

(6) Disclosure of the net sales and profit for the year of the acquired company since the acquisition date and the net sales and profit for the year of the Company as though the acquisition date of the business combination had been as of the beginning of the fiscal year is omitted as there was only a negligible impact.

(7) The Group made Molecular Medicine S.p.A a wholly owned subsidiary by additional acquisition of shares on September 30, 2020.

Note 27: Commitments

As of December 31, 2020 and 2021, significant contractual commitments relating to the acquisition of property, plant and equipment amounted to ¥19,324 million and ¥5,956 million, respectively.

Note 28: Collateral

Assets pledged as collateral and obligation secured by collateral are as follows:

Assets pledged as collateral

(Unit: Millions of yen)

	FY2020 (as of December 31, 2020)	**FY2021 (as of December 31, 2021)**
Property, plant and equipment	¥5,138	**¥5,108**
Other financial assets	180	**—**
Total	¥5,318	**¥5,108**

Obligation secured by collateral

(Unit: Millions of yen)

	FY2020 (as of December 31, 2020)	**FY2021 (as of December 31, 2021)**
Long-term bank loans	¥61	**¥61**
Total	¥61	**¥61**

Other than the abovementioned, no ownership restrictions or rights of pledge as collateral for obligation have been established.

Note 29: Contingencies

The Group provides guarantees, etc., for borrowings from financial institutions taken out by companies outside the Group amounting to ¥71 million and ¥48 million as of December 31, 2020 and 2021, respectively. This includes commitments to guarantees, etc., amounting to ¥25 million and ¥13 million as of December 31, 2020 and 2021, respectively.

Note 30: Related parties

Related party transactions

Related party transactions were made on terms equivalent to those that prevail in arm's length transactions.

Breakdown of compensation to directors

(Unit: Millions of yen)

	FY2020 (Jan. 1 through Dec. 31, 2020)	**FY2021 (Jan. 1 through Dec. 31, 2021)**
Monthly compensation and bonuses	¥384	**¥492**
Share-based payment(Note)	65	**184**
Total	¥449	**¥676**

Note: Share-based payment amount only consisted of fixed expenses during the year ended December 31, 2020. Reversals of performance-liked expenses recorded until the year ended December 31, 2019 were ¥(93) million in the current fiscal year.

Note 31: Group entities

Major subsidiaries as of December 31, 2021 are as follows:

Subsidiary name	Location	Capital	Main business	Voting rights held by the Company (%)
Consolidated subsidiaries				
Glass				
AGC Glass Kenzai Co., Ltd.	Japan	¥450 million	Production and sales of flat glass, fabricated glass for architectural use and building materials	100.0 (0.0)
AGC Glass Products Co., Ltd.	Japan	¥1,287 million	Production and sales of fabricated glass for architectural use, and cutting and sales of flat glass	70.0 (0.0)
AGC Automotive (Suzhou) Inc.	China	US$236 million	Production and sales of automotive glass	100.0 (0.0)
PT Asahimas Flat Glass Tbk (Note 3)	Indonesia	217 billion rupiah	Production and sales of flat glass, automotive glass and fabricated glass for industrial use	44.5 (0.0)
AGC Flat Glass North America, Inc.	U.S.A.	US$250 million	Production and sales of automotive glass	100.0 (100.0)
AGC Automotive Europe S.A.	Belgium	€148 million	Production and sales of automotive glass	100.0 (100.0)
AGC Glass Europe S.A.	Belgium	€346 million	Production and sales of flat glass	100.0 (0.0)
Electronics				
AGC Techno Glass Co., Ltd.	Japan	¥300 million	Production and sales of glass products for illumination, industrial use, laboratory and other medical uses, and production of optical membrane	100.0 (0.0)
AGC Display Glass Taiwan Inc.	Taiwan	NT$3,120 million	Production and sales of glass for electronics	100.0 (100.0)
AGC Display Glass (Shenzhen) Inc.	China	¥14,200 million	Production and sales of glass for electronics	100.0 (0.0)
AGC Display Glass (Huizhou) Co., Ltd.	China	¥45,800 million	Production and sales of glass for electronics	100.0 (0.0)
AGC Advanced Electronics Display Glass (Shenzhen) Co., Ltd.	China	¥33,700 million	Production and sales of glass for electronics	70.0 (0.0)
AGC Fine Techno Korea Co., Ltd.	South Korea	227,000 million won	Production and sales of glass for electronics	100.0 (33.0)

Subsidiary name	Location	Capital	Main business	Voting rights held by the Company (%)
Chemicals				
Ise Chemicals Corporation*	Japan	¥3,599 million	Production and sales of iodine-related products and metallic compounds, extraction and sales of natural gas	53.2 (0.0)
PT Asahimas Chemical	Indonesia	US$84 million	Production and sales of vinyl chloride, vinyl chloride monomer and caustic soda	52.5 (0.0)
Vinythai Public Company Limited	Thailand	7,111 million baht	Production and sales of vinyl chloride, vinyl chloride monomer and caustic soda	58.8 (0.0)
AGC Biologics Inc.	U.S.A.	US$130 million	Development and manufacturing contract of biopharmaceutical	100.0 (100.0)
AGC Biologics A/S	Denmark	42 million Danish krone	Development and manufacturing contract of biopharmaceutical	100.0 (0.0)
Ceramics/Others				
AGC Ceramics Co., Ltd.	Japan	¥3,500 million	Production and sales of various ceramic products	100.0 (0.0)
AGC Singapore Services Pte. Ltd.	Singapore	US$88 million	Procurement of funds and financing services for affiliates in Asia, and holding of shares in affiliates	100.0 (0.0)
AGC America, Inc.	U.S.A.	US$725 million	Holding of shares in affiliates in North America, and information collection	100.0 (0.0)

Other consolidated subsidiaries	185
Total consolidated subsidiaries	206
Equity method affiliates	27

Notes: 1. Figures disclosed in parentheses in the "Voting rights held by the Company" column represent voting rights held indirectly by the Company.
2. Subsidiaries marked with * in the "Subsidiary name" column have filed a marketable securities report.
3. Although the Group holds less than half of the voting rights, it includes the entity in consolidated subsidiary because it substantially controls the entity.

During the years ended December 31, 2020 and 2021, there was no individually significant subsidiary having non-controlling interests.

Information for equity method affiliates is presented in Note 11 "Equity method affiliates."

Note 32: Subsequent events

The Russia-Ukraine situation

After the close of the fiscal year ended December 31, 2021 onward, the Russia-Ukraine situation could have a wide range of impacts on the Group's consolidated financial statements from the following fiscal years. In Russia, the Group primarily conducts architectural and automotive glass businesses. In the light of the current situation, the Group has decided to suspend investments in the country including the periodic repair of glass manufacturing furnaces. Regarding the automotive glass business, the Group has largely scaled down the production and shipments to automobile manufacturers in Russia.

These impacts include surging prices of resources such as natural gas, which could affect the Group's consolidated financial statements for the fiscal year ending December 31, 2022 and subsequent fiscal years because architectural and automotive glass businesses in Europe need natural gas as a fuel in its manufacturing processes. For this reason, if the surge in natural gas prices continues, the Group's businesses in this region may be affected. As of the reporting date, it is impractical to reasonably estimate the amount of the impact.

KPMG

Independent auditor's report

To the Board of Directors of AGC Inc.:

Opinion

We have audited the accompanying consolidated financial statements of AGC Inc. ("the Company") and its consolidated subsidiaries (collectively referred to as "the Group") which comprise the consolidated statement of financial position as at December 31, 2021, and the consolidated statements of profit, comprehensive income, changes in equity and cash flows for the year then ended and notes, comprising significant accounting policies and other explanatory information.

In our opinion, the accompanying consolidated financial statements present fairly, in all material respects, the consolidated financial position of the Group as at December 31, 2021, and its consolidated financial performance and its consolidated cash flows for the year then ended in accordance with International Financial Reporting Standards (IFRS).

Basis for Opinion

We conducted our audit in accordance with auditing standards generally accepted in Japan. Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Consolidated Financial Statements section of our report. We are independent of the Group in accordance with the ethical requirements that are relevant to our audit of the consolidated financial statements in Japan, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Key Audit Matters

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the consolidated financial statements of the current fiscal year. These matters were addressed in the context of our audit of the consolidated financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters.

With respect to the "Reasonableness of the management's estimate of the value in use used for the impairment testing on property, plant and equipment related to the production facilities for specialty glass for display applications," one of the key audit matters in our audit of the consolidated financial statements of the previous fiscal year, we judged that the relative risk had decreased. We therefore determined that this matter was not a key audit matter in our audit of the consolidated financial statements of the current fiscal year. In addition, with respect to the "Reasonableness of the management's estimate of the value in use used for the impairment testing on the goodwill and intangible assets arising from the acquisition of the super high-end CCL business and other" we judged that the relative risk had increased. Accordingly, we determined that this matter was a key audit matter in our audit of the consolidated financial statements of the current fiscal year.

Reasonableness of the management's estimate of the value in use used for the impairment testing on property, plant and equipment of the automotive glass business in Europe

The key audit matter	How the matter was addressed in our audit
As described in Note 8 “Property, plant and equipment” to the consolidated financial statements, an impairment loss of JPY 18,668 million on property, plant and equipment and other. of the automotive glass business in Europe, which is included in the Glass segment, was included in other expenses in the consolidated statement of profit of the Group for the current fiscal year. Property, plant and equipment of JPY1,323,868 million recognized in the consolidated statement of financial position as at December 31, 2021 included property, plant and equipment of the automotive glass business amounting to JPY57,816 million (after the recognition of an impairment loss), which represented approximately 2.2% of total assets. As described in Note 3 “Significant accounting policies, (9) Impairment of non-financial assets” to the consolidated financial statements, each asset of property, plant and equipment, or the cash-generating unit to which the asset belongs, is assessed for any indication of impairment at the end of each reporting period, and tested for impairment whenever there is such an indication. If the carrying amount exceeds the recoverable amount in the impairment testing, the carrying amount is reduced to the recoverable amount, and the resulting decrease in the carrying amount is recognized as an impairment loss. The automotive glass business in Europe has recognized recurring operating losses from the previous fiscal year and the business environment has deteriorated primarily due to a decrease in automotive production volume caused by the spread of the novel coronavirus disease (COVID-19) and insufficient supply of semiconductors, which resulted in an indication of impairment for the cash-generating unit to which its property, plant and equipment belong. Therefore, an impairment test was performed at the end of the current fiscal year. As a result, an impairment loss was recognized since the recoverable amount was less than the carrying amount of the cash-generating unit due to the revisions of the business plan and the discount rate from the previous fiscal year. Management used the value in use as the recoverable amount, which was calculated by discounting to the present value	The primary procedures we performed to assess whether the estimate of the value in use used for the impairment testing on property, plant and equipment of the automotive glass business in Europe was reasonable are set forth below. We requested the component auditor of AGC Glass Europe, a consolidated subsidiary that operates the business, to perform certain of these audit procedures. Then we evaluated the report of the component auditor as to whether sufficient and appropriate audit evidence was obtained. (1) Internal control testing ● Test of the design and operating effectiveness of certain of AGC Glass Europe’s internal controls relevant to measuring the value in use of the cash-generating unit. (*) ● Test of the design and operating effectiveness of certain of the Company’s internal controls relevant to estimating the discount rate. (**) (2) Assessment of the reasonableness of the estimated value in use ● Assessment of the reasonableness of key assumptions embedded in the business plan of the automotive glass business in Europe, which formed the basis for estimating future cash flows, by performing the following procedures: (*) • Comparison of future sales volume with actual results of past sales volume and forecasts of the European automotive market published by external research organizations; • Inquiry of management regarding the action plans for the improvement of productivity and cost reductions and the inspection of the relevant materials; and • Analysis of the past budget including the causes of variances to evaluate the accuracy of the business plan. ● Assessment of the appropriateness of the model used to estimate the discount rate and the comparison of the input data that formed the basis for estimating the discount rate with the information published by external organizations, by engaging a valuation specialist within our domestic network firms. (**) * Procedures performed by the component auditor of AGC Glass Europe.

at 12% the future cash flows that were estimated based on the five-year business plan of the automotive glass business in Europe developed by management, taking into consideration the future growth potential of the business thereafter. The business plan of the automotive glass business in Europe, which formed the basis for estimating future cash flows, included certain key assumptions such as the prospects for an increase in sales volume based on the premise that automotive production volume would gradually recover from the impact of insufficient supply of semiconductors, improved productivity and cost reductions, and these management assumptions involved a high degree of uncertainty. Accordingly, management's judgment thereon had a significant effect on the estimated future cash flows. In addition, selecting appropriate models and input data for estimating the discount rate used to calculate the value in use requires a high degree of expertise in valuation. We, therefore, determined that our assessment of the reasonableness of the management's estimate of the value in use used for the impairment testing on property, plant and equipment of the automotive glass business in Europe was one of the most significant in our audit of the consolidated financial statements of the current fiscal year, and accordingly, a key audit matter.	** Procedures performed by us

Reasonableness of the management's estimate of the value in use used for the impairment testing on the goodwill and intangible assets arising from the acquisition of the super high-end CCL business and other	
The key audit matter	**How the matter was addressed in our audit**
As described in Note 9 "Goodwill and intangible assets" to the consolidated financial statements, in the consolidated statement of financial position as at December 31, 2021, goodwill of JPY112,916 million and intangible assets of JPY69,913 million were reported, which included goodwill of JPY22,911 million and intangible assets of JPY7,243 million arising from the acquisition of the super high-end copper clad laminate (CCL) business and the industrial film business (the "super high-end CCL business and other") belonging to the Electronics segment. The carrying amount of	The primary procedures we performed to assess the reasonableness of the management's estimate of the value in use used for the impairment testing on the goodwill and intangible assets arising from the acquisition of the super high-end CCL business and other included the following: **(1) Internal control testing** We tested the design and operating effectiveness of certain of the Company's internal controls relevant to measuring the value in use used for the impairment testing on the group of the cash-generating unit including goodwill. **(2) Assessment of the reasonableness of the**

a group of the cash-generating units including the goodwill and intangible assets amounting to JPY31,975 million represented approximately 1.2% of total assets. As described in Note 3, “Significant accounting policies, (9) Impairment of non-financial assets” to the consolidated financial statements, groups of cash-generating units to which goodwill is allocated is tested for impairment annually, regardless of any indication of impairment. For intangible assets, each asset or the cash-generating unit to which the asset belongs, is assessed for any indication of impairment at the end of each reporting period, and tested for impairment whenever there is such an indication. If the carrying amount exceeds the recoverable amount in the impairment testing, the carrying amount is reduced to the recoverable amount, and the resulting decrease in the carrying amount is recognized as an impairment loss. As a result of the impairment testing on the group of cash-generating units including the goodwill and intangible assets arising from the acquisition of the super high-end CCL business and other, the recoverable amount of JPY 37,956 million exceeded the carrying amount of the group of cash-generating units including the goodwill and intangible assets, and therefore an impairment loss was not recognized. Management used the value in use as the recoverable amount, which was calculated by discounting to the present value at 15% the future cash flows that were estimated based on the five-year business plan developed by management, taking into consideration the future growth potential of the business thereafter. The business plan of the super high-end CCL business and other, which formed the basis for estimating future cash flows, included certain key assumptions such as an increase in sales volume of the products for the super high-end CCL business by acquiring market share through market expansion as well as the measures to increase sales; and a rise in the profit margin by improving productivity, and these management’s assumptions involved a high degree of uncertainty. Accordingly, management’s judgment	**estimated value in use** In order to assess the reasonableness of key assumptions embedded in the business plan, which formed the basis for estimating future cash flows, we inquired of management about the basis for which these assumptions were developed. In addition, we: ● for the increase in sales volume, inspected the materials regarding the expected order volume from major customers and external market forecast data and compared them with the latest trends of market share and actual results of past sales; and ● inspected the materials related to the measures to improve productivity. In addition, for the discount rate used to measure the value use, we assessed the appropriateness of the model used to estimate the discount rate and compared the input data that formed the basis for estimating the discount rate with the information published by external organizations, by engaging a valuation specialist within our domestic network firms. Furthermore, we analyzed the sensitivity to changes in key assumptions embedded in the business plan and the discount rate on the recognition of an impairment loss, after considering the results of our assessment of the past budget including the causes of variances.

thereon had a significant effect on the estimated future cash flows. In addition, selecting appropriate models and input data for estimating the discount rate used to calculate the value in use requires a high degree of expertise in valuation. We, therefore, determined that our assessment of the reasonableness of the management's estimate of the value in use used for the impairment testing on the goodwill and intangible assets arising from the acquisition of the super high-end CCL business and other was one of the most significant in our audit of the consolidated financial statements of the current fiscal year, and accordingly, a key audit matter.	

Responsibilities of Management and Corporate Auditors and the Board of Corporate Auditors for the Consolidated Financial Statements

Management is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with IFRS, and for such internal control as management determines is necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, management is responsible for assessing the Group's ability to continue as a going concern, disclosing, as applicable, matters related to going concern in accordance with IFRS and using the going concern basis of accounting unless management either intends to liquidate the Group or to cease operations, or has no realistic alternative but to do so.

Corporate auditors and the board of corporate auditors are responsible for overseeing the directors' performance of their duties with regard to the design, implementation and maintenance of the Group's financial reporting process.

Auditor's Responsibilities for the Audit of the Consolidated Financial Statements

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with auditing standards generally accepted in Japan will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements.

As part of our audit in accordance with auditing standards generally accepted in Japan, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, while the objective of the audit is not to express an opinion on the effectiveness of the Group's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the consolidated financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Group to cease to continue as a going concern.
- Evaluate whether the presentation and disclosures in the consolidated financial statements are in accordance with IFRS, the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.

We communicate with corporate auditors and the board of corporate auditors regarding, among other matters, the planned scope and timing of the audit, significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide corporate auditors and the board of corporate auditors with a statement that we have complied with relevant ethical requirements regarding independence, and communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards. From the matters communicated with corporate auditors and the board of corporate auditors we determine those matters that were of most significance in the audit of the consolidated financial statements of the current period and are therefore the key audit matters. We describe these matters in our auditor's report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, we determine that a matter should not be communicated in our report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication

Interest required to be disclosed by the Certified Public Accountants Act of Japan

We do not have any interest in the Group which is required to be disclosed pursuant to the provisions of the Certified Public Accountants Act of Japan.

/S/ Atsuji Maeno

Designated Engagement Partner

Certified Public Accountant

/S/ Tsutomu Ogawa

Designated Engagement Partner

Certified Public Accountant

/S/ Takahiro Kajiwara

Designated Engagement Partner

Certified Public Accountant

KPMG AZSA LLC

Tokyo Office, Japan

March 30 2022

Notes to the Reader of Independent Auditor's Report:
This is a copy of the Independent Auditor's Report and the original copies are kept separately by the Company and KPMG AZSA LLC.

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