Samsung Electro-Mechanics Co., Ltd. and Subsidiaries

Consolidated Financial Statements December 31, 2022 and 2021

	F	Page(s)
Independe	ent Auditor's Report	1 ~ 4
Consolida	ted Financial Statements	
Conso	lidated Statements of Financial Position	5~6
Conso	lidated Statements of Comprehensive Income	7~8
Conso	lidated Statements of Changes in Equity	9 ~ 10
Conso	lidated Statements of Cash Flows	11
Notes	to the Consolidated Financial Statements	2 ~ 78

Independent Auditor's Report

(English Translation of a Report Originally Issued in Korean)

To the Shareholders and Board of Directors of Samsung Electro-Mechanics Co., Ltd.

Opinion

We have audited the accompanying consolidated financial statements of Samsung Electro-Mechanics Co., Ltd. and its subsidiaries (collectively referred to as the "Group"), which comprise the consolidated statements of financial position as at December 31, 2022 and 2021, and the consolidated statements of comprehensive income, consolidated statements of changes in equity and consolidated statements of cash flows for the years then ended, and notes to the consolidated financial statements, including a summary of significant accounting policies.

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, 2022 and 2021, and its consolidated financial performance and its consolidated cash flows for the years then ended in accordance with International Financial Reporting Standards as adopted by the Republic of Korea ("Korean IFRS").

Basis for Opinion

We conducted our audits in accordance with Korean Standards on Auditing. 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 of the Republic of Korea that are relevant to our audit of the consolidated financial statements and we have fulfilled our other ethical responsibilities in accordance with the ethical requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit 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 period. 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.

Revenue recognition cut- off related to sales of goods

Reason why the matter was determined to be a key audit matter

As described in Note 2 to the consolidated financial statements, the Group is engaged in manufacturing and selling electronics components. Revenue from contracts with customers is recognized when control of the goods is transferred to the customer with the relevant consideration.

The timing of the transfer of control of the Group's products may vary depending on transaction agreements with customers and export terms and conditions, and management's judgement on the timing of revenue recognition is required. Considering the possibility of deliberate manipulation or potential error, we determined the revenue recognition cut-off related to sales of goods as a Key Audit Matter.

How our audit addressed the Key Audit Matter

Key audit procedures we have performed in relation to the Group's revenue recognition cut-off are as follows.

- Evaluated reasonableness of the Group's accounting policy and standard for revenue recognition cut-off.
- Obtained an understanding of controls over sales and accounting systems and evaluated the design and operational effectiveness of those controls.
- Examined the relevant transaction agreements and evidences through audit sampling at transaction level from sales records that occurred before and after the end of the reporting period.
- Determined whether there are any unusual changes by analyzing monthly sales trend of major customers.
- Examined the cause of cancellation and the relevant evidences through audit sampling from sales records canceled within a short period after the end of the reporting period.

Other Matters

Auditing standards and their application in practice vary among countries. The procedures and practices used in the Republic of Korea to audit such consolidated financial statements may differ from those generally accepted and applied in other countries.

The accompanying consolidated financial statements as of and for the years ended December 31, 2022 and 2021, have been translated into the U.S. dollars solely for the convenience of the reader and have been translated on the basis set forth in Note 2 to the consolidated financial statements.

Responsibilities of Management and Those Charged with Governance for the Consolidated Financial Statements

Management is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with Korean 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 and using the going concern basis of accounting unless management either intends to liquidate the Group or to cease operations.

Those charged with governance are responsible for overseeing 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 Korean Standards on Auditing 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 an audit in accordance with Korean Standards on Auditing, 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, but not for the purpose of expressing an opinion on the effectiveness of the entity'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 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 those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide those charged with governance with a statement that we have complied with relevant ethical requirements regarding independence, and to 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 those charged with governance, 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.

The engagement partner on the audit resulting in this independent auditor's report is Joonki Hong, Certified Public Accountant.

Samil Fricewaterhouse Coopers

Seoul, Korea February 17, 2023

This report is effective as of February 17, 2023, the audit report date. Certain subsequent events or circumstances, which may occur between the audit report date and the time of reading this report, could have a material impact on the accompanying consolidated financial statements and notes thereto. Accordingly, the readers of the audit report should understand that there is a possibility that the above audit report may have to be revised to reflect the impact of such subsequent events or circumstances, if any.

Samsung Electro-Mechanics Co., Ltd. and Subsidiaries Consolidated Statements of Financial Position December 31, 2022 and 2021

		Kor	ean won	U.S. dolla	ar (Note 2)
	Notes	2022	2021	2022	2021
Assets					
Current assets:					
Cash and cash equivalents	4,27	₩ 1,677,067,099,64	18 ₩ 1,185,206,917,554	\$ 1,323,338,672	\$ 935,222,061
Other current financial assets	5,27	66,362,458,82	24 60,740,975,018	52,365,232	47,929,437
Trade and other receivables	6,24,27	1,055,693,111,10	1,287,006,556,417	833,025,417	1,015,550,033
Short-term loans	27	94,172,7	10 282,463,852	74,310	222,886
Advanced payments		25,891,472,5	58 2,730,711,549	20,430,421	2,154,748
Prepaid expenses		49,412,984,93	53,916,760,324	38,990,756	42,544,591
Prepaid income tax	22	4,968,964,42	27 11,699,702,443	3,920,906	9,231,991
Inventories, net	7	1,901,579,577,6	71 1,818,409,548,484	1,500,496,787	1,434,869,051
Right of return assets	15	20,384,009,24	22,614,441,772	16,084,597	17,844,584
Assets held for sale	28	86,864,919,73	155,660,681,334	68,543,297	122,828,597
		4,888,318,770,84	4,598,268,758,747	3,857,270,394	3,628,397,979
Non-current assets:					
Investment in associates	8	71,089,149,0	75 80,048,732,838	56,094,965	63,164,786
Financial assets measured at fair value	9,27	245,763,578,23	35 264,413,213,589	193,926,914	208,642,952
Long-term loans	27	3,432,637,80	2,625,594,696	2,708,623	2,071,802
Property, plant and equipment	10	5,235,280,993,90	08 4,639,381,068,128	4,131,051,049	3,660,838,845
Right-of-use assets	12	117,039,322,09	96 122,801,116,200	92,353,288	96,899,800
Intangible assets, net	11	150,053,392,5	12 141,837,666,532	118,404,003	111,921,145
Net employee defined benefit assets	16	111,842,773,4	79 -	88,252,800	-
Other non-current financial assets	5,27	19,621,751,80	21,241,136,304	15,483,115	16,760,938
Long-term advanced payments and prepaid expenses		31,353,287,0	53 29,560,582,803	24,740,225	23,325,639
Deferred tax assets	22	123,375,241,83	41,196,168,610	97,352,830	32,507,037
		6,108,852,127,79	92 5,343,105,279,700	4,820,367,812	4,216,132,944
Total assets		₩ 10,997,170,898,6	<u>₩</u> 9,941,374,038,447	\$ 8,677,638,206	\$ 7,844,530,923

Samsung Electro-Mechanics Co., Ltd. and Subsidiaries Consolidated Statements of Financial Position December 31, 2022 and 2021

		Korea	an won	U.S. dollar	r (Note 2)
	Notes	2022	2021	2022	2021
Liabilities					
Current liabilities:					
Trade and other payables	13,24,27	₩ 1,193,565,531,695	1,475,009,292,693	\$ 941,817,669	\$ 1,163,899,071
Short-term borrowings	6,14,27	810,257,330,032	56,486,396,659	639,357,161	44,572,238
Advances received	18	73,382,677,506	29,806,129,501	57,904,740	23,519,395
Income tax payables		77,119,295,531	195,870,046,745	60,853,228	154,556,969
Current portion of long-term borrowings	14,27	274,390,225,080	316,116,596,463	216,515,604	249,441,014
Current lease liabilities	12,27	23,894,998,289	22,873,314,312	18,855,045	18,048,855
Provisions for product warranties	17	1,459,642,448	3,188,491,301	1,151,773	2,515,972
Refund liabilities	15	25,227,794,028	29,762,090,694	19,906,726	23,484,645
Liabilities directly associated with the assets held for sale	28	-	6,936,366,405	-	5,473,342
Other current liabilities	5,27	45,825,985,361	98,608,096,073	36,160,329	77,809,592
		2,525,123,479,970	2,234,656,820,846	1,992,522,276	1,763,321,093
Non-current liabilities:					
Long-term borrowings	14,27	336,606,575,602	619,762,226,818	265,609,229	489,041,448
Long-term other payables	13	77,900,142,665	77,745,406,424	61,469,378	61,347,279
Net employee defined benefit liabilities	16	16,861,659,083	24,176,013,712	13,305,184	19,076,788
Long-trem advances received	18	285,786,320,663	-	225,508,025	-
Long-term lease liabilities	12,27	60,087,422,315	67,305,046,783	47,413,732	53,109,009
Deferred tax liabilities	22	1,320,619,058	971,824,634	1,042,073	766,847
Other non-current liabilities	5		45,631,056,419		36,006,515
		778,562,739,386	835,591,574,790	614,347,620	659,347,885
Total liabilities		3,303,686,219,356	3,070,248,395,636	2,606,869,896	2,422,668,978
Equity					
Issued capital	19	388,003,400,000	388,003,400,000	306,165,391	306,165,391
Share premium	19	1,053,516,215,437	1,053,516,215,437	831,307,674	831,307,674
Other components of equity	19	(146,701,455,500)	(146,701,455,500)	(115,759,059)	(115,759,059)
Accumulated other comprehensive income	19	623,163,733,141	616,908,618,407	491,725,506	486,789,725
Other capital reserves	19	3,315,765,257,472	2,716,865,257,472	2,616,401,213	2,143,821,713
Retained earnings		2,304,746,822,612	2,090,356,960,216	1,818,627,651	1,649,457,082
Equity attributable to owners of the parent		7,538,493,973,162	6,718,948,996,032	5,948,468,376	5,301,782,527
Non-controlling interests		154,990,706,123	152,176,646,779	122,299,934	120,079,418
Total equity		7,693,484,679,285	6,871,125,642,811	6,070,768,310	5,421,861,945
Total liabilities and equity		₩ 10,997,170,898,641	₩ 9,941,374,038,447	\$ 8,677,638,206	\$ 7,844,530,923

The U.S. dollar figures are provided for information purpose only and do not form part of the audited consolidated financial statements. See Note 2.

The above consolidated statements of financial position should be read in conjunction with the accompanying notes.

Samsung Electro-Mechanics Co., Ltd. and Subsidiaries Consolidated Statements of Comprehensive Income December 31, 2022 and 2021

			Korea	n won		U.S. dolla	r (Note	2)
	Notes		2022		2021	2022		2021
Continuing operations								
Sales	3,20,24	₩	9,424,551,868,027	₩	9,675,036,127,726	\$ 7,436,717,327	\$	7,634,369,232
Cost of sales	20,24		7,161,405,783,757		7,127,098,008,982	 5,650,915,950		5,623,844,401
Gross profit			2,263,146,084,270		2,547,938,118,744	1,785,801,376		2,010,524,831
Selling and administrative expenses	20		1,080,310,159,999		1,061,065,284,940	 852,450,217		837,264,487
Operating profit			1,182,835,924,271		1,486,872,833,804	933,351,159		1,173,260,344
Financial income	21,27		29,253,949,383		8,859,700,648	23,083,681		6,991,005
Financial costs	21,27		46,306,451,763		39,757,132,062	36,539,455		31,371,524
Share of profit of associates	8		(2,916,492,121)		10,354,076,645	(2,301,343)		8,170,186
Other income	21,27		504,596,301,520		225,459,258,605	398,166,418		177,905,199
Other expenses	21,27		480,635,143,560		200,479,782,773	 379,259,168		158,194,416
Profit before tax from continuing operations			1,186,828,087,730		1,491,308,954,867	936,501,292		1,176,760,794
Income tax expense	22		164,121,856,507		413,648,216,008	 129,505,134		326,401,180
Profit for the year from continuing operations			1,022,706,231,223		1,077,660,738,859	806,996,158		850,359,614
Discontinued operations								
Loss for the year from discontinued operations	28		(29, 187, 049, 053)		(162,228,286,164)	 (23,030,892)		(128,010,957)
Profit for the year		₩	993,519,182,170	₩	915,432,452,695	\$ 783,965,266	\$	722,348,657
Other comprehensive income:								
Other comprehensive income (loss) not to be reclassified to								
profit or loss in subsequent periods (net of tax):								
Re-measurement loss on defined benefit plans Net gains (loss) on valuation of			(8,469,877,031)		(52,580,804,869)	(6,683,403)		(41,490,417)
financial assets measured at fair value through OCI			(16,110,674,057)		19,062,712,020	(12,712,597)		15,041,988
Capital changes in equity method			(827,238,693)		1,728,459,236	(652,757)		1,363,891
Other comprehensive income (loss) to be reclassified to			(027,230,000)		1,720,439,230	(002,707)		1,303,031
profit or loss in subsequent periods (net of tax):								
Exchange differences on translation of foreign operations			15,806,710,619		197,451,593,532	12,472,746		155,804,935
Other comprehensive income (loss), net of tax			(9,601,079,162)		165,661,959,919	 (7,576,011)		130,720,398
other comprehensive meeting (1033), net of tax			(3,001,073,102)		130,001,303,313	(1,510,011)		100,720,390
Total comprehensive income, net of tax		₩	983,918,103,008	₩	1,081,094,412,614	\$ 776,389,255	\$	853,069,054

Samsung Electro-Mechanics Co., Ltd. and Subsidiaries Consolidated Statements of Comprehensive Income December 31, 2022 and 2021

			Korea	n won		 U.S. dolla	r (Note	e 2)
	Notes		2022		2021	2022		2021
Profit for the year from continuing operations attributable to:								
Equity holders of the parent		₩	1,009,738,691,180	₩	1,055,411,299,515	\$ 796,763,743	\$	832,803,045
Non-controlling interests			12,967,540,043		22,249,439,344	10,232,415		17,556,569
Profit for the year attributable to:								
Equity holders of the parent		₩	980,551,642,127	₩	892,445,316,914	\$ 773,732,851	\$	704,209,987
Non-controlling interests			12,967,540,043		22,987,135,781	10,232,415		18,138,669
Total comprehensive income for the year attributable to:								
Equity holders of the parent		₩	978,336,879,830	₩	1,044,253,792,766	\$ 771,985,228	\$	823,998,890
Non-controlling interests			5,581,223,178		36,840,619,848	4,404,027		29,070,165
Earnings per share:	23							
Basic and diluted, profit for the year attributable								
to ordinary shareholders of the parent		₩	12,977	₩	11,811	\$ 10.24	\$	9.32
Basic and diluted, profit for the year attributable								
to preferred shareholders of the parent		₩	13,027	₩	11,861	\$ 10.28	\$	9.36
Basic and diluted, profit for the year from continuing operations								
attributable to ordinary shareholders of the parent		₩	13,364	₩	13,968	\$ 10.55	\$	11.02
Basic and diluted, profit for the year from continuing operations								
attributable to preferred shareholders of the parent		₩	13,414	₩	14,018	\$ 10.58	\$	11.06

The U.S. dollar figures are provided for information purpose only and do not form part of the audited consolidated financial statements. See Note 2.

The above consolidated statements of comprehensive should be read in conjunction with the accompanying notes.

Samsung Electro-Mechanics Co., Ltd. and Subsidiaries Consolidated Statements of Changes in Equity December 31, 2022 and 2021

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					Attributa	able to	Attributable to equity holders of the parent	e pare	ıt								
						¥	Accumulated										
					Other		other										
					components	8	comprehensive		Other		Retained			Non-controlling	lling		•
	ssued capital		Share premium		of equity		income	ន	capital reserves		earnings		Sub-tota	interests		-	Total equity
January 1, 2021	** 388,003,400,000	≱	1,045,201,199,091	*	(146,701,455,500)	*	412,519,337,686	*	2,481,265,257,472 +	*	1,592,001,275,871	*	5,772,289,014,620		138,106,924,877	*	5,910,395,939,497
Profit for the year			•		•		•		•		892,445,316,914		892,445,316,914	22,987	22,987,135,781		915,432,452,695
Other comprehensive income:																	
Re-measurement gains on defined benefit plans			•		•		•		•		(52,580,804,869)		(52,580,804,869)		٠		(52,580,804,869)
Net gains on valuation of																	
financial assets measured at fair value			•		•		19,062,712,020		•		•		19,062,712,020		٠		19,062,712,020
Capital changes in equity method			•		•		1,728,459,236		•		•		1,728,459,236		٠		1,728,459,236
Foreign currency translation adjustments			•		•		183,598,109,465		•		٠		183,598,109,465	13,853	13,853,484,067		197,451,593,532
Total comprehensive income			•		•		204,389,280,721		•		839,864,512,045		1,044,253,792,766	36,840	36,840,619,848		1,081,094,412,614
Dividends			•		•		•		•		(105,908,827,700)		(105,908,827,700)		٠		(105,908,827,700)
Appropriation of retained earnings			•		•		•		235,600,000,000		(235,600,000,000)				٠		•
Changes in non-controlling interests		ا	8,315,016,346		•				•				8,315,016,346	(22,770,	(22,770,897,946)		(14,455,881,600)
December 31, 2021	₩ 388,003,400,000	≱ 0	1,053,516,215,437	*	(146,701,455,500)	*	616,908,618,407	*	2,716,865,257,472	*	2,090,356,960,216	*	6,718,948,996,032 W		152,176,646,779	*	6,871,125,642,811
Opport A 2000	000 001 600 006	3	705 246 346 427	3	146 704 466 600)	*	4 700 610 407	*	U 071 730 300 317 0	,	2 000 256 060 246	3	740 040 006 020		075 646 770	W	100 043 044
January 1, 2022			1,050,010,011,457												040,73		3,071,123,042,011
Profit for the year			•		•		•		•		980,551,642,127		980,551,642,127	12,967	12,967,540,043		993,519,182,170
Other comprehensive income:																	
Re-measurement gains on defined benefit plans			•		•		•		•		(8,469,877,031)		(8,469,877,031)		٠		(8,469,877,031)
Net gains on valuation of																	
financial assets measured at fair value			•		•		(16,110,674,057)		•		•		(16,110,674,057)		٠		(16,110,674,057)
Capital changes in equity method			•		•		(827,238,693)		•		•		(827,238,693)		٠		(827,238,693)
Foreign currency translation adjustments			•				23, 193, 027, 484		1				23, 193, 027, 484	(7,386,	(7,386,316,865)		15,806,710,619
Total comprehensive income			•		•		6,255,114,734		•		972,081,765,096		978,336,879,830	5,581	5,581,223,178		983,918,103,008
Dividends			•		•		•				(158,791,902,700)		(158,791,902,700)	(2,816,	(2,816,043,834)		(161,607,946,534)
Appropriation of retained earnings			•		•		•		598,900,000,000		(598,900,000,000)				•		•
Changes in non-controlling interests							•							48	48,880,000		48,880,000
December 31, 2022	₩ 388,003,400,000	≱	1,053,516,215,437	*	(146,701,455,500)	*	623,163,733,141	*	3,315,765,257,472	*	2,304,746,822,612	*	7,538,493,973,162 **	154,990	154,990,706,123	*	7,693,484,679,285

Samsung Electro-Mechanics Co., Ltd. and Subsidiaries Consolidated Statements of Changes in Equity December 31, 2022 and 2021

(in U.S. dollars (Note 2))

				Accumulated					
			Other	other					
			components	comprehensive	Other	Retained		Non-controlling	
	ssued capital	Share premium	of equity	income	capital reserves	earnings	Sub-total	interests	Total equity
January 1, 2021	306, 165, 391	\$ 824,746,468	\$ (115,759,059)	\$ 325,510,406 \$	1,957,914,667 \$	1,256,215,005 \$	4,554,792,878 \$	108,977,294 \$	4,663,770,172
Profit for the year	•	•				704,209,987	704,209,987	18,138,669	722,348,657
Other comprehensive income:									
Re-measurement gains on defined benefit plans	•			•		(41,490,417)	(41,490,417)	•	(41,490,417)
Net gains on valuation of									
financial assets measured at fair value	•	•		15,041,988		•	15,041,988	•	15,041,988
Capital changes in equity method	•	•	•	1,363,891			1,363,891	•	1,363,891
Foreign currency translation adjustments	•			144,873,439	•	٠	144,873,439	10,931,495	155,804,935
Total comprehensive income	•	•	•	161,279,319	•	662,719,571	823,998,890	29,070,165	853,069,054
Dividends	•	•				(83,570,447)	(83,570,447)	•	(83,570,447)
Appropriation of retained earnings	•	•	•	•	185,907,046	(185,907,046)	•	•	•
Changes in non-controlling interests	•	6,561,206		•	•	•	6,561,206	(17,968,041)	(11,406,835)
December 31, 2021	306,165,391	\$ 831,307,674	\$ (115,759,059)	\$ 486,789,725 \$	2,143,821,713 \$	1,649,457,082 \$	5,301,782,527 \$	120,079,418 \$	5,421,861,945
600 Francisci	100	00 100 PT	(445 750 050)	\$ 307.007.20V	0 142 001 713	1 640 457 002 0	6 204 705 527	120 070 110	300 100 100 1
	160,001,000		(660,867,611)	400,109,123	2,143,621,713				0,421,001,940
Profit for the year	•	•				773,732,851	773,732,851	10,232,415	783,965,266
Re-measurement gains on defined benefit plans	•	•	•	•	•	(6,683,403)	(6,683,403)	•	(6,683,403)
Net gains on valuation of									
financial assets measured at fair value	•	•	•	(12,712,597)	•	•	(12,712,597)	•	(12,712,597)
Capital changes in equity method	•	•		(652,757)			(652,757)	•	(652,757)
Foreign currency translation adjustments	•			18,301,134	·		18,301,134	(5,828,389)	12,472,746
Total comprehensive income	•	•		4,935,781	•	767,049,448	771,985,228	4,404,027	776,389,255
Dividends	•	•	•	•		(125,299,379)	(125,299,379)	(2,222,081)	(127,521,460)
Appropriation of retained earnings	•	•			472,579,500	(472,579,500)			•
Changes in non-controlling interests	•			•		•		38,570	38,570
December 31, 2022 \$	306,165,391	\$ 831,307,674	\$ (115,759,059)	\$ 491,725,506 \$	2,616,401,213 \$	1,818,627,651 \$	5,948,468,376 \$	122,299,934 \$	6,070,768,310

The U.S. dollar figures are provided for information purpose only and do not form part of the audited consolidated financial statements. See Note 2.

The above consolidated statements of changes in equity should be read in conjunction with the accompanying notes.

Samsung Electro-Mechanics Co., Ltd. and Subsidiaries Consolidated Statements of Cash Flows December 31, 2022 and 2021

			Korea	n wor	1		U.S. dolla	ır (Note 2	2)
	Notes		2022		2021		2022		2021
Cook flows from an artistic and title									
Cash generated from energtions	25	₩	1 000 007 271 147	14/	1 966 495 419 009	•	1 405 755 047	¢.	1 472 904 719
Cash generated from operations	25	44	1,882,897,371,147	₩	1,866,485,418,998	\$	1,485,755,047	\$	1,472,804,718
Interest received			23,811,117,431		8,274,286,966		18,788,856		6,529,067
Income tax paid			(331,352,661,847)		(143,515,599,757)		(261,463,475)		(113,245,167)
Net cash inflow from operating activities			1,575,355,826,731	_	1,731,244,106,207	_	1,243,080,428		1,366,088,618
Cash flows from investing activities									
Increase (decrease) in other financial assets, net			1,456,508,605		(9,792,962,368)		1,149,301		(7,727,422)
Disposal of financial assets measured at fair value			726,454,724		480,683,526		573,230		379,297
Acquisition of financial assets measured at fair value			(4,330,523,588)		(35,813,233,098)		(3,417,126)		(28,259,475)
Proceeds from disposal of property, plant and equipment			17,249,434,305		18,551,678,067		13,611,169		14,638,742
Acquisition of property, plant and equipment			(1,296,527,887,059)		(844,237,017,708)		(1,023,063,116)		(666, 169, 824)
Receipt of government grant			-		44,881,468,992		-		35,415,031
Proceeds from disposal of intangible assets			56,394,529		-		44,500		-
Acquisition of intangible assets			(48,572,209,646)		(30,879,134,770)		(38,327,318)		(24,366,081)
Dividends received			5,296,751,200		5,752,874,071		4,179,556		4,539,473
Net cash flow due to disposal of discontinued operations			(2,925,807,936)		6,000,000,000		(2,308,694)		4,734,475
Net cash outflow from investing activities			(1,327,570,884,866)	_	(845,055,643,288)		(1,047,558,498)		(666,815,784)
Cash flows from financing activities									
Proceeds from short-term borrowings			873,717,315,493		200,193,000,000		689,432,112		157,968,121
Repayment of short-term borrowings			(79,566,396,659)		(553,411,118,644)		(62,784,184)		(436,685,172)
Repayment of current portion of long-term borrowings			(472,331,712,889)		(700,629,520,893)		(372,707,104)		(552,852,143)
Proceeds from long-term borrowings			103,316,000,009		79,250,455,886		81,524,501		62,534,882
Repayment of lease liabilities			(26,993,651,062)		(20,388,259,497)		(21,300,127)		(16,087,950)
Interest paid			(43,528,508,024)		(40,354,694,151)		(34,347,438)		(31,843,048)
Dividends paid			(161,602,887,384)		(131,170,767,451)		(127,517,468)		(103,504,117)
Increase (decrease) in non-controlling interests			48,880,000		(14,455,881,600)		38,570		(11,406,835)
Net cash inflow (outflow) from financing activities			193,059,039,484		(1,180,966,786,350)		152,338,862		(931,876,262)
Net increase (decrease) in cash and cash equivalents			440,843,981,349		(294,778,323,431)		347,860,792		(232,603,427)
Effects of exchange rate changes on cash and cash equivalents			3,647,609,957		41,899,739,735		2,878,253		33,062,211
Cash and cash equivalents at January 1			1,232,575,508,342		1,485,454,092,038		972,599,628		1,172,140,844
Cash and cash equivalents at December 31		₩	1,677,067,099,648	₩	1,232,575,508,342	\$	1,323,338,672	\$	972,599,628

The U.S. dollar figures are provided for information purpose only and do not form part of the audited consolidated financial statements. See Note 2.

The above consolidated statements of cash flows should be read in conjunction with the accompanying notes.

1. Organization and business

1.1 The Company

Samsung Electro-Mechanics Co., Ltd. (the "Company") was incorporated on August 8, 1973 under the laws of the Republic of Korea to engage in manufacture and sales of various electronic components. The ordinary shares of the Company have been publicly traded on the Korea Exchange since 1979.

As of December 31, 2022, the Company's manufacturing plants are located in Suwon, Sejong and Busan. The Company maintains its overseas business operations through 14 direct subsidiaries and one indirect subsidiary located in the Americas, Europe and Asia.

1.2 Consolidated subsidiaries

Details of consolidated subsidiaries as of December 31, 2022 are as follows (Korean won in thousands):

Subsidiary	Issued capital	Number of shares	Equity interest	Principal activities	Domicile
Dongguan Samsung Electro- Mechanics Co., Ltd. (*1)(*2)	73,534,869	-	100.00%	Passive component manufacturing Passive	China
Tianjin Samsung Electro- Mechanics Co., Ltd. (*1)	331,501,389	-	81.76%	component manufacturing Passive	China
Samsung Electro-Mechanics Philippines, Corp.	53,917,212	4,046,711	100.00%	component manufacturing Camera	Philippines
Samsung High-Tech Electro- Mechanics(Tianjin) Co., Ltd. (*1)	38,972,998	-	95.00%	module manufacturing Printed circuit	China
Kunshan Samsung Electro- Mechanics Co., Ltd. (*1)(*3)	643,181,550	-	100.00%	board manufacturing Camera	China
Samsung Electro-Mechanics Vietnam Co., Ltd. (*1)	112,840,500	-	100.00%	module manufacturing	Vietnam
Samsung Electro-Mechanics America, Inc. Samsung Electro-Mechanics	3,420,160	5,000	100.00%	Trading	USA
GmbH (*1) Calamba Premier Realty	3,089,662	-	100.00%	Trading	Germany
Corporation (*4) Samsung Electro-Mechanics Pte, Ltd.	3,383	398	39.80%	Real estate	Philippines
Samsung Electro-Mechanics	1,215,800	1,760,200	100.00% 100.00%	Trading	Singapore China
(Shenzhen) Co., Ltd. (*1) Samsung Electro-Mechanics	2,368,283	-	100.00%	Trading	China
Japan Co., Ltd.	4,696,119	330,000	100.00%	Trading	Japan
Batino Realty Corporation Samsung Electro-Mechanics Software	2,704	1,000	39.80%	Real estate Software	Philippines
India Bangalore Private Limited	16,790	100,000	100.00%	development	India
SVIC#47 (*1)	25,564,000	-	99.00%	Investment	Korea

The fiscal year for all subsidiaries ends on December 31.

1.2 Consolidated subsidiaries (cont'd)

- (*1) These subsidiaries are limited liability entities that do not issue shares in accordance with local law.
- (*2) Dongguan Samsung Electro-Mechanics Co., Ltd. is under liquidation process as of December 31, 2022.
- (*3) Kunshan Samsung Electro-Mechanics Co., Ltd. discontinued its operations during 2019, and is under disposal process of the remaining assets and classified them as assets held for sale (Note 28).
- (*4) The subsidiary owns 100% of Batino Realty Corporation, an indirect subsidiary.

Although the Company's equity interests in Calamba Premier Realty Corporation and Batino Realty Corporation are less than 50%, it is assessed that the Group holds *de facto* control over these entities as the retirement pension fund for the employees of Samsung Electro-Mechanics Philippines, Corp. owns more than 50% of the equity interests.

The summary of the consolidated subsidiaries' financial position as of December 31, 2022 and the results of their financial performance for the year then ended, which have been included in the accompanying consolidated financial statements are as follows (Korean won in thousands):

Subsidiary		Total assets		Total liabilities		Sales		Profit (loss) for the year
Samsung Electro-Mechanics								
(Thailand) Co., Ltd.(*)	₩	-	₩	-	₩	18,387,195	₩	(4,665,980)
Dongguan Samsung Electro-								
Mechanics Co., Ltd.		144,952,338		609,259		-		2,385,015
Tianjin Samsung Electro-								
Mechanics Co., Ltd.		2,066,658,201		1,270,796,467		2,056,965,402		66,642,031
Samsung Electro-Mechanics								
Philippines, Corp.		961,669,329		605,818,126		1,037,158,417		20,270,454
Samsung High-Tech Electro-								
Mechanics (Tianjin) Co., Ltd.		373,711,191		125,499,874		1,109,602,942		16,986,319
Kunshan Samsung Electro-				404.40=				(= = (= = = = =)
Mechanics Co., Ltd.		156,992,043		401,437		32,121		(5,510,580)
Samsung Electro-Mechanics		4 004 504 047		4 404 477 400		4 075 470 404		40 404 440
Vietnam Co., Ltd.		1,821,521,817		1,164,177,109		1,975,170,161		43,481,440
Samsung Electro-Mechanics America, Inc.		50,233,685		22,228,238		530,803,472		2,951,564
Samsung Electro-Mechanics		30,233,003		22,220,230		550,605,472		2,951,504
GmbH		99,792,788		52,849,139		324,308,633		5,668,733
Calamba Premier Realty		33,132,100		32,043,133		324,300,033		3,000,733
Corporation		8,316,510		5,861,866		_		576,524
Samsung Electro-Mechanics		0,0.0,0.0		0,00.,000				0.0,02.
Pte, Ltd.		66,044,550		30,877,623		348,347,958		1,636,302
Samsung Electro-Mechanics		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		, , , , , , , , , , , , , , , , , , , ,		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		, ,
(Shenzhen) Co., Ltd.		681,599,903		479,734,256		2,425,726,114		20,042,108
Samsung Electro-Mechanics								
Japan Co., Ltd.		29,367,991		23,897,871		174,895,962		383,433
Batino Realty Corporation		4,999,880		3,797,603		_		142,056
Samsung Electro-Mechanics Software India Bangalore		,,000,000		3,1 31,133				,000
Private Limited		8,073,492		5,501,926		8,618,356		865,343
SVIC#47		23,577,191		255,773		_		(137,215)
	337		117		337	40.040.040.700	111	
	₩	6,497,510,909	₩	3,792,306,567		10,010,016,733	₩	171,717,547

^(*) The interests in Samsung Electro-Mechanics (Thailand) Co., Ltd. was sold in April 30, 2022 (Note 28). The amount represents the profit or loss from the transactions prior to the sale.

1.2 Consolidated subsidiaries (cont'd)

Profit attributable to non-controlling interests

Details of profit or loss attributable to non-controlling interests for the year ended December 31, 2022 are as follows (Korean won in thousands):

Subsidiary	Non-controlling ownership	allo	Profit or loss ocated to non- controlling interests	C	dends paid to non- ontrolling nterests		Remaining on-controlling interests
Tianjin Samsung Electro-							
Mechanics Co., Ltd.	18.24%	₩	11,775,495	₩	2,204,691	₩	142,432,126
Samsung High-Tech Electro-							
Mechanics (Tianjin) Co., Ltd.	5.00%		760,832		611,353		12,048,707
Calamba Premier Realty Corp.	60.20%		347,068		-		(141,134)
Batino Realty Corporation	60.20%		85,517		-		633,433
SVIC#47	1.00%		(1,372)		<u>-</u>		17,574
		₩	12,967,540	₩	2,816,044	₩	154,990,706

Subsidiaries excluded from the consolidation for the year ended December 31, 2022:

Subsidiaries	Description
Samsung Electro-Mechanics (Thailand) Co., Ltd.	Disposal

2. Significant Accounting Policies

2.1 Basis of financial statements preparation

Samsung Electro-Mechanics Co., Ltd. and its subsidiaries (collectively referred to as the "Group") prepare statutory financial statements in the Korean language in accordance with Korean International Financial Reporting Standards (Korean IFRS) enacted by the *Act on External Audit of Stock Companies*.

The accompanying consolidated financial statements have been prepared on a historical cost basis, except for financial instruments that have been measured at fair value and when otherwise noted. The consolidated financial statements are presented in Korean won (KRW) with all values rounded to the nearest thousands, except when otherwise indicated. The accompanying consolidated financial statements have been condensed, restructured, and translated into English from the Korean language financial statements.

United States dollar amounts

The U.S. dollar amounts provided herein represent supplementary information solely for the convenience of the reader. All Korean won amounts of the 2022 and 2021 financial statements are translated to U.S. dollars at US\$1:\(\psi\) 1,267.30, the exchange rates in effect on December 31, 2022. Such presentation is not in accordance with Korean International Financial Reporting Standards and should not be construed as a representation that the won amounts shown could be readily converted, realized or settled in U.S. dollars at this or at any other rate.

2.2 Principles of consolidation

The consolidated financial statements comprise the financial statements of the Group and its subsidiaries as of December 31, 2022. Control is achieved when the Group is exposed, or has rights, to variable returns from its involvement with the investee and has the ability to affect those returns through its power over the investee. Specifically, the Group controls an investee if and only if the Group has:

Power over the investee (i.e., existing rights that give it the current ability to direct the relevant activities of the investee)

2.2 Principles of consolidation (cont'd)

Exposure, or rights, to variable returns from its involvement with the investee, and

Samsung Electro-Mechanics Co., Ltd. and Subsidiaries Notes to the Consolidated Financial Statements December 31, 2022 and 2021

The ability to use its power over the investee to affect its returns

When the Group has less than a majority of the voting or similar rights of an investee, the Group considers all relevant facts and circumstances in assessing whether it has power over an investee, including:

- > The contractual arrangement with the other vote holders of the investee
- > Rights arising from other contractual arrangements
- ➤ The Group's voting rights and potential voting rights

The Group re-assesses whether it controls an investee if facts and circumstances indicate that there are changes to one or more of the three elements of control. Consolidation of a subsidiary begins when the Group obtains control over the subsidiary and ceases when the Group loses control of the subsidiary. Assets, liabilities, income, and expenses of a subsidiary acquired or disposed of during the year are included in the consolidated statement of comprehensive income from the date the Group gains control until the date the Group ceases to control the subsidiary.

Profit or loss and each component of other comprehensive income (OCI) are attributed to the equity holders of the parent of the Group and to the non-controlling interests, even if this results in the non-controlling interests having a deficit balance. When necessary, adjustments are made to the financial statements of subsidiaries to bring their accounting policies into line with the Group's accounting policies. All intra-group assets and liabilities, equity, income, expenses, and cash flows relating to transactions between members of the Group are eliminated in full on consolidation.

A change in the ownership interest of a subsidiary, without a loss of control, is accounted for as an equity transaction.

If the Group loses control over a subsidiary, it derecognizes the related assets (including goodwill), liabilities, non-controlling interest, and other components of equity while any related gain or loss is recognized in profit or loss. Any remaining investment is recognized at fair value.

2.3 Business combinations and goodwill

Business combinations are accounted for using the acquisition method. The cost of an acquisition is measured as the aggregate of the consideration transferred, measured at acquisition date fair value and the amount of any non-controlling interest in the acquiree. For each business combination, the acquirer measures the non-controlling interest in the acquiree either at fair value or at the proportionate share of the acquiree's identifiable net assets. Acquisition costs incurred are expensed and included in administrative expenses.

When the Group acquires a business, it assesses the financial assets and liabilities assumed for appropriate classification and designation in accordance with the contractual terms, economic circumstances, and pertinent conditions as of the acquisition date.

If the business combination is achieved in stages, any previously held equity interest is re-measured at its acquisition date fair value and any resulting gain or loss is recognized in profit or loss. It is then considered in the determination of goodwill.

Any contingent consideration to be transferred by the acquirer will be measured at fair value at the acquisition date. Contingent consideration classified as equity is not remeasured and its subsequent settlement is accounted for within equity. Contingent consideration classified as an asset or liability that is a financial instrument and within the scope of Korean IFRS 1109 *Financial Instruments*, is measured at fair value with the changes in fair value recognized in the statement of profit or loss in accordance with Korean IFRS 1109. Other contingent consideration that is not within the scope of Korean IFRS 1109 is measured at fair value at each reporting date with changes in fair value recognized in profit or loss.

2.3 Business combinations and goodwill (cont'd)

Goodwill is initially measured at cost, being the excess of the aggregate of the consideration transferred and the amount recognized for non-controlling interests, and any previous interest held, over the net identifiable assets acquired and liabilities assumed. If the fair value of the net assets acquired is in excess of the aggregate consideration transferred, the Group re-assesses whether it has correctly identified all of the assets acquired and all of the liabilities assumed and reviews the procedures used to measure the amounts to be recognized at the acquisition date. If the re-assessment still results in an excess of the fair value of net assets acquired over the aggregate consideration transferred, then the gain is recognized in profit or loss.

After initial recognition, goodwill is measured at cost less any accumulated impairment losses. For the purpose of impairment testing, goodwill acquired in a business combination is, from the acquisition date, allocated to each of the Group's cash generating units that are expected to benefit from the combination, irrespective of whether other assets or liabilities of the acquiree are assigned to those units.

Where goodwill has been allocated to a cash-generating unit and part of the operation within that unit is disposed of, the goodwill associated with the disposed operation is included in the carrying amount of the operation when determining the gain or loss on disposal. Goodwill disposed in these circumstances is measured based on the relative values of the disposed operation and the portion of the cash-generating unit retained.

2.4 Investment in associates and joint arrangements

Investment in associates

An associate is an entity over which the Group has significant influence. Significant influence is the power to participate in the financial and operating policy decisions of the investee but is not control or joint control over those policies.

The Group's investments in its associate and are accounted for using the equity method. Under the equity method, the investment in an associate is initially recognized at cost. The carrying amount of the investment is adjusted to recognize changes in the Group's share of net assets of the associate since the acquisition date. Goodwill relating to the associate is included in the carrying amount of the investment and is neither amortised nor individually tested for impairment.

The consolidated statement of comprehensive income reflects the share of the results of financial performance of the associate. Where there has been a change recognized directly in the equity of the associate, the Group recognizes its share of any changes and discloses this, when applicable, in the statement of changes in equity. Unrealized gains and losses resulting from transactions between the Group and the associate are eliminated to the extent of the interest in the associate.

The share of profit of associates is shown on the face of the statements of profit or loss and other comprehensive income. This is the profit attributable to equity holders of the associate and therefore is profit after tax and non-controlling interests in the subsidiaries of the associates.

The consolidated financial statements of the associate are prepared for the same reporting period as the Group. Where necessary, adjustments are made to bring the accounting policies in line with those of the Group.

After application of the equity method, the Group determines whether it is necessary to recognize an additional impairment loss on the Group's investment in its associates. At each reporting date, the Group determines whether there is objective evidence that the investment in the associate is impaired. If this is the case, the Group calculates the amount of impairment as the difference between the recoverable amount of the associate and its carrying value and recognizes the amount in the statements of profit or loss and other comprehensive income.

Upon loss of significant influence over the associate, the Group measures and recognizes any retaining investment at its fair value. Any difference between the carrying amount of the associate upon loss of significant influence and the fair value of the retaining investment and proceeds from disposal is recognized in profit or loss.

2.4 Investment in associates and Joint arrangements (cont'd)

Joint arrangements

A joint arrangement, wherein two or more parties have joint control, is classified as either a joint operation or a joint venture. A joint operator recognizes its direct right to the assets, liabilities, revenues and expenses of joint operations and its share of any jointly held or incurred assets, liabilities, revenues and expenses. Interests in joint ventures are accounted for using the equity method, after initially being recognized at cost in the consolidated statement of financial position.

2.5 Current versus non-current classification

The Group presents assets and liabilities in the statement of financial position based on current/non-current classification.

An asset is current when it is:

- > Expected to be realized or intended to be sold or consumed in the normal operating cycle
- Held primarily for the purpose of trading
- Expected to be realized within twelve months after the reporting period, or
- Cash or cash equivalent unless restricted from being exchanged or used to settle a liability for at least twelve months after the reporting period

All other assets are classified as non-current.

A liability is current when:

- It is expected to be settled in the normal operating cycle
- > It is held primarily for the purpose of trading
- It is due to be settled within twelve months after the reporting period, or
- There is no unconditional right to defer the settlement of the liability for at least twelve months after the reporting period

The Group classifies all other liabilities as non-current.

Deferred tax assets and liabilities are classified as non-current assets and liabilities.

2.6 Foreign currency translation

The Group's consolidated financial statements are presented in Korean won, which is also its functional currency. Each entity in the Group determines its own functional currency and items included in the financial statements of each entity are measured using that functional currency.

Transactions and balances

Transactions in foreign currencies are initially recorded by the Group entities at their respective functional currency rates prevailing at the date of the transaction.

Monetary assets and liabilities denominated in foreign currencies are retranslated at the functional currency spot rate of exchange ruling at the reporting date.

Non-monetary items that are measured in terms of historical cost in a foreign currency are translated using the exchange rates as of the dates of the initial transactions. Non-monetary items measured at fair value in a foreign currency are translated using the exchange rates at the date when the fair value is determined.

In determining the spot exchange rate to use on initial recognition of the related asset, expense or income (or part of it) on the derecognition of a non-monetary asset or non-monetary liability relating to advance consideration, the date of the transaction is the date on which the Group initially recognizes the non-monetary asset or non-monetary liability arising from the advance consideration. If there are multiple payments or receipts in advance, the Group determines the transaction date for each payment or receipt of advance consideration.

2.6 Foreign currency translation (cont'd)

Foreign operations

The assets and liabilities of foreign operations are translated into Korean won at the rate of exchange prevailing at the reporting date and their statements of profit or loss and other comprehensive incomes are translated at average exchange rate during the applicable period. The exchange differences arising on the translation are recognized in other comprehensive income. On disposal of a foreign operation, the gain or loss on translation of foreign operations recorded in other comprehensive income is reclassified to the statements of profit or loss and other comprehensive income. Any goodwill arising on the acquisition of a foreign operation and any fair value adjustments to the carrying amounts of assets and liabilities arising on the acquisition are treated as assets and liabilities of the foreign operation and translated at the spot rate of exchange at the reporting date.

2.7 Cash and cash equivalents

Cash and cash equivalents in the consolidated statement of financial position comprise cash at banks and on hand and short-term deposits with a maturity of three months or less, which represent cash and cash equivalents on the consolidated statements of cash flows.

2.8 Financial instruments: Initial recognition and subsequent measurement

A financial instrument is any contract that gives rise to a financial asset of one entity and a financial liability or equity instrument of another entity.

Financial assets

Initial recognition and measurement

Financial assets are classified, at initial recognition, as subsequently measured at amortised cost, fair value through other comprehensive income (OCI), and fair value through profit or loss.

The classification of financial assets at initial recognition depends on the financial asset's contractual cash flow characteristics and the Group's business model for managing them. With the exception of trade receivables that do not contain a significant financing component or for which the Group has applied the practical expedient, the Group initially measures a financial asset at its fair value plus, in the case of a financial asset not at fair value through profit or loss, transaction costs. Trade receivables that do not contain a significant financing component or for which the Group has applied the practical expedient are measured at the transaction price determined under Korean IFRS 1115.

In order for a financial asset to be classified and measured at amortised cost or fair value through OCI, it needs to give rise to cash flows that are 'solely payments of principal and interest (SPPI)' on the principal amount outstanding. This assessment is referred to as the SPPI test and is performed at an instrument level.

The Group's business model for managing financial assets refers to how it manages its financial assets in order to generate cash flows. The business model determines whether cash flows will result from collecting contractual cash flows, selling the financial assets, or both.

Purchases or sales of financial assets that require delivery of assets within a time frame established by regulation or convention in the marketplace (regular way trades) are recognised on the trade date, i.e., the date that the Group commits to purchase or sell the asset.

Subsequent measurement

For purposes of subsequent measurement, financial assets are classified in four categories:

- > Financial assets measured at amortised cost (debt instruments)
- Financial assets measured at fair value through OCI with recycling of cumulative gains and losses (debt instruments)
- Financial assets measured at fair value through OCI with no recycling of cumulative gains and losses upon
- Financial assets measured at fair value through profit or loss

2.8 Financial instruments: Initial recognition and subsequent measurement (cont'd)

Financial assets measured at amortised cost (debt instruments)

This category is the most relevant to the Group. The Group measures financial assets at amortised cost if both of the following conditions are met:

- The financial asset is held within a business model with the objective to hold financial assets in order to collect contractual cash flows
- The contractual terms of the financial asset give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding

Financial assets at amortised cost are subsequently measured using the effective interest (EIR) method and are subject to impairment. Gains and losses are recognised in profit or loss when the asset is derecognised, modified or impaired.

Financial assets measured at fair value through OCI (debt instruments)

The Group measures debt instruments at fair value through OCI if both of the following conditions are met:

- > The financial asset is held within a business model with the objective of both holding to collect contractual cash flows and selling, and
- > The contractual terms of the financial asset give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding

For debt instruments measured at fair value through OCI, interest income, foreign exchange revaluation and impairment losses or reversals are recognized in the statement of profit or loss and computed in the same manner as for financial assets measured at amortised cost. The remaining fair value changes are recognized in OCI. Upon derecognition, the cumulative fair value change recognized in OCI is recycled to profit or loss.

The Group's debt instruments at fair value through OCI includes investments in quoted debt instruments included under other non-current financial assets.

Financial assets measured at fair value through OCI (equity instruments)

Upon initial recognition, the Group can elect to classify irrevocably its equity investments as equity instruments designated at fair value through OCI when they meet the definition of equity under Korean IFRS 1032 Financial Instruments: Presentation and are not held for trading. The classification is determined on an instrument-by-instrument basis.

Gains and losses on these financial assets are never recycled to profit or loss. Dividends are recognised as other income in the statement of profit or loss when the right of payment has been established, except when the Group benefits from such proceeds as a recovery of part of the cost of the financial asset, in which case, such gains are recorded in OCI. Equity instruments designated at fair value through OCI are not subject to impairment assessment.

The Group elected to classify irrevocably its non-listed equity investments under this category.

2.8 Financial instruments: Initial recognition and subsequent measurement (cont'd)

Financial assets measured at fair value through profit or loss

Financial assets measured at fair value through profit or loss include financial assets held for trading and financial assets designated upon initial recognition at fair value through profit or loss. Financial assets are classified as held for trading if they are acquired for the purpose of selling or repurchasing in the near term. Derivatives, including separated embedded derivatives, are also classified as held for trading unless they are designated as effective hedging instruments. Financial assets with cash flows that are not solely payments of principal and interest are classified and measured at fair value through profit or loss, irrespective of the business model. Notwithstanding the criteria for debt instruments to be classified at amortised cost or at fair value through OCI, as described above, debt instruments may be designated at fair value through profit or loss on initial recognition if doing so eliminates, or significantly reduces, an accounting mismatch.

Financial assets measured at fair value through profit or loss are carried in the statement of financial position at fair value with net changes in fair value recognized in the statement of profit or loss.

A derivative embedded in a hybrid contract, with a financial liability or non-financial host, is separated from the host and accounted for as a separate derivative if: the economic characteristics and risks are not closely related to the host; a separate instrument with the same terms as the embedded derivative would meet the definition of a derivative; and the hybrid contract is not measured at fair value through profit or loss. Embedded derivatives are measured at fair value with changes in fair value recognised in profit or loss. Reassessment only occurs if there is either a change in the terms of the contract that significantly modifies the cash flows that would otherwise be required or a reclassification of a financial asset out of the fair value through profit or loss category.

A derivative embedded within a hybrid contract containing a financial asset host is not accounted for separately. The financial asset host together with the embedded derivative is required to be classified in its entirety as a financial asset at fair value through profit or loss.

Derecognition

A financial asset (or, where applicable a part of a financial asset or part of a group of similar financial assets) is derecognized when:

- The rights to receive cash flows from the asset have expired.
- The Group has transferred its rights to receive cash flows from the asset or has assumed an obligation to pay the received cash flows in full without material delay to a third party under a 'pass-through' arrangement; and either (a) the Group has transferred substantially all the risks and rewards of the asset, or (b) the Group has neither transferred nor retained substantially all the risks and rewards of the asset but has transferred control of the asset.

When the Group has transferred its rights to receive cash flows from an asset or has entered into a pass-through arrangement, it evaluates if, and to what extent, it has retained the risks and rewards of ownership. When it has neither transferred nor retained substantially all of the risks and rewards of the asset, nor transferred control of the asset, the Group continues to recognize the transferred asset to the extent of the Group's continuing involvement. In that case, the Group also recognizes an associated liability. The transferred asset and the associated liability are measured on a basis that reflects the rights and obligations that the Group has retained.

Continuing involvement that takes the form of a guarantee over the transferred asset is measured at the lower of the original carrying amount of the asset and the maximum amount of consideration that the Group could be required to repay.

2.8 Financial instruments: Initial recognition and subsequent measurement (cont'd)

Impairment of financial assets

Further disclosures relating to impairment of financial assets are also provided in the following notes:

- > Disclosures for significant assumptions
- Debt instruments at fair value through OCI
- > Trade receivables, including contract assets

The Group recognises an allowance for expected credit losses (ECLs) for all debt instruments not held at fair value through profit or loss. ECLs are based on the difference between the contractual cash flows due in accordance with the contract and all the cash flows that the Group expects to receive, discounted at an approximation of the original effective interest rate. The expected cash flows will include cash flows from the sale of collateral held or other credit enhancements that are integral to the contractual terms.

ECLs are recognised in two stages. For credit exposures for which there has not been a significant increase in credit risk since initial recognition, ECLs are provided for credit losses that result from default events that are possible within the next 12-months (a 12-month ECL). For those credit exposures for which there has been a significant increase in credit risk since initial recognition, a loss allowance is required for credit losses expected over the remaining life of the exposure, irrespective of the timing of the default (a lifetime ECL).

For trade receivables and contract assets, the Group applies a simplified approach in calculating ECLs. Therefore, the Group does not track changes in credit risk, but instead recognises a loss allowance based on lifetime ECLs at each reporting date. The Group has established a provision matrix that is based on its historical credit loss experience, adjusted for forward-looking factors specific to the debtors and the economic environment.

Financial liabilities

Initial recognition and measurement

Financial liabilities within the scope of Korean IFRS 1039 are classified at initial recognition, as financial liabilities at fair value through profit or loss, loans and borrowings, payables, or as derivatives designated as hedging instruments in an effective hedge, as appropriate.

All financial liabilities are recognized initially at fair value and in the case of loans and borrowings and payable, net of directly attributable transaction costs.

The Group's financial liabilities include trade and other payables, loans and borrowings including bank overdrafts, financial guarantee contracts and derivative financial instruments.

Subsequent measurement

The measurement of financial liabilities depends on their classification.

Financial liabilities at fair value through profit or loss

Financial liabilities at fair value through profit or loss includes financial liabilities held for trading and financial liabilities designated upon initial recognition as of fair value through profit or loss.

Financial liabilities are classified as held for trading if they are acquired for the purpose of selling in the near term. This category includes derivative financial instruments entered into by the Group that are not designated as hedging instruments in hedge relationships as defined by Korean IFRS 1109. Separated embedded derivatives are also classified as held for trading unless they are designated as effective hedging instruments. Gains or losses on liabilities held for trading are recognized in the consolidated statement of profit or loss.

Financial liabilities designated upon initial recognition at fair value through profit or loss are designated at the initial date of recognition, and only if the criteria in Korean IFRS 1109 are satisfied. The Group has not designated any financial liability as of fair value through profit or loss.

2.8 Financial instruments – impairment of financial assets (cont'd)

Loans and borrowings

After initial recognition, interest bearing loans and borrowings are subsequently measured at amortised cost using the effective interest rate method. Gains and losses are recognized in the consolidated statement of profit or loss when the liabilities are derecognized as well as through the effective interest rate method (EIR) amortisation process.

Amortised cost is calculated by taking into account any discount or premium on acquisition and fee or costs that are an integral part of the EIR.

Derecognition

A financial liability is derecognized when the obligation under the liability is discharged or cancelled or expires. When an existing financial liability is replaced by another from the same lender on substantially different terms, or the terms of an existing liability are substantially modified, such an exchange or modification is treated as a derecognition of the original liability and the recognition of a new liability, and the difference in the respective carrying amounts is recognized in the statements of profit or loss.

Offsetting of financial instruments

Financial assets and financial liabilities are offset and the net amount reported in the consolidated statement of financial position if there is a currently enforceable legal right to offset the recognized amounts and there is an intention to settle on a net basis, or to realize the assets and settle the liabilities simultaneously.

2.9 Fair value measurement

The Group measures financial instruments, at fair value at each balance sheet date. Fair value related disclosures for financial instruments that are measured at fair value or where fair values are disclosed, are summarized in the following notes:

	notes
Quantitative disclosures of fair value measurement hierarchy	27
Investment in unquoted equity shares	9
Financial instruments (including those carried at amortised cost)	27

NI-4--

Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. The fair value measurement is based on the presumption that the transaction to sell the asset or transfer the liability takes place either:

- In the principal market for the asset or liability, or
- In the absence of a principal market, in the most advantageous market for the asset or liability

The principal or the most advantageous market must be accessible by the Group.

The fair value of an asset or a liability is measured using the assumptions that market participants would use when pricing the asset or liability, assuming that market participants act in their economic best interest.

A fair value measurement of a non-financial asset takes into account a market participant's ability to generate economic benefits by using the asset in its highest and best use or by selling it to another market participant that would use the asset in its highest and best use.

The Group uses valuation techniques that are appropriate in the circumstances and for which sufficient data are available to measure fair value, maximizing the use of relevant observable inputs and minimizing the use of unobservable inputs.

2.9 Fair value measurement (cont'd)

All assets and liabilities for which fair value is measured or disclosed in the consolidated financial statements are categorized within the fair value hierarchy, described as follows, based on the lowest level input that is significant to the fair value measurement as a whole:

- Level 1 Quoted (unadjusted) market prices in active markets for identical assets or liabilities
- ➤ Level 2 Valuation techniques for which the lowest level input that is significant to the fair value measurement is directly or indirectly observable
- Level 3 Valuation techniques for which the lowest level input that is significant to the fair value measurement is unobservable

For assets and liabilities that are recognized in the consolidated financial statements on a recurring basis, the Group determines whether transfers have occurred between levels in the hierarchy by re-assessing categorization (based on the lowest level input that is significant to the fair value measurement as a whole) at the end of each reporting period.

For the purpose of fair value disclosures, the Group has determined classes of assets and liabilities on the basis of the nature, characteristics and risks of the asset or liability and the level of the fair value hierarchy as explained above.

2.10 Inventories

Inventories are valued at the lower of cost and net realizable value. Purchase costs, transfer costs and costs incurred in bringing each product to its present location and conditions are accounted for initial cost of inventories. Unit costs of inventories are measured by weighted average basis. Net realizable value is the estimated selling price in the ordinary course of business, less estimated costs of completion and the estimated costs necessary to make the sale.

2.11 Property, plant and equipment

Property, plant and equipment is stated at cost, net of accumulated depreciation and/or accumulated impairment losses, if any. Such cost includes the cost of replacing part of the property, plant and equipment and borrowing costs for long-term construction projects if the recognition criteria are met. When significant parts of property, plant and equipment are required to be replaced at intervals, the Group recognizes such parts as individual assets with specific useful lives and depreciates them accordingly. Likewise, when a major inspection is performed, its cost is recognized in the carrying amount of the plant and equipment as a replacement if the recognition criteria are satisfied. All other repair and maintenance costs are recognized in profit or loss as incurred. The residual values, useful lives and methods of depreciation of property, plant and equipment are reviewed at each financial year end and adjusted prospectively, if appropriate.

Depreciation of property, plant and equipment are calculated by using the straight-line method over the estimated useful life of the assets as follows:

	Years
Buildings	17 – 52
Structures	20 – 40
Machinery	4 – 5
Equipment	4 – 5
Vehicles	4 – 5

2.12 Leases

The Group assess whether the contract contains lease when the contract is settled, by considering if the right to control the use of the identified asset is transferred in exchange for price.

Group as lessee

The Group applies a single approach on identification and measurement, except for short-term leases and leases of low-value assets. The Group identifies lease liability, as obligation to pay for the lease, and right-of-use asset, as right to control the underlying asset.

At the commencement date, the day that the underlying asset of the lease becomes available, the Group identifies the right-of-use asset. The right-of-use asset is measured as cost initially, and as cost model in subsequent measurements. Besides of accumulated depreciation and impairment loss being deducted, adjustments from remeasurement of lease liability is reflected in the cost model. The cost of right-of-use assets includes the amount of the recognized lease liability, the initial direct cost, and the lease fee paid on lease commencement date or before, less the incentive received. Right-of-use assets are depreciated on a straight-line basis over a short period of the lease term and the estimated useful life of the following assets:

If the ownership on the underlying asset is transferred to the Group when the lease is terminated, or the exercise price of a purchase option is reflected on the cost of right-of-use asset, depreciation will be calculated based on estimated useful life of the underlying asset.

Rights-of-use assets are also susceptible to impairment. See note 2.15, accounting policy on the impairment of non-financial assets.

On the commencement date, the Group measures the lease liability with the present value of the lease payments to be made during the lease term. The lease payments consist of fixed payments (including insubstance fixed payments), less lease incentives receivable, variable payments that depend on an index or a rate and amounts expected to be payable under residual value guarantees. Lease payments also contains exercise price, when it is reasonably certain that the purchase option will be exercised, and penalties for terminating lease when the lease term reflects the Group's exercise of an option to terminate the lease.

The variable payments that do not depend on an index or a rate will be recognized as expense in the period in which the event or condition that triggers those payments occurs, unless the payments are accrued in regard of manufacturing the inventory assets.

The Group utilizes incremental borrowing rate on the commencement date as the interest rates implicit in the lease are cannot be readily determined to calculate the present value of the lease payment. After the commencement date, lease liability will be increased by the interests accrued and decreased by payments made. Additionally, book value of lease liability will be remeasured with the change in lease term, lease payments (e.g., fluctuation of unpaid lease payments occurred by an index or a rate) or reassessment on exercise of purchase option on underlying asset.

The Group's lease liabilities are included in interest bearing debts (See note 27).

The Group applies recognition exemption on short-term leases of machineries and equipment. It is same on lease of low-value assets, furniture and fixtures. Lease payments on those leases will be recognized on straight-line basis.

2.13 Borrowing costs

Borrowing costs directly attributable to the acquisition, construction or production of an asset that necessarily takes a substantial period of time to get ready for its intended use or sale are capitalized as part of the cost of the respective assets. All other borrowing costs are expensed in the period they occur.

2.14 Intangible assets

Intangible assets acquired separately are measured on initial recognition at cost. The cost of intangible assets acquired in a business combination is its fair value as of the date of acquisition. Following initial recognition, intangible assets are carried at cost less any accumulated amortisation and any accumulated impairment losses. Internally generated intangible assets, excluding capitalized development costs, are not capitalized and expenditure is reflected in the statements of profit or loss and other comprehensive income in the year in which the expenditure is incurred.

The useful lives of intangible assets are assessed as either finite or indefinite. Intangible assets with finite lives are amortised over the useful economic life and assessed for impairment whenever there is an indication that the intangible asset may be impaired. The amortisation period and the amortisation method for an intangible asset with a finite useful life is reviewed at least at each financial year end. Changes in the expected useful life or the expected pattern of consumption of future economic benefits embodied in the asset is accounted for by changing the amortisation period or method, as appropriate, and are treated as changes in accounting estimates. The amortisation expense on intangible assets with finite lives is recognized in the statements of profit or loss and other comprehensive income in the expense category consistent with the function of the intangible asset.

Intangible assets with indefinite useful lives are not amortised, but are tested for impairment annually, either individually or at the cash generating unit level. The assessment of indefinite life is reviewed annually to determine whether the indefinite life continues to be supportable. If not, the change in useful life from indefinite to finite is made on a prospective basis.

Gains or losses arising from derecognition of an intangible asset are measured as the difference between the net disposal proceeds and the carrying amount of the asset and are recognized in the consolidated statement of loss or profit when the asset is derecognized.

Research and development costs

Expenditures on research activities are recognized as expense in the period in which they incur. Expenditures on development activities are capitalized as intangible assets (development costs) when the assets become ready to use (development activities for the project are finished). The expenditures on specific projects are recognized as an intangible asset when the Group can demonstrate:

- > The technical feasibility of completing the intangible asset so that it will be available for use or sale
- > Its intention to complete and its ability to use or sell the asset
- > How the asset will generate future economic benefits
- The availability of resources to complete the asset
- > The ability to measure reliably the expenditure during development

Goodwill

Goodwill is accounted for as an intangible asset and is initially measured consideration paid which exceeds the cost of the investment over the Company's share of the fair value of the subsidiary's net identifiable assets.

Patents, licenses, software, and membership

The patents have been granted for a period of 7~10 years by the relevant government agency with the option of renewal at the end of this period. Licenses for the use of intellectual property and software are granted for periods 5 and 4~5 years, respectively. Memberships for usage rights that are not kept for investment purposes, are regarded to have indefinite useful lives and are not amortised.

The Group amortises intangible assets with a limited useful life using the straight-line method over the following periods:

	Estimated useful life
Patents	7~10 years
Industrial property rights	5 years
Other intangible assets	5 years
Software	4 ~ 5 years

2.15 Impairment of non-financial assets

The Group assesses at each reporting date whether there is an indication that an asset may be impaired. If any indication exists, or when annual impairment testing for an asset is required, the Group estimates the asset's recoverable amount. An asset's recoverable amount is the higher of an asset's or cash-generating unit's (CGU) fair value less costs of disposal and its value in use. Recoverable amount is determined for an individual asset, unless the asset does not generate cash inflows that are largely independent of those from other assets or groups of assets. When the carrying amount of an asset or CGU exceeds its recoverable amount, the asset is considered impaired and is written down to its recoverable amount.

In assessing value in use, the estimated future cash flows are discounted to their present value using a pre-tax discount rate that reflects current market assessments of the time value of money and the risks specific to the asset. In determining net fair value costs to sell, an appropriate valuation model is used. These calculations are corroborated by valuation multiples, quoted share prices for publicly traded subsidiaries or other available fair value indicators.

The Group bases its impairment calculation on detailed budgets and forecast calculations, which are prepared separately for each of the Group's CGUs to which the individual assets are allocated. These budgets and forecast calculations generally cover a period of five years. For longer periods, a long-term growth rate is calculated and applied to project future cash flows after the fifth year.

Impairment losses of continuing operations are recognized in the consolidated statement of comprehensive income in expense categories consistent with the function of the impaired asset, except for property previously revalued with the revaluation was taken to other comprehensive income. In this case, the impairment is also recognized in other comprehensive income up to the amount of any previous revaluation.

For assets excluding goodwill, an assessment is made at each reporting date to determine whether there is an indication that previously recognized impairment losses no longer exist or have decreased. If such indication exists, the Group estimates the asset's or cash-generating unit's recoverable amount. A previously recognized impairment loss is reversed only if there has been a change in the assumptions used to determine the asset's recoverable amount since the last impairment loss was recognized. The reversal is limited so that the carrying amount of the asset does not exceed its recoverable amount, nor exceed the carrying amount that would have been determined, net of depreciation, had no impairment loss been recognized for the asset in prior years. Such reversal is recognized in the statements of profit or loss and other comprehensive income unless the asset is carried at a revalued amount, in which case the reversal is treated as a revaluation increase.

The following criteria are also applied in assessing impairment of specific assets:

Intangible assets

Intangible assets with indefinite useful lives are tested for impairment annually as of December 31 either individually or at the cash generating unit level, as appropriate and when circumstances indicate that the carrying value may be impaired.

2.16 Trade and Other Payables

These amounts represent liabilities for goods and services provided to the Group prior to the end of reporting period which are unpaid. Trade and other payables are presented as current liabilities, unless payment is not due within 12 months after the reporting period.

2.17 Provisions

Provisions are recognized when the Group has a present obligation (legal or constructive) as a result of a past event, it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation and a reliable estimate can be made of the amount of the obligation. When the Group expects some or all of a provision to be reimbursed, for example under an insurance contract, the reimbursement is recognized as a separate asset but only when the reimbursement is virtually certain. The expense relating to any provision is presented in the consolidated statement of comprehensive income net of any reimbursement.

If the effect of the time value of money is material, provisions are discounted using a current pre-tax rate that reflects, when appropriate, the risks specific to the liability. When discounting is used, the increase in the provision due to the passage of time is recognized as a finance cost.

Provision for product warranties

The Group accrues provision for warranty corresponding to the estimated costs of future repairs and returns, based on the past experience. The provision for product warranties is charged to selling and administrative expenses when the goods covered by warranties are sold to customers.

Asset (allowance) and liability (emission obligation)

The Group is allocated with emission allowances free of charge by the government in accordance with the Act on Allocation and Trading of Emission Allowances in the Republic of Korea. The allowances are allocated to the Group every year for planned periods, and the Group should submit the equivalent number of emission allowances for actual emissions.

The Group measures the emission allowances that it receives from the government free of charge at nil, and measures any purchased emission allowances at cost. In addition, emission allowances are derecognized in the financial statements when they are delivered to the government or sold.

A liability (emission obligation) is recognized only where actual emissions exceed the allocated emission allowances, and the cost of emissions is recognized as an operating cost. The liability is measured by adding the following (1) and (2).

- (1) The carrying value of emission allowances for the year to be delivered to the government
- (2) The best estimate of expenditures, as of the end of a reporting period, in performing emission obligations exceeding the above emission allowances

2.18 Employee benefits

Post-employment benefits

The Group operates both defined contribution and defined benefit pension plans.

For defined contribution plans, the Group pays contribution to publicly or privately administered pension insurance plans on mandatory, contractual or voluntary basis. The Group has no further payment obligation once the contribution has been paid. The contribution is recognized as employee benefit expense when they are due.

The Group operates a defined benefit pension plan in Korea, the cost of providing benefits under the defined benefit plan is determined using the projected unit credit method. Re-measurements, comprising of actuarial gains and losses, the effect of the asset ceiling, excluding net interest (not applicable to the Group) and the return on plan assets (excluding net interest), are recognized immediately in the statement of financial position with a corresponding debit or credit to retained earnings through OCI in the period in which they occur. Remeasurements are not reclassified to profit or loss in subsequent periods.

Past service costs are recognized in profit or loss on the earlier of:

- > The date of the plan amendment or curtailment, and
- > The date that the Group recognizes restructuring-related costs

Net interest is calculated by applying the discount rate to the net defined benefit liability or asset. The Group recognizes the following changes in the net defined benefit obligation under 'cost of sales' and 'Selling and administrative expenses' in consolidated statement of comprehensive income.

Other long-term employee benefits

The Group provide long-term employee benefits that are entitled to employees with service period for ten years and above. The expected costs of these benefits are accrued over the period of employment using the same accounting methodology as used for defined benefit pension plans. The Group recognizes service cost, net interest on other long-term employee benefits and remeasurements as profit or loss for the year. These liabilities are valued annually by an independent qualified actuary.

2.19 Treasury shares

Own equity instruments which are reacquired (treasury shares) are recognized at cost and deducted from equity. No gain or loss is recognized in the statements of profit or loss and other comprehensive income on the purchase, sale, issue or cancellation of the Group's own equity instruments. Any difference between the carrying amount and the consideration is recognized in other capital reserves.

2.20 Cash dividend

The Company recognizes a liability to pay a dividend when the distribution is authorized and the distribution is no longer at the discretion of the Company. A distribution is authorized when it is approved by the shareholders. A corresponding amount is recognized directly in equity.

2.21 Revenue recognition

Sale of goods

The Group is in the business of manufacturing and selling electronics equipment. Revenue from contracts with customers is recognised when control of the goods or services are transferred to the customer at an amount that reflects the consideration to which the Group expects to be entitled in exchange for those goods or services. Revenue from sale of equipment is recognised at the point in time when control of the asset is transferred to the customer, generally on delivery of the equipment.

Royalty revenue

The Group entered into royalty agreements with its subsidiaries. The Group is obligated to provide know-how to customers over the service period; therefore, the Group will recognize a certain amount of the allocated transaction price for each performance obligation over the service period as revenue.

Warranty obligations

The Group typically provides warranties for general repairs of defects that existed at the time of sale, as required by law. These assurance-type warranties are accounted for under Korean IFRS 1037 *Provisions, Contingent Liabilities and Contingent Assets*. See the Note 16 on warranty provisions.

Assets and liabilities arising from rights of return

Right of return asset represents the Group's right to recover the goods expected to be returned by customers. The asset is measured at the former carrying amount of the inventory, less any expected costs to recover the goods, including any potential decreases in the value of the returned goods. The Group updates the measurement of the asset recorded for any revisions to its expected level of returns, as well as any additional decreases in the value of the returned products.

A refund liability is the obligation to refund some or all of the consideration received (or receivable) from the customer and is measured at the amount the Group ultimately expects it will have to return to the customer. The Group updates its estimates of refund liabilities (and the corresponding change in the transaction price) at the end of each reporting period. See above accounting policy on variable consideration.

2.22 Taxes

Current income tax

Current income tax assets and liabilities for the current and prior periods are measured at the amount expected to be recovered from or paid to the taxation authorities. The tax rates and tax laws used to compute the amount are those that are enacted or substantively enacted, at the reporting date in the countries where the Group operates and generates taxable income.

Current income tax relating to items recognized directly in equity is recognized in equity and not in the statements of profit or loss and other comprehensive income. Management periodically evaluates positions taken in the tax returns with respect to situations in which applicable tax regulations are subject to interpretation and establishes provisions where appropriate.

Deferred tax

Deferred tax is provided using the liability method on temporary differences between the tax bases of assets and liabilities and their carrying amounts for financial reporting purposes at the reporting date.

Deferred tax liabilities are recognized for all taxable temporary differences, except:

- When the deferred tax liability arises from the initial recognition of goodwill.
- When the deferred tax liability arises from the initial recognition of an asset or liability in a transaction that is not a business combination and, at the time of the transaction, affects neither the accounting profit nor taxable profit or loss.
- In respect of taxable temporary differences associated with investments in subsidiaries, associates and interests in joint ventures, where the timing of the reversal of the temporary differences can be controlled and it is probable that the temporary differences will not reverse in the foreseeable future.

2.22 Taxes (cont'd)

Deferred tax assets are recognized for all deductible temporary differences, the carry forward of unused tax credits and unused tax losses, to the extent that it is probable that taxable profit will be available against which the deductible temporary differences, and the carry forward of unused tax credits and unused tax losses can be utilized except:

- When the deferred tax asset relating to the deductible temporary difference arises from the initial recognition of an asset or liability in a transaction that is not a business combination and, at the time of the transaction, affects neither the accounting profit nor taxable profit or loss.
- In respect of deductible temporary differences associated with investments in subsidiaries, associates and interests in joint ventures, deferred tax assets are recognized only to the extent that it is probable that the temporary differences will reverse in the foreseeable future and taxable profit will be available against which the temporary differences can be utilized.

The carrying amount of deferred tax assets is reviewed at each reporting date and reduced to the extent that it is no longer probable that sufficient taxable profit will be available to allow all or part of the deferred tax asset to be utilized. Unrecognized deferred tax assets are reassessed at each reporting date and are recognized to the extent that it has become probable that future taxable profits will allow the deferred tax asset to be recovered.

Deferred tax assets and liabilities are measured at the tax rates that are expected to apply in the year when the asset is realized or the liability is settled, based on tax rates (and tax laws) that have been enacted or substantively enacted at the reporting date.

Deferred tax relating to items recognized outside profit or loss is recognized outside profit or loss. Deferred tax items are recognized in correlation to the underlying transaction either in other comprehensive income or directly in equity.

Deferred tax assets and deferred tax liabilities are offset, if a legally enforceable right exists to set off current tax assets against current income tax liabilities and the deferred taxes relate to the same taxable entity and the same taxation authority.

2.23 Government grants

Grants from the government are recognized at their fair value where there is a reasonable assurance that the grant will be received and the Group will comply with all attached conditions. Government grants related to assets are presented in the statement of financial position by deducting the grant in arriving at the carrying amount of the asset, and government grants related to income are deferred and later deducted from the related expense.

2.24 Greenhouse Gas Emission Permits and Obligations

Emission permits and emission obligations for compliance

With enforcement of The Act on the Allocation and Trading of Greenhouse Gas Emission Permits, emission permits that are allocated free of charge from the government are measured at zero, and emission permits purchased are recognized at acquisition cost by including any directly attributable costs incurred during the normal course of business. Emission permits are carried at cost less accumulated impairment losses, and those to be submitted to the government within one year from the end of reporting period are classified as current assets.

2.24 Greenhouse Gas Emission Permits and Obligations (cont'd)

Emission obligation is a present obligation of submitting the allowances to the government. Emissions obligations are measured as the sum of the carrying amount of the allocated allowances that will be submitted to the government and the best estimate of expenditure required to settle the obligation at the end of reporting period for any excess emission. The emission obligations to be settled within one year from the end of the reporting period are classified as current liabilities.

The Group derecognizes the emission permits when the emission allowance is disposed or submitted to the government or becomes unable to be disposed or submitted, and accordingly, the future economic benefits are no longer expected to be probable. The Group derecognizes the emission obligations when the Group submits the emission permits to the government. The emission permits and emission obligations are classified as intangible assets and provisions, respectively, in the statement of financial position.

Emission permits held for trading

Emission permits held for trading are classified as current assets and measured at fair value, and changes in fair value are recognized as profit or loss for the year. Changes in fair value and gain (loss) on disposal are recognized as other income and other expenses, respectively.

2.25 New and amended standards adopted by the Group

The Group has applied the following standards and amendments for the first time for their annual reporting period commencing January 1, 2022.

Amendment to Korean IFRS 1116 Leases - Covid-19 - Related Rent Concessions beyond June 30, 2021 The application of the practical expedient, a lessee may elect not to assess whether a rent concession occurring as a direct consequence of the COVID-19 pandemic is a lease modification, is extended to lease payments originally due on or before June 30, 2022. A lessee shall apply the practical expedient consistently to eligible contracts with similar characteristics and in similar circumstances. The amendment does not have a significant impact on the consolidated financial statements.

Amendments to Korean IFRS 1103 Business Combination – Reference to the Conceptual Framework

The amendments update a reference of definition of assets and liabilities to be recognized in a business combination in revised Conceptual Framework for Financial Reporting. However, the amendments add an exception for the recognition of liabilities and contingent liabilities within the scope of Korea IFRS 1037 *Provisions, Contingent Liabilities and Contingent Assets*, and Korean IFRS 2121 *Levies*. The amendments also clarify that contingent assets should not be recognized at the acquisition date. The amendment does not have a significant impact on the consolidated financial statements.

Amendments to Korean IFRS 1016 Property, Plant and Equipment - Proceeds before intended use

The amendments prohibit an entity from deducting from the cost of an item of property, plant and equipment any proceeds from selling items produced while the entity is preparing the asset for its intended use. Instead, the entity will recognize the proceeds from selling such items, and the costs of producing those items, in profit or loss. The amendment does not have a significant impact on the consolidated financial statements.

Amendments to Korean IFRS 1037 Provisions, Contingent Liabilities and Contingent Assets - Onerous Contracts: Cost of Fulfilling a Contract

The amendments clarify that the direct costs of fulfilling a contract include both the incremental costs of fulfilling the contract and an allocation of other costs directly related to fulfilling contracts when assessing whether the contract is onerous. The amendment does not have a significant impact on the consolidated financial statements.

Annual improvements to Korean IFRS 2018-2020

Annual improvements of Korean IFRS 2018-2020 Cycle should be applied for annual periods beginning on or after January 1, 2022, and earlier application is permitted. The amendment does not have a significant impact on the consolidated financial statements.

2.25 New and amended standards adopted by the Group (cont'd)

- Korean IFRS 1101 First time Adoption of Korean International Financial Reporting Standards –
 Subsidiaries that are first-time adopters
- Korean IFRS 1109 Financial Instruments Fees related to the 10% test for derecognition of financial liabilities
- · Korean IFRS 1041 Agriculture Measuring fair value

2.26 New standards and interpretations not yet adopted by the Group

The following new accounting standards and interpretations have been published that are not mandatory for December 31, 2022 reporting periods and have not been early adopted by the Group.

Amendments to Korean IFRS 1001 Presentation of Financial Statements - Classification of Liabilities as Current or Non-current

The amendments clarify that liabilities are classified as either current or non-current, depending on the substantive rights that exist at the end of the reporting period. Classification is unaffected by the likelihood that an entity will exercise right to defer settlement of the liability or the expectations of management. Also, the settlement of liability includes the transfer of the entity's own equity instruments, however, it would be excluded if an option to settle them by the entity's own equity instruments if compound financial instruments is met the definition of equity instruments and recognized separately from the liability. The amendments should be applied for annual periods beginning on or after January 1, 2023, and earlier application is permitted. The Group is in review for the impact of these amendments on the consolidated financial statements.

Korean IFRS 1001 Presentation of Financial Statements - Disclosure of Accounting Policies

The amendments to Korean IFRS 1001 define and require entities to disclose their material accounting policies. The amendments should be applied for annual periods beginning on or after January 1, 2023, and earlier application is permitted. The Group is in review for the impact of these amendments on the consolidated financial statements.

Korean IFRS 1008 Accounting policies, changes in accounting estimates and errors - Definition of Accounting Estimates

The amendments define accounting estimates and clarify how to distinguish them from changes in accounting policies. The amendments should be applied for annual periods beginning on or after January 1, 2023, and earlier application is permitted. The Group does not expect that these amendments have a significant impact on the consolidated financial statements.

Korean IFRS 1012 Income Taxes - Deferred Tax related to Assets and Liabilities arising from a Single Transaction

The amendments include an additional condition to the exemption to initial recognition of an asset or liability that a transaction does not give rise to equal taxable and deductible temporary differences at the time of the transaction. The amendments should be applied for annual periods beginning on or after January 1, 2023, and earlier application is permitted. The Group does not expect that these amendments have a significant impact on the consolidated financial statements.

Korean IFRS 1001 Presentation of Financial Statements - Disclosure of gain or loss on valuation of financial liabilities subject to adjustment of exercise price

If the entire or a part of financial instrument, whose exercise price is subject to change due to the issuer's share price, is classified as a financial liability, the carrying amount of the financial liability and related gains and losses shall be disclosed. The amendments should be applied for annual periods beginning on or after January 1, 2023, and earlier application is permitted. The Group does not expect that these amendments have a significant impact on the consolidated financial statements.

2.27 Significant accounting judgments, estimates and assumptions

The preparation of consolidated financial statements requires the Group to make estimates and assumptions concerning the future. Management also needs to exercise judgement in applying the Group's accounting policies. Estimates and assumptions are continually evaluated and are based on historical experience and other factors, including expectations of future events that are believed to be reasonable under the circumstances. As the resulting accounting estimates will, by definition, seldom equal the related actual results, it can contain a significant risk of causing a material adjustment.

The estimates and assumptions that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year are discussed below. Additional information of significant judgement and assumptions of certain items are included in relevant notes.

Impairment of non-financial assets

The Group assesses, at each reporting date, whether there is an indication that an asset may be impaired. Goodwill and intangible assets with indefinite useful lives are tested for impairment annually, or when circumstances indicate that the carrying value may be impaired. Other non-financial assets are tested for impairment when circumstances indicate that its carrying amount may not be recoverable. In determining a value in use, management estimates future cash flows to be derived from the asset or CGU and applies the appropriate discount rate to those future cash flows.

Deferred tax assets

Deferred tax assets are recognized for unused tax losses in the extent that it is probable that future taxable income will be available for tax losses. Management of the associate makes key judgments to determine the amount of deferred tax assets that are recognized based on the timing and level of future tax strategy and tax benefits.

Net defined benefit liabilities

The cost of defined benefit pension plans and the present value of the pension obligation are determined using actuarial valuations. An actuarial valuation involves making various assumptions. These include the determination of the discount rate, future salary increases, mortality rates and future pension increases. Due to the complexity of the valuation, the underlying assumptions and its long-term nature, a defined benefit obligation is highly sensitive to changes in these assumptions. All assumptions are reviewed at each reporting date.

Fair value of financial instruments

When the fair values of financial assets and financial liabilities recorded in the statement of financial position cannot be measured based on quoted prices in active markets, their fair value is measured using valuation techniques including the DCF model. The inputs to these models are taken from observable markets where possible, but where this is not feasible, a degree of judgment is required in establishing fair values. Judgments include considerations of inputs such as liquidity risk, credit risk and volatility. Changes in assumptions about these factors could affect the reported fair value of financial instruments.

Impact of Coronavirus disease 2019 ("COVID-19")

The spread of COVID-19 from 2020 has a material impact on the global economy. It may have a negative impact, such as, decrease in productivity, decrease, or delay in sales, collection of existing receivables and others. Accordingly, it may have a negative impact on the financial position and financial performance of the Group.

2.28 Approval of the financial statements

Approval of the consolidated financial statements of the Group for the year ended December 31, 2022 were approved by the Board of Directors' meeting on January 25, 2023 for submission to the general shareholders' meeting.

3. Operating segment information

The Group has three reportable operating segments, which are organized based on each segment's products and sales.

- > Component: Passive components (MLCC, inductors, chip resisters and others)
- Optics & Communication Solution: Camera module, Network module
- Package Solution: Semiconductor PKG board

Sales to Samsung Electronics Co., Ltd. & its subsidiaries and Xiaomi are more than 10% of its total sales, amounted to $\mbox{$\mathbb{W}$}3,044$ billion (2021: $\mbox{$\mathbb{W}$}2,769$ billion) and $\mbox{$\mathbb{W}$}545$ billion (2021: $\mbox{$\mathbb{W}$}1,003$ billion) for the year ended December 31, 2022, respectively.

The following table summarizes the results of financial performance of the Group by operating segment for the years ended December 31, 2022 and 2021 (Korean won in millions):

	2022							
		omponent	Co	Optics & ommunication Solution	Pac	ckage Solution	(Consolidated
			117					
Sales	₩	4,132,283	₩	3,203,950	₩	2,088,319	₩	9,424,552
Depreciation		569,900		120,965		116,595		807,460
Amortisation		19,115		19,520		6,486		45,121
Depreciation of right-of use assets		16,295		6,278		3,646		26,219
Operating profit		607,739		110,448		464,649		1,182,836
	2021							
			Optics & Communication					
			Сс	•				
	C	component	Co	•		ckage Solution	(Consolidated
Sales	<u>C</u>	component 4,771,830	Cc ₩	mmunication		ckage Solution 1,679,150	₩	Consolidated 9,675,036
Sales Depreciation				ommunication Solution	Pac			
Depreciation Amortisation		4,771,830		Solution 3,224,056	Pac	1,679,150		9,675,036
Depreciation		4,771,830 541,662		ommunication Solution 3,224,056 95,736	Pac	1,679,150 111,920		9,675,036 749,318

Geographic information is as follows:

	Major products	Major customers
Korea	Passive component, camera module, semiconductor package substrate, and others	Samsung Electronics, Google, Amkor Technology Korea, and others
China and Southeast Asia	Passive component, camera module and others	Samsung Electronics, Xiaomi, Apple, and others
Japan	Passive component, semiconductor package substrate and others	SOMC, Shinko, and others
America	Passive component, semiconductor package substrate and others	Intel, Dell, Future, and others
Europe	Passive component and others	Rutronik, Bosch, AVNET, and others

3. Operating segment information (cont'd)

The results of financial performance of the Group by geographic segment for the years ended December 31, 2022 and 2021 (Korean won in millions) are as follows:

		Kor	ea						(Overseas																
	D	omestic		Export		China	Southeast Asia			America		Europe		Japan	Adjustment		Co	nsolidated								
Sales(*1)	₩	374,110		3,009,363	₩	3,177,547	₩	1,840,231	₩	526,672	₩	321,732	₩	174,897	₩	-	₩	9,424,552								
Non-current assets(*2)		2,250	0,042			1,516,220		1,719,602		865		2,032		504		13,109		5,502,374								
										2021																
		Kor	ea						С	verseas																
	D	omestic		Export		China Southeast Asia				America		Europe	Japan		Japan		Japan		Japan		Japan		Ad	justment	Co	nsolidated
Sales(*1)	₩	401,765	₩	2,504,684	₩	3,976,357	₩	1,857,914	₩	508,521	₩	295,917	₩	129,878	₩	-	₩	9,675,036								
Non-current assets(*2)		2,16	5,369			1,675,856		1,110,828		655		2,398		870		(51,956)		4,904,020								

^(*1) This amount excludes internal sales within the Group.

4. Cash and cash equivalents

Cash and cash equivalents as of December 31, 2022 and 2021 are as follows (Korean won in thousands):

	2022			2021
Cash on hand	₩	29,652	₩	20,318
Short-term deposits		1,677,037,448		1,185,186,600
	₩ ′	1,677,067,100	₩	1,185,206,918

5. Other assets and liabilities

Other assets and liabilities as of December 31, 2022 and 2021 are as follows (Korean won in thousands):

		20)22		2021							
		Current	١	Non-current		Current	١	lon-current				
Other financial assets:												
Financial instruments	₩	39,000,000	₩	19,143	₩	39,000,000	₩	19,230				
Government and public												
bonds		-		8,060		-		97,330				
Accrued income		6,757,206		-	1,082,010							
Business guarantee deposits	187,774			-		4,142,837		-				
Lease guarantee deposits		20,417,479		19,594,549		16,516,128		21,124,576				
	₩ 66,362,459 ₩ 19,621,75		19,621,752	₩	60,740,975	₩	21,241,136					
Other liabilities:												
Withholdings	₩	39,309,133	₩	-	₩	55,059,135	₩	-				
Withholding deposits	•			-		5,504,416		-				
Unearned income				-		38,044,545		45,631,056				
	₩	45,825,985	₩	-	₩	98,608,096	₩	45,631,056				

^(*2) This amount excludes financial assets, deferred tax assets, investment in associates and others.

5. Financial assets and liabilities (cont'd)

Restricted deposits as of December 31, 2022 and 2021 consist of the following (Korean won in thousands):

	Financial institution		2022		2021	Description
Short-term financial instruments	Woori Bank and 1 other bank	₩	39,000,000	₩	39,000,000	Financial support reserve for strategic alliances
Long-term financial instruments	Woori Bank and 6 other banks	₩	19,143 39,019,143	₩	19,230 39,019,230	Overdraft facilities

6. Trade and other receivables

Trade and other receivables as of December 31, 2022 and 2021 are as follows (Korean won in thousands):

		20	22		2021					
	Current			Non-current	Current		Non-current			
Trade receivables Allowance for doubtful accounts	₩	990,685,140	₩	-	₩ 1,219,392,294	₩	-			
Other receivables Allowance for doubtful		65,464,436		10,820	67,899,033		445,375			
accounts		(456,465)		(10,820)	(284,771)		(445,375)			
	₩	1,055,693,111	₩		₩ 1,287,006,556	₩				

The changes in allowance for doubtful accounts for the years ended December 31, 2022 and 2021 are as follows (Korean won in thousands):

		2022		2021
As of January 1	₩	730,146	₩	830,368
Allowance (reversal) for doubtful accounts - others		737,721		(78,898)
Write-off	. <u></u>	(1,000,582)		(21,324)
As of December 31	₩	467,285	₩	730,146

As of December 31, 2022, and 2021, the aging analysis of trade and other receivables are as follows (Korean won in thousands):

	2022	2021
Neither past due nor impaired	₩ 1,006,175,264	₩ 1,252,928,021
Past due but not impaired:		
Within 30 days	39,023,193	28,774,166
31 ~ 180 days	10,197,532	5,202,196
181 ~ 365 days	370,078	44,646
Over 365 days	394,329	787,674
	49,985,132	34,808,682
	₩ 1,056,160,396	₩ 1,287,736,703

6. Trade and other receivables (Cont'd)

The Group disposed of its trade receivables in accordance with a factoring agreement entered into with various financial institutions. The Group did not derecognize the trade receivables, as the financial institutions hold recourse rights, and the Group retains the related risk and rewards. The financial liability was recognized as short-term borrowings on the statements of financial position for the years ended December 31, 2022 and 2021 (Note 14).

Trade receivables factored with recourse as of December 31, 2022 and 2021 are as follows (Korean won in thousands):

		2022		2021
Book value of trade receivables disposed(*)	₩	765,901,830	₩	14,993,897
Book value of related borrowings		765,901,830		14,993,897

^(*) Trade receivables disposed include inter-company trade-receivables.

7. Inventories

Inventories as of December 31, 2022 and 2021 are as follows (Korean won in thousands):

				2022			2021						
	Ac	Acquisition cost		Valuation allowance		Book value		Acquisition cost		Valuation allowance		Book value	
Finished goods and													
merchandise	₩	733,068,939	₩	(47,954,033)	₩	685,114,906	₩	795,619,685	₩	(37,903,622)	₩	757,716,063	
Work-in-process		822,003,887		(36,086,979)		785,916,908		544,677,062		(19,370,995)		525,306,067	
Raw materials		337,288,033		(9,661,311)		327,626,722		415,675,420		(9,429,036)		406,246,384	
Supplies		69,437,432		-		69,437,432		60,414,013		-		60,414,013	
Materials in-transit		33,483,610		-		33,483,610		68,727,021		-		68,727,021	
	₩	1,995,281,901	₩	(93,702,323)	₩	1,901,579,578	₩	1,885,113,201	₩	(66,703,653)	₩	1,818,409,548	

Changes in inventories included in cost of sales and loss on valuation of inventories (reversal) included in cost of sales for the years ended December 31, 2022 and 2021 are as follows (Korean won in thousands):

		2022		2021
Inventories recognized as an expense(*)	₩	7,155,915,530	₩	7,747,810,259
Reversal of loss on valuation of inventories(*)		25,960,216		(2,052,656)
	₩	7,181,875,746	₩	7,745,757,603

^(*) Includes profit (loss) for the year from discontinued operations.

8. Investment in associates

Investment in associates as of December 31, 2022 and 2021 are as follows (Korean won in thousands):

		Stemco	Co.,		Samsung Global Researc			
		2022		2021		2022		2021
Number of shares		1,440,000		1,440,000		2,856,000		2,856,000
Equity interest		30.00%		30.00%		23.80%		23.80%
Acquisition cost	₩	7,200,000	₩	7,200,000	₩	14,280,000	₩	14,280,000
Shareholder portion	₩	51,452,759	₩	58,873,610	₩	19,636,390	₩	21,175,123
Book value	₩	51,452,759	₩	58,873,610	₩	19,636,390	₩	21,175,123
Domicile		Korea		Korea		Korea		Korea
Fiscal year end		December 31		December 31		December 31		December 31
Principal activities		Manufacturing and trading of semiconductor parts		Manufacturing and trading of semiconductor parts		Research and development, human resource development		Research and development, human resource development

The following table summarizes the financial position of associates as of December 31, 2022 and 2021, and the results of their financial performance for the years then ended December 31, 2022 and 2021 (Korean won in thousands):

		Stemco	Co., l	Ltd.	Samsung Global Research				
		2022		2021		2022	2021		
Current assets		58,910,989	₩	109,942,155	₩	113,024,754	₩	107,199,701	
Non-current assets		148,224,553		151,466,254		67,324,839		67,817,430	
Total assets	₩	207,135,542	₩	261,408,409	₩	180,349,593	₩	175,017,131	
Current liabilities	₩	29,039,015	₩	58,142,754	₩	82,723,644	₩	69,681,851	
Non-current liabilities		6,587,329		7,020,289		15,120,109		16,364,175	
Total liabilities	₩	35,626,344	₩	65,163,043	₩	97,843,753	₩	86,046,026	
Total equity	₩	171,509,198	₩	196,245,366	₩	82,505,840	₩	88,971,105	
Dividends received from investees	₩	4,924,800	₩	5,102,100	₩	-	₩	-	
		Stemco	Co., L	.td.	Samsung Global Research				
		2022		2021		2022	2021		
Sales	₩	196,004,907	₩	324,726,168	₩	228,696,932	₩	191,460,964	
Profit (loss) for the year		(10,652,025)		34,315,841		1,172,753		249,262	
Other comprehensive income (expense)		2,331,857		1,170,440		(7,638,018)		8,338,754	
Total comprehensive income (expense)		(8,320,168)		35,486,281		(6,465,265)		8,588,016	

Details of changes in the carrying amount of equity method investments (Korean won in thousands):

		Jan. 1, 2022		are of profit or ss in investee	Ö	ity adjustments f investment n associates	Divi	dends income	De	ec. 31, 2022
Stemco Co., Ltd.	₩	58,873,610	₩	(3,195,607)	₩	699,556	₩	(4,924,800)	₩	51,452,759
Samsung Global										
Research		21,175,123		279,115		(1,817,848)		-		19,636,390
	₩	80,048,733	₩	(2,916,492)	₩	(1,118,292)	₩	(4,924,800)	₩	71,089,149
		Jan. 1, 2021	Sh	are of profit in investee	Ö	ity adjustments f investment n associates	_ Divi	dends income	D€	ec. 31, 2021
Stemco Co., Ltd.	₩	53,329,825	₩	10,294,753	₩	351,132	₩	(5,102,100)	₩	58,873,610
Samsung Global										
Research		19,131,175		59,324		1,984,624				21,175,123
	₩	72,461,000	₩	10,354,077	₩	2,335,756	₩	(5,102,100)	₩	80,048,733

8. Investment in associates (Cont'd)

Details of changes in the book value of investment in associates based on their net assets as of December 31, 2022 and 2021 are as follows (Korean won in thousands):

		20)22	
			Shareholder	
	Net assets (A)	Ownership (B)	portion (A*B)	Book value
Stemco Co., Ltd.	₩ 171,509,198	30.00%	₩ 51,452,759	₩ 51,452,759
Samsung Global Research	82,505,840	23.80%	19,636,390	19,636,390
	₩ 254,015,038		₩ 71,089,149	₩ 71,089,149
		20)21	
			Shareholder	
	Net assets (A)	Ownership (B)	portion (A*B)	Book value
Stemco Co., Ltd.	₩ 196,245,366	30.00%	₩ 58,873,610	₩ 58,873,610
Samsung Global Research	88,971,105	23.80%	21,175,123	21,175,123
	₩ 285,216,471		₩ 80,048,733	₩ 80,048,733

9. Financial assets measured at fair value

Details of financial assets measured at fair value as of December 31, 2022 and 2021 are as follows (Korea won in thousands):

			2021			
	Ac	quisition cost		Book value		Book value
Marketable securities	₩	114,100,522	₩	179,854,714	₩	213,869,644
Non-marketable securities		38,477,289		65,908,864		50,543,570
	₩	152,577,811	₩	245,763,578	₩	264,413,214

Marketable securities

Marketable securities as of December 31, 2022 and 2021 are as follows (Korea won in thousands):

-		20)22					2021	
	Number of shares	Equity interest	Ac	quisition cost		Book value		Book value	Domicile
Samsung Heavy Industries Co., Ltd.	18,150,855	2.06%	₩	111,468,896	₩	92,750,869	₩	102,915,348	Korea
iMarketkorea Inc.	613,252	1.83%		306,626		6,193,845		6,561,796	Korea
SoluM Co., Ltd.	4,650,000	9.30%		2,325,000		80,910,000		104,392,500	Korea
			₩	114,100,522	₩	179,854,714	₩	213,869,644	

9. Financial assets measured at fair value (cont'd)

Non-marketable securities

Non-marketable securities as of December 31, 2022 and 2021 are as follows (Korean won in thousands):

				2021				
•	Number of shares	Equity interest (%)	Acc	quisition cost	E	Book value		Book value
Financial assets measured at								
fair value through OCI								
Samsung Venture								
Investment Co., Ltd.(*)	1,020,000	17.00	₩	5,100,000	₩	33,382,560	₩	23,104,020
KMAC fund	8,000	1.00		40,000		40,000		40,000
IMA(*)	347,696	8.69		4,028,477		9,258,450		8,634,683
Inkel Co., Ltd.	40	0.00		200		200		200
Posco Social								
Corporation Fund	1	1.67		10,000		10,000		10,000
				9,178,677		42,691,210		31,788,903
Financial assets measured at fair value through profit or loss				, ,		, ,		, ,
Intellectual Discovery	7,212	0.22		250,004		-		-
Korea Orbcom Ltd.	16,000	3.42		600,000		-		-
KBI cosmolink Co., Ltd.	29,033	1.42		6,451,253		-		-
Optis Co., Ltd.	10,963	0.05		54,816		-		-
DS Asia Holdings	3,208,399	1.80		16,276		-		_
Others	-	-		21,926,263		23,217,654		18,754,667
				29,298,612		23,217,654		18,754,667
			₩	38,477,289	₩	65,908,864	₩	50,543,570

^(*) Valuations on the non-marketable securities were performed by an independent professional appraiser, using fair values calculated using the discounted future cash flows method other relevant information.

Details of changes in accumulated other comprehensive income arising from valuation of financial instruments measured at fair value for the years ended December 31, 2022 and 2021 are as follows (Korean won in thousands):

			2022									
							(Current year				
			J	anuary 1		Increase		tax effect	D	ecember 31		
Marketable securities			₩ 7	73,829,150	₩	(34,014,930)	₩	9,501,423	₩	49,315,643		
Non-marketable securi	n-marketable securities					10,902,307		(2,499,474)		26,328,404		
		_	₩ 9	91,754,721	₩	(23,112,623)	₩	7,001,949	₩	75,644,047		
		•										
						2021						
				Increase	(Current year						
		January 1		(decrease)		tax effect		Others(*)	D	ecember 31		
Marketable securities	₩	9,659,967	₩	27,161,002	₩	(8,368,806)	₩	45,376,987	₩	73,829,150		
Non-marketable												
securities		63,032,042		893,800		(623,284)		(45,376,987)		17,925,571		
	₩	72,692,009	₩	28,054,802	₩	(8,992,090)	₩	-	₩	91,754,721		

^(*) SoluM Co., Ltd. was listed on the stock market during the year ended December 31, 2021.

10. Property, plant and equipment

Property, plant and equipment as of December 31, 2022 and 2021 are as follows (Korean won in thousands):

			2022					2021				
		Acquisition cost	Accumulated depreciation(*)		Book value		Acquisition cost		Accumulated depreciation(*)		Book value	
Land	₩	206,208,095	₩ -	₩	206,208,095	₩	206,489,285	₩	-	₩	206,489,285	
Buildings		2,730,123,965	(807,473,381)		1,922,650,584		2,690,519,299		(715,131,751)		1,975,387,548	
Structures		165,443,966	(77,932,633)		87,511,333		164,783,509		(71,821,699)		92,961,810	
Machinery		6,978,923,543	(5,399,632,756)		1,579,290,787		6,689,221,591		(4,834,725,656)		1,854,495,935	
Vehicles		6,166,632	(4,062,694)		2,103,938		5,068,711		(3,322,313)		1,746,398	
Equipment		471,043,294	(331,604,189)		139,439,105		432,551,125		(293,091,427)		139,459,698	
Construction-in-progress and	i											
others		1,298,077,152			1,298,077,152		368,840,394		<u>-</u>		368,840,394	
	₩	11,855,986,647	W (6,620,705,653)	₩	5,235,280,994	W	10,557,473,914	₩	(5,918,092,846)	₩	4,639,381,068	

^(*) Accumulated impairment losses and government grants are included.

Changes in the book value of property, plant and equipment for the years ended December 31, 2022 and 2021 are as follows (Korean won in thousands):

								2022							
		January 1		Additions		isposals and scrap		Transfers		Depreciation		Others (*)	December 31		
Land	₩	206,489,285	₩	-	₩	-	₩	-	₩	-	₩	(281,190)	₩	206,208,095	
Buildings		1,975,387,548		8,487,366		(32,790)		4,206,681		(89,439,716)		24,041,495		1,922,650,584	
Structures		92,961,810		11,394		(22,559)		564,379		(7,269,893)		1,266,202		87,511,333	
Machinery		1,854,495,935		25,824,931		(11,180,136)		392,081,465		(657,293,846)		(24,637,562)		1,579,290,787	
Vehicles		1,746,398		418,068		(9)		682,122		(731,097)		(11,544)		2,103,938	
Equipment Construction-in-progress		139,459,698		26,716,807		(172,211)		25,940,835		(52,725,019)		218,995		139,439,105	
and others		368,840,394		1,377,232,295				(423,475,482)				(24,520,055)		1,298,077,152	
	₩	4,639,381,068	₩	1,438,690,861	₩	(11,407,705)	₩		₩	(807,459,571)	₩	(23,923,659)	₩	5,235,280,994	
_								2021							

	January 1	Additions	Disposals and scrap	Transfers	Depreciation	Impairment loss	Others (*)	December 31
Land	₩ 206,186,873	₩ -	₩ -	₩ -	₩ -	₩ -	₩ 302,412	₩ 206,489,285
Buildings	1,425,864,976	56,527,068	(321,196)	476,892,673	(75,528,818)	-	91,952,845	1,975,387,548
Structures	57,776,444	6,422,552	-	33,300,008	(6,446,160)	-	1,908,966	92,961,810
Machinery	1,923,667,248	103,825,883	(44,884,278)	458,403,324	(677,463,557)	(1,796,362)	92,743,677	1,854,495,935
Vehicles	1,293,930	797,396	(8,507)	106,539	(602,130)	-	159,170	1,746,398
Equipment	106,787,832	30,115,541	(269,289)	39,213,669	(47,156,461)	-	10,768,406	139,459,698
Construction-in-progress and others	702,784,985	670,676,824		(1,007,916,213)			3,294,798	368,840,394
	₩ 4,424,362,288	₩ 868,365,264	₩ (45,483,270)	₩ -	₩ (807,197,126)	₩ (1,796,362)	₩ 201,130,274	₩ 4,639,381,068

^(*) Others represent transfer to another account foreign exchange rate adjustments and others.

Line items including depreciation in the statements of comprehensive income for the years ended December 31, 2022 and 2021 are as follows (Korean won in thousands):

		2022		2021
Cost of sales	₩	758,458,277	₩	769,988,722
Selling and administrative expenses		49,001,294		37,208,404
Total amount(*)	₩	807,459,571	₩	807,197,126

^(*) Includes expenses for the year from discontinued operations.

10. Property, plant and equipment (cont'd)

If a tangible asset is acquired at a price less than its fair value due to government subsidies, the acquisition cost of the tangible asset is the fair value at the acquisition date. Government subsidies are recognized unearned income and are depreciated over the useful life of the asset. The amount offset by depreciation is W6,563,054 thousand (2021: W10,660,784 thousand).

Borrowing costs incurred amounting to \$4,100,193 thousand (2021: \$4,526,071 thousand) for the year ended December 31, 2022, which were directly attributable to the acquisition and construction of qualifying property, plant and equipment, are capitalized as part of the cost of those assets.

The Group revalued certain property, plant and equipment in accordance with the *Korean Asset Revaluation Act* on January 1, 1981 and July 1, 1998. The revalued amounts are recorded as deemed cost at the revaluation date in accordance with Korean IFRS 1101. The difference between the revaluation amount and book value prior to revaluation is recorded as revaluation surplus in retained earnings and may not be utilized for cash dividends.

Property, plant and equipment are insured against fire and other casualty losses for up to $\uppsi{1}2,264,775,010$ thousand and $\uppsi{1}1,416,607,275$ thousand as of December 31, 2022 and 2021, respectively.

11. Intangible assets

Intangible assets as of December 31, 2022 and 2021 are as follows (Korean won in thousands):

				2022			2021							
	Ac	equisition cost	Accumulated amortisation(*)			Book value		Acquisition cost		Accumulated amortisation(*)		Book value		
Patent/industrial														
proprietary rights	₩	71,714,410	₩	(34,596,393)	₩	37,118,017	₩	60,730,876	₩	(27,342,577)	₩	33,388,299		
Software and others		262,737,819		(191,174,029)		71,563,790		237,942,893		(157,461,492)		80,481,401		
Construction in progress		13,392,540		-		13,392,540								
Membership		30,695,639		(2,716,593)		27,979,046		30,684,560		(2,716,593)		27,967,967		
	₩	378,540,408	₩	(228,487,015)	₩	150,053,393	₩	329,358,329	₩	(187,520,662)	₩	141,837,667		

(*) Accumulated impairment losses are included.

Changes in the book value of intangible assets for the years ended December 31, 2022 and 2021 are as follows (Korean won in thousands):

						20	22								
		January 1	Disposals and anuary 1 Additions scrap Amortisation Others (*)												
Patent/industrial proprietary rights	₩	33,388,299	₩	13,037,287	W	(546,678)	W	(8,760,891)	₩	_	W	37,118,017			
Software and others		80,481,401		15,381,287		(7,216)		(36,359,691)	1:	2,068,009		71,563,790			
Construction in progress		-		14,367,840		-		-		(975,300)		13,392,540			
Membership		27,967,967								11,079		27,979,046			
	₩	141,837,667	₩	42,786,414	₩	(553,894)	₩	(45,120,582)	₩ 1	1,103,788	₩	150,053,393			

(*) Others represent transfer to another account foreign exchange rate adjustments and others.

		2021								
			Disposals and							
	January 1	Additions	scrap	Amortisation	Others (*)	December 31				
Patent/industrial proprietary rights	₩ 30,310,309	₩ 11,371,991	₩ (594,731)	₩ (7,699,270)	₩ -	₩ 33,388,299				
Software and others	80,015,828	13,136,913	(29,659)	(30,264,495)	17,622,814	80,481,401				
Membership	27,924,758				43,209	27,967,967				
	₩ 138,250,895	₩ 24,508,904	₩ (624,390)	₩ (37,963,765)	₩ 17,666,023	₩ 141,837,667				

(*) Others represent transfer to another account foreign exchange rate adjustments and others.

Details of expensed research and development costs incurred in 2022 and 2021 are as follows (Korean won in thousands):

		2022		2021
Cost of Sales(*)	₩	42,767,124	₩	39,643,391
Selling and administrative expenses(*)		521,166,250		558,264,676
	₩	563,933,374	₩	597.908.067

(*) Includes expenses for the year from discontinued operations.

Impairment tests for intangible assets with indefinite useful lives

The Group conducted impairment tests on membership and on intangible assets with indefinite useful lives and did not recognize any impairment loss in 2022.

The recoverable amount of membership is the higher of a membership's fair value costs of disposal and its value in use. The Group uses net fair value if it is available. If it is not available, the Group estimates value in use and determines recoverable amounts.

12. Leases

Changes in book value of right-of-use assets and lease liabilities for the years ended December 31, 2022 and 2021 (Korean Won in thousands).

		2022								
				Right-of-ı	ıse a	assets				
			\	/ehicles and						
		Land and	tr	ansportation						
		Buildings		equipment	Oth	ner equipment		Total	Le	ease Liability
As of January 1, 2022	₩	101,252,890	₩	21,223,786	₩	324,440	₩	122,801,116	₩	90,178,361
New and renewal of						,				, ,
contract		15,781,449		5,092,278		-		20,873,727		20,120,173
Write-off due to early										
termination of contract		(1,112,586)		-		(12,308)		(1,124,894)		(1,152,093)
Depreciation		(15,978,514)		(10, 139, 423)		(100,777)		(26,218,714)		-
Interest cost		-		-		-		-		2,235,109
Payment		-		-		-		-		(26,993,651)
Others(*)		659,030		44,790		4,267		708,087		(405,478)
As of December 31,										
2022	₩	100,602,269	₩	16,221,431	₩	215,622	₩	117,039,322	₩	83,982,421

(*) Including effect of foreign currency transaction and translation.

						2021				
				Right-of-ı	ise a	ssets				
			V	ehicles and						
		Land and	tra	ansportation						
		Buildings		equipment	Oth	er equipment		Total	Le	ease Liability
As of January 1, 2021	₩	84,315,529	₩	8,353,918	₩	336,635	₩	93,006,082	₩	62,597,906
New and renewal of						•				, ,
contract		26,042,481		18,497,728		160,364		44,700,573		43,824,251
Write-off due to early										
termination of contract		(3,358,155)		-		(100,302)		(3,458,457)		(3,519,402)
Depreciation		(14,109,792)		(6,969,851)		(187,176)		(21,266,819)		-
Interest cost		-		-		-		-		1,812,656
Payment		-		-		-		-		(20,388,259)
Others(*)		8,362,827		1,341,991		114,919		9,819,737		5,851,209
As of December 31,										
2021	₩	101,252,890	₩	21,223,786	₩	324,440	₩	122,801,116	₩	90,178,361
				· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·

^(*) Including effect of foreign currency transaction and translation.

In 2022, the Group recognized $\mbox{$\mathbb{W}$9,050,718$ thousand (2021: \mathbb{W}9,001,711 thousand) and \mathbb{W}3,143,091 thousand (2021: \mathbb{W}3,182,509 thousand) from short-term leases and leases of low-value assets, respectively.$

The total cash outflow for leases in 2022 was 39,187,460 thousand (2021: 32,572,479 thousand).

13. Trade and other payables

Trade and other payables as of December 31, 2022 and 2021 are as follows (Korean won in thousands):

		2022				2021			
		Current		Non-current		Current	Non-current		
Trade payables	₩	381,841,281	₩	-	₩	591,676,450	₩	-	
Other payables		366,125,433		2,650,057		392,153,189		2,343,717	
Accrued expenses		445,584,381		75,250,086		491,168,624		75,401,689	
Dividends payables		14,437		-		11,030		<u>-</u>	
	W .	1,193,565,532	₩	77,900,143	₩	1,475,009,293	₩	77,745,406	

14. Borrowings

Short-term borrowings as of December 31, 2022 and 2021 consist of the following (Korean won in thousands):

Financial institution	Description	Annual interest rate (%) as of Dec. 31, 2022		2022		2021
	Discount of					_
	commercial	SOFR +				
Woori Bank and 3 other banks	paper	0.45~0.65	₩	765,901,830	₩	14,993,897
	General					
BoA	borrowings	LIBOR +0.65		44,355,500		41,492,500
			₩	810,257,330	₩	56,486,397

The Group entered into factoring agreements with recourse for its trade receivables with Woori Bank and others. Factored receivables not overdue as of December 31, 2022 are accounted for as short-term borrowings (Note 6).

Long-term borrowings as of December 31, 2022 and 2021 are as follows (Korean won in thousands):

		Annual interest rate (%) as of				
Financial institution	Description	Dec. 31, 2022		2022		2021
	General	SOFR+				
Citi bank and 1 other banks	borrowings	0.85~0.97	₩	101,384,000	₩	-
	General	LIBOR +				
Metro bank and 2 other banks	borrowings	0.80~1.18		240,787,000		536,979,996
	General					
BoA	borrowings	-		-		122,931,600
	General					
HSBC	borrowings	LPR -0.254(*)		268,825,801		275,967,227
				610,996,801		935,878,823
Less current portion of						, ,
borrowings				(274,390,225)		(316,116,596)
-			₩	336,606,576	₩	619,762,227
				330,000,376	- V V	019,702,227

^(*) LPR refers to the Loan Prime Rate informed by the People's Bank of China.

15. Refund liabilities and Right of return assets

Details of refund liabilities and right of return assets are follows (Korean won in thousands):

		2022		2021
Refund liabilities	₩	25,227,794	₩	29,762,091
Right of return assets		20,384,009		22,614,442

Refund liabilities are estimated obligation to refund some or all of consideration received from customers and are measured at the amount the Group estimates. Rights of return assets show the right of the Group to receive return assets as customers exercise their rights.

16. Defined benefit liabilities

The Group has a defined benefit pension plan for its employees, for which the present value of defined benefits liabilities is calculated using the projected unit credit method by an independent actuary firm.

Details of net defined benefit assets (liabilities) recognized in the statements of financial position as of December 31, 2022 and 2021 are as follows (Korean won in thousands):

	2022	2021
Present value of funded defined benefit obligations	₩ (842,112,242)	₩ (796,052,634)
Fair value of plan assets (*)	937,093,356	771,876,620
Net defined benefit assets (liabilities)	₩ 94,981,114	₩ (24,176,014)

(*) The contributions to the National Pension Fund of $\uppsi240,560$ thousand are included in the fair value of plan assets as of December 31, 2022 (2021: $\uppsi2422,918$ thousand).

Changes in defined benefit assets (liabilities)for the years ended December 31, 2022 and 2021 are as follows (Korean won in thousands):

	2022			2021		
Changes in defined benefit assets (liabilities):						
At January 1	₩	(24,176,014)	₩	(30,567,570)		
Contributions by employer		190,082,335		140,100,583		
Retirement benefits paid		9,598,261		11,077,204		
Pension cost charged to profit or loss		(71,135,742)		(63,376,512)		
Succession of defined benefit liabilities		(424,188)		(3,215,754)		
Re-measurement losses in OCI		(9,668,074)		(76,527,956)		
Exchange differences		704,536		(1,666,009)		
At December 31		94,981,114		(24,176,014)		
Defined benefit liabilities in the statement of financial position:						
Present value of defined benefit obligation		(842,112,242)		(796,052,634)		
Fair value of plan assets		937,093,356		771,876,620		
	₩	94,981,114	₩	(24,176,014)		

Re-measurement gains on defined benefit plans (net of tax) of \$8,469,877 thousand (2021: \$52,580,805 thousand) was recognized as other comprehensive income.

16. Defined benefit liabilities (cont'd)

Expenses recorded in relation to the defined benefit pension plan for the years ended December 31, 2022 and 2021 are as follows (Korean won in thousands):

		2022		2021
Current service cost	₩	68,918,177	₩	58,820,723
Past service cost		-		2,533,833
Interest cost on benefit obligation		27,832,794		19,031,468
Expected return on plan assets		(25,615,229)		(17,009,512)
	₩	71,135,742	₩	63,376,512

Changes in the present value of the defined benefit obligation for the years ended December 31, 2022 and 2021 are as follows (Korean won in thousands):

		2022		2021
At January 1	₩	796,052,634	₩	678,505,335
Benefits paid		(46,524,085)		(39,026,187)
Current service cost		68,918,177		58,820,723
Interest cost		27,832,794		19,031,468
Succession of defined benefit obligation		424,188		3,215,754
Past service cost		-		2,533,833
Re-measurement losses				
based on changes of demographic assumptions		-		1,891,711
Re-measurement losses (gains)				
based on changes of financial assumptions		(48,280,968)		31,469,896
Re-measurement losses				
based on changes of experience adjustments		44,418,090		37,954,083
Exchange differences		(728,588)		1,656,018
At December 31	₩	842,112,242	₩	796,052,634

The weighted average duration of the defined benefit obligation is 7.23 years (2021: 8.11 years).

Changes in the fair value of plan assets for the years ended December 31, 2022 and 2021 are as follows (Korean won in thousands):

		2022		2021
At January 1	₩	771,876,620	₩	647,937,765
Contributions by employer		190,082,335		140,100,583
Benefits paid		(36,925,824)		(27,948,983)
Expected return on plan assets		25,615,229		17,009,512
Re-measurement losses		(13,530,952)		(5,212,266)
Exchange differences		(24,052)		(9,991)
At December 31	₩	937,093,356	₩	771,876,620

The Group has funded 111% of its defined benefit obligation with Samsung Life Insurance Co., Ltd as of December 31, 2022. The Group's employees are individually nominated as the vested beneficiaries of the defined benefit plan assets. Contributions related to the defined benefit obligation are expected to be $\mathbb{W}104,515$ million for the next fiscal year.

16. Defined benefit liabilities(cont'd)

The major categories of the fair value of total plan assets as of December 31, 2022 and 2021 are as follows (Korean won in thousands):

		2022		2021
Cash and cash equivalents	₩	936,451,271	₩	771,121,224
Others		642,085		755,396
	₩	937,093,356	₩	771,876,620

The principal assumptions used in actuarial calculation as of December 31, 2022 and 2021 are as follows:

	2022	2021
Discount rate	0.90% ~ 7.45%	0.10% ~ 5.15%
Future salary increases	1.80% ~ 8.00%	1.90% ~ 8.00%

The following table demonstrates a sensitivity analysis on the effect of changes in the principal assumptions used in actuarial calculation on the present value of defined benefit obligation as of December 31, 2022 and 2021, respectively (Korean won in thousands):

Effect of changes in the discount rate (Korean won in thousands):

		20)22		2021			
	1% p	oint decrease	1%	point increase	1%	point decrease	1%	point increase
Impact on								
defined benefit liabilities	₩	64,366,158	₩	(56,534,614)	₩	67,303,481	₩	(58,531,598)

Effect of changes in future salary increases. (Korean won in thousands):

		20)22			20	21	
	1%	point decrease	1%	point increase	1%	point decrease	1%	point increase
Impact on defined benefit liabilities	₩	(60,286,273)	₩	67,791,098	₩	(58,620,321)	₩	66,169,886

The Group also operates a defined contribution pension plan for its employees. The Group's liabilities consist of fixed contributions to be made to a separate pension fund. Future retirement benefits are based on the contributions of the Group and investment gains from plan assets. Plan assets are managed in a separate fund by independent trustees. For the years ended December 31, 2022 and 2021, defined contribution pension plan expenses amounted to $\mathbb{W}14,245,488$ thousand and $\mathbb{W}11,824,339$ thousand, respectively.

17. Provisions

Details of provisions for the years ended December 31, 2022 and 2021 are as follows (Korean won in thousands):

		2022		2021
Provisions for product warranties	₩	1,453,578	₩	2,772,457
Emission liabilities		6,064		416,034
	₩	1,459,642	₩	3,188,491

Provisions for product warranties

Provisions for warranty-related costs are recognized when the product is sold to the customers. Initial recognition is based on past experience on the level of repairs and returns. It is expected that most of these costs will be incurred in the next financial year.

Emission liabilities

The quantities of emission permits which are allocated free of charge for the 3rd planning period (2021~2025) are as follows.

(in KAU)	2021	2022	2023	2024	2025	Total
Allocated emission permits	458,946	458,946	458,946	454,648	454,648	2,286,134

Samsung Electro-Mechanics Co., Ltd. and Subsidiaries Notes to the Consolidated Financial Statements December 31, 2022 and 2021

17. Provisions (cont'd)

Changes in emission permits quantities and the carrying amounts for the years ended December 31, 2022 and 2021, are as follows.

									20.	2022								
		2021		21	2022			2023	j	, ,	2024		21	2025		ŕ	Total	
(in KAU)	Quantity	Amount		Quantity	Am	Amount	Quantity	Amount	ij	Quantity	Amount		Quantity	Amount	Ħ	Quantity	Amount	Ĕ
At January 1 and	W 2769 046	*		759 046	*		459 046	*		757 670	*		757 640	*		7 286 7	*	
allocation	400,940	>	1	450,940	>	•	400,940		1	404,040			404,040	>	1	2,200,134	>	1
Carry forward from prior period	22,973		ı	14,699		1	ı		1	ı		•	•		•	37,672		•
Purchase	1		ı	•		•			1	•		ı	•			1		•
Surrendered to the																		
government	(459,220)		ı	•		1	ı		•	•		ı	•		1	(459,220)		•
Disposal	(8,000)		ı	1		1	ı		•	•			•			(8,000)		•
Carry forward	(14,699)		 						·j			 - 	1		'	(14,699)		'
At December 31		*	 	473,645	*	<u>'</u> ا	458,946	*	İ	454,648	*	 	454,648	*	' 	1,841,887	*	']
									2021	-								
•	2020			2021			2022		2023	3	2	2024		2025	2		Total	
(in KAU)	Quantity	Amount	Quantity	/ Amount		Quantity	Amount	Quantity	tity	Amount	Quantity	Amount		Quantity	Amount	Quantity	Amount	unt
At January 1 and	767 C34 ##		260 046	*		# 970 046	₹		+ 970 046	*	757 640	*		7E1 610 ***		2 752 160	\$	
allocation Carry forward	450, 70 4	ı	400,9		I	400,94	2	0.		-	0, 40, 0, 0,		ť	04,0,40		- 4,733,10		1
from prior period	1	1	22,973	ر2	ı	•	,	1	ı	1	1		,	1		- 22,973	က	•
Purchase	1	•			•					•	•					1		•
Surrendered to																		
the government	(444,061)	1			•				ı	•	ı					- (444,061)	(-	•
Disposal	•	•			•				ı	•	1							1
Carry forward	(22,973)	'			'				 	'	'		 -	 		(22,973)	[3]	'
At December 31	*	1	481,919	≱ 61	' 	458,946	*	- 458	458,946 \	*	454,648	≱	- 44	454,648 W		- 2,309,107	<u> </u>	'

17. Provisions (cont'd)

Changes in emission liabilities for the years ended December 31, 2022 and 2021 are as follows (Korean won in thousands)

		2022		2021
Beginning	₩	416,034	₩	67,965
Addition (reversal)		(409,970)		348,069
Ending	₩	6,064	₩	416,034

A liability (emission obligation) is recognized only where actual emissions exceed the allocated emission allowances, and the cost of emissions is recognized as debt. Estimated emissions of the Group during 2022 are expected as 474,024KAU.

18. Commitments and contingencies

Significant lines of credit

Significant lines of credit with financial institutions as of December 31, 2022 are as follows (Korean won in thousands and U.S. dollar and Euro):

	Credit li	ne (USD, EUR)	Cı	redit line (₩)	Description
Woori Bank and 5 other banks	USD EUR	21,000,000 21,700,000	₩	80,000,000	Overdraft
	(Equivale	ent to ₩55,934,340)			
Shinhan Bank and 1 other banks	USD (Equiva	7,000,000 lent to ₩8,871,100)		-	Import letter of credit
Hana Bank		-	₩	1,000,000	Local letter of credit
Woori Bank and 4 other banks	USD (Equivaler	750,000,000 at to \(\psi\)950,475,000)	₩	100,000,000	Receivables factoring

The Group provided security deposits for its bank overdraft facilities (Note 5).

In addition, the Group has loan facilities with accounts receivable pledged as collateral related to purchase payments with Woori Bank of Korea and 2 other banks (up to $\,\mathrm{W}118,600,000\,$ thousand) and the Group entered into agreement for a general loan and others up to USD 2,002 million and RMB 997 million with BoA and othe financial institutions.

In addition, the Group entered into a performance guarantee agreement amounting to \$\pm\$324,063,195 thousand with JPMorgan Chase Bank and others for product supply contracts and performance guarantee related to the license and deposit (Note 18).

Contractual obligations related to acquisition of property, plant and equipment and others

Contractual obligations to purchase property, plant and equipment as of December 31, 2022 are $\forall 708,750,701$ thousand.

Long-term supply contracts

At the end of the reporting period, the total amount of advances received in relation to long-term supply contracts entered into by the Group with major customers is USD 251 million. The Group is provided with payment guarantee from JPMorgan Chase Bank and others (Notes 18).

19. Issued capital

The Company is authorized to issue 200 million ordinary shares with a par value per share of \$5,000. As of December 31, 2022, the Company holds 77,600,680 ordinary shares (including 2,906,984 preferred shares) amounting to \$388,003,400 thousand, which were issued through a series of stock issuances since the Company's incorporation in 1973.

Under the Articles of Incorporation, the Company is authorized to issue 20 million shares of non-voting preferred shares. The Company may issue cumulative, participating and non-voting preferred shares with a dividend rate of more than 1% of par value of ordinary shares. As of December 31, 2022, 2,906,984 of non-cumulative and non-voting preferred shares have been issued and outstanding.

The Company's share premium of December 31, 2022 and 2021 are as follows (Korean won in thousands):

		2022		2021
Paid-in capital in excess of par value	₩	931,477,700	₩	931,477,700
Consideration for stock warrants		12,160,470		12,160,470
Gains on disposal of treasury stock		16,769,322		16,769,322
Exercise of stock option		1,201,580		1,201,580
Others		91,907,143		91,907,143
	₩	1,053,516,215	₩.	1,053,516,215

Other components of equity as of December 31, 2022 and 2021 consist solely of treasury stock.

As of December 31, 2022, the Group's treasury stock comprising 2,000,000 ordinary shares and 53,430 preferred shares were repurchased by the Company to stabilize its stock price, which are expected to dispose depending on the stock price.

Accumulated other comprehensive income as of December 31, 2022 and 2021 are as follows (Korean won in thousands):

		2022		2021
Fair value loss and gain on financial assets measured at FVOCI	₩	75,644,047	₩	91,754,721
Disposal loss and gain on financial assets measured at FVOCI		455,940,710		455,940,710
Equity adjustments of investment in associates		2,026,616		2,853,855
Exchange differences on translations of foreign operations		89,552,360		66,359,332
	₩	623,163,733	₩_	616,908,618

Other capital reserves of the Company as of December 31, 2022 and 2021 are as follows (Korean won in thousands):

		2022		2021
Legal reserve (*)	₩	138,420,491	₩	122,520,491
Business rationalization reserve		31,537,766		31,537,766
Capital expenditure reserve		7,895,000		7,895,000
Others		3,137,912,000		2,554,912,000
	₩	3,315,765,257	₩	2,716,865,257

(*) In accordance with the Korean Commercial Code, an amount equal to at least 10% of cash dividends is required to be appropriated as a legal reserve until the reserve equals 50% of Issued Capital. The legal reserve may not be utilized for cash dividends but may only be used to offset a deficit, if any, or be transferred to capital.

19. Issued capital (cont'd)

Details of dividends declared for the years ended December 31, 2022 and 2021 are as follows (Korean won in thousands):

	2022			2021	
Attributable to ordinary shares (2022: ₩2,100 per share, 2021: ₩2,100 per share) Attributable to preferred shares	₩	152,656,762	₩	152,656,762	
(2022: ₩2,150 per share, 2021: ₩2,150 per share)		6,135,141		6,135,141	
	₩	158,791,903	₩	158,791,903	

20. Operating profit

Revenue from contracts with customers

Details of revenue from contracts with customers are as follows (Korean won in millions):

		2022						
	(Component	Co	Optics & ommunication Solution	Pad	ckage Solution		Total
Sales of Goods Royalty revenue	₩	4,092,700 39,583	₩	3,159,395 44,555	₩	2,021,600 66,719	₩	9,273,695 150,857
Totally revenue from contracts with customers	₩	4,132,283	₩	3,203,950	₩	2,088,319	₩	9,424,552
				20	21			
			Co	Optics & ommunication				
	(Component		Solution	Pad	ckage Solution		Total
Sales of Goods Royalty revenue	₩	4,743,991 27,839	₩	3,191,975 32,081	₩	1,639,682 39,468	₩	9,575,648 99,388
Total revenue from contracts with customers	₩	4,771,830	₩	3,224,056	₩	1,679,150	₩	9,675,036

Details of cost of sales and operating expenses for the years ended December 31, 2022 and 2021 by nature of expense are as follows (Korean won in thousands):

	2022	2021
Changes in finished goods and work in progress and others	₩ (188,009,684)	₩ (285,407,124)
Use of raw materials and supplies	3,372,203,401	4,083,456,869
Employee benefit expense	2,171,239,504	2,067,396,296
Depreciation(*) and amortisation	878,798,867	866,427,710
Outsourcing expenses	317,463,161	332,662,847
Commissions	194,693,562	195,828,967
Other expenses	1,531,315,536	1,625,553,954
Less: classified as profit (loss) from discontinued operation	(35,988,403)	(697,756,225)
	₩ 8,241,715,944	₩ 8,188,163,294

^(*) Includes depreciation of right-of-use assets.

20. Operating profit (cont'd)

Details of employee benefit expenses for the years ended December 31, 2022 and 2021 are as follows (Korean won in thousands):

	2022	2021
Salaries expenses	₩ 1,741,691,417	₩ 1,675,110,475
Pension costs	86,946,420	77,424,720
Employee welfare benefits	342,601,667	314,861,101
	₩ 2,171,239,504	₩ 2,067,396,296

(*) Includes expenses for the year from discontinued operation.

Depreciation of property, plant and equipment and amortisation of intangible assets for the years ended December 31, 2022 and 2021 are as follows (Korean won in thousands):

		2022		2021
Depreciation (*1)(*2)	₩	833,678,285	₩	828,463,945
Amortisation(*2)		45,120,582		37,963,765
	₩	878,798,867	₩	866,427,710

^(*1) Includes depreciation of right-of-use assets.

Details of selling and administrative expenses for the years ended December 31, 2022 and 2021 are as follows (Korean won in thousands):

		2022		2021
Salaries and bonuses	₩	216,038,527	₩	200,010,022
Post-employment benefits		14,084,388		9,441,695
Employee welfare benefits		56,581,414		59,517,561
Commissions		67,007,206		75,965,615
Depreciation(*) and amortisation		40,687,432		24,309,671
Education and training expenses		11,098,265		10,104,676
Utilities expenses		10,379,482		5,877,428
Sample expenses		3,992,174		3,671,024
Travel expenses		7,700,969		3,534,914
Research and development expense		518,368,584		526,153,387
IT expenses		36,903,269		31,254,155
Other expenses		97,468,450		111,225,137
	₩	1,080,310,160	₩	1,061,065,285

^(*) Includes depreciation of right-of-use assets.

^(*2) Includes expenses for the year from discontinued operation.

21. Non-operating profit and expenses

21.1 Finance income

Finance income consists solely of interest income and details for the years ended December 31, 2022 and 2021 are as follows (Korean won in thousands):

		2022		2021
Financial assets at amortised cost:				
Cash and cash equivalents	₩	28,261,075	₩	7,959,125
Other financial assets		967,562		620,864
Financial assets measured at FVPL:				
Short-term financial instruments		25,312		279,712
	$\overline{\Psi}$	29,253,949	₩	8,859,701

21.2 Finance costs

Finance costs consist solely of interest costs and details for the years ended December 31, 2022 and 2021 are as follows (Korean won in thousands):

		2022		2021
Financial liabilities at amortised cost:				
Borrowings	₩	26,309,978	₩	36,119,472
Other financial liabilities:				
Borrowings		17,761,365		1,820,339
Lease liabilities		2,235,109		1,817,321
	₩	46,306,452	₩	39,757,132

21.3 Share of profit (loss) in associates

Details of share of profit (loss) in associates for the years ended December 31, 2022 and 2021 are as follows (Korean won in thousands):

		2022	2021	
Share of profit (loss) in associates	₩	(2,916,492)	₩ 10,354,077	_

21.4 Other income

Details of other income for the years ended December 31, 2022 and 2021 are as follows (Korean won in thousands):

	2022			2021		
Dividend income	₩	371,951	₩	612,029		
Gain on disposal of financial assets at fair value through PL		-		4,284		
Gain on valuation of financial assets at fair value through PL		1,064,384		222,832		
Gain on disposal of property, plant and equipment		4,601,174		5,106,210		
Gain on disposal of intangible assets		1,828		-		
Reversal of allowance for other doubtful accounts		260,892		86,627		
Gain on foreign currency translation		103,895,496		12,807,457		
Gain on foreign currency transactions		358,667,131		197,843,033		
Commissions received		275,795		-		
Others		35,457,651		8,776,787		
	₩	504,596,302	₩	225,459,259		

21. Non-operating profit and expenses (cont'd)

21.5 Other expenses

Details of other expenses for the years ended December 31, 2022 and 2021 are as follows (Korean won in thousands):

		2022		2021
Loss on disposal of property, plant and equipment	₩	1,704,502	₩	5,638,644
Loss on disposal of intangible assets		542,712		529,027
Loss on valuation of financial assets at fair value through PL		167,122		155,408
Loss on disposal of financial assets at fair value through PL		38,344		987
Loss on disposal of trade receivables		12,382,239		14,829,180
Allowance for doubtful accounts - others		1,000,000		7,857
Loss on foreign currency translation		152,929,484		9,317,406
Loss on foreign currency transaction		296,821,983		152,194,166
Donations		4,520,106		3,420,534
Others		10,528,652		14,386,574
	₩	480,635,144	₩	200,479,783

22. Income tax expenses

The major components of income tax expense for the years ended December 31, 2022 and 2021 are as follows (Korean won in thousands):

		2022		2021
Current income tax	₩	211,066,367	₩	291,961,588
Adjustments in respect of prior years		8,658,287		12,879,189
Deferred income tax from temporary differences and tax credits		(64,989,315)		52,227,557
Income tax expense	₩	154,735,339	₩	357,068,334
Income tax expense from continuing operations	₩	164,121,857	₩	413,648,216
Income tax expense (benefit) from discontinued operations		(9,386,518)		(56,579,882)

The tax effect relating to components of other comprehensive income (expenses) for the years ended December 31, 2022 and 2021 is as follows (Korean won in thousands):

	2022						2021				
	Before tax		Tax effect		After tax		Before tax		Tax effect		After tax
Financial asset measured			_				_		_		
at fair value through OCI	₩ (23,112,623)	₩	7,001,949	₩ ((16,110,674)	₩	28,054,802	₩	(8,992,090)	₩	19,062,712
Re-measurement losses on											
net defined benefit plans	(9,668,074)		1,198,197		(8,469,877)		(76,527,956)		23,947,151		(52,580,805)
Capital changes in equity											
method	(1,118,292)		291,053		(827,239)		2,335,756		(607,297)		1,728,459
Foreign currency translation											
adjustments	14,358,943		8,834,084		23,193,027		205,644,199		(22,046,090)		183,598,109
	₩ (19,540,046)	₩	17,325,283	₩	(2,214,763)	₩	159,506,801	₩	(7,698,326)	₩	151,808,475

22. Income tax expenses (cont'd)

Details of deferred income taxes charged directly to equity as of December 31, 2022 and 2021 are as follows (Korean won in thousands):

		2022		2021
Deferred income tax:				
Gain or loss on valuation of financial asset at fair value through OCI	₩	7,001,949	₩	(8,992,090)
Re-measurement losses on net defined benefit plans		1,198,197		23,947,151
Equity adjustments of investment in associates		291,053		(607,297)
Exchange differences on translation of foreign operations		8,834,084		(22,046,090)

A reconciliation of profit before tax at the Korea statutory tax rate to income tax expenses at the effective tax rate of the Group are summarized as follows (Korean won in thousands):

	2022	2021
Profit before tax	₩ 1,148,254,521	₩ 1,272,500,787
Tax at domestic tax rates applicable to profits in the respective countries	289,178,744	341,726,491
Adjustments:		
Income not taxable for tax purposes	(1,784,443)	(6,249,110)
Expenses not deductible for tax purposes	16,652,506	15,786,260
Tax effects of investment in subsidiaries and associates	(111,630,947)	33,265,270
Tax credits	(38,979,919)	(39,560,416)
Adjustment in respect of prior years	8,658,287	13,062,091
Re-measurement of deferred tax – change in the tax rate	4,559,506	5,653,103
Others	(11,918,395)	(6,615,355)
Income tax expenses	₩ 154,735,339	₩ 357,068,334
Effective income tax rate	13.48%	28.06%

22. Income tax expenses (cont'd)

Significant changes in tax credit carryforwards, cumulative temporary differences and deferred income tax assets and liabilities for the years ended December 31, 2022 and 2021 are as follows (Korean won in thousands):

						2022				
				Recognized	Ь	ooognizod		Effects of change rate		
		January 1	ı	to income		ecognized ctly to equity	ex	change rate	D	ecember 31
Inventories Property, plant and	₩	16,603,013	₩	8,092,364	₩	-	₩	(385,926)	₩	24,309,451
equipment		24,271,561		(1,360,183)		-		(21,337)		22,890,041
Defined benefit liabilities		2,411,185		(29,308,687)		1,198,197		1,632		(25,697,673)
Accrual expenses		53,762,914		(3,436,060)		-		33,811		50,360,665
Investment securities Unused tax credit carry		(29,384,763)		(93,610)		7,001,949		-		(22,476,424)
forwards from prior years Investment in subsidiaries		54,840,730		(19,057,290)		-		-		35,783,440
and associates		(94,803,019)		121,649,379		9,125,137		-		35,971,497
Others		12,522,723		(11,496,598)		-		(112,499)		913,626
	₩	40,224,344	₩	64,989,315	₩	17,325,283	₩	(484,319)	₩	122,054,623

	2021									
			I	Recognized	F	Recognized	ex	change rate		
		January 1		to income	dire	ectly to equity		changes	D	ecember 31
Inventories Property, plant and	₩	25,531,493	₩	(9,892,610)	₩	-	₩	964,130	₩	16,603,013
equipment		16,971,368		7,145,223		-		154,970		24,271,561
Defined benefit liabilities		4,200,643		(25,736,085)		23,947,151		(524)		2,411,185
Accrual expenses		43,342,123		9,841,541		-		579,250		53,762,914
Investment securities Unused tax credit carry		(20,561,171)		168,498		(8,992,090)		-		(29,384,763)
forwards from prior years Investment in subsidiaries		61,033,031		(6,192,301)		-		-		54,840,730
and associates		(33,910,284)		(38,239,348)		(22,653,387)		-		(94,803,019)
Others		919,530		10,677,525		-		925,668		12,522,723
	₩	97,526,733	₩	(52,227,557)	₩	(7,698,326)	₩	2,623,494	₩	40,224,344

2021

Deferred tax assets and liabilities are measured using the enacted tax rates and laws that will be in effect when the temporary differences are expected to reverse.

Based on the Group's assessment of future taxable income, the Group's management concluded that it is probable that the recognized deferred tax assets will be realized in future periods.

The analysis of deferred tax assets and liabilities as of December 31, 2022 and 2021 are as follows (Korean won in thousands):

		2022		2021
Deferred tax assets				
Deferred tax asset to be recovered after more than 12 months	₩	263,222,068	₩	266,599,914
Deferred tax asset to be recovered within 12 months		221,454,769		236,000,164
		484,676,837		502,600,078
Deferred tax liabilities				
Deferred tax liability to be recovered after more than 12 months		(360,203,230)		(453,325,757)
Deferred tax liability to be recovered within 12 months		(2,418,984)		(9,049,977)
		(362,622,214)		(462,375,734)
Deferred tax assets, net	₩	122,054,623	₩	40,224,344

23. Earnings per share

Earnings per share was calculated by dividing net profit by the number of ordinary shares, and diluted earnings per share was calculated by dividing net profit by the weighted average number of dilutive potential ordinary shares. Preferred shares are participating preferred shares, having right to participate in division of profits, therefore their earning per share were computed as well. No dilutive features exist for the years ended December 31, 2022 and 2021 thus basic earnings per share is equivalent to diluted earnings per share.

The Company's basic (diluted) earnings per share for the years ended December 31, 2022 and 2021 are computed as follows (Korean won in thousands, except per share amounts):

		20:	22	
			F	Profit for the
				year from
		Net profit		continuing
	f	or the year		operations
Profit for the year attributable to equity holders of the parent	₩	980,551,642	₩	1,009,738,691
Preferred shares dividend		(6,135,141)		(6,135,141)
Additional dividends attributable to preferred shares		(31,039,327)		(32,141,774)
Profit for the year attributable to ordinary equity holders				
of the parent		943,377,174		971,461,776
Weighted-average number of shares of ordinary shares				
outstanding (*)		72,693,696		72,693,696
Basic (diluted) earnings per share	₩	12,977	₩	13,364

(*) There is no change in the number of shares.

	f	Net profit or the year
Profit for the year attributable to equity holders of the parent	₩	892,445,3
Preferred shares dividend		(6,135,1
Additional dividends attributable to preferred shares		(27,711,3
Profit for the year attributable to ordinary equity holders of the parent		858,598,
Weighted-average number of shares of ordinary shares outstanding (*)		72,693,
Basic (diluted) earnings per share	₩	11,

(*) There is no change in the number of shares.

2021									
_	Profit for the								
	year from								
Net profit	continuing								
for the year	operations								
₩ 892,445,31	7 ₩ 1,055,411,300								
(6,135,14	1) (6,135,141)								
(27,711,394	4) (33,866,909)								
858,598,78	2 1,015,409,250								
72,693,69	6 72,693,696								
₩ 11,81	1 ₩ 13,968								

23. Earnings per share (cont'd)

The Company's basic (diluted) earnings per share attributable to preferred shares for the years ended December 31, 2022 and 2021 are computed as follows (Korean won in thousands, except per share amounts):

	2022				
		Net profit or the year	Ċ	rofit for the year from continuing operations	
Profit for the year attributable to preferred shares holders of the parent Weighted-average number of shares of ordinary shares	₩	37,174,468	₩	38,276,915	
outstanding (*)		2,853,554		2,853,554	
Basic (diluted) earnings per share	₩	13,027	₩	13,414	
(*) There is no change in the number of shares.		20	21		
			Ρ	rofit for the	
		Net profit or the year	Ċ	year from continuing operations	
Profit for the year attributable to preferred shares holders of the parent	₩	33,846,535	₩	40,002,050	
Weighted-average number of shares of ordinary shares outstanding (*)		2,853,554		2,853,554	
Basic (diluted) earnings per share	₩	11,861	₩	14,018	

^(*) There is no change in the number of shares.

24. Related party transactions

Samsung Electronics Co., Ltd. has significant influence on the Company. Related parties of the Company as of December 31, 2022 are as follows:

Related party	Category
Samsung Electronics Co., Ltd.	Company with significant influence
Samsung Global Research	Associate
Stemco Co., Ltd.	Associate
Samsung Electronics Vietnam THAINGUYEN Co., Ltd.	Others
Samsung Electronics Vietnam Co., Ltd.	Others
Samsung C&T Corporation	Others
Samsung Engineering Co., Ltd.	Others
Samsung SDS Co., Ltd.	Others
Samsung Welstory Inc.	Others
Samsung Display Vietnam Co., Ltd.	Others
Samsung Engineering Construction(Shanghai)Co., Ltd	Others
Samsung Engineering Vietnam Co., Ltd.	Others
Samsung Life Insurance Co., Ltd. and other affiliates (*)	Others

^(*) Includes subsidiaries and associates of Samsung Electronics Co., Ltd.

Outstanding balances resulted from the transactions among the Company and its related parties as of December 31, 2022 and 2021 are as follows (Korean won in thousands):

		20)22		2021			
		Receivables		Payables (*)		Receivables		Payables (*)
Company with significant influence:								
Samsung Electronics Co., Ltd.	₩	106,006,868	₩	179,771,582	₩	109,997,555	₩	174,353,538
Associate:								
Samsung Global Research		-		205,826		-		2,138,712
Stemco Co., Ltd.		-		46,190		-		-
Others: Samsung Electronics Vietnam								
THAINGUYEN Co., Ltd. Samsung Electronics Vietnam		86,397,861		17,341,227		135,947,411		18,466,035
Co., Ltd.		23,828,376		-		42,107,188		-
Samsung C&T Corporation Samsung Engineering Co.,		19,089,009		114,829		19,089,009		135,235
Ltd.		-		8,481,867		-		30,659,200
Samsung SDS Co., Ltd.		309		10,042,265		994		14,827,482
Samsung Welstory Inc. Samsung Display Vietnam		-		1,521,230		-		3,024,874
Co., Ltd.		-		-		8,649,348		-
Samsung Engineering Construction(Shanghai)Co.,								
Ltd		-		2,081,947		-		-
Samsung Engineering Vietnam Co., Ltd.		-		9,021,600		-		-
Others		30,989,507		24,736,136		29,252,819		35,149,105
	₩	266,311,930	₩	253,364,699	₩	345,044,324	₩	278,754,181

24. Related party transactions (cont'd)

(*) Includes lease liabilities.

The Group operated defined benefit plan with Samsung Life Insurance Co., Ltd. The fair value of the plan as of December 31, 2022 amounts to 307,053 million; and interest income recognized amounts to 11,515 million for the year ended December 31, 2022 (2021: 99,984 million).

Significant transactions among the Company and its related parties for the years ended December 31, 2022 and 2021 are as follows (Korean won in thousands):

							202	22					
									A	cquisition o	of		
		Sales	Dis	posal o	fassets		Purch	ases		assets		Cas	h dividends
Company with significant influence:													
Samsung Electronics Co., Ltd. Associate:	₩	945,248,741	₩		-	₩	619,	683,497	₩	963,	158	₩	-
Samsung Global Research		-			9,329		7,	189,259			-		-
Stemco Co., Ltd.		2,299,218			-			439,878			-		4,924,800
Others:													
Samsung Electronics Vietnam THAINGUYEN Co., Ltd.		1,004,863,741			_		6	993,414					_
Samsung Electronics Vietnam		1,004,003,741			_		Ο,	333,414			-		_
Co., Ltd.		461,092,961			_		1,	508,326			_		-
Samsung C&T Corporation		12,625			-		1,	925,878		2,	970		-
Samsung Engineering Co., Ltd.		-			-			-		48,345,			-
Samsung SDS Co., Ltd.		6,729			-			424,760		20,102,			-
Samsung Welstory Inc.		- 0.004.400			-		24,	896,590		10,	280		-
Samsung Display Vietnam Co., Ltd. Samsung Engineering		8,801,198			-			-			-		-
Construction(Shanghai) Co., Ltd		_			_			_		42,977,	203		_
Samsung Engineering Vietnam										,,.			
Co., Ltd.		-			-		21,	120,400		136,144,	716		-
Others		462,916,358						689,978		14,833,			
	₩ 2	2,885,241,571	₩		9,329	₩	972,	871,980	₩	263,379,	565	₩	4,924,800
							202						
									uisitio				
Commenced		Sales			Purchas	ses		- 6	assets	8		Jash d	lividends
Company with significant influence:													
Samsung Electronics Co., Ltd.	₩	1,008,729,	738	₩	596	,912,	638	₩		915,000	₩		-
Associate: Samsung Global Research					6	,534,	024						
Stemco Co., Ltd.			-		U	, ,	084						5,102,100
Others:						. 0,	,001						0,102,100
Samsung Electronics Vietnam													
THAINGUYEN Co., Ltd.		1,222,755,	758		5	,786,	882			-			-
Samsung Electronics Vietnam Co.,		000 545											
Ltd.		362,515,			0	544,				-			-
Samsung C&T Corporation Samsung Engineering Co., Ltd.		12,6	507			,174,	,೦೦೦			.120.099			_
Samsung SDS Co., Ltd.									62				-
		10 -	- 189		94	472	- 770			, -,			_
Samsung Welstory Inc.		10,	- 189 160			,472, ,882,				,596,804 8,475			-
, , , , , , , , , , , , , , , , , , ,		,	160			, ,				,596,804			- - -
Samsung Welstory Inc. Samsung Display Vietnam Co., Ltd. Samsung Engineering		ĺ.	160		34	,882,	394		14	,596,804 8,475 -			- - -
Samsung Welstory Inc. Samsung Display Vietnam Co., Ltd. Samsung Engineering Construction(Shanghai) Co., Ltd		ĺ.	160		34	, ,	394		14	,596,804			- - -
Samsung Welstory Inc. Samsung Display Vietnam Co., Ltd. Samsung Engineering Construction(Shanghai) Co., Ltd Samsung Engineering Vietnam		ĺ.	160		34	,882,	394		14	,596,804 8,475 -			- - -
Samsung Welstory Inc. Samsung Display Vietnam Co., Ltd. Samsung Engineering Construction(Shanghai) Co., Ltd Samsung Engineering Vietnam Co., Ltd.		335,054,8	160 300 -		34 46	,882, ,512,	.394 - .570		14	,596,804 8,475 - 7,441,345			- - -
Samsung Welstory Inc. Samsung Display Vietnam Co., Ltd. Samsung Engineering Construction(Shanghai) Co., Ltd Samsung Engineering Vietnam	₩	ĺ.	160 300 - 092	W	34 46	,882, ,512, ,149,	.394 - .570 .805	₩	14 117 23	,596,804 8,475 -			- - 5,102,100

Dividend paid to Samsung Electronics Co., Ltd. amounts to $\mbox{$$W$37,155$}$ million (2021: $\mbox{$$W$24,770$}$ million) and cash contributions to Samsung Heavy Industries Co., Ltd. amounts to $\mbox{$$W$23,158$}$ million in December 31, 2021.

24. Related party transactions (cont'd)

Fund transactions with related parties for the years ended December 31, 2021 are as follows (Korean won in thousands):

	Div	/idend paid
		2021
Samsung Asia Pte. Ltd.	₩	25,265,338

The Group has no collateral or guarantees provided to or received from related parties as of December 31, 2022.

In accordance with a lease agreements entered with related parties, the Group has recognized rights-of-use assets and lease liabilities of \$5,722 million (2021: \$1,452 million), respectively. The repayment of lease liabilities paid to related parties amounts to \$4,877 million (2021: \$4,585 million) and interest expense recognized amounts to \$381 million (2021: \$388 million) for the year ended December 31, 2022.

In relation to key management compensation for the year ended December 31, 2022, the Group recognized expenses for short-term benefits, including short-term incentives of $\mbox{$\mathbb{W}$}$ 3,876 million (2021: $\mbox{$\mathbb{W}$}$ 4,414 million) and long-term benefits, including other long-term employee benefits and pension benefits of $\mbox{$\mathbb{W}$}$ 2,697 million (2021: $\mbox{$\mathbb{W}$}$ 3,480 million).

25. Supplementary consolidated cash flow information

Cash flows from operating activities for the years ended December 31, 2022 and 2021 are as follows (Korean won in thousands):

		2022	2021
Profit for the year	₩	993,519,182	915,432,453
Adjustments to reconcile profit before tax to net cash flows:			
Valuation of inventories (reversal)		25,960,216	(2,052,656)
Loss on scrap of inventories		112,841,530	125,937,571
Loss on valuation of return assets (reversal)		(1,481,505)	169,385
Pension costs		71,135,742	63,601,027
Long-term employee benefits		2,273,589	7,731,963
Depreciation		807,459,571	807,197,126
Depreciation of right-of-use assets		26,218,714	21,266,819
Amortisation of intangible assets		45,120,582	37,963,765
Provision for product warranties		(1,669,232)	(390,375)
Gain on foreign exchange translation		(104,074,191)	(13,323,537)
Gain (loss) on disposal of financial asset at FV through PL		38,344	(3,297)
Gain on disposal of financial asset at FV through PL		(897,262)	(67,424)
Loss on disposal of trade receivables		12,382,239	14,832,442
(Reversal of) allowance for doubtful accounts - other		707.704	(70,000)
receivables		737,721	(78,898)
Gain on disposal of property, plant and equipment		(4,619,645)	(6,603,444)
Gain on disposal of intangible assets		(59,411)	-
Loss on foreign currency translation		153,102,742	9,602,154
Loss on disposal of property, plant and equipment		3,723,233	45,218,868
Loss on disposal of intangible assets		558,238	624,390
Finance income		(29,314,103)	(9,304,095)
Finance costs		46,307,521	41,076,599
Gain on disposal of assets held for sale		(716,657)	-
Dividend income		(371,951)	(647,915)
Share of profit in associates		2,916,492	(10,354,077)
Income tax expense		154,735,339	357,068,334
(Reversal of) refund liabilities		(839,218)	1,210,834
(Reversal of) provision for emission liabilities		(409,970)	348,069
Impairment loss on property, plant and equipment		-	84,349,460
Impairment loss on intangible assets		-	58,860
Others		238,771	27,765
		1,321,297,439	1,575,459,713

25. Supplementary consolidated cash flow information (cont'd)

20. Supplementary consolidated such flow information (cont.)	2022			2021
Working capital adjustments:				
Other financial assets	₩	(794,918)	₩	2,606
Trade and other receivables		144,789,124		(196,094,985)
Advance payments		617,590		(1,593,214)
Prepaid expenses		15,126,841		24,410,957
Inventories		(230,438,524)		(475,610,745)
Long-term advance payments and prepaid expenses		2,357,591		140,961
Short-term and long-term loans		(447,503)		(114,240)
Trade and other payables		(428, 316, 740)		129,185,013
Short-term and long-term advances received		304,239,655		(5,752,361)
Other financial liabilities		(22,897,307)		52,264,207
Long-term other payables		(16,898,651)		(2,652,902)
Net defined benefit liabilities		(199,256,408)		(148,592,044)
		(431,919,250)		(624,406,747)
Net cash flows from operating activities	₩	1,882,897,371	₩	1,866,485,419

Significant transactions not involving cash flows for the years ended December 31, 2022 and 2021 are as follows (Korean won in thousands):

	2022			2021
Reclassification of construction-in-progress and others	₩	424,450,782	₩	1,007,916,213
Transfer of current portion of long-term borrowings		418,643,791		787,587,240
Acquisition of PPE with account payables and advance payments		224,296,438		82,133,464

25. Supplementary consolidated cash flow information (cont'd)

Changes in liability arising from financial activities as of December 31, 2022 and 2021 (Korean won in thousands):

	2022							
		January 1		t cash flows from ancing activities		Others (*)		December 31
Short-term borrowings Current portion of long-term	₩	56,486,397	₩	794,150,919	₩	(40,379,986)	₩	810,257,330
borrowings		316,116,596		(472,331,713)		430,605,342		274,390,225
Long-term borrowings		619,762,227		103,316,000		(386,471,651)		336,606,576
Lease liability		90,178,361		(26,993,651)		20,797,711		83,982,421
Dividend payables		11,030		(161,602,887)		161,606,294		14,437
	₩	1,082,554,611	₩	236,538,668	₩	186,157,710	₩	1,505,250,989

(*) Others represent effect of foreign currency transaction and translation, non-cash transactions and others.

	2021								
		laminam i 4		Dagarahan 24					
		January 1	lina	ancing activities		Others (*)		December 31	
Short-term borrowings	₩	406,200,835	₩	(353,218,119)	₩	3,503,681	₩	56,486,397	
Current portion of long-term									
borrowings		204,681,307		(700,629,521)		812,064,810		316,116,596	
Long-term borrowings		1,233,208,709		79,250,456		(692,696,938)		619,762,227	
Lease liability		62,597,906		(20,388,259)		47,968,714		90,178,361	
Dividend payables		24,788,765		(131,170,767)		106,393,032		11,030	
	₩	1,931,477,522	₩ (1,126,156,210)	₩	277,233,299	₩	1,082,554,611	

(*) Others represent effect of foreign currency transaction and translation, non-cash transactions and others.

26. Financial risk management objectives and policies

The Group's principal financial liabilities, comprise borrowings, trade and other payables, and lease liabilities and other liabilities. The main purpose of these financial liabilities is to finance the Group's operations and to provide guarantees to support its operations. Also, the Group has various financial assets including trade receivables, cash and short-term deposits that arrive directly from its operations.

The Group is exposed to market risk, credit risk and liquidity risk. The Group's senior management oversees the management of these risks. It is the Group's policy that no trading in derivatives for speculative purposes shall be undertaken.

26.1 Market risk

Market risk is the risk that the fair value of future cash flows of a financial instrument will fluctuate because of changes in market prices. Market prices comprise three types of risk: interest rate risk, currency risk and other price risk, such as equity price risk.

The sensitivity analyses in the following sections are related to the position as of December 31, 2022 and 2021.

26.1.1 Interest rate risk

Interest rate risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in market interest rates. The Group's exposure to the risk of changes in market interest rates relates primarily to the Group's long-term debt obligations with floating interest rates. The Group manages its interest rate risk by having a balanced portfolio of fixed and variable rate loans and borrowings.

Borrowings with floating interest rates amounts to \$\footnote{W}655,352,301\$ thousand (2021: \$\footnote{W}854,439,723\$ thousand) as of December 31, 2022. The following table demonstrates a sensitivity analysis to a reasonably possible change in interest rates on that portion of borrowings. With all other variables held constant, the effect of changes in interest rates of floating rate borrowings on profit before tax is as follows (Korean won in thousands):

26.1.2 Foreign currency risk

Foreign currency risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in foreign exchange rates. The Group's exposure to the risk of changes in foreign exchange rates relates primarily to the Group's operating activities and the Group's net investments in foreign subsidiaries. The book values of monetary assets and liabilities which are not presented in functional currency as of December 31, 2022 and 2021 are as follows (Korean won in thousands):

	2022		2021			
	Assets	Liabilities	Assets	Liabilities		
USD	₩ 2,445,963,735	₩ 2,136,705,866	₩ 2,150,317,087	₩ 1,500,382,235		
EUR	48,431,178	25,210,848	76,885,385	29,148,804		
JPY	1,264,055	97,115,208	3,097,194	62,099,768		
PHP	9,461,436	38,970,386	10,108,929	52,556,682		
VND	2,581,818	22,539,399	4,344,977	18,734,918		
SGD	554,426	3,644,005	539,999	4,308,424		
Others	511,016	1,826,344	527,908	1,702,366		
	₩ 2,508,767,664	₩ 2,326,012,056	₩ 2,245,821,479	₩ 1,668,933,197		

The Group manages its foreign currency risk periodically. The following table demonstrates a sensitivity analysis of a reasonably possible change in the foreign currency exchange rates, with all other variables held constant, on the Group's profit before tax as of December 31, 2022 and 2021. (Korean won in thousands):

		2022			2021			
	5	% increase	5	5% decrease	5	% increase	5	% decrease
USD	₩	15,462,893	₩	(15,462,893)	₩	32,496,743	₩	(32,496,743)
EUR		1,161,016		(1,161,016)		2,386,829		(2,386,829)
JPY		(4,792,558)		4,792,558		(2,950,129)		2,950,129
PHP		(1,475,448)		1,475,448		(2,122,388)		2,122,388
VND		(997,879)		997,879		(719,497)		719,497
SGD		(154,479)		154,479		(188,421)		188,421
Others		(65,766)		65,766		(58,723)		58,723
	₩	9,137,779	₩	(9,137,779)	₩	28,844,414	₩	(28,844,414)

The sensitivity analyses were conducted on monetary assets and liabilities which are presented in foreign currency other than functional currency as of the reporting date.

26.1.3 Other price risk

The Group's marketable equity securities are susceptible to market price risk arising from the fluctuation in the price of the securities. The following table demonstrates a sensitivity analysis of a reasonably possible change in the price of marketable equity securities on the financial statements of the Group as of December 31, 2022 (Korean won in thousands):

	5% increase			% decrease
Other comprehensive income before tax	₩	8,992,736	₩	(8,992,736)
Income tax effect		(2,248,184)		2,248,184
Other comprehensive income after tax	₩	6,744,552	₩	(6,744,552)

26.2 Credit risk

Credit risk is the risk that a counterparty will not meet its obligations under a financial instrument or customer contract, leading to a financial loss of the Group. The Group is exposed to credit risk from its operating activities (primarily for trade receivables) and from its financing activities.

26.2.1 Trade receivables and other receivables

Customer credit risk is managed by each business unit subject to the Group's established policy, procedures and control related to customer credit risk management. Credit quality of the customer is assessed based on an extensive credit rating scorecard and individual credit limits are defined in accordance with this assessment. Outstanding customer receivables are regularly monitored. The maximum exposure to credit risk at the reporting date is as follows (Korean won in thousands):

	2022	2021
Trade receivables	₩ 990,685,140	₩ 1,219,392,294
Other receivables	65,007,971	67,614,262

The Group assesses the expected credit losses at the end of every reporting period based on a forward-looking information. The impairment methodology applied depends on whether there has been a significant increase in credit risk. For trade receivables and other receivables, the Group applies the simplified approach, which requires expected lifetime credit losses to be recognized from initial recognition of the receivables. In addition, the Group entered into guarantee insurance contracts with Korea Trade Insurance Corporation and other insurance corporations for the credit risk of foreign customers.

26.2.2 Other assets

Credit risks associated with the Group's other assets which consist of cash, short-term deposits and short-term and long-term loans arise from the default by the counterparties. Maximum exposure to credit risks will be the book value of the related assets. The Group deposits its surplus funds in Woori Bank and other financial institutions whose credit ratings are high, therefore credit risk related to financial institutions is considered limited.

26.3 Liquidity risk

Liquidity risk refers to the risk that the Group may default on the contractual obligations that become due. The Group manages its risk to a shortage of funds using a recurring liquidity planning tool. The Group matches the financial liabilities with the financial assets taking into account the maturity dates and cash flow from operating activities of those financial assets.

The table below summarises the maturity profile of the Group's financial liabilities based on contractual undiscounted payments (Korean won in thousands):

26.3 Liquidity risk (cont'd)

The future cash flows of financial liabilities are nominal amounts but not discounted. The remaining maturities indicate the earliest timing when the creditors can request repayments.

	2022										
	Less than										
	3 months	3 1	to 12 months		1 to 5 years	0	ver 5 years		Total		
Trade and other											
payables	₩ 843,440,792	₩	14,189,454	₩	9,966	₩	-	₩	857,640,212		
Short-term borrowings Current portion of long-	766,404,426		45,016,794		-		-		811,421,220		
term borrowings	3,341,084		282,753,729		-		-		286,094,813		
Long-term borrowings	4,445,299		13,479,757		359,373,679		-		377,298,735		
Lease liability	8,067,217		20,029,440		56,869,671		14,679,895		99,646,223		
Other financial liabilities	-		5,701,399		· · · -		· -		5,701,399		
	₩ 1,625,698,818	₩	381,170,573	₩	416,253,316	₩	14,679,895	₩	2,437,802,602		
					2021						
	Less than										
	3 months	3 1	to 12 months		1 to 5 years	Over 5 years			Total		
Trade and other			_		_		_		_		
payables	₩ 1,045,109,193	₩	21,165,415	₩	12,008	₩	-	₩	1,066,286,616		
Short-term borrowings	15,082,069		41,565,976		-		_		56,648,045		
Current portion of long-											
term borrowings	2,319,896		319,219,252		-		-		321,539,148		
Long-term borrowings	4,174,271		12,754,718		656,425,478		_		673,354,467		
Lease liability	7,270,211		20,780,783		58,634,150		20,144,622		106,829,766		
Other financial liabilities			5,504,416						5,504,416		
	₩ 1,073,955,640	₩	420,990,560	₩	715,071,636	₩	20,144,622	₩	2,230,162,458		

26.4 Capital management

The primary objective of the Group's capital management is to ensure that it maintains a strong credit rating and healthy capital ratios in order to support its business and maximize shareholder value.

The Group manages its capital structure and makes adjustments to it in light of changes in economic conditions. To maintain the sound capital structure, the Group may adjust the dividend payment to shareholders, reduce capital stock, or issue new shares.

No changes were made in the objectives, policies or processes for managing capital during the years ended December 31, 2022 and 2021.

The Group monitors a gearing ratio, which is net debt divided by total capital (sum of total equity and net debt). Net debt refers to trade and other payables, borrowings and other liabilities, less cash and cash equivalents.

The gearing ratios as of the reporting date are computed as follows (Korean won in thousands):

	2022	2021
Trade and other payables	₩ 1,271,465,675	₩ 1,552,754,699
Borrowings	1,421,254,131	992,365,220
Other liabilities	45,825,985	144,239,152
Less: Cash and cash equivalent	(1,677,067,100)	(1,185,206,918)
Net debt	1,061,478,691	1,504,152,153
Total equity	7,693,484,679	6,871,125,643
Total capital (Net debt and shareholder's equity)	₩ 8,754,963,379	₩ 8,375,277,796
Gearing ratio	12.12%	17.96%

27. Fair value

27.1 Fair value of financial instruments

Details of book values and fair values of financial assets and liabilities as of December 31, 2022 and 2021 are as follows (Korean won in thousands):

		20)22		2021						
		Book value		Fair value		Book value		Fair value			
Financial assets:											
Financial assets at amortised cost											
Cash and cash equivalents	₩	1,677,067,100		(*)	₩	1,185,206,918		(*)			
Trade and other receivables		1,019,559,259		(*)		1,258,135,790		(*)			
Short-term and long-term loans		3,526,811		(*)		2,908,059		(*)			
Other financial assets Financial assets measured at FVOCI		46,984,211		(*)		42,982,111		(*)			
Listed equity investments		179,854,714	₩	179,854,714		213,869,644	₩	213,869,644			
Non-listed equity investments Financial assets measured at FVPL		42,691,210		42,691,210		31,788,903		31,788,903			
Short-term financial instruments and others		62,217,654		62,217,654		57,754,667		57,754,667			
Total financial assets	₩	3,031,900,959			₩	2,792,646,092					
Financial liabilities:											
Financial liabilities at amortised cos	st:										
Trade and other payables	₩	857,640,212		(*)	₩	1,066,286,616		(*)			
Other liabilities		5,701,399		(*)		5,504,416		(*)			
Short-term borrowings Current portion of long-term		44,355,500		(*)		41,492,500		(*)			
borrowings		274,390,225		(*)		316,116,596		(*)			
Long-term borrowings		336,606,576		(*)		619,762,227		(*)			
Other financial liabilities:											
Borrowings		765,901,830		(*)		14,993,897		(*)			
Lease liability		83,982,421		(*)		90,178,361		(*)			
Total financial liabilities	₩	2,368,578,163			₩	2,154,334,613					

^(*) Book value is a reasonable approximation of fair value are excluded from the fair value disclosures.

27.2 Fair value measurement

All assets and liabilities for which fair value is measured or disclosed in the financial statements are categorized within the fair value hierarchy, described as follows, based on the lowest level input that is significant to the fair value measurement as a whole:

- ➤ Level 1 Quoted (unadjusted) market prices in active markets for identical assets or liabilities
- ➤ Level 2 Valuation techniques for which the lowest level input that is significant to the fair value measurement is directly or indirectly observable
- ➤ Level 3 Valuation techniques for which the lowest level input that is significant to the fair value measurement is unobservable

Meanwhile, financial assets at fair value through other comprehensive income of $\mbox{$W$}62,189,100$ thousands were transferred from level 3 to level 1 as SoluM Co., Ltd., an investee, was listed on the stock market during the year ended December 31, 2021.(Note 9)

There have been no other significant transfers between Level 1, Level 2 and Level 3.

27. Fair value (cont'd)

27.3 Fair value on the statement of financial position:

As of December 31, 2022 and 2021, the Group held the following assets and liabilities carried at fair value on the statement of financial position (Korean won in thousands):

					20	22				
		Level 1		Level 2			Level 3	Total		
Financial assets measured at FVOC	:1									
Listed equity investment	₩	179,854,714	₩		-	₩	-	₩	179,854,714	
Non-listed equity investment		-			-		42,691,210		42,691,210	
Financial assets measured at FVPL Short-term financial instruments and others		-			_		62,217,654		62,217,654	
					20	21				
		Level 1		Level 2	Level 3			Total		
Financial assets measured at FVOC	:1									
Listed equity investment	₩	213,869,644	₩		-	₩	-	₩	213,869,644	
Non-listed equity investment		-			-		31,788,903		31,788,903	
Financial assets measured at FVPL Short-term financial instruments and others		-			-		57,754,667		57,754,667	

27.4 Valuation Techniques and the Inputs

- (1) The Group is using cash flow discount model as valuation methods for the assets and liabilities classified as level 2.
- (2) The valuation method, input variables in assets and liabilities classified as level 3 are as follows (Korean won in thousands)

			2022	
Classification	Fair value	Valuation method	Input variables	Range of Input variables (weighted average)
Financial assets measured at I	VOCI			
Samsung Venture Investment		Discounted Cash	Growth rate	-1.00%~1.00% (0%)
Co., Ltd.	₩ 33,382,560	flow model	Discount rate(WACC)	15.80%~17.80%(16.80%)
		Discounted Cash	Growth rate	0.00%~1.00% (0.5%)
IMA	9,258,450	flow model	Discount rate(WACC)	11.10%~13.10%(12.10%)

27. Fair value (cont'd)

			2021	
Classification	Fair value	Valuation method	Input variables	Range of Input variables (weighted average)
Financial assets measured at l	-VOCI			
Samsung Venture Investment		Discounted Cash	Growth rate	-1.00%~1.00% (0%)
Co., Ltd.	₩ 23,104,020	flow model	Discount rate(WACC)	19.68%~21.68% (20.68%)
		Discounted Cash	Growth rate	0.00%~1.00% (0.5%)
IMA	8,634,683	flow model	Discount rate(WACC)	9.22%~11.22% (10.22%)

(3) Changes in financial instruments classified as level 3 are as follows (Korean won in thousands):

				Beginning		2022 Valuation		Ending
Financial assets measured at FVOCI Samsung Venture Investment Co., Ltd. IMA		₩	23,104,020 8,634,683	₩	10,278,540 623,767	₩	33,382,560 9,258,450	
		Beginning		Valuation		Transfers		Ending
Financial assets measured at FVOCI								
Samsung Venture Investment Co., Ltd. SoluM Co., Ltd.(*)	₩	22,960,200 62,189,100	₩	143,820	₩	- (62,189,100)	₩	23,104,020
IMA		7,884,703		749,980		-		8,634,683

^(*) Financial assets measured at FVOCI amounting to $\mbox{$\mathbb{W}$}$ 62,189,100 thousands were transferred from level 3 to level 1 as SoluM Co., Ltd. was listed on the stock market during the year ended December 31, 2021, (Note 9).

27.5 Sensitivity analysis of fair value measurement classified as level 3 of the fair value hierarchy

Sensitivity analysis of financial instrument is based on changes in financial instrument's value accordance with changes in unobservable input variables derived from statistical method

Impact of changes in unobservable input variables are as follows (Korean won in thousands):

				2	022					
	F	Favorable changes					Unfavorable change			
	gain and	loss		Equity	gain and lo	SS	Equity			
Financial assets measured at FVOCI(*)	₩	_	₩	1,107,282	₩	_	₩	(1,585,584)		

27.5 Sensitivity analysis of fair value measurement classified as level 3 of the fair value hierarchy (cont'd)

(*) Fair value changes of equity securities in Samsung Venture Investment Co., Ltd. were measured by increasing or decreasing of correlation between two main unobservable variable input, the growth rate (1.00%~1.00%) and discount rate (15.80%~17.80%). Also, the fair value changes of equity securities in IMA were measured by increasing or decreasing of correlation between two main unobservable inputs, the growth rate (0.00%~1.00%) and discount rate (11.10%~13.10%).

				2	021				
		Favorabl	nges	Ur	nges				
	gain a	ind loss		Equity	gain and	loss	Equity		
Financial assets measured at FVOCI(*)	₩	_	₩	1,275,347	₩	_	₩	(833,143)	

(*) Fair value changes of equity securities in Samsung Venture Investment Co., Ltd. were measured by increasing or decreasing of correlation between two main unobservable variable input, the growth rate (-1.00%~1.00%) and discount rate (19.68%~21.68%). Also, the fair value changes of equity securities in IMA were measured by increasing or decreasing of correlation between two main unobservable inputs, the growth rate (-0.00%~1.00%) and discount rate (9.22%~11.22%).

27. Fair value

27.6 Details of gain and losses by categories

Details of gains and losses arising from financial instruments by categories for the year ended December 31, 2022 are as follows (Korean won in thousands):

		ancial assets		nancial assets neasured at FVOCI	mea	cial assets sured at VPL	Financia liabilities a amortised c	at	Other financial		Total
Interest income	₩	29,228,637	₩	-	₩	25,312	₩	-	₩ -	₩	29,253,949
Dividend income		-		371,951		-		-	-		371,951
Foreign exchange gains and											
losses		61,367,195		-		-	(92,664,	585)	44,108,550		12,811,160
Interest expenses		-		-		-	(26,309,	978)	(19,996,474)		(46,306,452)
Loss on disposal of trade											
receivables		(12,382,239)		-		-		-	-		(12,382,239)
Other bad debt expenses		(739,108)		-		-		-	-		(739,108)
Gain/loss on financial assets measured at fair value											
through OCI		-		(16,110,674)		-		-	-		(16,110,674)
Gain or loss on valuation of											
FVPL		-		-		897,262		-	-		897,262
Gain or loss on disposal of											
FVPL		-		-		(38,344)		-	-		(38,344)

27. Fair value (cont'd)

Details of gains and losses arising from financial instruments by categories for the year ended December 31, 2021 are as follows (Korean won in thousands):

		ancial assets mortised cost	Financial assets measured at FVOCI		me	ncial assets easured at FVPL	Financial liabilities at amortised cost	Other financial liabilities		Total
Interest income	₩	8,579,989	₩	-	₩	279,712	₩ -	₩ -	₩	8,859,701
Dividend income		-		612,029		-	-	-		612,029
Foreign exchange gains and										
losses		54,550,341		-		-	(5,944,441)	533,018		49,138,918
Interest expenses		-		-		-	(36,119,472)	(3,637,660)		(39,757,132)
Loss on disposal of trade										
receivables		(14,829,180)		-		-	-	-		(14,829,180)
Reversal of allowance for other doubtful accounts–										
others		78,770		-		-	-	-		78,770
Gain/loss on financial assets measured at fair value										
through OCI		-		19,062,712		-	-	-		19,062,712
Gain or loss on valuation of										
FVPL		=		-		67,424	-	-		67,424
Gain or loss on disposal of										
FVPL		=		-		4,284	-	-		4,284

28. Discontinued operations

From 2020, management of the Group has been in the process of selling the Wi-Fi network module business including investments in Samsung Electro-Mechanics (Thailand) Co., Ltd., and the Group entered into a business and share transfer agreement with Hanwha Solutions Corporation on December 30, 2021. Accordingly, related assets and liabilities are classified as held for sale, and related gains or losses are classified as profit (loss) from discontinued operation. On April 30, 2022, the sales procedure was completed and therefore, the Group sold property, plant and equipment, intangible asset and investments in subsidiaries classified as assets held for sale for $\mathbb{W}60$ billion.

In addition, the Board of Directors of the Group decided to discontinue production and sales of rigid flex printed circuit board and dispose of residual assets on October 15, 2021. As the production and operation have been terminated in December 2021, related gains and losses were classified as profit (loss) from discontinued operations. On December 12, 2019, Kunshan Samsung Electro-Mechanics Co., Ltd. decided to discontinue its operations. Accordingly, related assets and liabilities are classified as held for sale, and related gains or losses are classified as profit (loss) from discontinued operation.

The consolidated statements of profit or loss for the years ended December 31, 2022 and 2021, included in the comprehensive income statement, are as follows (Korean won in thousands):

		2022		2021
Sales	₩	16,724,342	₩	606,532,657
Cost of sales		20,469,962		618,659,594
Gross loss		(3,745,620)		(12,126,937)
Selling and administrative expenses		15,518,441		79,096,631
Operating loss		(19,264,061)		(91,223,568)
Non-operating loss		(19,309,506)		(127,584,600)
Loss before tax		(38,573,567)		(218,808,168)
Income tax benefit		(9,386,518)		(56,579,882)
Loss for the year from discontinued operation after tax	₩	(29,187,049)	₩	(162,228,286)
Basic and diluted, loss for the year from discontinued operations attributable to ordinary shareholders of the parent Basic and diluted, loss for the year from discontinued operations	₩	(386)	₩	(2,147)
attributable to preferred shareholders of the parent		(386)		(2,147)

28. Discontinued operations (cont'd)

Assets held for sale and liabilities directly associated with the assets held for sale as of December 31, 2022 and 2021 are as follows (Korean won in thousands):

		2022		2021
Current assets				
Cash and cash equivalents	₩	-	₩	47,368,591
Trade and other receivables		-		2,436,127
Other current assets		-		449,710
Inventories, net		-		10,987,819
Non-current assets				
Property, plant and equipment		81,022,530		88,191,410
Other non-current assets		5,842,390		6,209,360
Deferred tax assets		-		17,664
Assets held for sale	₩	86,864,920	₩	155,660,681
Current liabilities				
Other current liabilities	₩	-	₩	4,195,462
Non-current liabilities		-		2,740,904
Liabilities directly associated with the assets held for sale	₩		₩	6,936,366
Net assets classified as held for sale	₩	86,864,920	₩_	148,724,315

Cashflows from discontinued operations are as follows (Korean won in thousands):

	2022		2021	
Net cash flows from operating activities	₩	(38,573,567)	₩	(217,345,395)
Net cash flows from investing activities		(2,925,808)		(28,634,558)
Net cash flows from financing activities		(37,349)		(25,407,828)
Effects of exchange rate changes on cash and cash equivalents		1,907,204		1,250,830
Net increase (decrease) in cash and cash equivalents		(39,629,520)		(270,136,951)

28. Discontinued operations (cont'd)

The Group sold its Wi-Fi network module business during the year ended December 31, 2022, and the details are as follows: (Korean won in thousands):

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Disposal consideration		
Cash	₩	60,000,000
Assets held for sale		
Current assets		
Cash and cash equivalents	₩	56,925,808
Trade and other receivables		10,990,922
Prepaid expenses		200,937
Inventories, net		15,858,591
Right of return assets		33,937
Non-current assets		
Long-term loans		90,465
Property, plant and equipment		4,335,763
Right-of-use assets		46,808
Intangible assets, net		43,857
Long-term advanced payments and prepaid expenses		696
Deferred tax assets		64,068
Other non-current financial assets		112,792
	₩	88,704,644
Liabilities held for sale		
Current liabilities		
Trade and other payables	₩	11,079,374
Advances received		186,351
Income tax payables		205,592
Current lease liabilities		39,559
Provisions for product warranties		27,126
Other current liabilities		154,030
Non-current liabilities		
Net employee defined benefit liabilities		2,893,190
Long-term lease liabilities		9,394
	\\	14,594,616
Net assets held for sale	₩	74,110,028
Reclassification of exchange gain associated with a foreign operation		14,826,685
Gain on disposal		716,657

Samsung Electro-Mechanics Co., Ltd. and Subsidiaries Notes to the Consolidated Financial Statements December 31, 2022 and 2021

In 2021, the Group recognized impairment of property, plant and equipment and others of Kunshan Samsung Electro-Mechanics Co., Ltd. which were classified as assets held for sale and disposal group of Samsung Electro-Mechanics (Thailand) Co., Ltd., and its recoverable amount is measured at the fair value less disposal costs. (Korean won in thousands)

	Imp	Impairment loss		
Property, plant and equipment and others	₩	63,225,894		
Disposal group		19,386,065		
	$\overline{\Psi}$	82,611,959		