

SAMSUNG

SAMSUNG ELECTRONICS Co., Ltd.

Half Year Report

January 1, 2019- June 30, 2019

Certain statements in the document, other than purely historical information, including estimates, projections, statements relating to our business plans, objectives and expected operating results, and the assumptions upon which those statements are based, are “forward-looking statements.” Forward-looking statements are based on current expectations and assumptions that are subject to risks and uncertainties which may cause actual results to differ materially from the forward-looking statements. A detailed discussion of risks and uncertainties that could cause actual results and events to differ materially from such forward-looking statements is included in our financial reports available on our website.

See, also, 『Note on Forward-Looking Statements』 in preamble of 『II. Business Overview』.

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Certification

Letter of Certification

We, Ki-Nam Kim and Hee-Chan Roh, as executives in charge of reporting, certify that we have reviewed the half year business report of Samsung Electronics Co., Ltd. for the six-months ended June 30, 2019.

Based on our knowledge, this report does not contain any untrue statements or omissions of necessary material facts that would be misleading with respect to the period covered by this report.

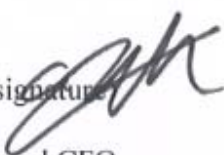
Based on our knowledge, the financial statements, and other financial information included in the report, are fairly presented in all materials and respect the financial condition, results of operations, and cash flows of the company as of, and for, the periods presented in this report.

We confirm that Samsung Electronics operates an Internal Accounting Management System, responsible for establishing and maintaining disclosure controls and procedures and internal controls over financial reporting, as defined in Article 8 of the External Audit Act. We have disclosed our most recent evaluation of internal controls over financial reporting to the Company's auditors and to the audit committee of the Company's board of directors.

Date: Aug 14, 2019

Kinam Kim 
(signature)

Vice Chairman and CEO
Samsung Electronics Co., Ltd.

Executive responsible for reporting: Hee Chan Roh 
(signature)
President and CFO
Samsung Electronics Co., Ltd.

I. Corporate Overview

1. Overview

A. Legal, commercial name:

- Samsung Electronics Co., Ltd.

B. Date of establishment:

- Samsung Electronics Co., Ltd. (“SEC”) was established as Samsung Electronics Industry Co., Ltd. on January 13, 1969, and held an initial public offering on June 11, 1975.
- SEC changed its name from Samsung Electronics Industry Co., Ltd. to Samsung Electronics Co., Ltd. following a resolution passed at the Annual General Meeting (AGM) of shareholders on February 28, 1984.

C. Address, phone number, and English language website of the corporate headquarter

- Address: 129, Samsung-ro, Yeongtong-gu, Suwon, Gyeonggi-do, Korea
- Phone Number: 82-31-200-1114
- Website: [https:// www.samsung.com/sec](https://www.samsung.com/sec)

D. The Company is not subject to Article 2 of the Framework Act on Small and Medium Enterprises.

E. Core businesses

- The Company (defined below) comprises business divisions that operates independently (each a “**Division**”): CE (Consumer Electronics), IM (Information Technology & Mobile Communications), DS (Device Solutions), and Harman (Harman International Industries, Inc. and its subsidiaries), which produces automotive electronics components.

Products in each Division are presented below:

Division	Products
CE	TVs, monitors, refrigerators, washing machines, air conditioners, etc.
IM	HHPs, network systems, computers, etc.
DS	DRAM, NAND flash, mobile APs, TFT-LCD panels, OLED panels, etc.
Harman	Head units, infotainment systems, telematics, speakers, etc.

SEC is a global electronics firm comprised of the headquarters in Korea and 252 subsidiaries (collectively, “Samsung Electronics” or the “Company”) across the world including nine (9) regional headquarters for the CE and IM Divisions, five (5) regional headquarters for the DS Division, and Harman’s subsidiaries.

[CE Division]

The CE Division is leading the global digital era by continuously offering new products with innovative technology, unique design, and enhanced value propositions.

TV is the core product of CE. The Company has maintained its position as the market leader for thirteen (13) consecutive years by leveraging competitive advantages in hardware such as LCD/LED TVs as well as software driven product features within our Smart TV product portfolio. We will continue to expand our market leadership based on our

competitive edge in the premium segment through our 8K QLED and ultra-large products, to name a few.

[IM Division]

The IM Division operates the Mobile Communication Business, which produces and sells smart mobile devices such as smartphones, tablets, wearable devices, etc. For smartphones, a key product of the business, we have developed a product lineup ranging from low-end to premium models, and achieved growth in both advanced and emerging markets with the Galaxy series.

We will lead growth of the smartphone market and deliver exceptional user experiences by: 1) offering innovative hardware features such as new form factors (based on flexible OLED technology), high-definition cameras, biometric sensors, and battery charger technologies; 2) improving software capabilities of Samsung Pay, Bixby, etc.; and 3) investing in future growth drivers such as Cloud, IoT, healthcare, AR, and VR. At the same time, we will lead the global 5G market based on our end-to-end solutions, which encompass handsets, chipsets, as well as our commercialization experience in initial 5G markets.

[DS Division]

The Memory Business, System LSI Business, Foundry Business, and Display Panel (“DP”) Business make up the DS Division. The Memory Business manufactures and sells DRAM and NAND products; the System LSI Business designs and sells mobile application processors (“mobile APs” or “APs”) and camera sensor chips; the Foundry Business is in charge of consignment production of semiconductors; and the DP Business manufactures and sells display panels.

The Company is constantly working to increase its influence on end-product manufacturers and create new demand through technological breakthroughs and the development of high quality components as it has done with APs—which serve as the brains of mobile products—and with memory components like DRAM via enhanced capacity and density.

The Memory Business has maintained its position at the top of the global memory market by sustaining cost competitiveness and applying the latest advanced process technology for each technological iteration. The System LSI Business has not been complacent, expanding its focus from mobile to include automotive chips, and will stay at the forefront of the market by offering differentiated products such as APs and CISs and strengthening competitiveness via its advanced manufacturing process technology. The Foundry Business partners with fabless corporations based on its advanced process technologies. The business has diversified its 8-inch offerings and, in 4Q16, marked an industry first by the start of supply of 10nm products. In 4Q18, we started timely mass-production of 8nm products; and in April 2019, commenced shipments of mass-produced EUV 7nm chips, a key next-generation innovation. The business is now concentrating its capabilities to lead advanced process technology (7nm and lower).

In the Display division, the Company’s mobile panel business’s differentiated technology is a main factor behind the increased adoption of OLED panels, while its release of products in new applications—such as foldable devices, laptops, and automotives—has expanded the overall market. Meanwhile, the large panel business is focusing on premium products such as high-definition, ultra-large, QD TVs and is enhancing its competitiveness through continuous improvements in technology and productivity.

[Harman Division]

Harman designs and develops connected products and solutions for automakers, consumers, and companies worldwide, and is a global leader in the market for connected car systems, audio and visual products, professional solutions, and connected services.

Harman has established an internationally renowned brand and employs both internal development and strategic acquisitions to expand its lineup of quality products.

☞ See 『II. Businesses Overview』, for more details about each Division.

F. Affiliates

SEC is an affiliate of the Samsung group as defined under Korea’s Monopoly Regulation and Fair Trade Act (“Samsung Group”).

As of June 30, 2019, Samsung Group had a total of sixty-two (62) domestic affiliates, with no additions or reductions from December 31, 2018. Among the Samsung Group’s domestic affiliates, sixteen (16) affiliates (including Samsung Electronics) are listed, and forty-six (46) are unlisted.

[As of Jun 30, 2019]

Type	Number	Affiliate
Listed	16	Samsung C&T; Samsung Electronics; Samsung SDI; Samsung Electro-Mechanics (Semco); Samsung Fire & Marine Insurance; Samsung Heavy Industries; Samsung Life Insurance; Multicampus; Samsung Securities; Samsung SDS; Samsung Card; Samsung Engineering; S1; Cheil Worldwide; Hotel Shilla; Samsung Biologics
Unlisted	46	Seoul Lakeside CC; Samwoo Architects & Engineers; CVnet Corporation; Samsung Bioepis; Samsung Display; Samsung Corning Advanced Glass; SU Materials; STECO; SEMES; Samsung Electronics Service; Samsung Electronics Sales; Samsung Electronics Logitech; Suwon Samsung Bluewings FC; Samsung Medison; Samsung Claim Adjustment Service; Samsung Fire & Marine Insurance Service; Samsung Fire & Marine Insurance Financial Service; Samsung Electronics Service CS; Samsung Futures; Samsung Asset Management; Saengbo; Samsung Life Service; Samsung SRA Asset Management; Samsung Life Financial Service; SD Flex; Cheil Fashion Retail Co., Ltd.; Natural9; Samsung Welstory; SECUI; STM; S-Core; OpenHands; Miracom; Samsung Card Customer Service; Human TSS; S-1CRM; Shilla Stay; HDC Shilla Duty Free LTD; Samsung Economic Research Institute (SERI); Samsung Lions; Samsung Venture Investment Corporation; Samsung Active Asset Management; Samsung Hedge Asset Management; Harman International Korea; Red Bend Software Korea; SBTM
Total	62	

☞ See 『IX. Affiliates and Subsidiaries』 for more details about domestic and overseas affiliates.

G. Subsidiaries subject to consolidated financial statements

As of June 30, 2019, Samsung Electronics' consolidated subsidiaries numbered 252 with the addition of three (3) subsidiaries and reduction of three (3) subsidiaries when compared to totals as of December 31, 2018. Below is the list of consolidated subsidiaries.

(KRW mil)

Subsidiary	Date established	Major business	Assets as of Dec 31, 2018	Ownership	Classified as major subsidiary (Y/N)
Samsung Electronics America Inc. (SEA)	Jul 1978	Electronic goods sales	30,681,097	Over 50%	Y
NeuroLogica Corp.	Feb 2004	Medical equipment	194,709	Over 50%	Y
Dacor Holdings, Inc.	Dec 1998	Holding company	57,012	Over 50%	N
Dacor, Inc.	Mar 1965	Home appliance production and sales	56,116	Over 50%	N
Dacor Canada Co.	Jun 2001	Home appliance sales	12	Over 50%	N
EverythingDacor.com, Inc.	Jun 2006	Home appliance sales	0	Over 50%	N
Distinctive Appliances of California, Inc.	Jun 2014	Home appliance sales	0	Over 50%	N
Samsung HVAC America, LLC	Jul 2001	Air conditioner sales	44,641	Over 50%	N
SmartThings, Inc.	Apr 2012	Smart-home-device sales	171,767	Over 50%	Y
Samsung Oak Holdings, Inc. (SHI)	Jun 2016	Holding company	253,670	Over 50%	Y
Joyent, Inc.	Mar 2005	Cloud services	214,873	Over 50%	Y
Stellus Technologies, Inc.	Nov 2015	Semiconductor system production and sales	17,646	Over 50%	N
Prismview, LLC	Oct 2007	LED display panel production and sales	63,833	Over 50%	N
Samsung Semiconductor Inc. (SSI)	Jul 1983	Semiconductor and display panel sales	9,306,621	Over 50%	Y
Samsung Electronics Canada Inc. (SECA)	Jul 1980	Electronic goods sales	1,070,163	Over 50%	Y
AdGear Technologies Inc.	Aug 2010	Digital advertising platform	17,399	Over 50%	N
Viv Labs, Inc.	Sep 2012	Artificial Intelligence services	275,861	Over 50%	Y
SigMast Communications Inc.	Jul 2009	Text messaging service development	2,831	Over 50%	N
RT SV Co-Invest, LP	Feb 2014	Venture firm investments	11,957	Over 50%	N
Samsung Research America, Inc (SRA)	Oct 1988	R&D	696,951	Over 50%	Y
Samsung Next LLC (SNX)	Aug 2016	Holding company	111,815	Over 50%	Y
Samsung Next Fund LLC (SNXF)	Aug 2016	Venture firm and new technology investments	115,679	Over 50%	Y
Samsung International Inc. (SII)	Oct 1983	TV and monitor production	1,102,174	Over 50%	Y
Samsung Mexicana S.A. de C.V (SAMEX)	Mar1988	Electronic goods production	49,836	Over 50%	N
Samsung Austin Semiconductor LLC. (SAS)	Feb 1996	Semiconductor production	5,642,117	Over 50%	Y
Samsung Electronics Mexico S.A. De C.V. (SEM)	Jul 1995	Electronic goods sales	1,358,641	Over 50%	Y
SEMES America Inc.	Oct 1998	Semiconductor equipment	1,557	Over 50%	N
Samsung Electronics Digital Appliance Mexico, SA de CV (SEDAM)	Dec 2012	Electronic goods production	499,192	Over 50%	Y
Samsung Electronics Latinoamerica Miami, Inc. (SEMI)	May 1995	Electronic goods sales	253,783	Over 50%	Y
Samsung Electronics Latinoamerica (Zona Libre)(SELA)	Apr 1989	Electronic goods sales	430,737	Over 50%	Y

Samsung Electronics Venezuela, C.A. (SEVEN)	May 2010	Marketing and services	108	Over 50%	N
Samsung Electronica Colombia S.A. (SAMCOL)	Mar 1997	Electronic goods sales	458,091	Over 50%	Y
Samsung Electronics Panama. S.A. (SEPA)	Jul 2012	Consulting	2,686	Over 50%	N
Samsung Electronica da Amazonia Ltda. (SEDA)	Jan 1995	Electronic goods production and sales	6,207,458	Over 50%	Y
Samsung Electronics Argentina S.A. (SEASA)	Jun 1996	Marketing and services	53,998	Over 50%	N
Samsung Electronics Chile Limitada (SECH)	Dec 2002	Electronic goods sales	478,751	Over 50%	Y
Samsung Electronics Peru S.A.C. (SEPR)	Apr 2010	Electronic goods sales	295,551	Over 50%	Y
Samsung Electronics Home Appliances America, LLC (SEHA)	Aug 2017	Home appliance production	523,093	Over 50%	Y
Harman Becker Automotive Systems, Inc.	Jun 1981	Audio product R&D, production, and sales	3,715,631	Over 50%	Y
Harman Connected Services, Inc.	Feb 2002	Connected service provider	2,027,134	Over 50%	Y
Harman Connected Services Engineering Corp.	Sep 2004	Connected service provider	1,502	Over 50%	N
Harman Connected Services South America S.R.L.	Apr 2015	Connected service provider	10	Over 50%	N
Harman da Amazonia Industria Eletronica e Participacoes Ltda.	Jul 2005	Audio product production and sales	43,308	Over 50%	N
Harman de Mexico S. de R.L. de C.V.	Feb 1997	Audio product production	48,911	Over 50%	N
Harman do Brasil Industria Eletronica e Participacoes Ltda.	Nov 1958	Audio product R&D and sales	231,816	Over 50%	Y
Harman Financial Group, LLC	Jun 2004	Management company	615,877	Over 50%	Y
Harman International Industries Canada Ltd.	May 2005	Audio product sales	373	Over 50%	N
Harman International Industries, Inc.	Jan 1980	Holding company	15,013,251	Over 50%	Y
Harman International Mexico, S. de R.L. de C.V.	Dec 2014	Audio product sales	19,887	Over 50%	N
Harman Investment Group, LLC	Dec 2015	Financing company	678,197	Over 50%	Y
Harman KG Holding, LLC	Mar 2009	Holding company	0	Over 50%	N
Harman Professional, Inc.	Jul 2006	Audio product R&D and sales	959,044	Over 50%	Y
Red Bend Software Inc.	Mar 2001	S/W design	9,564	Over 50%	N
Beijing Integrated Circuit Industry International Fund, L.P	Dec 2014	Investment in venture firms	27,892	Over 50%	N
China Materialia New Materials 2016 Limited Partnership	Sep 2017	Investment in venture firms	1,472	Over 50%	N
Zhilabs Inc.	Feb 2017	Network solution sales	19	Over 50%	N
Samsung Electronics (UK) Ltd. (SEUK)	Jul 1995	Electronic goods sales	2,203,583	Over 50%	Y
Samsung Electronics (London) Ltd. (SEL)	Jan 1999	Holding company	5,619	Over 50%	N
Samsung Electronics Holding GmbH (SEHG)	Feb 1982	Holding company	793,465	Over 50%	Y
Samsung Semiconductor Europe GmbH (SSEG)	Dec 1987	Semiconductor and display panel sales	807,318	Over 50%	Y
Samsung Electronics GmbH (SEG)	Dec 1984	Electronic goods sales	2,202,610	Over 50%	Y
Samsung Electronics Iberia, S.A. (SESA)	Jan 1989	Electronic goods sales	993,982	Over 50%	Y
Samsung Electronics France S.A.S (SEF)	Jan 1988	Electronic goods sales	1,761,117	Over 50%	Y
Samsung Electronics Hungarian Private Co. Ltd. (SEH)	Oct 1989	Electronic goods production and sales	1,894,922	Over 50%	Y
Samsung Electronics Czech and Slovak s.r.o. (SECZ)	Jan 2010	Electronic goods sales	198,450	Over 50%	Y
Samsung Electronics Italia S.P.A. (SEI)	Apr 1991	Electronic goods sales	1,148,534	Over 50%	Y
Samsung Electronics Europe Logistics B.V. (SELS)	May 1991	Logistics	1,904,358	Over 50%	Y

Samsung Electronics Benelux B.V. (SEBN)	Jul 1995	Electronic goods sales	1,673,470	Over 50%	Y
Samsung Display Slovakia s.r.o. (SDSK)	Mar 2007	Display panel processing	59,146	Over 50%	N
Samsung Electronics Romania LLC (SEROM)	Sep 2007	Electronic goods sales	253,401	Over 50%	Y
Samsung Electronics Polska, SP.Zo.o (SEPOL)	Apr 1996	Electronic goods sales	783,805	Over 50%	Y
Samsung Electronics Portuguesa S.A. (SEP)	Sep 1982	Electronic goods sales	207,183	Over 50%	Y
Samsung Electronics Nordic Aktiebolag (SENA)	Mar 1992	Electronic goods sales	967,089	Over 50%	Y
Samsung Semiconductor Europe Limited (SSEL)	Apr 1997	Semiconductor and display panel sales	88,597	Over 50%	Y
Samsung Electronics Austria GmbH(SEAG)	Jan 2002	Electronic goods sales	342,392	Over 50%	Y
Samsung Electronics Switzerland GmbH(SESG)	May 2013	Electronic goods sales	267,760	Over 50%	Y
Samsung Electronics Slovakia s.r.o (SESK)	Jun 2002	TV and monitor production	1,302,612	Over 50%	Y
Samsung Electronics Baltics SIA(SEB)	Oct 2001	Electronic goods sales	111,715	Over 50%	Y
Samsung Electronics Europe Holding Cooperatief U.A. (SEEH)	Oct 2008	Holding company	8,586,022	Over 50%	Y
Samsung Electronics Poland Manufacturing SP.Zo.o (SEPM)	Feb 2010	Home appliance production	353,510	Over 50%	Y
Samsung Electronics Greece S.A. (SEGR)	Apr 2010	Electronic goods sales	88,927	Over 50%	Y
Samsung Electronics Air Conditioner Europe B.V. (SEACE)	Apr 2017	Air conditioner sales	84,623	Over 50%	Y
Samsung Nanoradio Design Center (SNDC)	Feb 2004	R&D	23,082	Over 50%	N
Samsung Denmark Research Center ApS(SDRC)	Sep 2012	R&D	23,056	Over 50%	N
Samsung Cambridge Solution Centre Limited (SCSC)	Sep 2012	R&D	124,821	Over 50%	Y
Samsung Electronics Overseas B.V. (SEO)	Jan 1997	Electronic goods sales	114,563	Over 50%	Y
Innoetics E.P.E.	Apr 2006	Software development	5,243	Over 50%	N
AKG Acoustics GmbH	Mar 1947	Audio product production and sales	364,656	Over 50%	Y
AMX UK Limited	Mar 1993	Audio product sales	0	Over 50%	N
Arcam Limited	Jul 2004	Holding company	0	Over 50%	N
A&R Cambridge Limited	Dec 1993	Audio product sales	0	Over 50%	N
Duran Audio B.V.	Nov 1991	Audio product R&D and sales	553,795	Over 50%	Y
Harman Audio Iberia Espana Sociedad Limitada (formerly Duran Audio Iberia Espana S.L.)	Nov 2012	Audio product sales	55	Over 50%	N
Harman Automotive UK Limited	Oct 2012	Audio product production	521,338	Over 50%	Y
Harman Becker Automotive Systems GmbH	Jul 1990	Audio product R&D, production, and sales	3,999,992	Over 50%	Y
Harman Becker Automotive Systems Italy S.R.L.	Dec 2005	Audio product sales	622	Over 50%	N
Harman Becker Automotive Systems Manufacturing Kft	Aug 1994	Audio product R&D and production	2,621,720	Over 50%	Y
Harman Belgium SA	Apr 1967	Audio product sales	906	Over 50%	N
Harman Connected Services AB.	Oct 1984	Connected service provider	54,468	Over 50%	N
Harman Finland OY	Jul 1998	Connected service provider	1,437	Over 50%	N
Harman Connected Services GmbH	Dec 2005	Connected service provider	47,318	Over 50%	N
Harman Connected Services Limited	Dec 1992	Connected service provider	8,861	Over 50%	N
Harman Connected Services Poland Sp.zoo	Jun 2007	Connected service provider	5,316	Over 50%	N
Harman Connected Services UK Ltd.	Sep 2008	Connected service provider	69,055	Over 50%	N

Harman Consumer Nederland B.V.	Dec 1995	Audio product sales	421,646	Over 50%	Y
Harman Deutschland GmbH	Mar 1998	Audio product sales	0	Over 50%	N
Harman Finance International GP S.a.r.l	Apr 2015	Holding company	0	Over 50%	N
Harman France SNC	Nov 1995	Audio product sales	144,325	Over 50%	Y
Harman Holding GmbH & Co. KG	Jun 2002	Management company	5,014,885	Over 50%	Y
Harman Hungary Financing Ltd.	Jun 2012	Financing company	611,191	Over 50%	Y
Harman Inc. & Co. KG	Jun 2012	Holding company	3,998,976	Over 50%	Y
Harman International Estonia OU	May 2015	R&D	247	Over 50%	N
Harman International Industries Limited	Mar 1980	Audio product sales, etc.	333,372	Over 50%	Y
Harman International Romania SRL	Feb 2015	R&D	10,314	Over 50%	N
Harman Finance International SCA	Apr 2015	Financing company	465,043	Over 50%	Y
Harman International s.r.o	Feb 2015	Audio product production	32	Over 50%	N
Harman International SNC	Feb 1989	Audio product sales	1,506	Over 50%	N
Harman Management GmbH	Apr 2002	Holding company	0	Over 50%	N
Harman Professional Kft	Dec 2014	Audio product R&D and production	63,948	Over 50%	N
Martin Manufacturing (UK) Ltd	May 1985	Audio product production	0	Over 50%	N
Harman Professional Denmark ApS	Jul 1987	Audio product R&D and sales	203,020	Over 50%	Y
Harman Professional France SAS	Jan 1990	Audio product sales	307	Over 50%	N
Red Bend Software Ltd.	Aug 2004	Software design	2,815	Over 50%	N
Red Bend Software SAS	Oct 2002	Software design	4,353	Over 50%	N
Studer Professional Audio GmbH	Nov 2003	Audio product R&D and sales	34,763	Over 50%	N
Zhilabs, S.L.	Nov 2008	Network solution R&D and sales	6,118	Over 50%	N
FOODIENT LTD.	Mar 2012	R&D	1,603	Over 50%	N
Samsung Electronics Rus Company LLC(SERC)	Oct 2006	Electronic goods sales	1,390,623	Over 50%	Y
Samsung Electronics Ukraine Company LLC(SEUC)	Sep 2008	Electronic goods sales	161,905	Over 50%	Y
Samsung R&D Institute Rus LLC(SRR)	Nov 2011	R&D	27,397	Over 50%	N
Samsung Electronics Central Eurasia LLP(SECE)	Sep 2008	Electronic goods sales	117,206	Over 50%	Y
Samsung Electronics Caucasus Co. Ltd. (SECC)	Oct 2014	Marketing	1,806	Over 50%	N
Samsung Electronics Rus Kaluga LLC(SERK)	Jul 2007	TV production	987,881	Over 50%	Y
Harman Connected Services OOO	Nov 1998	Connected service provider	11,153	Over 50%	N
Harman RUS CIS LLC	Aug 2011	Audio product sales	77,966	Over 50%	Y
Samsung Electronics West Africa (SEWA)	Mar 2010	Marketing	32,499	Over 50%	N
Samsung Electronics East Africa (SEEA)	Dec 2011	Marketing	22,311	Over 50%	N
Samsung Gulf Electronics Co., Ltd. (SGE)	May 1995	Electronic goods sales	905,591	Over 50%	Y
Samsung Electronics Egypt S.A.E(SEEG)	Jul 2012	Electronic goods production and sales	600,240	Over 50%	Y
Samsung Electronics Israel Ltd. (SEIL)	Sep 2012	Marketing	10,818	Over 50%	N
Samsung Electronics Tunisia S.A.R.L(SETN)	Sep 2012	Marketing	3,973	Over 50%	N

Samsung Electronics Pakistan (Private) Ltd. (SEPAK)	Nov 2012	Marketing	2,378	Over 50%	N
Samsung Electronics South Africa (Pty) Ltd. (SSA)	Jun 1994	Electronic goods sales	421,122	Over 50%	Y
Samsung Electronics South Africa Production (pty) Ltd. (SSAP)	Jul 2014	TV and monitor production	66,955	Over 50%	N
Samsung Electronics Turkey (SETK)	Dec 1984	Electronic goods sales	510,886	Over 50%	Y
Samsung Semiconductor Israel R&D Center, Ltd. (SIRC)	Oct 2007	R&D	56,937	Over 50%	N
Samsung Electronics Levant Co., Ltd. (SELV)	Jul 2009	Electronic goods sales	414,726	Over 50%	Y
Samsung Electronics Maghreb Arab (SEMAG)	Nov 2009	Electronic goods sales	219,897	Over 50%	Y
Global Symphony Technology Group Private Ltd.	Jan 2002	Holding company	40,732	Over 50%	N
Harman Connected Services Morocco	Apr 2012	Connected service provider	3,330	Over 50%	N
Harman Industries Holdings Mauritius Ltd.	Oct 2009	Holding company	82,749	Over 50%	Y
iOnRoad Ltd	Aug 2011	R&D	44	Over 50%	N
iOnRoad Technologies Ltd	Jan 2012	R&D	1,220	Over 50%	N
Red Bend Ltd.	Feb 1998	Audio product production	77,623	Over 50%	Y
Towersec Ltd.	Apr 2008	R&D	4,073	Over 50%	N
Corephotonics Ltd.	Jan 2012	R&D	29,223	Over 50%	N
Samsung Japan Corporation (SJC)	Dec 1975	Electronic goods sales	1,196,129	Over 50%	Y
Samsung R&D Institute Japan Co. Ltd. (SRJ)	Aug 1992	R&D	151,975	Over 50%	Y
Samsung Electronics Japan Co., Ltd. (SEJ)	Sep 2008	Electronic goods sales	873,583	Over 50%	Y
Samsung Electronics Display (M) Sdn. Bhd. (SDMA)	Mar 1995	Electronic goods production	24,489	Over 50%	N
Samsung Medison India Private Ltd. (SMIN)	Jan 2009	Medical equipment	0	Over 50%	N
Samsung Electronics (M) Sdn. Bhd. (SEMA)	Sep 1989	Home appliance production	168,590	Over 50%	Y
Samsung Vina Electronics Co., Ltd. (SAVINA)	Jan 1995	Electronic goods sales	251,818	Over 50%	Y
Samsung Asia Private Ltd. (SAPL)	Jul 2006	Electronic goods sales	7,630,154	Over 50%	Y
Samsung India Electronics Private Ltd. (SIEL)	Aug 1995	Electronic goods production and sales	6,410,825	Over 50%	Y
Samsung R&D Institute India-Bangalore Private Limited (SRI-Bangalore)	May 2005	R&D	256,224	Over 50%	Y
Samsung Nepal Services Pvt, Ltd (SNSL)	Nov 2017	Services	967	Over 50%	N
Samsung Electronics Australia Pty. Ltd. (SEAU)	Nov 1987	Electronic goods sales	433,723	Over 50%	Y
Samsung Electronics New Zealand Limited (SENZ)	Sep 2013	Electronic goods sales	98,281	Over 50%	Y
PT Samsung Electronics Indonesia (SEIN)	Aug 1991	Electronic goods production and sales	1,051,835	Over 50%	Y
PT Samsung Telecommunications Indonesia (STIN)	Mar 2003	Electronic goods sales and services	1,029	Over 50%	N
Thai Samsung Electronics Co., Ltd. (TSE)	Oct 1988	Electronic goods production and sales	2,465,999	Over 50%	Y
Laos Samsung Electronics Sole Co., Ltd (LSE)	Sep 2016	Marketing	641	Over 50%	N
Samsung Electronics Philippines Corporation (SEPCO)	Mar 1996	Electronic goods sales	305,534	Over 50%	Y
Samsung Display Vietnam Co., Ltd. (SDV)	Jul 2014	Display panel production	8,222,472	Over 50%	Y
Samsung Malaysia Electronics (SME) Sdn. Bhd. (SME)	May 2003	Electronic goods sales	474,905	Over 50%	Y
Samsung R&D Institute Bangladesh (SRBD)	Aug 2010	R&D	8,538	Over 50%	N
Samsung Electronics Vietnam Co., Ltd. (SEV)	Mar 2008	Electronic goods production	11,501,682	Over 50%	Y

Samsung Electronics Vietnam THAINGUYEN Co., Ltd. (SEVT)	Mar 2013	Telecom product production	11,360,811	Over 50%	Y
Samsung Electronics HCMC CE Complex Co. Ltd. (SEHC)	Feb 2015	Electronic goods production and sales	2,042,669	Over 50%	Y
AMX Products And Solutions Private Limited	Feb 2008	Audio product sales	589	Over 50%	N
Harman Connected Services Corp. India Pvt. Ltd.	Apr 2002	Connected service provider	367,847	Over 50%	Y
Harman Connected Services Japan Co. Ltd.	Dec 2009	Connected service provider	1,229	Over 50%	N
Harman International (India) Private Limited	Jan 2009	Audio product R&D and sales	186,837	Over 50%	Y
Harman International Industries PTY, Ltd.	Dec 2014	Holding company	0	Over 50%	N
Harman International Japan Co. Ltd.	Jun 1991	Audio product R&D and sales	71,303	Over 50%	N
Harman International Singapore Pte. Ltd.	Dec 1993	Audio product sales	6,444	Over 50%	N
Harman Singapore Pte. Ltd.	Aug 2007	Audio product sales	9,537	Over 50%	N
Martin Professional Pte. Ltd.	Jun 1995	Audio product sales	4,195	Over 50%	N
Red Bend Software Japan Co., Ltd.	Nov 2005	Software design	14,584	Over 50%	N
Studer Japan, Ltd.	Dec 1982	Holding company	9,560	Over 50%	N
Samsung Display Dongguan Co., Ltd. (SDD)	Nov 2001	Display panel production	1,417,809	Over 50%	Y
Samsung Display TianJin Co., Ltd. (SDT)	Jun 2004	Display panel production	996,610	Over 50%	Y
Samsung Electronics Hong Kong Co., Ltd. (SEHK)	Sep 1988	Electronic goods sales	1,208,622	Over 50%	Y
Suzhou Samsung Electronics Co., Ltd. (SSEC)	Apr 1995	Home appliance production	533,301	Over 50%	Y
Samsung Suzhou Electronics Export Co., Ltd. (SSEC-E)	Apr 1995	Home appliance production	420,978	Over 50%	Y
Samsung (CHINA) Investment Co., Ltd. (SCIC)	Mar 1996	Electronic goods sales	16,090,629	Over 50%	Y
Samsung Mobile R&D Center, China-Guangzhou (SRC-Guangzhou)	Jan 2010	R&D	72,950	Over 50%	N
Samsung Tianjin Mobile Development Center (SRC-Tianjin)	Aug 2010	R&D	38,512	Over 50%	N
Samsung R&D Institute China-Shenzhen (SRC-Shenzhen)	Mar 2013	R&D	18,873	Over 50%	N
Samsung Electronics Suzhou Semiconductor Co., Ltd. (SESS)	Dec 1994	Semiconductor processing	1,004,312	Over 50%	Y
SEMES (XIAN) Co., Ltd.	Jul 2013	Semiconductor equipment	1,483	Over 50%	N
Samsung Electronics Huizhou Co., Ltd. (SEHZ)	Dec 1992	Electronic goods production	6,539,392	Over 50%	Y
Tianjin Samsung Electronics Co., Ltd. (TSEC)	Apr 1993	TV and monitor production	578,119	Over 50%	Y
Samsung Electronics Taiwan Co., Ltd. (SET)	Nov 1994	Electronic goods sales	1,168,651	Over 50%	Y
Beijing Samsung Telecom R&D Center (SRC-Beijing)	Sep 2000	R&D	97,687	Over 50%	Y
Tianjin Samsung Telecom Technology Co., Ltd. (TSTC)	Mar 2001	Telecom product production	962,448	Over 50%	Y
Shanghai Samsung Semiconductor Co., Ltd. (SSS)	Oct 2001	Semiconductor and display panel sales	5,400,549	Over 50%	Y
Samsung Electronics Suzhou Computer Co., Ltd. (SESC)	Sep 2002	Electronic goods production	920,461	Over 50%	Y
Samsung Suzhou Module Co., Ltd. (SSM)	Sep 2002	Display panel processing	1,078,821	Over 50%	Y
Samsung Suzhou LCD Co., Ltd. (SSL)	Jul 2011	Display panel production	1,845,330	Over 50%	Y
Shenzhen Samsung Electronics Telecommunication Co., Ltd. (SSET)	Feb 2002	Telecom product production	41,371	Over 50%	N
Samsung Semiconductor (China) R&D Co., Ltd. (SSCR)	Apr 2003	R&D	30,543	Over 50%	N
Samsung Electronics China R&D Center (SRC-Nanjing)	May 2004	R&D	52,113	Over 50%	N
Samsung (China) Semiconductor Co., Ltd. (SCS)	Sep 2012	Semiconductor production	10,254,900	Over 50%	Y

Samsung Semiconductor Xian (SSCX)	Apr 2016	Semiconductor and display panel sales	491,590	Over 50%	Y
Tianjin Samsung LED Co., Ltd. (TSLED)	May 2009	LED production	439,574	Over 50%	Y
Harman (China) Technologies Co. Ltd.	Mar 2011	Audio product production	121,071	Over 50%	Y
Harman (Suzhou) Audio and Infotainment Systems Co. Ltd.	Mar 2013	Audio product sales	13,087	Over 50%	N
Harman Automotive Electronic Systems (Suzhou) Co. Ltd	Sep 2006	Audio product R&D and production	264,798	Over 50%	Y
Harman Commercial (Shanghai) Co. Ltd.	Oct 2010	Audio product sales	2,854	Over 50%	N
Harman Connected Services Solutions (Beijing) Co. Ltd.	Mar 2007	Connected service provider	321	Over 50%	N
Harman Connected Services Solutions (Chengdu) Co. Ltd.	Aug 2007	Connected service provider	20,333	Over 50%	N
Harman Holding Limited	May 2007	Audio product sales	464,183	Over 50%	Y
Harman International (China) Holdings Co. Ltd	Jun 2009	Audio product R&D and sales	498,225	Over 50%	Y
Harman Technology (Shenzhen) Co. Ltd.	Sep 2004	Audio product R&D and sales	35,821	Over 50%	N
Samsung Display	Apr 2012	Display panel production and sales	47,162,963	Over 50%	Y
SU Materials	Aug 2011	Display panel component production	31,679	Over 50%	N
STECO	Jun 1995	Semiconductor component production	169,786	Over 50%	Y
SEMES	Jan 1993	Semiconductor/FPD manufacturing equipment	1,080,229	Over 50%	Y
Samsung Electronics Service	Dec 1998	Electronics goods repair services	387,220	Over 50%	Y
Samsung Electronics Service CS	Oct 2018	Customer management services	6,939	Over 50%	N
Samsung Electronics Sales	Jul 1996	Electronic goods sales	652,337	Over 50%	Y
Samsung Electronics Logitech	Apr 1998	Total logistics services	173,309	Over 50%	Y
Samsung Medison	Jul 1985	Medical equipment	345,288	Over 50%	Y
Mirero System	Jan 1994	Semiconductor software	24,034	Over 50%	N
SVIC #21 Venture Capital Union	Nov 2011	Venture firm and new technology investments	83,047	Over 50%	Y
SVIC #22 Venture Capital Union	Nov 2011	Venture firm and new technology investments	132,618	Over 50%	Y
SVIC #26 Venture Capital Union	Nov 2014	Venture firm and new technology investments	200,834	Over 50%	Y
SVIC #27 Venture Capital Union	Sep 2014	Venture firm and new technology investments	32,638	Over 50%	N
SVIC #28 Venture Capital Union	Feb 2015	Venture firm and new technology investments	226,667	Over 50%	Y
SVIC #29 Venture Capital Union	Apr 2015	Venture firm and new technology investments	38,359	Over 50%	N
SVIC #32 Venture Capital Union	Aug 2016	Venture firm and new technology investments	137,250	Over 50%	Y
SVIC #33 Venture Capital Union	Nov 2016	Venture firm and new technology investments	140,123	Over 50%	Y
SVIC #37 Venture Capital Union	Nov 2017	Venture firm and new technology investments	23,766	Over 50%	N
SVIC #40 Venture Capital Union	Jun 2018	Venture firm and new technology investments	2,159	Over 50%	N
SVIC #42 Venture Capital Union	Nov 2018	Venture firm and new technology investments	5,007	Over 50%	N
SVIC #43 Venture Capital Union	Dec 2018	Venture firm and new technology investments	3,000	Over 50%	N
SVIC #45 Venture Capital Union					
Private Equity Fund for Semiconductor Growth	Mar 2017	Semiconductor investments	75,263	Over 50%	Y
Harman International Korea	Jan 2005	Software development and supply	19,711	Over 50%	N
Red Bend Software Korea	Feb 2007	Software development and supply	1,026	Over 50%	N

* Companies with over KRW 75 billion in total assets as of December 31, 2018 are classified as major subsidiaries.

* See 『II. Businesses Overview』 for additional information about major business segments.

* Duran Audio Iberia Espana S.L. changed its name to Harman Audio Iberia Espana Sociedad Limitada in 1H19.

(Changes in subsidiaries)

	Americas	Europe/ MEA/CIS	Asia	China	Domestic	Total	Increase	Decrease
Dec 31, 2016	44	53	23	29	20	169	[Domestic: 4] SVIC #32 Venture Capital Union SVIC #33 Venture Capital Union Mirero System, S-Printing Solution Co., Ltd. [Americas: 13] Samsung Oak Holdings, Inc., Joyent, Inc., Joyent Canada, Inc., AdGear Technologies Inc., Samsung Next LLC, Samsung Next Fund LLC, Dacor Holdings, Inc., Dacor, Dacor Canada Co., EverythingDacor.com, Inc., Distinctive Appliances of California, Inc., Viv Labs, Inc., NewNet Communication Technologies (Canada), Inc. [Europe: 1] Joyent Ltd. [Asia: 1] Laos Samsung Electronics Sole Co., Ltd [China: 1] Samsung Semiconductor Xian	[Domestic: 1] SVIC #14 Venture Capital Union [Americas: 2] Grandis, Inc., Joyent Canada, Inc. [Europe/CIS: 3] Samsung Russia Service Centre, SonoAce Deutschland GmbH Samsung Electronics Kazakhstan LLP [Asia: 2] Samsung Telecommunications Malaysia, Future Technology & Service [China: 2] Samsung R&D Institute China-Xian, Samsung Electronics Shanghai Telecommunication Co., Ltd.

Dec 31, 2017	63	109	38	38	22	270	<p>[Domestic: 4] Private Equity Fund for semiconductor growth Harman International Korea Red Bend Software Korea SVIC #37 Venture Capital Union [Americas: 25] Samsung Electronics Home Appliances America, LLC Kngine, Inc. AMX Holding Corporation AMX LLC Harman Becker Automotive Systems, Inc. Harman Connected Services Inc. Harman Connected Services Engineering Corp. Harman Connected Services Holding Corp. Harman Connected Services South America S.R.L. Harman da Amazonia Industria Electronica e Participacoes Ltda. Harman de Mexico S. de R.L. de C.V. Harman do Brasil Industria Electronica e Participacoes Ltda. Harman Financial Group, LLC Harman International Industries Canada Ltd. Harman International Industries, Inc. Harman International Mexico S de RL de CV Harman Investment Group, LLC Harman KG Holding, LLC Harman Professional, Inc. Red Bend Software Inc. S1NN USA, Inc. Southern Vision Systems, Inc TowerSec Inc. Triple Play Integration LLC China Materialia New Materials 2016 Limited Partnership [Europe/CIS/MEA: 62] Samsung Electronics Air Conditioner Europe B.V. Aditi Technologies Europe GmbH AKG Acoustics GmbH AMX GmbH AMX UK Limited Duran Audio B.V. Duran Audio Iberia Espana S.L. Endeleo Limited Harman Automotive UK Limited Harman Becker Automotive Systems GmbH Harman Becker Automotive Systems Italy S.R.L. Harman Becker Automotive Systems Manufacturing Kft Harman Belgium SA Harman Connected Services AB. Harman Connected Services Finland OY Harman Connected Services GmbH Harman Connected Services Limited Harman Connected Services Poland Sp.zoo Harman Connected Services UK Ltd. Harman Consumer Division Nordic A/S Harman Consumer Finland OY Harman Consumer Nederland B.V. Harman Deutschland GmbH Harman Finance International GP S.a.r.l Harman France SNC Harman Holding GmbH & Co. KG Harman Hungary Financing Ltd. Harman Inc. & Co. KG Harman International Estonia OU Harman International Industries Limited Harman International Romania SRL Harman Finance International SCA Harman International s.r.o Harman International SNC Harman Management GmbH Harman Professional Kft Inspiration Matters Limited Knight Image Limited Martin Manufacturing (UK) Ltd Harman Professional Denmark ApS Harman Professional France SAS. Harman Professional Germany GmbH</p>	<p>[Americas: 6] Samsung Receivables Corporation TowerSec Inc. Kngine, Inc. PrinterOn Inc. PrinterOn America Corporation Simpres Comercio, Locacao e Servicos S.A. [Europe/CIS: 6] Samsung Electronics Rus LLC Samsung Electronics Ukraine LLC Surfkitchen Limited AMX LLC (Russia) Martin Professional Ltd. PrinterOn Europe Limited [Asia: 2] VFX Systems PTY Ltd. I.P.S.G. International Product Solution Group FTY. LTD [China: 3] Samsung Electronics (Shandong) Digital Printing Co., Ltd. Tianjin Samsung Opto-Electronics Co., Ltd. Martin Trading Zhuhai Ltd. [Domestic: 2] SVIC #20 Venture Capital Union S-Printing Solution</p>
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						<p> Martin Professional Ltd. R&D International BVBA Red Bend Software Ltd. Red Bend Software SAS France., Studer Professional Audio GmbH Surfkitchen Limited AMX LLC (Russia) Harman Connected Services OOO Harman RUS CIS LLC Broadsense Ltd. Global Symphony Technology Group Private Ltd. Harman Connected Services Morocco Harman Industries Holdings Mauritius Ltd. iOnRoad Ltd. iOnRoad Technologies Ltd. Red Bend Ltd. TowerSec Ltd. Innoetics E.P.E. ARCAM Ltd A&R Cambridge Ltd [Asia: 17] AMX Products And Solutions Private Limited Harman Connected Services Technologies Pvt. Ltd. Harman Connected Services Corp. India Pvt. Ltd. Harman Connected Services Japan Co. Ltd. Harman International (India) Private Limited Harman International Industries PTY, Ltd. Harman International Japan Co. Ltd. Harman International Singapore Pte. Ltd. Harman Malaysia Sdn. Bhd. Harman Professional Singapore Pte. Ltd I.P.S.G. International Product Solution Group PTY. LTD. INSP India Software Development Pvt. Ltd. Martin Professional Pte. Ltd. Red Bend Software KK Studer Japan, Ltd. VFX Systems PTY Ltd. Samsung Nepal Services Pvt, Ltd [China: 12] Harman (China) Technologies Co. Ltd. Harman (Suzhou) Audio and Infotainment Systems Co. Ltd. Harman Automotive Electronic Systems (Suzhou) Co. Ltd Harman Commercial (Shanghai) Co. Ltd. Harman Connected Services (Beijing) Solutions Co. Ltd. Harman Connected Services (Chengdu) Solutions Co. Ltd. Harman Connected Services Taiwan Inc. Harman Holding Limited Harman International (China) Holdings Co. Ltd Harman Automotive Infotech (Dalian) Co. Ltd Harman Technology (Shenzhen) Co. Ltd. Martin Trading Zhuhai Ltd. </p>	
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Dec 31, 2018	56	100	35	36	25	252	<p>[Americas: 1] Zhilabs Inc. [Europe/CIS: 1] Zhilabs, S.L. [Domestic: 4] SVIC #40 Venture Capital Union SVIC #42 Venture Capital Union SVIC #43 Venture Capital Union Samsung Electronics Service CS</p>	<p>[Americas: 8] NexusDX, Inc. S1NN USA, Inc. Samsung Pay, Inc. Harman Connected Services Holding Corp. AMX LLC AMX Holding Corporation Southern Vision Systems, Inc Triple Play Integration LLC [Europe/CIS: 10] Joyent Ltd. Aditi Technologies Europe GmbH AMX GmbH Harman Professional Germany GmbH Endeleo Limited Harman Consumer Finland OY Harman Consumer Division Nordic ApS Inspiration Matters Limited Knight Image Limited R&D International BVBA [Asia: 3] Harman Malaysia Sdn. Bhd. Harman Connected Services Technologies Pvt. Ltd. INSP India Software Development Pvt. Ltd. [China: 2] Harman Connected Services Taiwan Inc. Harman Automotive InfoTech (Dalian) Co., Ltd. [Domestic: 1] SVIC #23 Venture Capital Union</p>
Jun 30 2019	56	100	35	35	26	252	<p>[Europe/CIS/MEA: 2] Corephotonics Ltd. FOODIENT LTD. [Domestic: 1] SVIC #45 Venture Capital Union</p>	<p>[Europe/CIS/MEA: 2] Broadsense Ltd. Samsung France Research Center SARL(SFRC) [China: 1] Samsung Electronics (Beijing) Service Company Limited (SBSC)</p>

※ MEA = Middle East and Africa, CIS = Commonwealth of Independent States

H. Credit rating

SEC's credit rating is assessed by two external credit ratings agencies. As of June 30, 2019, SEC's credit ratings were Aa3 and stable investment outlook as rated by Moody's (US); and AA- and stable investment outlook as rated by S&P (US).

Date	Securities	Ratings	Credit rating agency	Rating range	Note
Feb 2017	Corporate bond	A1	Moody's	(Aaa-C)	Annual review
Jul 2017	Corporate bond	AA-	S&P	(AAA-D)	
Aug 2017	Corporate bond	A1	Moody's	(Aaa-C)	
Feb 2018	Corporate bond	A1	Moody's	(Aaa-C)	
Jun 2018	Corporate bond	Aa3	Moody's	(Aaa-C)	
Jul 2018	Corporate bond	AA-	S&P	(AAA-D)	
Nov 2018	Corporate bond	Aa3	Moody's	(Aaa-C)	
May 2019	Corporate bond	Aa3	Moody's	(Aaa-C)	

※ See 『III. Financial Affairs: Other Financial Information (List of issued debt securities)』 for more information on corporate bonds

※ S&P credit rating in July 2019 was AA-

[Credit ratings definitions]

	Moody's	Definition	S&P	Definition
Investment grade	Aaa	Superior ability to repay debt obligations; lowest level of credit risk	AAA	Extremely strong ability to meet financial commitments; highest rating
	Aa1/Aa2/Aa3	High ability to repay debt obligations; very low credit risk	AA+/AA/AA-	Very strong capacity to meet financial commitments
	A1/A2/A3	Upper-medium ability to repay debt obligations; low credit risk	A+/A/A-	Strong capacity to meet financial commitments; susceptible to adverse effects of changes in economic conditions
	Baa1/Baa2/Baa3	Medium ability to repay debt obligations; moderate credit risk, speculative factors	BBB+/BBB/BBB-	Adequate capacity to meet financial commitments; relatively more susceptible to adverse economic conditions
Speculative grade	Ba1/Ba2/Ba3	Speculative; substantial credit risk	BB+/BB/BB-	Major ongoing uncertainties; exposure to adverse business, financial, or economic conditions can impair ability to meet financial commitments
	B1/B2/B3	Speculative; high credit risk	B+/B/B-	More vulnerable to nonpayment than those rated BB; has capacity to meet financial commitments but adverse financial or economic conditions are likely to impair ability to continue doing so
	Caa	Speculative; very high credit risk	CCC	Vulnerable to nonpayment; dependent upon favorable business, financial, and economic conditions
	Ca	Highly speculative; likelihood of being in or near default; some prospect for recovery of principal and interest	CC	Highly vulnerable to nonpayment; default has not yet occurred but expected to be a virtual certainty
	C	Typically in default; little prospect for recovery of principal or interest	C	Highly vulnerable to nonpayment; obligation is expected to have lower ultimate recovery vis-à-vis higher rated obligations
				D

2. Company history

(The information disclosed below outlines major changes to the Company such as asset transfers, M&As, and security offerings)

Jan 13, 1969 Samsung Electronics Manufacturing Incorporated
Jun 11, 1975 Listed on the Korea Stock Exchange
Feb 28, 1984 Renamed as Samsung Electronics
Nov 1, 1988 Merged with Samsung Semiconductor and Communications
Apr 1, 2012 Spun off the LCD division
Jan 1, 2015 SEA merged with Samsung Telecommunications America LLC (“STA”)
Feb 23, 2015 SEA acquired shares of LoopPay (100%)
Jan 28, 2016 Sold shares of Samsung Card (37.5%)
Jun 24, 2016 SEA acquired shares of Joyent (100%)
Sep 7, 2016 SEA acquired shares of Dacor (100%)
Oct 7, 2016 SEA acquired shares of Viv Labs (100%)
Nov 1, 2016 Spun-off printing solutions business (established S-Printing Solution Co., Ltd.)
Mar 10, 2017 SEA acquired shares of Harman International Industries, Inc. (100%)
Nov 1, 2017 Sold Printing Solution business
May 17, 2018 Sold shares of NexusDx, Inc.
Jan 28, 2019 SEBN acquired shares of Corephotonics
Jun 1, 2019 Acquired PLP business from Samsung Electro-Mechanics

(Company location changes)

The Company’s head office is located in 129, Samsung-ro, Yeongtong-gu, Suwon, Gyeonggi-do. There was no change in the Company’s head office location during the reporting period.

(Company name changes)

In 2015, Samsung Electronics KZ and Central Asia LLP, Samsung Electronics Morocco SARLAU, Samsung Display Bac Ninh, Samsung Network R&D Center China-Shenzhen, Samsung Display Suzhou Co., Ltd., and LoopPay, Inc. changed their names to Samsung Electronics Central Eurasia LLP, Samsung Electronics Maghreb Arab, Samsung Display Vietnam Co., Ltd., Samsung R&D Institute China-Shenzhen, Samsung Suzhou Module Co., Ltd., and Samsung Pay, Inc., respectively.

In 2016, YESCO Electronics LLC changed its name to Prismview, LLC.

In 2017, Quieside LLC, NewNet Communication Technologies (Canada), Inc., Martin Professional ApS, Martin Professional France SAS, Martin Professional GmbH, and Harman Neusoft Automotive Infotech (Dalian) Co. Ltd changed their names to Samsung HVAC America, LLC, SigMast Communications Inc., Harman Professional Denmark ApS, Harman Professional France SAS, Harman Professional Germany GmbH, and Harman Automotive InfoTech (Dalian) Co., Ltd., respectively.

In 2018, Harman Consumer Division Nordic A/S, Harman Connected Services Finland OY, and Harman Professional Singapore Pte. Ltd changed their names to Harman Consumer Division Nordic ApS, Harman Finland Oy, and Harman Singapore Pte. Ltd., respectively.

(Important changes in management executives)

On March 13, 2015, Executive Director Oh-Hyun Kwon and Independent Directors Han-Joong Kim and Byeong-Gi Lee were reappointed at the AGM.

On March 11, 2016, Executive Directors Boo-Keun Yoon, Jong-Kyun Shin and Sang-Hoon Lee were reappointed at the AGM. Of the three Independent Executive Directors with expiring terms (In-Ho Lee, Kwang-Soo Song and Eun-Mee Kim), Eun-Mee Kim retired, and In-Ho Lee, Kwang-Soo Song were reappointed. Jae-Wan Bahk was newly appointed as an Independent Director.

On October 27, 2016, Jae-Yong Lee was newly appointed as Executive Director at the Extraordinary General Meeting of Shareholders and Executive Director Sang-Hoon Lee resigned.

Following the annual meeting on March 23, 2018, Sang-Hoon Lee, Ki-Nam Kim, Hyun-Suk Kim, and Dong-Jin Koh were newly appointed as Executive Directors and Jeong Kim, Sun-Uk Kim, Byung-Gook Park were newly appointed as Independent Directors. In addition, Executive Director Oh-Hyun Kwon and Independent Directors Han-Joong Kim and Byeong-Gi Lee retired as terms expired. Executive Directors Boo-Keun Yoon and Jong-Kyun Shin resigned.

On March 23, 2018, Executive Directors Ki-Nam Kim, Hyun-Suk Kim, and Dong-Jin Koh were newly appointed as CEOs.

On March 20, 2019, Independent Director Jae-Wan Bahk was reappointed and Independent Directors Han-Jo Kim and Curie Ahn were newly appointed. Independent Directors In-Ho Lee and Kwang-Soo Song retired.

As of August 14, 2019, (the "Reporting Date"), SEC's Board consisted of five Executive Directors (Sang-Hoon Lee, Jae-Yong Lee, Ki-Nam Kim, Hyun-Suk Kim, and Dong-Jin Koh) and six Independent Directors (Jae-Wan Bahk, Sun-Uk Kim, Byung-Gook Park, Jeong Kim, Curie Ahn, and Han-Jo Kim).

(Changes in the largest shareholder)

N/A

(Important changes in the Company's business)

N/A

(Changes in organizational structure)

In December 2015, the LED business was reorganized as a team unit; in November 2016, the Company spun off its printing solutions business and established S-Printing Solution Co., Ltd.; in June 2017, the System LSI business was divided into Foundry and System LSI businesses.

[As of December 2015]

	Before	After
Business organization	CE Division (Visual display, Digital appliances, Printing solution, Medical devices)	CE Division (Visual display, Digital appliances, Printing solution, Medical devices)
	IM Division (Mobile, Network)	IM Division (Mobile, Network)
	DS Division (Memory, SYS.LSI, DP, LED)	DS Division (Memory, SYS.LSI, DP)
Regional headquarters	Korea, North America, Latin America, Europe, CIS, Southwest Asia, Southeast Asia, China, Middle East, Africa	Korea, North America, Latin America, Europe, CIS, Southwest Asia, Southeast Asia, China, Middle East, Africa
	Americas (DS), Europe (DS), China (DS), Southeast Asia (DS), Japan (DS)	Americas (DS), Europe (DS), China (DS), Southeast Asia (DS), Japan (DS)

[As of December 2016]

	Before	After
Business organization	CE Division (Visual display, Digital appliances, Printing solution, Medical devices)	CE Division (Visual display, Digital appliances, Medical devices)
	IM Division (Mobile, Network)	IM Division (Mobile, Network)
	DS Division (Memory, SYS.LSI, DP)	DS Division (Memory, SYS.LSI, DP)
Regional headquarters	Korea, North America, Latin America, Europe, CIS, Southwest Asia, Southeast Asia, China, Middle East, Africa	Korea, North America, Latin America, Europe, CIS, Southwest Asia, Southeast Asia, China, Middle East, Africa
	Americas (DS), Europe (DS), China (DS), Southeast Asia (DS), Japan (DS)	Americas (DS), Europe (DS), China (DS), Southeast Asia (DS), Japan (DS)

[As of June 2017]

	Before	After
Business organization	CE Division (Visual display, Digital appliances, Medical devices)	CE Division (Visual display, Digital appliances, Medical devices)
	IM Division (Mobile, Network)	IM Division (Mobile, Network)
	DS Division (Memory, SYS.LSI, DP)	DS Division (Memory, SYS.LSI, Foundry, DP)
	-	Harman Division
Regional headquarters	Korea, North America, Latin America, Europe, CIS, Southwest Asia, Southeast Asia, China, Middle East, Africa	Korea, North America, Latin America, Europe, CIS, Southwest Asia, Southeast Asia, China, Middle East, Africa
	Americas (DS), Europe (DS), China (DS), Southeast Asia (DS), Japan (DS)	Americas (DS), Europe (DS), China (DS), Southeast Asia (DS), Japan (DS)

※ From the first quarter of 2018, the Medical Device Business is excluded from the CE Division.

3. Changes in paid-in capital

No changes were reported during the past five (5) consecutive years.

4. Stock information

A. Total number of shares

As of June 30, 2019 on a post-split basis, SEC's issued shares consisted of 7,780,466,850 registered common shares and 1,194,671,350 registered, non-voting preferred shares (excluding canceled treasury stocks); and the Company had canceled 1,810,684,300 common shares and 371,784,650 preferred shares in accordance with resolutions of the Board of Directors ("the Board"). As of the same date, there were 5,969,782,550 common shares and 822,886,700 preferred shares.

[As of Jun 30, 2019]

Classification	Type of stocks			Note
	Common	Preferred	Total	
I. Authorized shares	20,000,000,000	5,000,000,000	25,000,000,000	-
II. Issued shares (cumulative)	7,780,466,850	1,194,671,350	8,975,138,200	-
III. Decrease in number of shares (cumulative)	1,810,684,300	371,784,650	2,182,468,950	-
1. Capital reduction	-	-	-	-
2. Cancellation	1,810,684,300	371,784,650	2,182,468,950	Treasury shares
3. Redemption	-	-	-	-
4. Other	-	-	-	-
IV. Issued shares as of Jun 30, 2019 (II-III)	5,969,782,550	822,886,700	6,792,669,250	-
V. Treasury shares as of Jun 30, 2019	-	-	-	-
VI. Outstanding shares as of Jun 30, 2019 (IV-V)	5,969,782,550	822,886,700	6,792,669,250	-

※ Post-split basis.

B. Treasury shares

In 2018, SEC completed the cancellation of all shares held in treasury as a part of its shareholder return.

[As of June 30, 2019]

(Shares)

Acquisition method	Share type	Period-start	Change			Period-end
			Acquisition (+)	Disposal (-)	Cancellation (-)	
Intra-market direct acquisition (within dividend related capital gains limit)	Common	-	-	-	-	-
	Preferred	-	-	-	-	-
Total	Common	-	-	-	-	-
	Preferred	-	-	-	-	-

C. Types of registered stock

SEC has two types of registered equity securities: 1) common stock; 2) non-voting and non-cumulative preferred stock.

The shareholders of preferred stock are entitled to dividend payments of an additional 1% of par value compared to shareholders of common stock.

As of June 30, 2019, the number of issued non-cumulative and non-voting preferred stock totaled 822,886,700.

5. Voting shares

SEC has 5,969,782,550 issued shares of common stock, which represents 23.9% of the total number of authorized shares of 25 billion (25,000,000,000). There are 822,886,700 issued shares of preferred stock with no voting rights and 598,055,773 shares of common stock with limited voting rights under relevant laws. Thus, the total number of shares with full voting rights is 5,371,726,777.

[As of June 30, 2019]

Classification	Share type	Number of shares	Note
Number of issued shares (A)	Common	5,969,782,550	-
	Preferred	822,886,700	-
Shares with no voting rights (B)	Common	-	-
Shares with no voting rights according to Articles of Incorporation (C)	Preferred	822,886,700	-
Shares with limited voting rights under relevant laws (D)	Common	596,959,200	Restricted by the Monopoly Regulation and Fair Trade Act: 508,157,148 shares held by Samsung Life Insurance & 88,802,052 shares held by Samsung Fire & Marine Insurance
	Common	1,096,573	Restricted by the Insurance Business Act: Shares held by Samsung Life Insurance in certain special accounts
Shares with voting rights (F = A - B - C - D)	Common	5,371,726,777	-
	Preferred	-	-

※ Pursuant to Korea's Monopoly Regulation and Fair Trade Act, shareholders with limited voting rights (D) can exercise certain rights in accordance with related laws, including the right to vote on agendas such as the appointment or dismissal of directors and revisions to the Articles of Incorporation.

6. Dividends

As a part of the Company's shareholder return policy, a portion of the profits have been returned to shareholders by way of dividends, etc. The Company carefully considers strategic investments for sustainable growth, business performance, and cash flows in determining the scale of cash dividends and other return activities.

Dividends paid in the three (3) most recent fiscal years are as follows:

Classification		1H19	2018	2017*
Par value per share (KRW)		100	100	5,000
Net profit (KRW mil)		10,172,020	43,890,877	41,344,569
EPS (KRW)		1,497	6,461	5,997
Total cash dividend (KRW mil)		4,809,210	9,619,243	5,826,302
Total stock dividend (KRW mil)		-	-	-
Dividend payout ratio (%)		47.3	21.9	14.1
Cash dividend yield (%)	Common	1.6	3.7	1.7
	Preferred	1.9	4.5	2.1
Stock dividend yield (%)	Common	-	-	-
	Preferred	-	-	-
Cash dividend per share (KRW)	Common	708	1,416	850
	Preferred	708	1,417	851
Stock dividend per share (share)	Common	-	-	-
	Preferred	-	-	-

※ Dividends in 2019 were KRW 2,404,605 million (KRW 354 per share) in the first quarter and KRW 2,404,605 million (KRW 354 per share) in the second quarter.

Dividends in 2018 were KRW 2,404,605 million (KRW 354 per share) in the first quarter, KRW 2,404,605 million (KRW 354 per share) in the second quarter, and KRW 2,404,605 million (KRW 354 per share) in the third quarter.

※ EPS denotes basic earnings per common share.

※ For further information relating to the calculation of basic EPS, see Earnings Per Share in 『2. Note to Consolidated Financial Statements』 in 『Ⅲ. Financial Affairs』.

※ SEC conducted a 50:1 stock split effective from May 3, 2018, lowering par value of every common and preferred share from KRW 5,000 to KRW 100. Information for 2017 is calculated on a post-split basis.

II. Businesses Overview

1. Overview

Note on forward-looking statements

This report includes forward-looking statements that relate to future events and can be generally identified by phrases containing words such as “believes,” “expects,” “anticipates,” “foresees,” “forecasts,” “estimates” or other words or phrases of similar meaning. These forward-looking statements are not guarantees of future performance and may involve known and unknown risks, uncertainties and other factors that may affect the Company’s actual results, performance, achievements or financial position, making them materially different from the actual future results, performance, achievements or financial position expressed or implied by these forward-looking statements.

Uncertain events that could positively or negatively affect the Company’s management condition and financial performance include:

- *Trends of financial markets domestically and abroad, including changes in exchange rates and interest rates*
- *The Company’s strategic decision making, including disposals and purchases of businesses*
- *Unexpected sudden changes in core businesses such as CE, IM, Semiconductor, DP, and Harman*
- *Other changes domestically and abroad that can affect management condition and financial performance*

The Company assumes no obligation to revise or update this report to reflect risks or uncertainties that arise after the reporting period.

A. Business overview, by division

In addition to our headquarters in Korea, Samsung Electronics is comprised of 252 subsidiaries across the world responsible for sales and production. There are nine (9) regional headquarters for CE and IM Divisions, five (5) regional headquarters for the DS Division, and Harman’s subsidiaries.

The Company’s business divisions are organized in a two-pronged framework consisting of set (brand products) and component businesses. The set business comprises the CE and IM Divisions, and the component business consists of the Semiconductor and DP Business Units. The CE Division is responsible for the production and sales of TVs, monitors, refrigerators, and washing machines; and the IM Division focuses on the production and sales of HHPs, which includes smartphones, as well as network systems, and computers. The DS Division comprises the Semiconductor business which manufactures and sells DRAMs, mobile APs, and other semiconductor-related products, and the DP Business, which manufactures and sells TFT-LCD and OLED panels for TVs, desktops, laptops, and mobile devices.

The Harman Division (acquired in 2017) manufactures and sells products such as Head units, infotainment systems, telematics, and speakers.

<Major products, by business division>

Business division		Major products
CE Division		TVs, monitors, refrigerators, washing machines, air conditioners, etc.
IM Division		HHPs, network systems, computers, etc.
DS Division	Semiconductor	DRAM, NAND Flash, Mobile AP, etc.
	DP	TFT-LCD, OLED, etc.
Harman Division		Head units, infotainment systems, telematics, speakers, etc.

The Company maintains its corporate headquarters and twenty-six (26) consolidated subsidiaries in Korea.

The Company's corporate headquarters is divided along Divisions and/or Businesses, which are situated in Suwon, Gumi, Giheung, Hwasung, Pyeongtaek, Gwangju, etc.. The Company's unlisted domestic subsidiaries include Samsung Display for display panel production, Samsung Electronics Sales for domestic retail sales, Samsung Electronics Service for after-sales services, and Samsung Electronics Logitech for logistics.

We have 226 overseas subsidiaries for product manufacturing, sales, and R&D, with locations in the US, Europe, Asia, and Africa.

We have 56 subsidiaries in North America, including SEA (New Jersey; responsible for the sales of set products including HHPs), SII (San Diego; manufacturing TVs), SAS (Austin; manufacturing semiconductor products), and Harman in the US.

In Europe, we operate 70 subsidiaries. These include SEUK (UK), SEF (France), SEG (Germany), SEI (Italy) for sales of set products; SESK (Slovakia) and SEH (Hungary) for manufacturing TVs, and SEPM (Poland) for manufacturing home appliances such as refrigerators.

We have 35 subsidiaries in Asia (excluding China), including SAPL (Singapore), SEAU (Australia), SEPCO (Philippines), and SME (Malaysia), which are responsible for regional sales. In addition, we operate numerous production sites including SEV and SEVT (Vietnam) for HHPs, SEHC (Vietnam) for TVs, and SIEL (India) for HHPs.

We operate 35 subsidiaries in China, including SCIC (Beijing) and SEHK (Hong Kong) for the sales of set products in those regions. We also operate manufacturing facilities for set products and back-end processes in regions including Huizhou (SEHZ), Xian (SCS), and Suzhou (SESS).

SEC also has 30 production and sales subsidiaries combined in Africa, the Middle East, and the CIS.

[CE Division]

□ Industry overview

Since the first public demonstration of a true television system in 1926 and later mass production of color TVs, technological developments have led to the creation of products such as the Trinitron CRT (1967) and flat CRT (1996). As the penetration rate in major countries reached over 90%, the CRT TV business stagnated. The industry regained strong growth momentum following the launch of flat panel TVs (“FPTVs”) like LCDs and PDPs, especially with the expansion of digital broadcasting (UK/US 1998~). FPTVs replaced CRT sets on the back of their enhanced design, picture quality, etc., combined with a sharp decline in prices.

The year 2010 saw the launch of 3D TVs, and the rise of internet video services along with increased consumer interest in smart devices from 2011 to 2012 led to the birth of the smart TV market. The UHD TV, an innovative product boasting significantly enhanced resolution and picture quality, launched in 2013 and a new form factor, the Curved TV, was released just a year later, followed by the commercialization of Quantum Dot TVs in 2015, indicating a constantly evolving TV market.

In 2017, overall TV demand was 215.1 million units. By product, LCD-TVs sold 210 million units, for a market share of over 99%. Demand for OLED TVs rose to 1.59 million units but the OLED TV portion of total sales was just 0.7%. In 2018, overall TV demand increased 2.9% compared to the previous year, hovering around 221 million units.

Also, based on rising demand for high-definition and large-sized products, UHD TV demand increased 26% year-on-year to 99.1 million units in 2018 to account for about 45% total TV demand. The market for large-sized TVs (60-inch and larger) is projected to hit around 19 million units, the total up 29% from the previous year; while the market for ultra large-sized TVs (75-inch and larger) is expected to grow more than 85% year-on-year on the back of our sales drive. Demand for QLED products in 2018 grew more than 40% year-on-year.

□ Market condition

The market trend toward large, high-resolution screens is accelerating due to intensified competition between manufacturers. Accordingly, market shares of major players with high-quality products and brand power are rising. In addition, as consumer demand for high-resolution screens and slim designs increase, LED TVs, with eco-friendly LED back light units (“BLU”)—which increase brightness, contrast, and energy efficiency—have become the mainstream in the market.

In 2015, as we saw a change in the delivery of content, we achieved an innovation in smart UX, enabling consumers to enjoy myriad content via TV. In 2016, we introduced smart TVs that automatically connect with other devices, allowing peripheral devices to be operated with a single remote control. Our Smart TVs enable consumers to more conveniently enjoy increasingly diverse entertainment services on one screen.

In 2017, we created an ecosystem and extended the connectivity of TVs to mobile devices, enabling easy use of the smart hub, control of the TV via mobile devices, and the ability to enjoy mobile phone contents on a TV screen, thus presenting a more integrated and consistent entertainment experience. In addition, users can take advantage of intelligent voice recognition technology to easily control the TV, including changing the volume, channels, or even the screen mode.

In 2018, as the market trend moves toward larger models, we addressed expanding demand by leading sales of the 75” and 82” ultra-large-sized TVs and introduced the Ambient Mode (‘Magic Screen Mode’ in Korea) to differentiate our Q series products. We also introduced Bixby-based voice solutions to multiple product lines to address market changes led by IoT and AI technologies. This has allowed us to provide a multi-device experience where users can enjoy various content and information across numerous devices.

Our QLED TVs provide outstanding features and are gaining high recognition from the market. We provide consumers with a wide range of size options from mid-sized to ultra-large models that boast even further improved picture quality compared to last year’s models.

The Q900, a QLED 8K TV, offers picture quality four times higher than UHD products do. Thanks to its built-in Quantum Processor 8K technology, the intelligent algorithm provides an optimal viewing experience by learning from the differences between low-definition and high-definition content.

This year we have bolstered our premium TV products by strengthening features of Ambient Mode and One Invisible Connection, aiming to satisfy customer needs for a lifestyle product that complements home décor.

We will continue to expand the premium market that caters to customer needs and a market trend toward bigger screens/higher definition by introducing our QLED 8K TVs globally.

In 2019, we will focus on securing customer loyalty by further improving key services introduced in 2018 and advancing ultra-high-definition technologies. We will also discover and develop new profitable business models based on contents we provide.

< Market Share of the CE Division’s main product >

Product	1H19	2018	2017
TV	29.2%	29.0%	26.5%

※ Global market share in revenue; data from research firm *IHS*; 1H19 data are Company estimates.

□ Business condition

We have maintained the top position in the overall TV market for thirteen straight years since 2006.

In 2009, we created the world’s first LED TV (LED BLU, ultra-slim/ultra-light, eco-friendly); and in the first quarter of 2010, we launched the world’s first 3D Total Solution offering a 3D TV, Blue-ray player, home theater, contents, and glasses in one package, taking the lead in the 3D TV market.

We launched Samsung Apps—the world’s first app store for smart TVs—in 2010 and added various smart services in 2011, consolidating Samsung status a leader in smart TVs. In 2012, we developed content that can be accessed via new input methods based on voice/gesture (Smart Interaction), thus improving services that every member of family can enjoy.

In 2013, we released UHD TVs, offering superior image quality and resolution compared to previous models. Also, by launching a new Curved TV form factor in 2014 and the first nano-crystal technology (also known as quantum dot) SUHD TV in 2015, we bolstered our leadership in the premium market. In 2016, by introducing second generation quantum dot and HDR 1000 technologies, we raised the bar for image quality even higher.

In 2017, the Company created a new category with QLED TVs, which offer 100% color volume and perfect color expression regardless of the level of brightness and show up to 2,000 nits, allowing viewers to realize the ultimate image quality of TVs. Furthermore, collaborating with renowned artists and galleries, we introduced The Frame TV, a product that transforms any living space into an aesthetically pleasing gallery. Through a concept called ‘Screen Everywhere’, we enable consumers to hang their TV anywhere.

In 2018, we aim to take the viewer experience to another level by improving image quality even further by increasing contrast ratio through our local dimming technology; allowing users to conveniently enjoy myriad content on TV; and improving connectivity via AI or IoT technologies.

Also, we have developed TVs that can blend perfectly into any living space. For instance, Ambient Mode displays information requested by users and blends seamlessly into the interior décor. Removing complicated wiring via one seemingly transparent optical cable is another example of our efforts.

In 2019, as the leading player in the market, we will continue to introduce innovative products—such as 8K ultra-definition QLED TVs that increase resolution fourfold from existing UHD standards—and expand the boundaries of TVs amid a stagnant market.

Our products are made knowing that each customer has their own unique tastes and preferences. We also kept millennials in mind in the development process, catering to their desire to tailor their living space to express themselves and their lifestyle.

The Frame and its innovative Art Mode enables users to liven up a room with art pieces or photographs when it is not in use. Celebrating its third year since launch, The Frame for 2019 utilizes a QLED display to produce vivid, high-resolution images, and its Magic Cable combines all cables into one simple cable, giving people more freedom to place their TV anywhere they please.

In 2016, we collaborated with world-renowned French brothers and furniture designers Ronan & Erwan Bouroullec to create The Serif, with aesthetic design as a top priority. In 2019, The Serif is available in 43-, 49-, and 55-inch models, an increase from the 24–40-inch models in previous years.

For a totally new experience, The Sero can be rotated 90 degrees from its standard position, enabling content to be shown in full screen in the same view as a mobile device. This innovation makes The Sero ideal for millennials who are accustomed to viewing content on their smartphone.

[IM Division]

□ Industry overview

In 2019, the penetration rate of mobile phones will reach 80%, slightly increasing from 79% in 2018 (*Strategy Analytics*, April 2018).

The mobile phone industry started with first generation analogue phones in the early 1980s and evolved to second generation digital ones, using technology such as CDMA and GSM, where users could send voice and text messages. Third generation mobile communication standards such as WCDMA allowed users to send photos and videos. Today, fourth generation LTE mobile communication technology with ultra-high-speed data transmission is becoming commonplace and is used in 78% of phones sold in 2018 (*Strategy Analytics*, May 2019). Fifth generation mobile communication services, which will lead innovation alongside the fourth industrial revolution, were successfully commercialized in Korea and the US and are expanding to Europe and Australia. Sales of 5G smart phones are projected to reach 6.5 million units in 2019 (*IDC*, June 2019).

The smartphone industry has grown significantly since 2007. In 2019, the smartphone portion of total HHPs is expected to reach 76%. The feature phone portion of the total remained flat at 24% led by demand markets in developing nations (*Strategy Analytics*, June 2019).

Also, as the smartphone market shows high saturation, the importance of competitive software and services—such as applications, UX, mobile payments, AI, and AR—is rising alongside that of competitive hardware, which includes high-performance APs, AMOLED displays, multiple cameras, sensors, and waterproof & dustproof features.

□ Market Condition

Smartphone shipments in 2019 are projected to decrease year-on-year to 1.37 billion units from 1.43 billion units due to market saturation and a longer replacement cycle attributed to a lack of differentiated features (*Strategy Analytics*, June 2019). Meanwhile, shipments of tablets are expected to remain flat at 170 million units as smartphones adopt larger screens and replacement decreases (*Strategy Analytics*, May 2019).

< Market share of the IM Division's main product >

Product	1H19	2018	2017
HHP	18.3%	17.4%	19.5%

※ Global market share in sales volume; data from research firm *Strategy Analytics*

□ Business condition

SEC has always been at forefront of the HHP market, and in particular, maintained leadership in the global market for smartphones since 2011. To solidify our status in the overall mobile market, we are striving to improve our current products—including tablets, wearables, and accessories—while growing businesses in areas with high potential, such as the service, online, and B2B sectors.

For smartphones, we are establishing optimal portfolios for each region, accounting for varying market conditions and offering a wide lineup ranging from mass-market to premium devices. We have been providing premium smartphones—namely the S and Note series—and delivering differentiated user experiences that can meet customer needs via our cutting-edge technology that includes large-screen AMOLED displays, Edge displays, Infinity Displays, triple cameras, the S-pen, water- and dust-proofing, high-speed and wireless charging, wireless power sharing, and ultrasonic fingerprint-on-display (FoD) among others. In 2019, we aim to lead market trends by stepping up in 5G with the release of the world's first 5G smartphone while also creating a new market through form factor innovations enabled by foldable displays.

To respond to an ever-changing market as well as customer needs, we are strengthening product competitiveness by introducing innovative features such as triple cameras, quad cameras, rotating cameras, and infinity displays even to mid-

range-and-below products.

We provide our smartphone users with a wider and more convenient experience via our other products, which include premium tablets (Galaxy Tab S), wearable devices (smart watch, Bluetooth earphone), and accessories (Samsung Dex).

Not content to dwell on our achievements in hardware, we have been focusing on delivering new and useful services like Samsung Pay, Samsung Health, Bixby, and SmartThings. The new and improved Bixby provides users with another way to increase convenience and personalize information and services.

To deliver a consistent and high-quality Multi-Device Experience, we are adding Bixby features to a suite of products, including TVs, refrigerators, air conditioners, etc., and also strengthening strategic partnerships to expand our ecosystem.

As always, we will continue to invest in any field that has growth potential, with current targets including but not limited to 5G, MEC, AI, IoT, cloud, AR, blockchain, and mobile B2B. Utilizing our superior R&D capabilities, we will keep enhancing consumer experiences and expanding our leadership in the global arena.

[DS Division]

- Semiconductor

□ Industry overview

In general, our Semiconductor business is divided into Memory (storage) and System LSI (logical processing). Memory semiconductor is divided into RAM products (ones that can be both written on and read) and ROM products (read only). RAM is called volatile memory as the information is deleted when the power is turned off. It is used for temporary loading and storage of application programs.

For System LSI products, there are many categories for various applications, with CPUs (central processing units) for PCs, mobile devices, and servers forming the largest market. System LSI products are used in myriad areas, such as household electronics, networks, and games. The Company manufactures mobile APs for smartphones and tablets, image sensors, and other customized products.

Growth in the semiconductor market is expected to be negatively impacted by slowing demand for mobile devices as the smartphone market slows and the tablet market contracts. The memory market, however, is projected to enjoy continuous growth, fueled by increasing shipments of high-density information storage devices. Also, we expect demand to grow rapidly in newly emerging areas such as IoT and automotive applications. Supply and demand volatility is expected to decrease as demand diversifies.

□ Market condition

In the DRAM market, demand weakened in 1H due to inventory adjustments mainly by data centers, but a recovery is expected in 2H thanks to the resulting base effect. Although external factors such as the US-China trade conflict and Japan's tightened export regulations add to uncertainty, we plan to expand our market share by gaining an early edge in the market for high-density memory for new CPUs and by addressing the ongoing trend of increasing memory per smartphone.

For NAND, demand has been increasing as new mobile devices offer more memory and solid state drives ("SSDs") are increasingly adopted on the back of growing cloud services whereas continued declines in ASP are expected to limit any increases in supply.

< Market share of the Semiconductor Business' main product >

Product	1H19	2018	2017
DRAM	44.1%	43.9%	45.8%

※ Global market share in revenue; data from research firm *DRAMeXchange*; 1H19 data are Company estimates.

□ Business condition

In 2019, the Company developed the 3rd Generation 10nm-class DRAM, a world's first, enabling us to secure a competitive position at least one year ahead of our competitors. Furthermore, the Company is increasing supply of HBM2, the second generation of high bandwidth memory, which supports AI or supercomputing. For NAND, the Company is mass producing both planar and vertical NAND and addressing customer demand in a timely manner. For V-NAND, in which we have achieved a technological advantage, we have expanded mass-production of 5th generation chips and adopted them in high-performance SSDs, increasing our presence in the premium market.

We aim to expand the memory market by launching Smart SSD solutions for big data processing, 2nd generation Z-SSD, and 4-bit server SSD, which boasts higher efficiency and reliability.

As the memory market is expected to keep growing, the Company will expand into differentiated products based on advanced processes and address each market segment with diverse product lineups to maintain its position as the market's No.1 memory maker.

Growth in the System LSI business is being driven mainly by mobile products, including smartphones and tablet PCs, and we are preparing for growth in new markets in IoT, wearables, and automotive applications. For SoCs, the mobile market is likely to struggle due to lengthening smartphone replacement cycles, while AI, automotive, and 5G markets are expected to grow.

For AP modem SoC chips, we provide not only high-performance products, but also low-end to mid-range products. We are leading the 5G market, backed by our development of the world's first multi-mode modem that supports 2G, 3G, 4G, and 5G networks.

The Foundry Business forms partnerships with major fabless companies based on its advanced manufacturing processes. The business has diversified its 8-inch offerings and, in 4Q16, started supplying 10nm products to mark an industry first. From the end of 2018, we started timely mass-production of 8nm products and in April 2019, began shipping mass-produced EUV 7nm chips, a next-generation innovation. The business is concentrating on R&D to lead advanced 7nm and lower process technology.

- DP

□ Industry overview

Display includes TFT-LCD (thin film transistor liquid crystal display) and OLED (organic light emitting diode) panels.

OLED panels use organic materials, which offer sharp contrast and color, high color gamut, and fast response rates. Such differentiating features provide advantages for use in smartphones where display features (multimedia contents, online experience, etc.) are important, and as a result, OLED adoption in the smartphone market is growing rapidly.

A TFT-LCD panel is a liquid crystal based display that features a thinner and lighter profile while offering high resolution. It has a wide range of potential applications in devices of all sizes and functionality, from portable mobile devices to large-size TVs featuring bright, high-resolution images. The market for large-panel TFT-LCD grew rapidly as their use moved from laptops initially to monitors and then to TVs. Recently however, high saturation has caused growth to slow.

The TFT-LCD and OLED businesses have high entry-barriers as they are capital intensive and require large-scale production to realize economies of scale. These types of businesses are generally sensitive to business fluctuations, so even if demand continuously rises, supply and demand dynamics tend to change regularly due to competitive investments in facilities by producers. As such, when production capacity sharply increases, the average selling price ("ASP") of panels may decrease. In contrast, when supply cannot meet increasing demand, ASP may increase.

□ Market condition

The Company has not only led the large-sized TFT-LCD market, but also maintained unrivalled share in the mid to small-sized OLED market since 2007 when it successfully commercialized the world's first OLED product.

We expect sales of mid to small-sized OLED panels to increase in 2H19 based on our differentiated products. For large, LCD panels, we expect stable growth in the premium market for ultra-high-definition, ultra-large products. Meanwhile, the market may become increasingly unstable due to international affairs and rising capacity in the industry.

< Market Share of the DP Business's main product >

Product	1H19	2018	2017
Display panels	10.0%	12.3%	14.8%

※ Global market share in revenue; data from research firm *IHS*.

□ Business condition

In 2Q19, sales in the mid- to small-sized OLED panel business grew based on our differentiated products such as ultrasonic FoD and Hole-in-Display technology. In 2H19, we plan to focus on profitability by strengthening our customer base, adding even more value to our panels, and bolstering production efficiency.

For the large-sized LCD panel business, we increased the sales portion of premium products such as ultra-high-definition and ultra-large-sized TVs and curved monitors. Meanwhile, even though prices continued to decrease, revenue for the business rebounded slightly thanks to improvements in cost competitiveness. In 2H19, we plan to focus on supplying premium models, including 8K and ultra-large-sized TVs, while also striving to enhance profitability by strengthening our non-TV business, which includes curved monitors.

[Harman Division]

□ Industry overview

In 2019, global automobile production remained flat year-on-year. It is expected to increase 1–3% annually by 2021 (*LMC Global Production Projection*, February 2019).

In the automotive industry, demand for connectivity and entertainment systems has been rising in the past few years, and we expect it to keep rising as automakers seek to stay at the forefront of technology, particularly with the dual trends of autonomous vehicles and shared mobility shaping the industry.

The audio industry (eg, connected homes, headphones, smart audio, etc.) is projected to grow 6% annually for consumer audio until 2022 (*Futuresource*, March 2019). The professional audio market grew around 5–6% annually over the last five years (*AVIXA, Futuresource, Global Info & Arizton*, June 2019).

Technological innovations (particularly in the connected home and smart audio spaces) have been a driving force behind a considerable hike in demand. We anticipate that this growth will continue as technology continues to advance amid a growing global economy.

□ Market condition

The automotive and professional/consumer audio markets are highly competitive and growing rapidly.

In the connected car industry, there are numerous companies—eg., Alpine, Aptiv, Continental, Mitsubishi, and Panasonic—that are cooperating with automotive manufacturers. Competition is expected to remain fierce between dominant players and new entrants as consumers expect car makers to deliver the latest technology, including autonomous driving.

Car audio systems is another segment where several major players (eg., Bose, Pioneer, and Panasonic) are competing fiercely, which is expected to drive technological advances as each player introduces unique sound-management solutions.

The consumer audio market is rather fragmented and a handful of companies (Amazon, Beats, Bose, Ultimate Ears, etc.) are showing early signs of dominance. We expect competition to remain intense as new players try to make inroads, given the saturated market for connected homes and smart speakers.

The professional audio market, led by QSC and Yamaha, is segmented by product and has seen the entrance of numerous companies offering a wide range of products and applications. We expect competition to keep intensifying as connected homes and smart speakers gain popularity and on the entrance of new players from other industries such as the service sector.

< Market Share of Harman Business’s Main Product >

Product	1H19	2018	2017
Head units	23.8%	18.8%	25.4%

※ Head unit refers to a separate product besides display audio, telematics, and backseat organizers.

※ Company estimates based on *IHS* and *LMC* data.

□ **Business condition**

Harman is focused on continuing its strong performance in the automotive and professional/consumer audio markets. To attain this, it will continue to seek growth through innovation, M&A activities, and sales of its globally renowned brands.

Harman is positioned to stay atop the automotive market and plans to continue to leverage its wide variety of brands to outfit vehicles ranging from mass-market thorough to luxury models, while also maintaining the quality that is synonymous with Harman brands. Additionally, Harman’s relentless pursuit of innovation in the audio and connectivity spaces will help ensure the development of thriving relationships with automakers.

Additionally, Harman has continued to develop its Connected Services business with industry leading OTA (Over the Air) and software servicing products.

The same factors that Harman relies on within the automotive market will also be used in the professional/consumer audio market. Having won three Grammy Awards and two Academy Awards, Harman’s brands have earned a strong reputation amongst everyday consumers and audiophiles alike. New offerings in up-and-coming segments such as connected wireless and smart audio continue to help bring in new consumers and further enhance brand reputation. Through these and other efforts, the Company is confident that Harman will maintain its role as a preeminent player in all areas of its business.

B. Financial Summary, by Division

(KRW 100 mil)

Division	Classification	1H19		2018		2017		
		Amount	Portion of corresponding total	Amount	Portion of corresponding total	Amount	Portion of corresponding total	
CE	Sales	477,035	18.8%	951,876	16.9%	1,020,430	18.2%	
	Internal	265,946	18.4%	530,802	16.6%	574,416	17.8%	
	Net	211,089	19.5%	421,074	17.3%	446,013	18.6%	
	Operating profit	12,534	9.8%	20,232	3.4%	18,020	3.4%	
	Total asset	504,185	10.1%	473,545	10.0%	453,014	10.0%	
IM	Sales	1,121,173	44.2%	2,148,844	38.2%	2,260,042	40.2%	
	Internal	590,566	40.8%	1,142,067	35.8%	1,193,358	37.0%	
	Net	530,607	48.9%	1,006,777	41.3%	1,066,683	44.5%	
	Operating profit	38,353	29.9%	101,720	17.3%	118,273	22.0%	
	Total asset	1,257,796	25.3%	1,243,340	26.2%	1,114,418	24.5%	
DS	Semi-conductor	Sales	568,643	22.4%	1,657,625	29.4%	1,418,200	25.2%
		Internal	263,042	18.2%	794,715	24.9%	675,644	21.0%
		Net	305,601	28.2%	862,910	35.4%	742,556	31.0%
		Operating profit	75,206	58.6%	445,739	75.7%	352,041	65.6%
		Total asset	1,508,385	30.3%	1,515,782	31.9%	1,316,593	29.0%
	DP	Sales	285,441	11.3%	693,495	12.3%	721,087	12.8%
		Internal	147,981	10.2%	368,844	11.6%	376,434	11.7%
		Net	137,460	12.7%	324,650	13.3%	344,654	14.4%
		Operating profit	1,874	1.5%	26,198	4.4%	53,984	10.1%
		Total asset	625,862	12.6%	641,543	13.5%	698,544	15.4%
	Total DS	Sales	866,386	34.2%	2,395,650	42.6%	2,187,817	38.9%
		Internal	424,919	29.3%	1,209,994	37.9%	1,106,142	34.3%
		Net	441,467	40.7%	1,185,656	48.6%	1,081,675	45.1%
		Operating profit	76,831	59.9%	465,164	79.0%	403,279	75.2%
		Total asset	2,412,047	48.5%	2,425,593	51.1%	2,272,502	50.0%
Harman	Sales	55,502	2.2%	109,711	1.9%	91,718	1.6%	
	Internal	8,376	0.6%	21,274	0.7%	20,692	0.6%	
	Net	47,126	4.3%	88,437	3.6%	71,026	3.0%	
	Operating profit	1,004	0.8%	1,617	0.3%	574	0.1%	
	Total asset	156,972	3.2%	150,599	3.2%	146,767	3.2%	

※ Sales for each business unit includes intersegment sales.

※ For Harman, the financial information is consolidated after the date of acquisition in 2017.

By Division, CE reported net sales of KRW 21,108.9 billion (19.5% of total net sales) and IM reported net sales of KRW 53,060.7 billion (48.9%). The DS Division contributed approximately 40.7% of net sales: KRW 30,560.1 billion (28.2%) by the Semiconductor Sub-Division and KRW 13,746.0 billion (12.7%) by the DP Business Unit. The Harman Division reported net sales of KRW 4,712.6 billion (4.3%).

The CE Division accounted for 9.8% of cumulative operating profit with KRW 1,253.4 billion; the IM Division accounted for 29.9% with KRW 3,835.3 billion; and the DS Division accounted for 59.9% with KRW 7,683.1 billion. The Harman Division posted an operating profit of KRW 100.4 billion.

Reasonable allocation of common SG&A (selling general & administrative) expenses and assets

(1) For common SG&A expenses, specific expenses that are allocable to a specific product/model are allocated to such product/model. However, common expenses that cannot be attributed to a specific product/model category are reasonably allocated throughout the Company based on an allocation standard (expense-to-sales ratio, number of personnel, etc.).

(2) For common assets, assets that can be directly allocated (inventory assets, fixed assets, investment assets, etc.) are allocated to the corresponding organizational unit. Assets that are commonly managed and cannot be directly allocated are allocated to each Division based on an allocation standard (expense-to-sales ratio, pre-tax profit, etc.).

2. Key products and services

A. Revenue

In the first half of 2019, the CE Division's revenue of KRW 21,108.9 billion accounted for 19.5% of the total net revenue; the IM Division accounted for 48.9% with KRW 53,060.7 billion; and the DS Division accounted for 40.7% with KRW 44,146.7 billion. The Harman division accounted for 4.3% with KRW 4,712.6 billion.

The Company's net revenue by Division as of June 30, 2019 is as follows:

(KRW 100 mil)

Division	Major products	Net revenue	Portion	
CE	TVs, monitors, refrigerators, washing machines, air conditioners, etc.	211,089	19.5%	
IM	HHPs, network systems, computers, etc.	530,607	48.9%	
DS	Semiconductor	DRAM, NAND flash, mobile APs, etc.	305,601	28.2%
	DP	TFT-LCD panels, OLED panels, etc.	137,460	12.7%
	DS total		441,467	40.7%
Harman	Head units, infotainment systems, telematics, speakers, etc.	47,126	4.3%	
Others	-	-145,162	-13.4%	
Total		1,085,127	100.0%	

※ Includes sales between Divisions (on consolidated basis).

☞ See 『5. Sales and distribution』 for sales by each product.

B. Average selling price changes

In the first half of 2019 on a year-on-year basis, the ASP of TVs and HHPs decreased 1.3% and 7.9%, respectively. The ASP of memory products decreased 60% year-on-year whereas the ASP of display panels and head units decreased 16.5% and 13.0%, respectively.

3. Key production materials

(On consolidated basis as of Jun 30, 2019)

(KRW 100 mil)

Division	Item	Specific usage	Purchase price	Portion	Note (supplier)
CE	Display panel	Color picture signaler	11,395	11.7%	BOE, AUO, etc.
	Others		85,981	88.3%	
	Division total		97,376	100.0%	
IM	Camera module	Mobile phone camera	32,868	17.4%	Semco, Power Logics, etc.
	Mobile display panel	Color picture signaler	15,196	8.0%	BOE, China Star Optoelectronics, etc.
	Base band chip	CPU	14,864	7.9%	Qualcomm, Spreadtrum, etc.
	Others		126,110	66.7%	
	Division total		189,038	100.0%	
DS	Wafer	Semiconductor disk	9,317	9.3%	SUMCO, GW etc.
	Window	Tempered glass	7,443	7.5%	Biel, Lens, etc.
	FPCA	Circuit	7,183	7.2%	Union, NPD etc.
	POL	Polarizer plate	7,032	7.0%	Samsung SDI, Dongwoo Fine-Chem, etc.
	Chemical	Disk processing	6,359	6.4%	Dongwoo Fine-Chem, etc.
	Glass	Glass plate for display panel	4,705	4.7%	Corning Precision Materials, etc.
	Others		57,742	57.9%	
	Division Total		99,781	100.0%	
Harman	System-on-chip	Chips for vehicles	2,319	24.3%	Nvidia, Renesas, etc.
	Automotive memory chip	Chips for vehicles	2,138	22.4%	Avnet, Microchip, etc.
	Others		5,095	53.3%	
	Division total		9,552	100.0%	
Division total			185	-	
Total			395,932	-	

※ Includes sales between Divisions (on consolidated basis)

※ Semco and Samsung SDI are subsidiaries.

For the CE Division, key materials include display panel modules for TVs and monitors, which are supplied by BOE. For the IM Division, key materials include display panels, camera modules and baseband chips for mobile devices, which are supplied by Semco, BOE, and Qualcomm.

For the DS Division, key materials include wafers, windows, FPCAs, polarizers (“POL”), chemicals, and glass, with suppliers including SUMCO, Biel, Union, Samsung SDI, Dongwoo Fine-Chem, Corning Precision Materials, etc.

For the Harman division, key materials include SoC (system-on-chip) products and memory products for in-vehicle solutions, which are supplied by Nvidia, Avnet, etc.

(Production material price trends)

The price of TV and monitor display panels, which are the major production materials for the CE Division, declined 16% on average since 2018. For the IM Division, since 2018, the price of camera modules, base band chips, and mobile display panels increased approximately 41%, 3%, and 19%, respectively. For the DS Division, the price of wafers for semiconductor disks increased about 14% year-on-year and windows for tempered glass increased 6%. The price of FPCAs remained flat year-on-year; and the price of POL for polarizing plates decreased approximately 14% compared to 2018. For the Harman division, the prices of memory for vehicles and SoC products have decreased by about 10% and 4% respectively, compared to levels in the previous year.

4. Production and facilities

A. Production capacity, output, utilization rate

(Capacity)

(1,000 units)

Division	Item	Capacity		
		1H19	2018	2017
CE	TV	17,555	40,158	44,639
IM	HHP	179,470	397,497	415,200
DS	Memory	426,721,000	711,023,000	530,590,000
	Display panel	4,539	9,167	8,723
Harman	Head units	3,725	5,238	5,483

※ Global production capacity for major product categories

※ For Harman, the financial information was consolidated after the date of acquisition in 2017.

The CE and IM Divisions' production capacity, by major product, is calculated as follows:

the average number of lines (x) the average output per hour (x) the average operation hours per day (x) the days of operation

Memory production capacity for the DS Division is calculated as follows:

converted output (1GB equivalent) ÷ the utilization rate

Display panel production capacity is calculated as follows:

The total producible panel surface area ÷ the dimensions of eighth generation glass (2200x2500mm)

Harman's production capacity for Head units is calculated as follows:

the number of production (assembly and test) cells for each customer/product (x) the average production capacity per hour by production cell (x) the average operation hours per day (x) the days of operation

(Output)

(1,000 units)

Division	Item	Output		
		1H19	2018	2017
CE	TV	16,846	37,217	39,450
IM	HHP	170,061	346,605	393,693
DS	Memory	426,721,000	711,023,000	530,590,000
	Display panel	3,622	7,599	7,798
Harman	Head units	3,141	3,906	4,221

※ Global output for major product categories

※ For Harman, the financial information was consolidated after the date of acquisition in 2017.

In the first half of 2019, the CE Division's output of TVs was 16,846 thousand units (major production sites: China, Mexico, Brazil, and Hungary). The IM Division's output of HHPs was 170,061 thousand units (major production sites: Korea, China, Vietnam, and Brazil). The DS Division's memory output (1GB equivalent) was 426,721 million (major production sites: Korea and China). The DS Division's output of display panels was 3,622 thousand units (major production sites: Korea, China). The Harman Division's output was 3,141 thousand units.

(Utilization rate)

(1,000 units)

Division	Item	1H19		Utilization rate
		Production capacity	Output	
CE	TV	17,555	16,846	96.0%
IM	HHP	179,470	170,061	94.8%

In the first half of 2019, CE and IM utilization rates were calculated as actual output relative to production capacity. The utilization rates were 96.0% for TVs and 94.8% for HHPs.

(Hours)

Division	Item	1H19		Utilization rate
		Potential production time	Actual production time	
DS	Memory	34,752	34,752	100.0%
	Display Panel	34,752	34,752	100.0%

The DS Division operates memory and display panel production in three shifts (24 hours a day). Cumulative operating days in the first half of 2019 including holidays were 181 days. The utilization rate was calculated as actual hours [181 days (x) number of production lines (x) 24 hours] relative to production capacity.

(1,000 units)

Division	Item	1H19		Utilization rate
		Production capacity	Output	
Harman	Head units	3,725	3,141	84.3%

In the first half of 2019, Harman's utilization rate was 84.3% and was calculated as actual output relative to production capacity.

B. Production facilities and investment

(1) Key facilities for production and operation

The Company's operational activities include manufacturing, development, marketing, and sales in Korea—operations in Suwon, Gumi, Giheung, Onyang, Gwangju, 9 regional headquarters under the CE and IM Divisions, 5 under the DS Division in North America, Europe, and China, and Harman's subsidiaries.

[Operations]

Region	Operations	Location
Korea (12)	Seocho	Seoul
	Woomyeon	Seoul
	Suwon	Suwon
	Gumi1	Gumi
	Gumi2	Gumi
	Giheung	Yongin
	Onyang	Asan
	Hwaseong	Hwaseong
	Pyeongtaek	Pyeongtaek
	Gwangju	Gwangju
	Cheonan	Cheonan
	Asan	Asan
Overseas (CE and IM Divisions - nine regional headquarters)	North America	New Jersey, US
	Europe	London, UK
	China	Beijing, China
	Southeast Asia	Singapore, Singapore
	Southwest Asia	New Delhi, India
	CIS	Moscow, Russia
	Middle East	Dubai, UAE
	Africa	Johannesburg, Republic of South Africa
	Latin America	Sao Paulo, Brazil
Overseas (DS Division - five regional headquarters)	Americas	San Jose, US
	Europe	Eschborn, Germany
	China	Shanghai, China
	Southeast Asia	Singapore, Singapore
	Japan	Tokyo, Japan
Harman	North America HQ	Connecticut, US

※ Harman's Connected Car business is mainly based in the US (Novi, MI), and its Lifestyle Audio business is located in Germany (Garching). Its Professional Solutions business operates mainly in the US (Northridge, CA), and Connected Services business is based in US (Mountain View, CA).

The Company's property, plant and equipment include land, buildings and structures, machinery and equipment, and construction in progress. As of June 30, 2019, their total book value was KRW 116,624.2 billion, which is an increase of KRW 1,207.5 billion from year-end 2018.

(KRW mil)

Classification		Land	Buildings and structures	Machinery and equipment	Construction in -progress	Other tangible assets	Total
Jan 1, 2019	Book value	93,463	293,459	638,162	97,051	32,032	1,154,167
	Acquisition cost	93,463	450,338	2,064,079	97,051	86,651	2,791,582
	Accumulated depreciation (including accumulated impairment loss)	-	-156,879	-1,425,917	-	-54,619	-1,637,415
Change	General acquisition and capital expenditure	492	6,637	48,603	53,372	3,112	112,216
	Acquisition from business combination	-	152	3,784	43	14	3,993
	Depreciation	-	-13,105	-115,546	-	-6,160	-134,811
	Disposal/discard/impairment	-343	-2,616	-1,474	-57	-275	-4,765
	Others	3,334	22,459	4,964	-1,826	6,511	35,442
Jun 30, 2019	Book value	96,946	306,986	578,493	148,583	35,234	1,166,242
	Acquisition cost	96,946	478,237	2,098,248	148,583	95,727	2,917,741
	Accumulated depreciation (including accumulated impairment loss)	-	-171,251	-1,519,755	-	-60,493	-1,751,499

※ Other tangible assets include effects of changes in accounting methods, FX rates, and government subsidies.

※ Market value of major tangible assets is omitted as objective assessment is difficult.

※ On a consolidated basis

(2) Capex

The Company's capex in 1H19 was KRW 10.7 trillion, which included upgrading production lines of the Semiconductor and DP Businesses. We are utilizing a flexible capital expenditure strategy according to changes in market conditions and will continue to make investments to respond to mid-to-long term demand.

[Capex, by division]

(KRW 100 mil)

Business	Purpose	Period	Assets	Investment
Semiconductor	Establishment, addition, upgrade	January–June 2019	Buildings, facilities	88,246
DP	Establishment, addition, upgrade	January–June 2019	Buildings, facilities	8,029
Other	Establishment, addition, upgrade	January–June 2019	Buildings, facilities	10,839
Total				107,114

5. Sales and distribution

A. Sales

In the first half of 2019, the Company recorded KRW 108,512.7 billion of total revenue, a decrease of 8.8% compared to the same period in the previous year. By Division, when compared to the previous year, revenue of the CE Division, IM Division, and Harman Division increased by 4.8%, 1.2%, and 15.6%, respectively, while that of the DS Division decreased 21.2%.

(KRW 100 mil)

Division	Sales types	Product categories	1H19	2018	2017
CE	Goods, products, services, other	TVs, monitors, refrigerators, washing machines, air conditioners, etc.	211,089	421,074	446,013
IM	Goods, products, services, other	HHPs, Network systems, computers, etc.	530,607	1,006,777	1,066,683
DS	Semiconductor	Goods, products, services, other	305,601	862,910	742,556
	DP	Goods, products, services, other	137,460	324,650	344,654
	DS total		441,467	1,185,656	1,081,675
Harman	Goods, products, services, other	Head units, infotainment systems, telematics, speakers, etc.	47,126	88,437	71,026
Others	Other revenue	-	-145,162	-264,230	-269,643
Total			1,085,127	2,437,714	2,395,754

※ Includes sales between Divisions on a consolidated basis

※ For Harman, the financial information is consolidated after the date of acquisition in 2017.

□ Sales, by major product (on a consolidated basis)

(KRW 100 mil)

Classification	1H19	2018	2017
Image devices	118,333	252,939	275,154
Mobile devices	501,873	965,194	1,036,218
Memory	237,688	723,753	603,036
Display panels	137,460	324,650	344,654

※ Including sales between Divisions on a consolidated basis.

□ Sales, by type

(KRW 100 mil)

Classification	1H19	2018	2017
Products	1,025,611	2,380,547	2,368,198
Services and other sales	59,516	57,167	27,556
Total	1,085,127	2,437,714	2,395,754

※ Other sales consists of royalty income and etc.

□ Sales, by region (on a separate basis)

(KRW 100 mil)

Classification	1H19	2018	2017
Domestic	105,220	168,213	165,684
Americas	212,328	464,124	488,864
Europe	89,066	192,783	189,464
Asia and Africa	167,128	330,903	317,661
China	178,139	547,796	457,477
Total	751,881	1,703,819	1,619,150

B. Sales channels

□ Domestic

Seller	Sales channel	Consumer
Manufacturer and buyer	Exclusive agencies	Consumer
	Distributor (general merchandise stores, discount stores, department stores, home-shopping, internet, etc.)	
	Telecommunication service provider (SKT, KT, LG U+)	
	B2B and online channels	

□ Overseas

Seller	Sales channel	Consumer		
Production subsidiaries	Regional sales office	Retailer		
		Dealer	Retailer	
		Distributor	Dealer	Retailer
		Telecommunication service provider, automotive OEM		
	Regional distribution office	Regional sales office	Retailer	
		Dealer	Retailer	
		Distributor	Dealer	Retailer
Direct sales				

□ Sales ratio (global), by Channel

Channel	Wholesale	Retail	Special/direct sales	Others
Ratio	21%	27%	45%	7%

C. Sales methods and conditions

Domestic

Classification	Channel	Collection	Incidental expense sharing
Exclusive	Retailer	Credit agreement (cash, 30 day credit) (credit applied within 100% of collateral)	Case specific cost sharing as determined by mutual agreement
Distributor	General merchandise store, discount store, department store, home shopping, internet, etc.	Case specific and contract specific	Case specific cost sharing as determined by mutual agreement
Telecommunication service provider	SKT, KT, LG U+	Case specific and contract specific	N/A
B2B and online channels	Corporate clients, etc.	Case specific and contract specific	N/A

Overseas

Classification	Channel	Collection	Incidental expense sharing
Retailer	Retail store	Case specific and contract specific	Case specific cost sharing as determined by mutual agreement
Dealer	General merchandise store, discount store, department store	Case specific and contract specific	Case specific cost sharing as determined by mutual agreement
Distributor	Direct sales to local distributors	Case specific and contract specific	Case specific cost sharing as determined by mutual agreement
B2B	Corporate clients, etc.	Case specific and contract specific	N/A

D. Sales strategy

- Expand market leadership based on premium products such as smart devices
- Provide differentiated value to customers through brand, products, and services
- Strengthen marketing activities to boost demand from customer/market

E. Major customers

In the first half of 2019, major customers included Apple, BestBuy, Deutsche Telekom, Huawei, and Verizon (in alphabetical order). Sales to our five major customers accounted for approximately 11% of total sales.

6. Long-term contracts

As of June 30, 2019, there were no long-term contracts that have a significant impact on the Company's financial statement.

7. Financial risk management

The Company's financial risk management focuses on minimizing market risk, credit risk, and liquidity risk arising from operating activities. To mitigate these risks, the Company closely monitors each risk factor and has in place corresponding financial risk management policies and a financial risk management program. The Company's use of derivative instruments for hedging specific risks are included in this program.

The finance team mainly carries out the Company's financial risk management. The finance team implements the global financial risk management policies, and periodically measures, evaluates and hedges financial risks.

The Company manages global financial risks by operating local finance centers within each major region (the United States, United Kingdom, Singapore, China, Brazil and Russia).

The Company's assets that are under financial risk management are comprised of cash and cash equivalents, short-term financial instruments, financial assets at amortized cost, trade receivables and others. The Company's liabilities under financial risk management are comprised of trade payables, borrowings and others.

A. Market risk

(1) Foreign Exchange Risk

The Company operates internationally and is exposed to foreign exchange risks as it conducts transactions in currencies other than the functional currency of each entity. Major currencies that are exposed to foreign exchange risk include USD, EUR, JPY and INR.

The Company focuses on minimizing the impact from foreign exchange fluctuation by maintaining equal amounts of assets and liabilities denominated in foreign currency, irrespective of foreign exchange fluctuation considerations. To prevent foreign exchange exposure, the Company's foreign exchange management policy requires normal business transactions, including import and export, as well as financing transactions such as depositing and borrowing, to be in local currency or for the cash-in currency to be matched with the cash-out currency.

Additionally, in order to effectively manage foreign exchange risk, the Company prohibits foreign exchange transactions, with the exception of transactions made for hedging purposes, and periodically monitors and evaluates exchange risk.

(2) Price risk

The Company's investment portfolio consists of direct and indirect investments in equity instruments classified as financial assets at fair value through other comprehensive income and financial assets at fair value through profit or loss, which is in line with the Company's strategy.

As of June 30, 2019 and December 31, 2018, a price fluctuation in relation to equity instruments (listed shares) by 1% would result in changes in other comprehensive income (before income tax) of ₩ 35,082 million and ₩ 28,947 million, respectively.

(3) Interest rate risk

Risk of changes in interest rates for floating interest rate financial instruments is defined as the risk that the fair value of components of the statement of financial position, and future cash flows of interest income (expenses) of a financial instrument, will fluctuate because of changes in market interest rates. The Company's position with regard to interest rate risk exposure is mainly driven by its floating interest rate debt obligations and interest-bearing deposits. The Company implemented policies and operates to minimize uncertainty arising from changes in interest rates and financial expenses.

The Company maintains minimum external borrowings by facilitating cash pooling systems on a regional and global basis to limit its exposure to the interest rate risk. The Company manages exposed interest rate risk via periodic monitoring and handling risk factors on a timely basis.

B. Credit risk

Credit risk arises during the normal course of transactions and investing activities where clients or counterparties fail to discharge an obligation. The Company sets and manages the client's and counterparty's credit limit, and evaluates their financial credit rating on a periodic basis based on the client's and counterparty's financial conditions, default history and other important factors. Adequate insurance coverage is maintained for trade receivables related to trading partners situated in higher risk countries.

Credit risk can arise from transactions with financial institutions which include financial instrument transactions such as cash and cash equivalents, deposits, and derivative instruments. To minimize such risk, the Company transacts only with banks which have strong international credit rating (S&P A and above), and all new transactions with financial institutions with no prior transaction history are approved, managed and monitored by the Company's finance team and the local finance center. The Company generally enters into a financial agreement with no restrictions, such as debt ratio covenants, provision of collateral and/or repayment of loans/ borrowings. The Company requires separate approval for contracts with restrictions.

As of June 30, 2019 and December 31, 2018, the Company estimates that its maximum exposure to credit risk is the carrying amount of its financial assets, net of impairment losses.

C. Liquidity risk

Due to the nature of the Company's business that requires making large investments, maintaining adequate level of liquidity risk is crucial. The Company maintains and manages adequate level of liquidity by periodically forecasting its capital balances, estimating required cash and managing income and expenses.

The Company manages its liquidity risk in advance by periodically forecasting projected cash flows. When abnormalities are identified, the Company cooperates with the local finance center to provide liquidity support by utilizing a globally integrated finance structure including Cash Pooling. Also, the Company maintains a liquidity management process that provides additional financial support by the local finance center and the Company. The Cash Pooling program allows sharing of surplus funds among entities and contributes to minimizing liquidity risk and strengthening the Company's competitive position by reducing capital operation expenses and financial expenses.

In addition, the Company mitigates liquidity risk by contracting with financial institutions with respect to foreign trade finance and others, and by providing payment guarantees to subsidiaries to secure required credit limit. For large scale facility investments, liquidity risk is minimized by utilizing internal reserves and long term borrowings according to the capital injection schedule.

D. Capital risk management

The purpose of capital management is to maintain a sound capital structure. The Company monitors capital on the basis of the ratio of total liabilities to total equity. This ratio is calculated by dividing total liabilities by total equity in the consolidated financial statements.

The Company's capital risk management policy has not changed since the previous fiscal year. The Company has maintained "AA-" and "Aa3" credit ratings from S&P and Moody's, respectively.

The total liabilities to equity ratio as of June 30, 2019 and December 31, 2018 were as follows:

	(KRW mil)	
	Jun 30, 2019	Dec 31, 2018
Total liabilities	85,193,101	91,604,067
Total equity	257,747,033	247,753,177
Total liabilities to equity ratio	33.1%	37.0%

E. Fair value measurement

- Carrying amounts and fair values of financial instruments by category as of June 30, 2019 and December 31, 2018 were as follows:

(KRW mil)

Classification	Jun 30, 2019		Dec 31, 2018	
	Carrying amount	Fair value	Carrying amount	Fair value
Financial assets				
Cash and cash equivalents	27,531,931	(1)	30,340,505	(1)
Short-term financial instruments	60,705,062	(1)	65,893,797	(1)
Short-term financial assets at amortized cost	3,646,364	(1)	2,703,693	(1)
Short-term financial assets at fair value through profit or loss	1,687,030	1,687,030	2,001,948	2,001,948
Trade receivables	36,061,645	(1)	33,867,733	(1)
Financial assets at amortized cost	910,299	(1)	238,309	(1)
Financial asset at fair value through other comprehensive income	8,466,918	8,466,918	7,301,351	7,301,351
Financial assets at fair value through profit or loss	837,424	837,424	775,427	775,427
Other ⁽²⁾	11,705,704	62,389	9,313,133	84,089
Total financial assets	151,552,377		152,435,896	
Financial liabilities				
Trade payables	9,073,058	(1)	8,479,916	(1)
Short-term borrowings	11,824,171	(1)	13,586,660	(1)
Other payables	9,298,473	(1)	9,779,287	(1)
Current portion of long-term borrowings ⁽³⁾	741,623	(1)	33,386	(1)
Debentures	989,817	1,038,123	961,972	964,182
Long-term borrowings ⁽³⁾	1,908,663	(1)	85,085	(1)
Long-term other payables ⁽²⁾	2,151,758	2,314	2,860,002	13,417
Other ⁽²⁾	8,177,935	48,444	8,832,523	42,723
Total financial liabilities	44,165,498		44,618,831	

¹ Assets and liabilities whose carrying amount is reasonable approximations of their fair value are excluded from the fair value disclosures.

² Asset measured at cost of KRW 11,643,315 million (December 31, 2018: KRW 9,229,044 million) and liabilities measured at cost of KRW 10,278,935 million (December 31, 2018: KRW 11,636,385 million) are excluded as the carrying amount is a reasonable approximation of fair value.

³ Lease debt from the current portion of long-term borrowings and long-term borrowings are excluded in accordance with K-IFRS 1107.

- The following table presents the fair value of assets and liabilities, by level (as defined below), measured as of the dates indicated:

(KRW mil)	As of Jun 30, 2019			Total balance
	Level 1	Level 2	Level 3	
Assets				
Financial assets at fair value through other comprehensive income	3,479,245	-	4,987,673	8,466,918
Financial assets at fair value through profit or loss	28,939	12,256	2,483,259	2,524,454
Other	-	62,389	-	62,389
Liabilities				
Debentures	-	1,038,123	-	1,038,123
Long-term other payables	-	-	2,314	2,314
Other	-	48,000	444	48,444

(KRW mil)	As of Dec 31, 2018			Total balance
	Level 1	Level 2	Level 3	
Assets				
Short-term available-for-sale financial assets	2,884,633	-	4,416,718	7,301,351
Long-term available-for-sale financial assets	10,124	18,503	2,748,747	2,777,375
Other	-	84,089	-	84,089
Liabilities				
Debentures	-	964,182	-	964,182
Long-term other payables	-	-	13,417	13,417
Other	-	41,639	1,085	42,723

The levels of the fair value hierarchy (based on characteristics of the input variables) and its application to financial assets and liabilities are described below.

- Level 1: Quoted market prices (unadjusted) for identical assets or liabilities
- Level 2: Fair valuation based on inputs that are observable in the market
(Other than quoted prices included within Level 1)
- Level 3: Fair valuation based on inputs that are unobservable in the market

The fair value of financial instruments traded in active markets is based on quoted market prices at the statement of financial position date. A market is regarded as active if quoted prices are readily and regularly available from an exchange, dealer, broker, industry group, pricing service, or regulatory agency, and those prices represent actual and regularly occurring market transactions on an arm's length basis. The quoted market price used for financial assets held by the Company is the current bid price. These instruments are included in Level 1. The instruments included in Level 1 are listed equity investments most of which are classified as financial assets at fair value through other comprehensive income.

The fair value of financial instruments that are not traded on an active market is determined using valuation models. These valuation models maximize the use of observable market data where it is available and rely as little as possible on entity specific information. If all significant inputs required to measure the fair value of an instrument are observable, the instrument is included in Level 2.

If one or more of the significant inputs are not based on observable market data, the instrument is included in Level 3.

The Company performs fair value measurements required for financial reporting purposes, including Level 3 fair values, and discusses valuation processes and results at least once every quarter in line with SEC's quarterly reporting dates. The Company recognizes changes in Levels at the end of the reporting period, if corresponding events or changes in circumstances necessitating such reclassification have occurred.

Specific valuation methods used to value financial instruments include:

- Quoted market prices or dealer quotes for similar instruments.
- The fair value of a derivative is determined using, among other things, forward exchange rates at the statement of financial position date, with the resulting value discounted back to present value.

Other methods, such as discounted cash flow analysis, are used to determine fair value for the remaining financial instruments. For trade and other receivables, the book value approximates a reasonable estimate of fair value.

- Valuation methods and inputs

- The Company utilizes a present value method to discount future cash flows at a proper interest rate for corporate bonds, government and public bonds, and bank debentures that are classified as Level 2 in the fair value hierarchy.
- The following table presents the valuation methods and inputs used for major financial instruments classified as Level 3.

(KRW mil)				
Classification	Fair value	Valuation technique	Level 3 inputs	Input range (weighted average)
Financial assets at fair value through other comprehensive income				
Maltani	11,625	Discounted cash flow	Permanent growth rate	-1.00%–1.00% (0%)
			Weighted average cost of capital	8.32%–10.32% (9.32%)
Samsung Venture Investment	7,720	Discounted cash flow	Permanent growth rate	-1.00%–1.00% (0%)
			Weighted average cost of capital	17.53%–19.53% (18.53%)
Coming Incorporated convertible preferred shares	4,185,016	Trinomial model	Risk adjusted discount rate	4.8%–6.8% (5.8%)
			Price volatility	22.3%–28.3% (25.3%)
Long-term others payable				
Contingent financial liabilities	2,314	Probability-weighted discounted cash flow	Applicable probability rate	50%
Others				
Contingent liabilities	444	Monte-Carlo simulation	Discount rate	8.23%
			Asset volatility	33.2%
			Credit spread	0.79%

- Changes in level 3 instruments:

(KRW mil)

Financial assets	2019	2018
Balance as of Jan 1	7,165,466	3,652,574
Acquisitions	1,952,720	166,606
Disposals	- 2,265,529	-38,403
Amount recognized in profit or loss	16,001	-3,594
Amount recognized in other comprehensive income	504,177	-144,264
Other	98,097	1,177,828
Balance as of Jun 30	7,470,932	4,810,747

(KRW mil)

Financial liabilities	2019	2018
Balance as of Jan 1	14,502	351,918
Settlement	-671	-322,920
Amount recognized in profit or loss	-11,454	5,992
Others	381	1,152
Balance as of Jun 30	2,758	36,142

- Sensitivity analysis for recurring fair value measurements categorized within level 3

Sensitivity analysis of financial instruments is performed to measure favorable and unfavorable changes in the fair value of financial instruments which are affected by inputs that are unobservable in the market, using a statistical technique. When the fair value is affected by two or more input variables, such fair value is calculated using the most favorable or most unfavorable input values.

The results of the sensitivity analysis for the effect on profit or loss from changes in inputs for each type of financial instrument, which is categorized within Level 3 and subject to sensitivity analysis, are as follows:

(KRW mil) Classification	Favorable changes		Unfavorable changes	
	Profit or loss	Equity	Profit or loss	Equity
Financial assets at fair value through other comprehensive income ¹	-	115,972	-	-103,682

¹ For equity securities, changes in fair value are calculated with the correlation among growth rate (-1%–1%), volatility (23.0%–29.0%) and discount rate, which are significant unobservable inputs.

8. Derivative instruments and put options

The company holds convertible preferred shares of Corning Incorporated and its value as of June 30, 2019 is as follows.

(KRW mil)

	Purchasing price	Fair value	Valuation gain	Valuation loss
Convertible preferred shares	2,434,320	4,185,016	1,750,696	-

※ Fair value is determined using Trinomial Tree model; valuation gain is reflected in equity (under other components of equity).

※ Valuation was conducted by Deloitte Anjin LLC.

To manage foreign exchange risk, SEC's subsidiaries hedge their foreign currency positions by trading currency forward contracts of such currencies. Overseas subsidiaries buy or sell currency forwards through a bank in the purpose of trade.

As of June 30, 2019, the Company had 2,219 currency forward contracts involving 34 foreign currencies including USD/EUR/JPY. Currency forwards as of June 30, 2019 were as follows.

(KRW mil)

	Asset	Liabilities	Valuation gain	Valuation loss
Currency forwards	62,014	47,962	369,590	370,622

9. Major contracts

Account	Contract information	Contents
Ericsson	Type	Patent cross-license agreement
	Date	Jan 25, 2014
	Purpose and contents	Secure operational advantage through mutual patent licensing
Google	Type	Patent cross-license agreement
	Date	Jan 25, 2014 / indefinite term
	Purpose and contents	Secure operational advantage through mutual patent licensing
	Others	Permanent license contract (including patent applications in the next 10 years)
Cisco	Type	Patent cross-license agreement
	Date	Jan 23, 2014
	Purpose and contents	Secure operational advantage through mutual patent licensing
Global Foundries Inc.	Type	Process technology license contract
	Date	Feb 28, 2014
	Purpose and contents	Expand customer base of 14nm process
InterDigital	Type	Patent license agreement
	Date	Jun 3, 2014
	Purpose and contents	Secure operational advantage through patent licensing
Microsoft	Type	Settlement agreement
	Date	-
	Purpose and contents	End dispute over royalty payment
HP	Type	Sales of printing solutions business
	Date	Sep 12, 2016
	Purpose and contents	Concentrate on our core competencies and advance business structure
	Others	Transaction value: USD 1.05 billion
Qualcomm	Type	Cross licensing agreement (amendment to the existing agreement)
	Date	Jan 1, 2018–Dec 31, 2023
	Purpose and contents	Expand business freedom by withdrawing intervention in Qualcomm's appeal
	Others	-

Apple	Type	Withdrawal of lawsuit agreement
	Date	Jun 26, 2018
	Purpose and contents	Withdraw from all lawsuits in the United States
	Others	-
Nokia	Type	Patent license agreement
	Date	Oct 19, 2018
	Purpose and contents	Expand business freedom by patent agreement
	Others	-
Huawei	Type	Cross licensing agreement
	Date	Feb 28, 2019
	Purpose and contents	Expand business freedom by licensing agreement
	Others	-
Google	Type	EMADA
	Date	Feb 27, 2019–Dec 31, 2019
	Purpose and contents	Licensing agreement for using Google apps (Play Store, YouTube, etc.) in 31 European countries (EEA)
	Others	-
AMD	Type	Technology licensing agreement
	Date	May 30, 2019
	Purpose and contents	Secure intellectual property for mobile products and other applications
	Others	-

※ Information that may be referenced or used in other IP disputes, including contract amount, is not included.

10. Research and development activities

A. Summary of activities and R&D expenditures

The Company is leading the global market by continuously developing creative and innovative products and the future technology through shifting its way of thinking and understanding customer demand.

The Company is currently developing creative and innovative products and doing its utmost to cement its position in the global IT industry and become a worldwide leader in industrial technology by creating and securing next-generation technology.

[R&D expenses]

		(KRW mil)		
		1H19	2018	2017
Total R&D expenditure		10,126,717	18,662,029	16,805,637
(Government subsidies)		-11,674	-11,645	-2,484
R&D expenditure		10,115,043	18,650,384	16,803,153
Accounting	Capitalization of development expenses (intangible asset)	-260,043	-296,304	-447,541
	R&D costs (expenses)	9,855,000	18,354,080	16,355,612
R&D expenses/sales ratio		9.3%	7.7%	7.0%

※ On a consolidated basis in conformity with Korean International Financial Reporting Standards (“K-IFRS”)

※ The percentage was calculated with the amount of the total R&D expenditure, which includes government subsidies

As of June 30, 2019, the Company’s R&D expenses were KRW 10,126.7 billion. Among this, KRW 9,855.0 billion was recognized as expenditures, excluding KRW 11.7 billion of government subsidies and KRW 260.0 billion of capitalized expenses.

B. R&D organization and operations

- Korea

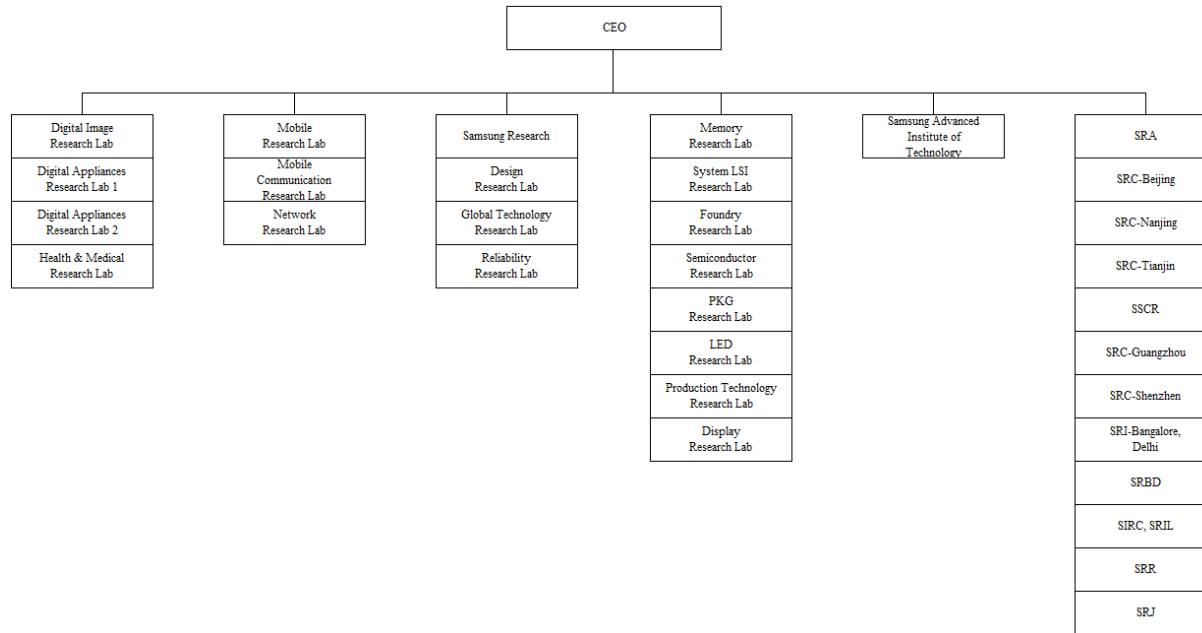
The Company operates three levels of R&D organizations; a business unit development team under each Division that develops market ready technologies with a 1–2 year outlook, a research institute under each business unit that develops mid-to-long term technology with a 3–5 year outlook, and the Samsung Advanced Institute of Technology that develops core technology as seeds for future growth engines.

Samsung Advanced Institute of Technology is the central research institute of Samsung Electronics that has been established to lead the Company into the future and serve as an incubator of cutting-edge technology. It has a creative R&D system and provides R&D direction for promising growth sectors at the Company level, exploring future growth engines and strengthening technological competitiveness of core businesses.

- Overseas

The Company operates R&D organizations in the US (SRA), Russia (SRR), Israel (SRIL and SIRC), India (SRI-Bangalore and SRI-Delhi), Japan (SRJ), China (SSCR, SRC-Beijing, SRC-Nanjing, SRC-Tianjin, SRC-Guangzhou, and SRC-Shenzhen), Bangladesh (SRBD) to carry out research activities for product development and basic technological research.

The Company has established AI centers in Cambridge (United Kingdom), Moscow (Russia), Toronto (Canada), Montreal (Canada), and New York (United States), so our global team of researchers can collaborate with international experts to strengthen capabilities in AI technology.



※ As of Jun 30, 2019

※ Refer to 『G. Subsidiaries subject to consolidation』 in 『I. Corporate Overview』 for more details about overseas R&D organizations.

C. R&D results

Research project	Results and expected effects	Details
Exynos 9	<ul style="list-style-type: none"> □ 10nm FinFET process based premium AP - Cutting-edge 10nm process based model, low power consumption, high performance - Gygabit-class LTE modem-integrated chip - Provide unrivalled performance such as 2nd generation custom CPU and next-generation GPU 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Feb 2017
UHD TV (MU7000)	<ul style="list-style-type: none"> □ Flat UHD TV □ Design: Slim unibody, real 360, bezel-less, screw-less, branch stand □ Specifications and effects - Platform (H/W,S/W): Kant-M, Tizen OS - Image quality: UHD 120Hz, flat, local dimming - Feature: Provide optimal convenience in terms of connectivity though One Connect mini 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Feb 2017 □ Size: 49"/55"/65"
UHD TV (MU6500)	<ul style="list-style-type: none"> □ UHD Curved TV □ Design: metal design, bolt-less clean back, ultimate slim design, y-shape stand □ Specifications and effects - Platform (H/W,S/W): Kant-M, Tizen OS - Image quality: Active crystal color (DCI 92%) - Features: New Smart features (Eden 2.0, Eden Mobile) provides users with easier and more convenient content experiences 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Mar 2017 □ Size: 49"/55"/65"
UHD TV (MU6400)	<ul style="list-style-type: none"> □ UHD Curved TV □ Design: Metal design, bolt-less clean back, ultimate slim design, y-shape stand □ Specifications and effects - Platform (H/W,S/W): Kant-M, Tizen OS - Image quality: Active crystal color (DCI 92%) - Feature: New Smart features (Eden 2.0, Eden Mobile) provides users with easier and more convenient content experiences 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Mar 2017 □ Size: 40"/49"/55"/65"
UHD TV (MU6300 /MU6100)	<ul style="list-style-type: none"> □ UHD Curved TV □ Design: Minimalism design, v-shape stand □ Specifications and effects - Platform (H/W,S/W): Kant-M, Tizen OS - Image quality: Active crystal color (DCI 92%) - Feature: New Smart features (Eden 2.0, Eden Mobile) provides users with easier and more convenient content experiences 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Mar 2017 □ Size: 40"/43"/49"/50"/55"/65"/75"
QLED TV (Q8C)	<ul style="list-style-type: none"> □ Curved QLED TV □ Design: Four Side bezel-less, simple edge, metal back stainless silver stand (type-u), Slim Wall Mount □ Specifications and effects - Platform (H/W,S/W): Kant-M, Tizen OS - Concept: Four side bezel-less design QLED TV - Image quality: Highest-level of brightness, expanded color volume, accurate image, better viewing angles and deeper black levels - Feature: With Optical Cable and One connect, provides users with optimal convenience in terms of connectivity 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Apr 2017 □ Size: 75"
UHD TV (MU6100)	<ul style="list-style-type: none"> □ UHD Flat TV □ Design: Minimalism design, v-shape stand □ Specifications and effects - Platform (H/W,S/W): Kant-M, Tizen OS - Image quality: Active crystal color (DCI 92%) - Feature: New Smart features (Eden 2.0, Eden Mobile) provides users with easier and more convenient content experiences 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Apr 2017 □ Size: 49"/55"/58"/75"
UHD TV (LS003)	<ul style="list-style-type: none"> □ Lifestyle TV □ Design: Frame edge design, zero gap wall mount □ Specifications and effects - Platform (H/W,S/W): Kant-M, Tizen OS - Image quality: Active crystal color (DCI 92%) Paper Look - Feature: Art Mode on paper like PQ, Mobile Control, Samsung Collection, Invisible Connection, Replaceable Deco Frame 	<ul style="list-style-type: none"> □ Region: Global □ Launch: May 2017 □ Size: 55"/65"

Research project	Results and expected effects	Details
Exynos i (T200)	<ul style="list-style-type: none"> □ SoC optimized for IoT - 28nm HKMG process-based, multi-core performance - Encode/Decode features, enhanced security function with hardware block system which prevents illegal copy - Certified by WiFi Alliance, supports IoT protocol standard 'IoTivity' 	<ul style="list-style-type: none"> □ Region: Global □ Launch: May 2017 □ Size: S5JT200
UHD TV (MU6303)	<ul style="list-style-type: none"> □ Economical UHD Curved TV □ Design: Minimalism design, v-shape stand □ Specifications and effects <ul style="list-style-type: none"> - Platform (H/W,S/W): KANT-M, Tizen OS - Image quality: Active crystal color (DCI 92%) - Features: New Smart features (Eden 2.0, Eden Mobile) provides users with easier and more convenient content experiences - Not supporting BT vs. MU6300 (not supporting Smart Controller) 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Jul 2017 □ Size: 49"/55"/65"
UHD TV (MU6103)	<ul style="list-style-type: none"> □ Economical UHD Flat TV □ Design: Minimalism design, v-shape stand □ Specifications and effects <ul style="list-style-type: none"> - Platform (H/W,S/W): KANT-M, Tizen OS - Image quality: Active crystal color (DCI 92%) - Features: New Smart features (Eden 2.0, Eden Mobile) provides users with easier and more convenient content experiences - Not supporting BT vs. MU6100 (not supporting Smart Controller) 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Jul 2017 □ Size: 40"/43"/49"/50"/55"/65"/75"
HD-TV HF690	<ul style="list-style-type: none"> □ Product concept <ul style="list-style-type: none"> - Offer customized products and solutions by market segment - New Premium Smart Line-up (HF590/690) for 3-4 star hotels - Platform: KANT-M (Tizen3.0) □ Specifications and effects <ul style="list-style-type: none"> - Panel: Same specifications as M5500, 32"/43"/49"/55" - Circuits platform: Kant-M (Tizen3.0) <ul style="list-style-type: none"> ※ SMPS: Shares M5500 SMPS design ※ HDMIx3, USBx2, RJ12, LAN, Opt, Comp/AV, RJP, BathSPK, LAN OUT - Device design: Shares M5500 series design ※ Swivel Stand/Box: Same features with 690 series of 2016 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Aug 2017 □ Size: 32"/43"/49"/55"
LFD QMH	<ul style="list-style-type: none"> □ Product concept <ul style="list-style-type: none"> - Introduced premium UHD line up <ul style="list-style-type: none"> ※ UHD (high resolution) signage line-up ※ Provides signage solutions through SoC application (major enhancement compared to QMF of 2016) - Improved size competitiveness of UHD line-ups <ul style="list-style-type: none"> ※ Respond to the market's needs for high-definition products by building full line-ups with diverse sizes - Non-glare screen, 24/7 usage, same as QMF of 2016 <ul style="list-style-type: none"> ※ Applied required specifications for LFD usage □ Specifications and effects <ul style="list-style-type: none"> - Platform: Orsay → Tizen 3.0, removed DTS and DIVX - Circuits: Integrated with platform for FHD/UHD models → Kant-M SoC <ul style="list-style-type: none"> ※ Improved specification/features: SE13U (Scaler) → Kant-M (SoC) - Panel: 24/7, V-PID, non-glare (haze 25%) 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Aug 2017 □ Size: 49"/55"/65"
Vacuum (VS8000ML)	<ul style="list-style-type: none"> □ Product features <ul style="list-style-type: none"> - World's most powerful suction vacuum "POWERstick" - Suction Power 150W, lasts for up to 40 minutes - Flex body, dual action brush (consists of two brushes each with a separate drum) - EzClean dustbin & brush - Hygienic solution: HEPA Filter 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Aug 2017 □ Name: POWERstick
UHD TV (LS003)	<ul style="list-style-type: none"> □ Lifestyle TV □ Design: Frame edge design, zero gap WMT □ Specifications and functions <ul style="list-style-type: none"> - Platform (H/W,S/W): KANT-M, Tizen OS - Picture quality: Active crystal color (DCI 92%) paper look - Features: Art Mode on paper like PQ, Mobile Control, Samsung Collection, Invisible Connection, Replaceable Deco Frame 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Dec 2017 □ Size: 43"

Research project	Results and expected effects	Details
Mass produced 512GB eUFS based on 4th generation V-NAND (64 layers) for mobiles	<ul style="list-style-type: none"> □ The world's first mass production of 512GB eUFS SSD based on 64 layer V-NAND <ul style="list-style-type: none"> - Lead the high density memory market by mass producing 512Gb V-NAND - Provide the fastest solution with the biggest capacity □ Drive market growth by expanding the production of 4th generation 512Gb V-NAND <ul style="list-style-type: none"> - Expand market leadership from smartphones and tablets to the SSDs 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Nov 2017 □ Name: 512 GB eUFS for mobiles (4th generation V-NAND)
Mass produce 10nm-class (1y) 8Gh DDR4 DRAM for PCs and servers	<ul style="list-style-type: none"> □ The world's first 2nd generation 10nm-class 8Gh DDR4 DRAM <ul style="list-style-type: none"> - 30% better productivity, 10% faster speed, and 15% improved energy efficiency compared to the 1x- nano DRAM - Development of 'Three innovative Technologies' boosting product competitiveness □ Lead the market with the capability to mass-produce next-generation DRAMs <ul style="list-style-type: none"> - Established a mass production system for DDR5/ LPDDR5/ HBM3/ GDDR6 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Nov 2017 □ Name: 8Gb DDR4 DRAM (1y-nano DRAM)
Mobile image sensor	<ul style="list-style-type: none"> □ Ultra-small high-resolution image sensor, ISOCELL Fast 2L9 <ul style="list-style-type: none"> - Autofocus, dual pixel technologies - Micro-manufacturing process reduced the size of the pixel to 1.2μm from 1.4μm - A single image sensor is capable of out-focusing 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Oct 2017 □ Name: S5K2X7
Mobile image sensor	<ul style="list-style-type: none"> □ Ultra-small high-resolution image sensor, ISOCELL Slim 2X7 <ul style="list-style-type: none"> - Vivid and bright pictures enabled by TetraCell technology, which allows pixel self-adjustment - The ultra-small image sensor with the smallest ever pixel size (0.9μm) - DTI processing applied physical walls between pixels. 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Oct 2017 □ Name: S5K2L9SX
Exynos 9 (9810)	<ul style="list-style-type: none"> □ 3rd generation custom CPU and AP equipped with super-fast modem that supports Cat. 18 6CA <ul style="list-style-type: none"> - Single-core performance improved significantly and multi-core performance increased by 40% compared to the previous model - Equipped with industry-first 6CA LTE modem that supports 1.2Gbps downlink □ Deep learning processing capabilities and intelligent image processing <ul style="list-style-type: none"> - Precise image analysis and enhanced face recognition - High-resolution and brighter pictures in low light or motion 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Jan 2018 □ Name: SC59810
Image sensor solution	<ul style="list-style-type: none"> □ Total solution that provides functions of an image sensor and S/W algorithm <ul style="list-style-type: none"> - Eliminate S/W purchasing costs and reduce sensor/AP optimization time - Dual camera capable of refocusing and low light shooting 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Feb 2018
Mobile Image sensor	<ul style="list-style-type: none"> □ New 3-stack, DRAM-embedded ISOCELL Fast 2L3 <ul style="list-style-type: none"> - Saves large quantity of images at high speed - Super-slow motion up to 960 frames per second □ Auto focus enabled by dual pixel technology <ul style="list-style-type: none"> - Precise and swift auto focus at any circumstance - Combination of cutting edge technologies such as 3D noise reduction, HDR, etc. 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Feb 2018 □ Name: S5K2L3
8-inch foundry process (RF/ fingerprint recognition)	<ul style="list-style-type: none"> □ Development of 8-inch process that best suits RF and fingerprint recognition products <ul style="list-style-type: none"> - Diversify 8-inch foundry products by including RF or fingerprint sensor solutions on top of embedded flash memory chips, power semiconductors, display drivers, CMOS image sensors - Boost product quality and customer convenience 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Mar 2018
UHD TV (NU7100)	<ul style="list-style-type: none"> □ UHD Flat TV □ Design: Sleek & 360° design, cable management, luminous bezel, simple stand □ Specifications and features <ul style="list-style-type: none"> - Platform (H/W,S/W): KANT-M2e, Tizen OS - Picture quality: UHD 60Hz, HDR 10+ - Features: Enhanced usability and convenience by boosting connectivity with other devices (Universal Browse provides a suite of content regardless of live and app) 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Mar 2018 □ Size: 40"/43"/49"/50"/55"/65"/75"
UHD TV (NU7300)	<ul style="list-style-type: none"> □ UHD Curved TV □ Design: Sleek & 360° design, cable management, luminous bezel, simple stand □ Specifications and features <ul style="list-style-type: none"> - Platform (H/W,S/W): KANT-M2e, Tizen OS - Picture quality: UHD 60Hz, HDR 10+ - Features: Enhanced usability and convenience by boosting connectivity with other devices (Universal Browse provides a suite of content regardless of live and app) 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Mar 2018 □ Size: 49"/55"/65"

Research project	Results and expected effects	Details
UHD TV (NU7400)	<ul style="list-style-type: none"> □ UHD Flat TV □ Design: Sleek & 360° design, cable management, front volume bezel, v-type center stand □ Specifications and features <ul style="list-style-type: none"> - Platform (H/W,S/W): KANT-M2e, Tizen OS - Picture quality: UHD 60Hz, HDR 10+, Active crystal color - Features: Enhanced usability and convenience by boosting connectivity with other devices (Universal Browse provides a suite of content regardless of live and app) Control peripheral devices via one remote or voice recognition (supports BT) 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Mar 2018 □ Size: 43"/50"/55"/65"
UHD TV (NU7500)	<ul style="list-style-type: none"> □ UHD Curved TV □ Design: Sleek & 360° design, cable management, front volume bezel, v-type center stand □ Specifications and features <ul style="list-style-type: none"> - Platform (H/W,S/W): KANT-M2e, Tizen OS - Picture quality: UHD 60Hz, HDR 10+, Active crystal color - Features: Enhanced usability and convenience by boosting connectivity with other devices (Universal Browse provides a suite of content regardless of live and app) Control peripheral devices via one remote or voice recognition (supports BT) 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Mar 2018 □ Size: 49"/55"/65"
UHD TV (NU8000)	<ul style="list-style-type: none"> □ UHD Flat TV □ Design: Three-sided bezel-less, Cable management, T-type Center Stand, VESA Wall Mount □ Specifications and features <ul style="list-style-type: none"> - Platform (H/W,S/W): Kant-M2, Tizen OS - Picture quality: UHD 120Hz, Flat, Local Dimming - Features: Provides the best gaming experience with improved input lag and motion-related game quality 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Mar 2018 □ Size: 49"/55"/65"/75"/82"
UHD TV (NU8500)	<ul style="list-style-type: none"> □ UHD Curved TV □ Design: Three-sided bezel-less, cable fixed, t-type center stand, vesa wall mount □ Specifications and features <ul style="list-style-type: none"> - Platform (H/W,S/W): KANT-M2, Tizen OS - Picture quality: UHD 120Hz, curved, local dimming - Features: Provides the best gaming experience with improved input lag and motion-related game quality 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Mar 2018 □ Size: 55"/65"
LM CJ89	<ul style="list-style-type: none"> □ Product concept <ul style="list-style-type: none"> - Unprecedented size of monitor (32:9, 49") in the B2B market Boost users' work efficiency and cost efficiency - B2B monitor that addresses consumer pain points Enhanced usability of Dual monitor by eliminating Bezel intervention The latest I/F performance applied with USB-C □ Specifications and features <ul style="list-style-type: none"> - Added USB-C and excluded gaming features from CHG9 panels - Excluded QD sheet feature from existing CHG9 panels 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Mar 2018 □ Size: 49"
8TB NF1 NVMe SSD based on 4th generation (64 layer) server V-NAND	<ul style="list-style-type: none"> □ Mass production of the world's first next-generation 8TB NF1 NVMe server SSDs <ul style="list-style-type: none"> - Realized the world's first 8TB SSD by adopting 512Gb VNAND - Increased system storage capacity by three times via 8TB SSDs □ The industry's only 8TB lineup that opened a NF1 market <ul style="list-style-type: none"> - Expanded core product in the premium NVMe SSD market to 8TB SSDs 	<ul style="list-style-type: none"> □ Region: Global □ Launch: May 2018 □ Name: 8TB NF1 NVMe SSD (4th Generation/64 layer 512Gb V-NAND)
PC SSD based on 5th generation (9x layers) 256Gb V-NAND	<ul style="list-style-type: none"> □ Mass production of the world's fastest PC SSD based on 5th generation VNAND <ul style="list-style-type: none"> - Unprecedented mass production of VNAND stacked with 90 layers or more - 1.4 times faster than previous model with 30% improved productivity □ Lead growth of the storage market with ultra-high-speed and ultra-low-energy products <ul style="list-style-type: none"> - Utilize 1Tb and QLC VNAND to create a new market for next-generation products 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Jun 2018 □ Name: PC SSD (5th generation/9x layer 256Gb VAND)
Mobile image sensor	<ul style="list-style-type: none"> □ Small pixel hypersensitive image sensor, ISOCELL Slim 3P9 <ul style="list-style-type: none"> - Smaller chips and improved pixel efficiency and noise - Improved features such as autofocus image stabilization □ Provides a turn-key solution named 'Plug and Play' <ul style="list-style-type: none"> - Provided with pre-optimized modules (AP, camera module, actuator, etc.) and S/W image tuning - Provides VCX evaluation setting and shortens research period 	<ul style="list-style-type: none"> □ Region: Global □ Launch: May 2018 □ Name: S5K3P9
Image sensor technology	<ul style="list-style-type: none"> □ Image sensor improvement technology, ISOCELL Plus <ul style="list-style-type: none"> - Minimizes optical loss and light reflection/absorption by using higher metal barriers - Improved low light sensitivity 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Jun 2018

Research project	Results and expected effects	Details
QLED TV (Q6F)	<ul style="list-style-type: none"> □ Flat QLED TV □ Design: Three-sided bezel-less, Simple Stand, VESA Wall Mount □ Specifications and features <ul style="list-style-type: none"> - Platform (H/W,S/W): Kant-M2, Tizen OS - Concept: QLED TV's picture quality and value at a lower price - Picture quality: Color Volume 100%, optimal brightness - Features: Improved mobile/TV usability, Bixby available, provides, 'Smart' experience that exceeds simple entertainment 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Apr 2018 □ Size: 49"/55"/65"/75"/82"
UHD TV (NU7400)	<ul style="list-style-type: none"> □ UHD Flat TV □ Design: Sleek & 360° design, cable management, front volume bezel, v-type center stand □ Specifications and features <ul style="list-style-type: none"> - Platform (H/W,S/W): KANT-M2e, Tizen OS - Picture quality: UHD 60Hz, HDR 10+, Active crystal color - Feature: Improved interoperability between TV and other devices, providing easy and convenient experience (Universal Browse allows content search whether it is on live TV or Apps/ One Remote allows peripheral device control and voice recognition) 	<ul style="list-style-type: none"> □ Region: Global □ Launch: May 2018 □ Size: 43"/50"
UHD TV (NU7100)	<ul style="list-style-type: none"> □ UHD Flat TV □ Design: Sleek & 360° design, cable management, luminous bezel, simple stand □ Specifications and features <ul style="list-style-type: none"> - Platform (H/W,S/W): KANT-M2e, Tizen OS - Picture quality: UHD 60Hz, HDR 10+ - Feature: Improved interoperability between TV and other devices, providing easy and convenient experience (Universal Browse allows content search whether it is on live TV or apps) 	<ul style="list-style-type: none"> □ Region: Global □ Launch: May 2018 □ Size: 43"/58"
UHD TV (LS03NA)	<ul style="list-style-type: none"> □ Lifestyle TV □ Design: frame edge design, zero gap WMT □ Specifications and features <ul style="list-style-type: none"> - Platform (H/W,S/W): KANT-M2, Tizen OS - Picture quality: Active crystal color (DCI 92%) Paper Look - Feature: Art Mode on paper like PQ, Mobile Control, Samsung Collection, Invisible Connection 2.0 Replaceable Deco Frame 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Jun 2018 □ Size: 55"/65"
AV (HAV) HW-N650	<ul style="list-style-type: none"> □ Soundbar (One Body) <ul style="list-style-type: none"> - Hole array - Optimized sound field for game players - Automatic sound field adjustment for different videos - One Experience with better interoperability - One Remote, 360W (3.1ch) power, Bluetooth, HDMI In/Out, USB 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Apr 2018
AV (HAV) HW-NW700	<ul style="list-style-type: none"> □ Soundbar (One Body) <ul style="list-style-type: none"> - One Body enabled by a built-in subwoofer - Automatic sound field adjustment for different videos - One Experience with better interoperability - One Remote, 210W(7ch) power, WiFi/Bluetooth, HDMI In/Out, USB - Voice Interaction: 3PDA (Amazon) 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Apr 2018
Exynos i (S111)	<ul style="list-style-type: none"> □ Low-power operation, strong security, and supports the latest NB-IoT standard - Low-power data transmission mechanism that covers the standard distance (10 kilometers) - Adopted with features such as encryption, decryption, physical copy prevention - All-in-one chip that combines functions of a modem, CPU, RF, PMIC, GNSS 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Aug 2018
7nm EUV process	<ul style="list-style-type: none"> □ 7LPP (Low Power Plus) process applied with EUV technology - Extreme ultraviolet (EUV) lithography technology <ul style="list-style-type: none"> • 13.6nm wavelength, 1/14 of ArF, enables advanced circuit pattern realization • High performance and productivity enabled by reduction of multi-patterning process - Delivers up to a 40% increase in area efficiency with 20% higher performance or up to 50% lower power consumption compared to 10nm process 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Sep 2018 (development)
QLED TV (Q6F)	<ul style="list-style-type: none"> □ Flat QLED TV □ Design: 3-side bezel-less, simple stand, VESA wall mount □ Specifications and features <ul style="list-style-type: none"> - Platform (H/W,S/W): KANT-M2, Tizen OS - Concept: Expand picture quality and value of QLED TVs at an affordable price - Picture quality: Color volume 100%, optimal brightness - Features: Improved usability of mobile/TV, Bixby function available, delivers a 'smart' 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Jul 2018 □ Size: 49"/55"/65"/75"/82"

Research project	Results and expected effects	Details
	experience that exceeds simply an entertainment	
UHD TV (NU7090)	<ul style="list-style-type: none"> □ UHD Flat TV □ Design: Sleek & 360° design, cable management, simple stand □ Specifications and features <ul style="list-style-type: none"> - Platform (H/W,S/W): KANT-SU, Tizen OS - Picture quality: UHD 60Hz, HDR 10+ - Feature: Enhanced Eden UI allows convenient contents experience (content search is possible whether it is on live TV or Apps) 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Jul 2018 □ Size: 43"/50"/55"/65"/75"
LFD QBN	<ul style="list-style-type: none"> □ Product concept <ul style="list-style-type: none"> - Standalone signage QB lineup introduced in 2018 - Mainstream lineup with UHD resolution and Tizen solution <ul style="list-style-type: none"> • Strengthened competitiveness by applying the Tizen platform • Improved cost competitiveness of the UHD lineup □ Specifications and features <ul style="list-style-type: none"> - Panel: TV New Edge NU7.1K (note: optic sheet has been changed upgraded brightness) <ul style="list-style-type: none"> • 350nit (MOP → high DPP), glare panel - Kant-M2e, Tizen 4.0 W/W common design - SMPS: TV NU7.1K (note: AL cap has been changed to address MTBF lifespan issues) 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Jul 2018 □ Size: 49"/55"/65"/75"
UHD TV (LS03NA)	<ul style="list-style-type: none"> □ Lifestyle TV □ Design: Frame Edge Design, Zero Gap WMT □ Specifications and features <ul style="list-style-type: none"> - Platform (H/W,S/W): KANT-M2, Tizen OS - Picture quality: Active crystal color (DCI 92%) paper look - Feature: Art Mode on Paper like PQ, Mobile Control, Samsung Collection, Invisible Connection 2.0 Replaceable Deco Frame 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Aug 2018 □ Size: 49"/43"
LFD QMN	<ul style="list-style-type: none"> □ Product concept <ul style="list-style-type: none"> - Increased competitiveness and efficiency by applying B2C New Edge models to 2018 standalone products. - Increased R&D and production efficiency; reduced cost by increasing B2C commonality (NU7.1K) <ul style="list-style-type: none"> • Reduced costs by increasing commonality of panel and bottom chassis □ Specifications and features <ul style="list-style-type: none"> - Common design for signage-specific specifications. <ul style="list-style-type: none"> • Adopt common pivot function structure and IT standards • Adopt common panels, instruments, SMPS, and speakers - Increased commonality of TV NU7.1, BLU, and instruments <ul style="list-style-type: none"> • Note: luminance increased by 450nit; optic sheet • 450nit (MOP→DBEF complex sheet), non-glare panel 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Oct 2018 □ Size: 49"/55"/85"/98"
Mass produce 1st generation 10nm (1x) 256GB 3DS DDR4 server DRAM	<ul style="list-style-type: none"> □ Mass production of 256GB 3DS DDR4 DRAM <ul style="list-style-type: none"> - The world's first mass production of the ultra-high-performance, high- capacity DRAM - Capacity doubled, power efficiency improved by 30% □ Bolstered business capability by taking lead in the next-generation IT market <ul style="list-style-type: none"> - Expanded demand for EUV-based DRAM by widening the premium lineup 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Oct 2018 □ Name: 1st generation 10nm 256Gb DDR4 DRAM
Mobile image sensor	<ul style="list-style-type: none"> □ 0.8um ultra-small pixel ISOCELL Bright GM1 <ul style="list-style-type: none"> - 48 million ultra-high-definition image sensor - Realize high-sensitive effect via the Tetracell technology □ Improves response to demand for high-definition, multi-cameras <ul style="list-style-type: none"> - Provides flexibility for slimmer designs by offering high-quality images on a smaller camera module enabled by ultra-small-sized pixels and Tetracell technology 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Oct 2018 □ Name: S5KGM1
Mobile image sensor	<ul style="list-style-type: none"> □ 0.8um ultra-small pixel ISOCELL Bright GD1 <ul style="list-style-type: none"> - 32 million high-definition image sensor - Realize high-sensitive effect via the Tetracell technology - Supports HDR, enabling adequate brightness and abundant colors for both bright and dark areas □ Improved response to demand for high-definition, multi-cameras <ul style="list-style-type: none"> - Provides flexibility for slimmer designs by offering high-quality images on a smaller camera module enabled by ultra-small-sized pixels and Tetracell technology 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Oct 2018 □ Name: S5KGD1
Exynos 9 (9820)	<ul style="list-style-type: none"> □ Improved performance via NPU and AP improvements and adoption of 8CA <ul style="list-style-type: none"> - NPU: AI processing speed improved sevenfold compared to the previous model - AP: big-little (4+4) → big-middle-little (2+2+4) Flexible operation depending on user environment; improved power efficiency 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Nov 2018 □ Name: SC59820

Research project	Results and expected effects	Details
	- Modem: Industry's first adoption of 8CA technology; download speed up to 2Gbps	
Mass production of mobile 5th generation (9x layer) 512Gb 3bit V NAND-based eUFS	<ul style="list-style-type: none"> □ The world's first mass production of next-generation smartphone memory, eUFS 3.0 <ul style="list-style-type: none"> - Mass production of 9x layer 512Gb 3bit V NAND - Read and write speeds increased twofold compared to eUFS 2.0 □ Lead growth of the ultra-high-definition, next-generation mobile market <ul style="list-style-type: none"> - Expanded the 1TB/256GB lineups following releases of 512/1286GB 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Feb 2019 □ Name: 512GB eUFS (5th generation [9x layer] 512Gb 3bit V NAND)
Development of 3rd generation 10nm-level (1z) 8Gb DDR4 DRAM	<ul style="list-style-type: none"> □ Development of the world's first most precise process 1znm 8Gb DDR4 DRAM <ul style="list-style-type: none"> - Ultra-high-speed, ultra-low-power solution for DDR5/LPDDR5 - Increased productivity 20% compared to the 2nd generation (1ynm) DRAM □ Strengthened business capability by expanding premium DRAM lineup <ul style="list-style-type: none"> - Increased production portion of next-generation DRAM lineup in the Pyeongtaek line 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Mar 2019 □ Name: 3rd generation 10nm-level (1z) 8Gb DDR4 DRAM
Exynos Auto V9	<ul style="list-style-type: none"> □ Automotive infotainment, Exynos Auto V9 <ul style="list-style-type: none"> - Controls 6 displays and 12 cameras simultaneously via Octa-core CPU - Individually supports dashboard, CID, and HUD with 3 GPUs - Recognizes audio, face, and motion with an NPU - Strengthened safety by supporting ASIL-B standards 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Jan 2019 □ Name: S5AHR80
Mobile image sensor	<ul style="list-style-type: none"> □ Ultra-small pixel image sensor ISOCELL Slim 3T2 <ul style="list-style-type: none"> - High pixel optimized to bezel-less display - Most compact image sensor at 1/3.4" (20Mp) - High-quality pictures in low-light settings thanks to the tetracell technology (front) High magnification mode (back) decreases module sizes and improves picture quality 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Jan 2019 □ Name: S5K3T2
Display driver IC	<ul style="list-style-type: none"> □ New DDI, S6CT93P <ul style="list-style-type: none"> - Optimized to ultra-high-definition 8K TVs and increased performance efficiency - Supports a smart equalizer to improve signal quality and development efficiency 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Jan 2019 □ Name: S6CT93P
5G modem total solution	<ul style="list-style-type: none"> □ Commercialization of world's first 5G modem solution for smartphones <ul style="list-style-type: none"> - Exynos modem 5100, RF 5500, SM 5800 - Data transmission speed 1.7 times faster (compared to LTE) - New RF/SM embedded; data transfer boasts improved power efficiency 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Apr 2019 □ Name: SA55100, S5M5500, S5M5800
Mobile image sensor	<ul style="list-style-type: none"> □ Ultra-high definition image sensor ISOCELL Bright GW1 <ul style="list-style-type: none"> - Highest-resolution mobile image sensor (64 megapixels) - Dynamic range improvement via DCG structure application - Maximized Auto Focus function with super PD technology and Full-HD slow motion up to 480 frames per second - Supports real-time HDR function for rich colors 	<ul style="list-style-type: none"> □ Region: Global □ Launch: May 2019 □ Name: S5KGW1
Mobile image sensor	<ul style="list-style-type: none"> □ ISOCELL Bright GM2 <ul style="list-style-type: none"> - 0.8um 32 megapixel ultra-small high-definition image sensor - Maximized Auto Focus function with super PD technology and Full-HD slow motion up to 240 frames per second 	<ul style="list-style-type: none"> □ Region: Global □ Launch: May 2019 □ Name: S5KGM2
Exynos i (T100)	<ul style="list-style-type: none"> □ SoC with high energy efficiency and strong security exclusively for short-distance IoT <ul style="list-style-type: none"> - Supports latest short-distance wireless communication, including Bluetooth 5.0 and Zigbee 3.0 - Encryption, decryption, physical copy prevention function for stronger data security - Wider range of operating temperature (can function in temperatures as high as 125°C) - 28nm process-based, enhancing electrical efficiency. - Combines processor, memory, and communication functions 	<ul style="list-style-type: none"> □ Region: Global □ Launch: May 2019 □ Name: S5JT100
PDIC	<ul style="list-style-type: none"> □ PDIC for fast-charging TA, supporting USB PD <ul style="list-style-type: none"> - Supports USB-PD 3.0 standard and fast-charging protocol - Moisture detection; surge protection function 	<ul style="list-style-type: none"> □ Region: Global □ Launch: May 2019 □ Name: S2MM101
PDSE	<ul style="list-style-type: none"> □ World's first all-in-one chip that combines the function of PDIC and SE <ul style="list-style-type: none"> - Supports Type-C certification, filtering out uncertified products - Provides high-tech security functions—stores security keys/certificates; supports encryption and decryption- 	<ul style="list-style-type: none"> □ Region: Global □ Launch: May 2019 □ Name: S3SSE8A
Shipment of eMRAM solution products (based on 28nm FD-SOI process)	<ul style="list-style-type: none"> □ Combined low-power process and next-generation embedded memory technology <ul style="list-style-type: none"> - Maximized power efficiency as the product uses low motion power and eliminates standby power and an erase cycle - Supports record speed about 1000 times faster than the previous eFlash □ Embedded to system semiconductor by using minimum layers <ul style="list-style-type: none"> - Reduced production costs thanks to a simpler design structure □ Optimal for MCU/IoT/AI thanks to low-power and small size 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Mar 2019

Research project	Results and expected effects	Details
5nm EUV process	<ul style="list-style-type: none"> □ Developed 5nm EUV process with EUV lithography - 25% increase in logic area efficiency with 20% lower power consumption or 10% higher performance and by optimizing cell architecture - Previous 7nm customers can utilize the same IP in the 5nm EUV process 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Apr 2019
Hole in Display AMOLED for Galaxy S10	<ul style="list-style-type: none"> □ Maximized screen size by the world's first commercialization of Flexible Hole in Display - One S10 6.1" 3K QHD+(3,040×1,440) Hole, Two S10+ 6.4" Holes □ Offers a comfortable display by significantly decreasing blue light - Decreased blue light emission 42% from S9 (TUV Rheinland Eye Comfort Certification) 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Mar 2019
Foldable AMOLED for Galaxy foldable	<ul style="list-style-type: none"> □ Display innovation by developing the world's first foldable display - In-Foldable AMOLED (Bending radius: 1.5R) - 7.3" QXGA+(1,536×2,152), 4:3 - Decreased the display thickness by approximately 50% compared to existing panels by developing polymer composite material 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Scheduled in 3Q19
4K high-resolution AMOLED for smartphones	<ul style="list-style-type: none"> □ Developed world's first 4K mobile OLED display - 6.5" UHD (1,644×3,840), 643ppi, 16M Color - Can enjoy original cinematic movie ratio of 21:9 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Jun 2019
15.6" UHD AMOLED for NPC	<ul style="list-style-type: none"> □ Developed world's first 4K OLED display for NPC - 15.6" UHD(3,840 x 2,160), 16:9 - Blue Light reduction, shorter response time, wide field of view allow vivid images 	<ul style="list-style-type: none"> □ Region: Global □ Launch: May 2019
27" FHD 240Hz curved LCD for gaming monitors	<ul style="list-style-type: none"> □ Developed world's first 240Hz Curved LCD display - 27" FHD(1920×1080), 16:9 - High refresh rate of 240Hz, supports G-sync, allowing uninterrupted gaming environment - Curvature of 1500R, wide viewing angle allow highly-immersive gaming experience 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Jun 2019
SBS refrigerator	<ul style="list-style-type: none"> □ RS5000RC new SBS platform - Large Capacity: 617 ℓ (2 door plumbing) - Flex Zone → 0/1/3 degree mono - Flat Duct → Twin Cooling Look - Horizontal hairline → improved quality and style 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Feb 2019 □ Name: SBS Refrigerator
QLED TV (Q70D)	<ul style="list-style-type: none"> □ Flat QLED 4K TV □ Design: 4-side Bezel-less, Direct Full Array panels, Simple Stand, Real Metal □ Specifications and features - Tizen OS - Concept: Delivers a deep black color and QLED picture qualities via Direct Full Array - Picture quality: Superior brightness and color volume of QLED TVs, deeper black color via Direct Full Array, AI Upscaling - Functions <ul style="list-style-type: none"> ▪ AI: The TV provides the optimal picture quality, sound quality, and usability to the environment and user context without user input ▪ Bixby2.0: Voice Assistant, expanded user experience at home ▪ Universal Guide: Improved user satisfaction by expanding contents recommendation and catalogue to provide recommendation by target segment 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Feb 2019 □ Size: 55/65/75/82"
QLED TV (Q60T)	<ul style="list-style-type: none"> □ Flat QLED 4K TV □ Design: Super narrow bezel, minimal, simple stand □ Specifications and features - Tizen OS - Concept: Optimal 4K viewing experience. AI-based lifestyle and improved user experience - Picture quality: Clear and accurate life-like colors and optimal 4K viewing experience regardless of the contents thanks to AI-based upscaling - Functions <ul style="list-style-type: none"> ▪ AI: Optimal picture quality, sound quality, and usability to the environment and user context without user input ▪ Bixby2.0: Voice Assistant, expanded user experience at home ▪ Universal Guide: Improved user satisfaction by expanding contents recommendation and catalogue to provide different recommendation by target segment 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Feb 2019 □ Size: 49/55/65/75"
UHD TV (RU8000)	<ul style="list-style-type: none"> □ Flat UHD TV □ Design: Super narrow bezel, minimal, simple stand □ Specifications and features - Tizen OS - Concept: 4K TV that offers clearer picture quality of 120Hz and smart functions based on user lifestyle - Picture quality: Clear and accurate life-like colors and optimal 4K viewing experience of 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Mar 2019 □ Size: 49/55/65"

Research project	Results and expected effects	Details
	<p>MR240</p> <ul style="list-style-type: none"> - Functions <ul style="list-style-type: none"> ▪ AI: Optimal picture quality, sound quality, and usability to the environment and user context without user input ▪ Bixby2.0: Voice Assistant, expanded user experience at home ▪ Universal Guide: Improved user satisfaction by expanding contents recommendation and catalogue to provide recommendation by target segment 	
UHD TV (RU7400)	<ul style="list-style-type: none"> □ UHD Flat TV □ Design: Sleek & 360° design, cable management, front volume bezel, v-shape stand □ Specifications and features <ul style="list-style-type: none"> - Tizen OS - Picture quality: UHD delivers abundant color of the original content via Dynamic Crystal Color - Functions <ul style="list-style-type: none"> ▪ AI: Optimal picture quality, sound quality, and usability to the environment and user context without user input ▪ Bixby2.0: Voice Assistant, expanded user experience at home ▪ Universal Guide: Improved user satisfaction by expanding contents recommendation and catalogue to provide recommendation by target segment 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Feb 2019 □ Size: 50/55/65"
UHD TV (RU7300)	<ul style="list-style-type: none"> □ UHD Curved TV □ Design: Sleek & 360° design, cable management, luminous bezel, simple stand □ Specifications and features <ul style="list-style-type: none"> - Tizen OS - Picture quality: Clearer viewing experience in UHD via the Company's picture quality improvement algorithm - Functions <ul style="list-style-type: none"> ▪ Improved searching of new services and customized contents: TV Plus, iTunes, Airplay (new) ▪ IR Blaster: Expanded convenient One Remote feature 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Feb 2019 □ Size: 55/65"
UHD TV (RU7100)	<ul style="list-style-type: none"> □ UHD Flat TV □ Design: Sleek & 360° design, cable management, luminous bezel, simple stand □ Specifications and features <ul style="list-style-type: none"> - Tizen OS - Picture quality: Clearer viewing experience in UHD via the Company's picture quality improvement algorithm - Functions <ul style="list-style-type: none"> ▪ Improved searching of new services and customized contents: TV Plus, iTunes, Airplay (new) ▪ IR Blaster: Expanded convenient One Remote feature 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Feb 2019 □ Size: 43/49/55/65/75"
LCD Monitor SR75	<ul style="list-style-type: none"> □ Product concept <ul style="list-style-type: none"> - Monitor that addresses user pain points <ul style="list-style-type: none"> ▪ Takes up minimum installation space to allow user more freedom ▪ Built-in arm stand allows minimized installation space and cleaner appearance - Frame design integrates well with the space □ Specifications <ul style="list-style-type: none"> - 3-side bezel-less / built-in arm stand / frame design - Supports high-resolution <ul style="list-style-type: none"> ▪ 32" UHD (3840 X 2160) ▪ 27" WQHD (2560 X 1440) 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Jan 2019 □ Size: 27/32"
LCD Monitor CRG9	<ul style="list-style-type: none"> □ Product concept <ul style="list-style-type: none"> - Lead the trend of curved, wide, high-definition, large-size monitor in the gaming market via 32:9 49" performance upgrade - Best flagship model adopted with 5K + HDR1000 □ Specifications and features <ul style="list-style-type: none"> - Offers more abundant and vivid colors enabled by the QD technology - Provides a more immersive experience via 32:9 Wide Curved Form Factor - Addresses user pain points of Dual monitors - Improved usability and added convenience via features such as Tilt, HAS, Swivel 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Mar 2019 □ Size: 49"
LCD Monitor CRG5	<ul style="list-style-type: none"> □ Product concept <ul style="list-style-type: none"> - Secure market share by introducing a mid-range-and below- model in the FHD 24" segment, the most dominant segment in the gaming market - Offers a more comfortable and immersive gaming picture quality - Added a design factor that applies gaming identity in the back 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Mar 2019 □ Size: 24"

Research project	Results and expected effects	Details
	<ul style="list-style-type: none"> □ Specifications and features - Seamless scanning rate of 144Hz and soft movement without afterimage - Offers seamless gaming screen without screen tearing by adjusting the Free-sync playback rate - Optimal gaming mode for different games 	
Sound Bar SBQ70R	<ul style="list-style-type: none"> □ Product concept - Offers realistic user experience and sound to match TV market trends - Increased sales attach rate by matching the design and color with our TV products □ Specifications and features - Improved TV sound and gaming experience via patent technologies (ATMOS and Acoustic beam) - Provides sound field (AI sound, Game Pro) optimized for consumer contents - Provides 3D Virtual Surround via Hole Array technology 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Mar 2019
QLED TV (LS03)	<ul style="list-style-type: none"> □ Flat QLED 4K TV, Life Style TV □ Design: Real Frame Look, No Gap WMT, Invisible Cable □ Specifications - Platform (H/W, S/W): Tizen OS - Concept: Picture frame function of The Frame meets high-definition QLED; allows for appreciation of artwork and TV content with a single product - Image quality: High-definition QLED with vivid, rich colors and AI-based cutting-edge technology provides upscale experience of appreciating art pieces and watching TV 	<ul style="list-style-type: none"> □ Region: Global □ Launch: Apr 2019 □ Size: 43/49/55/65"

11. Other information

Intellectual property activities are an integral part of our R&D strategies—SEC registered its first US patent in 1984 and currently holds 132,478 patents around the world. The Company holds the highest number of patents (cumulative number) in the US and aims to address conflicts in the US more effectively.

<Number of patents registered in each country (as of June 30, 2019, cumulative)>

	Korea	US	Europe	China	Japan	Others
<i>Number</i>	23,667	52,537	27,247	11,808	7,165	10,054

In the first half 2019, the Company invested KRW 10.1 trillion in R&D and registered 1,473 domestic and 3,132 US patents.

<Number of patent registrations per year>

	2Q19	2018	2017	2016	2015	2014	2013	2012
<i>Korea</i>	1,473	2,055	2,703	3,462	3,002	3,985	2,775	2,024
<i>US</i>	3,132	6,062	6,072	5,683	5,220	5,085	4,802	5,194

These patents are mostly related to smartphones, smart TVs, memory, and system LSI products for the Company's strategic business products or for future use. These patents not only protect the Company's business but also play a role in keeping similar technology and patents, as well as competitors, in check. Additionally, the Company is focusing on securing early patents in new technologies ahead of others, in order to protect opportunities and have the freedom to operate when entering new businesses.

The Company has signed cross-licensing agreements with Google (signed in January 2014; permanent), Nokia (October 2018), WD (December 2016; 2016–2024), Qualcomm (January 2018; 2018–2023), and Huawei (February 2019), through which the Company has secured an extensive patent protection in mainstay businesses as well as in the fields of new business.

The Company has also been focusing on securing design patents to protect its original design applied to smartphones and LED TVs. In the first half of 2019, the Company acquired 456 US patents, in part for the aforementioned purposes.

B. Environmental regulations

The Company strictly abides by environmental regulations on products and in the workplace, as prescribed by law. In addition, in accordance with “the low carbon green growth policy” of the Korean government, the Company reports “the amount of CO2 emission and energy use” to the government and provides related information to stakeholders by providing various reports, including the Samsung Sustainability Report.

(See 『10. Green Management』 of 『XI. Other Information』 for more details about Green Technology Certification.)

(Environmental regulation of products)

Environmental regulation of products are becoming stricter, reflecting the concerns of governments and regulators about potential direct and indirect impact of products to consumers' health and safety as consumers. Accordingly, the Company is working to minimize the environmental impact throughout the entire life cycle of products from the development stage of components and products to manufacturing, distribution, use, and disposal. The Company offers "Eco-Partner Certification" to suppliers for components free of harmful substances, and runs an "eco-design evaluation" system to reflect eco-friendly elements on products (reduced use of resources, energy and harmful substances, and the use of eco-friendly materials) at the development stage, and operates a "waste electronics collection recycle system" in Europe, North America, Korea, and India for collecting and recycling waste electronics. These activities are in line with domestic and foreign environmental laws on electronics and are a differentiation factor for the Company and its products.

Relevant laws are as follows:

1. law on collection and recycle of waste electronics (eg., EU WEEE Directive)
2. limit on the use of harmful substances (eg., EU RoHS Directive, REACH Regulation)
3. regulation on energy efficiency (eg., EU ErP Directive)

(Environmental Regulations in the Workplace)

The Company operates environmental pollution prevention facilities to reduce air pollution, water pollution, and waste disposal, and to minimize the discharge of pollutants, thereby minimizing impact on the surrounding environment.

Environmental management of workplace is supervised by the relevant government authorities. All production facilities, domestic and overseas, have acquired the International Occupational Health and Safety Management System Certification (ISO 14001, OHSAS18001) to strengthen compliance.

Major Relevant Domestic and International Laws are as follows:

1. Regulations related to emission of pollutants: Water Quality and Ecosystem Conservation Act, Clean Air Conservation Act, Wastes Control Act, Noise and Vibration Control Act, Environmental Impact Assessment Act
2. Management of greenhouse gas emission: Act on Allocation and Trading of Greenhouse Gas Emission, Framework Act on Low Carbon, Green Growth
3. Others: Toxic Chemicals Control Act, Act on the Registration and Evaluation, etc. of Chemical Substances, Odor Control Law, Soil Environment Conservation Act

(Greenhouse gas emission and energy consumption management)

The Company is a “controlled entity” according to Article 42 of Korea’s “Framework Act on Low Carbon, Green Growth.” Thus, the Company has been reporting the amount of greenhouse gas emission and energy consumption, verified by a third-party, to the authorities and disclosing it to stakeholders according to Article 44 of the same Act since May 2011.

The reported amount of greenhouse gas emission and energy use are provided below:

	2018	2017	2016
Greenhouse gas (tCO ₂ e)	10,775,372	8,589,071	6,885,300
Energy (TJ)	153,681	130,834	107,740

- ※ Domestic manufacturing facilities, office buildings, buildings owned by the Company, leased buildings, etc.
- ※ Reported Greenhouse gas emission excludes ozone depletion substances (ODS).
- ※ DP business was excluded from the calculation as Samsung Display was spun off from Samsung Electronics in 2012.
- ※ Amounts may differ by third-party organization verification results.

From 2015, in accordance with the Article 8 of the Act on the Allocation and Trading of Greenhouse-Gas Emission Permits, the Company is an eligible business entity under the Act.

III. Financial Affairs

1. Consolidated financial statements

INTERIM CONSOLIDATED STATEMENTS OF FINANCIAL POSITION

(In millions of Korean won, in thousands of US dollars (Note 2.4))

	Notes	June 30, 2019 KRW	December 31, 2018 KRW	June 30, 2019 USD	December 31, 2018 USD
Assets					
Current assets					
Cash and cash equivalents	3, 25	27,531,931	30,340,505	24,036,118	26,488,079
Short-term financial instruments	3, 25	60,705,062	65,893,797	52,997,156	57,527,061
Short-term financial assets at amortized cost	3, 25	3,646,364	2,703,693	3,183,374	2,360,397
Short-term financial assets at fair value through profit or loss	3, 4, 25	1,687,030	2,001,948	1,472,823	1,747,755
Trade receivables	3, 25	36,061,645	33,867,733	31,482,788	29,567,444
Non-trade receivables	3, 25	3,513,607	3,080,733	3,067,474	2,689,563
Advance payments		1,603,718	1,361,807	1,400,089	1,188,894
Prepaid expenses		4,756,440	4,136,167	4,152,500	3,610,985
Inventories	5	31,246,985	28,984,704	27,279,460	25,304,428
Other current assets	3, 25	2,680,696	2,326,337	2,340,320	2,030,955
Total current assets		173,433,478	174,697,424	151,412,102	152,515,561
Non-current assets					
Financial assets at amortized cost	3, 25	910,299	238,309	794,716	208,050
Financial assets at fair value through other comprehensive income	3, 4, 25	8,466,918	7,301,351	7,391,848	6,374,276
Financial assets at fair value through profit or loss	3, 4, 25	837,424	775,427	731,094	676,969
Investments in associates and joint ventures	6	7,389,834	7,313,206	6,451,524	6,384,626
Property, plant and equipment	7	116,624,189	115,416,724	101,816,061	100,761,912
Intangible assets	8	15,543,025	14,891,598	13,569,480	13,000,767
Long-term prepaid expenses		4,444,677	5,009,679	3,880,323	4,373,585
Net defined benefit assets	11	201,584	562,356	175,988	490,952
Deferred income tax assets		5,420,125	5,468,002	4,731,915	4,773,713
Other non-current assets	3, 25	9,668,581	7,683,168	8,440,931	6,707,612
Total assets		342,940,134	339,357,244	299,395,982	296,268,023

INTERIM CONSOLIDATED STATEMENTS OF FINANCIAL POSITION

(In millions of Korean won, in thousands of US dollars (Note 2.4))

	Notes	June 30, 2019 KRW	December 31, 2018 KRW	June 30, 2019 USD	December 31, 2018 USD
Liabilities and Equity					
Current liabilities					
Trade payables	3, 25	9,073,058	8,479,916	7,921,024	7,403,195
Short-term borrowings	3, 9, 25	11,824,171	13,586,660	10,322,820	11,861,520
Other payables	3, 25	10,466,995	10,711,536	9,137,969	9,351,460
Advances received	14	698,447	820,265	609,763	716,113
Withholdings	3	795,615	951,254	694,593	830,470
Accrued expenses	3, 14	16,067,302	20,339,687	14,027,188	17,757,095
Income tax payable		2,289,370	8,720,050	1,998,682	7,612,839
Current portion of long-term liabilities	2, 3, 9, 10, 25	741,623	33,386	647,457	29,147
Provisions	12	6,066,888	4,384,038	5,296,557	3,827,383
Other current liabilities	3, 14, 25	1,285,802	1,054,718	1,122,540	920,799
Total current liabilities		59,309,271	69,081,510	51,778,593	60,310,021
Non-current liabilities					
Debentures	3, 10, 25	989,817	961,972	864,137	839,827
Long-term borrowings	2, 3, 9, 25	1,908,663	85,085	1,666,314	74,281
Long-term other payables	3, 25	2,496,410	3,194,043	2,179,433	2,788,486
Net defined benefit liabilities	11	655,451	504,064	572,226	440,061
Deferred income tax liabilities		16,507,403	15,162,523	14,411,408	13,237,291
Long-term provisions	12	1,012,199	663,619	883,677	579,357
Other non-current liabilities	3, 14, 25	2,313,887	1,951,251	2,020,086	1,703,496
Total liabilities		85,193,101	91,604,067	74,375,874	79,972,820

INTERIM CONSOLIDATED STATEMENTS OF FINANCIAL POSITION

(In millions of Korean won, in thousands of US dollars (Note 2.4))

		June 30, 2019	December 31, 2018	March 31, 2019	December 31, 2018
	Notes	KRW	KRW	USD	USD
Equity attributable to owners of the parent					
Preference shares	15	119,467	119,467	104,298	104,298
Ordinary shares	15	778,047	778,047	679,256	679,256
Share premium		4,403,893	4,403,893	3,844,717	3,844,717
Retained earnings	16	248,060,958	242,698,956	216,563,904	211,882,732
Other components of equity	17	(3,469,704)	(7,931,370)	(3,029,145)	(6,924,300)
		249,892,661	240,068,993	218,163,030	209,586,703
Non-controlling interests		7,854,372	7,684,184	6,857,078	6,708,500
Total equity		257,747,033	247,753,177	225,020,108	216,295,203
Total liabilities and equity		342,940,134	339,357,244	299,395,982	296,268,023

INTERIM CONSOLIDATED STATEMENTS OF PROFIT OR LOSS

(In millions of Korean won, in thousands of US dollars (Note 2.4))

	Notes	For the three months ended June 30,				For the six months ended June 30,			
		2019	2018	2019	2018	2019	2018	2019	2018
		KRW	KRW	USD	USD	KRW	KRW	USD	USD
Revenue		56,127,104	58,482,658	49,000,475	51,056,937	108,512,650	119,046,372	94,734,469	103,930,692
Cost of sales	18	35,944,684	31,274,597	31,380,678	27,303,566	68,691,136	63,184,069	59,969,214	55,161,395
Gross profit		20,182,420	27,208,061	17,619,797	23,753,371	39,821,514	55,862,303	34,765,255	48,769,297
Selling and administrative expenses	18, 19	13,585,355	12,339,026	11,860,381	10,772,302	26,991,167	25,351,098	23,564,016	22,132,192
Operating profit		6,597,065	14,869,035	5,759,416	12,981,069	12,830,347	30,511,205	11,201,239	26,637,105
Other non-operating income	20	360,159	367,588	314,429	320,914	681,941	738,564	595,353	644,786
Other non-operating expenses	20	312,883	222,409	273,155	194,169	570,014	467,672	497,638	408,290
Share of net profits of associates and joint ventures	6	64,492	106,307	56,303	92,809	142,173	170,671	124,121	149,000
Financial income	21	3,151,583	3,119,060	2,751,417	2,723,023	5,068,119	5,402,260	4,424,605	4,716,319
Financial expenses	21	2,681,052	2,832,745	2,340,632	2,473,063	4,060,224	4,772,285	3,544,686	4,166,334
Profit before income tax		7,179,364	15,406,836	6,267,778	13,450,583	14,092,342	31,582,743	12,302,994	27,572,586
Income tax expense	22	1,998,788	4,363,424	1,744,995	3,809,387	3,868,181	8,850,787	3,377,026	7,726,976
Profit for the period		5,180,576	11,043,412	4,522,783	9,641,196	10,224,161	22,731,956	8,925,968	19,845,610
Profit attributable to owners of the parent		5,064,530	10,981,547	4,421,472	9,587,186	10,172,020	22,593,380	8,880,448	19,724,630
Profit attributable to non-controlling interests		116,046	61,865	101,311	54,010	52,141	138,576	45,520	120,980
Earnings per share (in Korean won, in US dollars)	23								
- Basic		746	1,617	0.65	1.41	1,497	3,325	1.31	2.90
- Diluted		746	1,617	0.65	1.41	1,497	3,325	1.31	2.90

INTERIM CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

(In millions of Korean won, in thousands of US dollars (Note 2.4))

	Notes	For the three months ended June 30,				For the six months ended June 30,			
		2019	2018	2019	2018	2019	2018	2019	2018
		KRW	KRW	USD	USD	KRW	KRW	USD	USD
Profit for the period		5,180,576	11,043,412	4,522,783	9,641,196	10,224,161	22,731,956	8,925,968	19,845,610
Other comprehensive income (loss)									
Items that will not to be reclassified to profit or loss subsequently:									
Gain (loss) on valuation of financial assets at fair value through other comprehensive income, net of tax	17	181,816	76,999	158,730	67,222	789,897	(97,885)	689,601	(85,456)
Share of other comprehensive income (loss) of associates and joint ventures, net of tax	17	363	(32,047)	317	(27,978)	(1,757)	1,324	(1,534)	1,156
Remeasurement of net defined benefit liabilities (asset), net of tax	17	(17,226)	(19,169)	(15,039)	(16,735)	(54,460)	(55,050)	(47,545)	(48,060)
Items to be reclassified to profit or loss subsequently:									
Share of other comprehensive income of associates and joint ventures, net of tax	17	27,704	16,239	24,186	14,177	65,419	38,525	57,113	33,633
Foreign currency translation, net of tax	17	1,567,642	1,137,662	1,368,594	993,210	3,777,018	2,224,931	3,297,439	1,942,425
Gain (loss) on valuation of derivatives	17	(4,015)	46,556	(3,505)	40,645	5,527	37,247	4,825	32,518
Other comprehensive income for the period, net of tax		1,756,284	1,226,240	1,533,283	1,070,541	4,581,644	2,149,092	3,999,899	1,876,216
Total comprehensive income for the period		6,936,860	12,269,652	6,056,066	10,711,737	14,805,805	24,881,048	12,925,867	21,721,826
Comprehensive income attributable to:									
Owners of the parent		6,795,351	12,188,562	5,932,525	10,640,943	14,632,924	24,705,412	12,774,937	21,568,491
Non-controlling interests		141,509	81,090	123,541	70,794	172,881	175,636	150,930	153,335

INTERIM CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY

(In millions of Korean won)

2018 KRW	Notes	Preference shares	Ordinary shares	Share premium	Retained earnings	Other components of equity	Equity attributable to owners of the parent	Non- controlling interests	Total
Balance as of January 1, 2018		119,467	778,047	4,403,893	215,811,200	(13,899,191)	207,213,416	7,278,012	214,491,428
Cumulative effect of changes in accounting principles		-	-	-	220,176	(261,734)	(41,558)	-	(41,558)
Restated total equity at the beginning of the financial period		119,467	778,047	4,403,893	216,031,376	(14,160,925)	207,171,858	7,278,012	214,449,870
Profit for the period		-	-	-	11,611,833	-	11,611,833	76,711	11,688,544
Gain (loss) on valuation of financial assets at fair value through other comprehensive income, net of tax		-	-	-	(146)	(142,495)	(142,641)	(32,243)	(174,884)
Share of other comprehensive income (loss) of associates and joint ventures, net of tax		-	-	-	-	55,600	55,600	57	55,657
Foreign currency translation, net of tax		-	-	-	-	1,037,246	1,037,246	50,023	1,087,269
Remeasurement of net defined benefit liabilities (assets), net of tax		-	-	-	-	(35,876)	(35,876)	(5)	(35,881)
Loss on valuation of derivatives		-	-	-	-	(9,309)	(9,309)	-	(9,309)
Total comprehensive income		-	-	-	11,611,687	905,166	12,516,853	94,543	12,611,396
Dividends		-	-	-	(2,929,530)	-	(2,929,530)	(1,334)	(2,930,864)
Capital transaction under common control		-	-	-	-	-	-	4,031	4,031
Changes in consolidated entities		-	-	-	-	-	-	(39)	(39)
Acquisition of treasury shares		-	-	-	-	(875,111)	(875,111)	-	(875,111)
Retirement of treasury shares		-	-	-	(2,228,135)	2,228,135	-	-	-
Other		-	-	-	-	435	435	162	597
Total transactions with owners		-	-	-	(5,157,665)	1,353,459	(3,804,206)	2,820	(3,801,386)
Balance as of March 31, 2018		119,467	778,047	4,403,893	222,485,398	(11,902,300)	215,884,505	7,375,375	223,259,880

INTERIM CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY

(In thousands of US dollars (Note 2.4))

2018 USD	Note s	Preference shares	Ordinary shares	Share premium	Retained earnings	Other components of equity	Equity attributable to owners of the parent	Non- controlling interests	Total
Balance as of January 1, 2018		104,298	679,256	3,844,717	188,408,995	(12,134,368)	180,902,898	6,353,901	187,256,799
Cumulative effect of changes in accounting principles		-	-	-	192,220	(228,501)	(36,281)	-	(36,281)
Restated total equity at the beginning of the financial period		104,298	679,256	3,844,717	188,601,215	(12,362,869)	180,866,617	6,353,901	187,220,518
Profit for the period		-	-	-	19,724,630	-	19,724,630	120,980	19,845,610
Gain (loss) on valuation of financial assets at fair value through other comprehensive income, net of tax		-	-	-	2,346	(69,961)	(67,615)	(17,841)	(85,456)
Share of other comprehensive income of associates and joint ventures, net of tax		-	-	-	-	34,673	34,673	116	34,789
Foreign currency translation, net of tax		-	-	-	-	1,892,286	1,892,286	50,139	1,942,425
Remeasurement of net defined benefit assets, net of tax		-	-	-	-	(48,001)	(48,001)	(59)	(48,060)
Gain on valuation of derivatives		-	-	-	-	32,518	32,518	-	32,518
Total comprehensive income		-	-	-	19,726,976	1,841,515	21,568,491	153,335	21,721,826
Dividends		-	-	-	(4,656,844)	-	(4,656,844)	(2,153)	(4,658,997)
Capital transaction under common control		-	-	-	-	1,501	1,501	1,095	2,596
Changes in consolidated entities		-	-	-	-	-	-	(34)	(34)
Acquisition of treasury shares		-	-	-	-	(763,995)	(763,995)	-	(763,995)
Retirement of treasury shares		-	-	-	(1,945,223)	1,945,223	-	-	-
Other		-	-	-	-	1,461	1,461	900	2,361
Total transactions with owners		-	-	-	(6,602,067)	1,184,190	(5,417,877)	(192)	(5,418,069)
Balance as of June 30, 2018		104,298	679,256	3,844,717	201,726,124	(9,337,164)	197,017,231	6,507,044	203,524,275

INTERIM CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY

(In millions of Korean won)

2019 KRW	Note s	Preference shares	Ordinary shares	Share premium	Retained earnings	Other components of equity	Equity attributable to owners of the parent	Non- controlling interests	Total
Balance as of January 1, 2019		119,467	778,047	4,403,893	242,698,956	(7,931,370)	240,068,993	7,684,184	247,753,177
Profit for the period		-	-	-	10,172,020	-	10,172,020	52,141	10,224,161
Gain on valuation of financial assets at fair value through other comprehensive income, net of tax	17	-	-	-	14	734,697	734,711	55,186	789,897
Share of other comprehensive income of associates and joint ventures, net of tax	17	-	-	-	-	63,520	63,520	142	63,662
Foreign currency translation, net of tax	17	-	-	-	-	3,711,746	3,711,746	65,272	3,777,018
Remeasurement of net defined benefit liabilities (assets), net of tax	17	-	-	-	-	(54,600)	(54,600)	140	(54,460)
Gain on valuation of derivatives	17	-	-	-	-	5,527	5,527	-	5,527
Total comprehensive income		-	-	-	10,172,034	4,460,890	14,632,924	172,881	14,805,805
Dividends		-	-	-	(4,810,032)	-	(4,810,032)	(5,943)	(4,815,975)
Capital transaction under common control		-	-	-	-	722	722	(429)	293
Changes in consolidated entities		-	-	-	-	-	-	(27)	(27)
Other		-	-	-	-	54	54	3,706	3,760
Total transactions with owners		-	-	-	(4,810,032)	776	(4,809,256)	(2,693)	(4,811,949)
Balance as of June 30, 2019		119,467	778,047	4,403,893	248,060,958	(3,469,704)	249,892,661	7,854,372	257,747,033

INTERIM CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY

(In thousands of US dollars (Note 2.4))

2019 USD	Note s	Preference shares	Ordinary shares	Share premium	Retained earnings	Other component s of equity	Equity attributable to owners of the parent	Non- controlling interests	Total
Balance as of January 1, 2019		104,298	679,256	3,844,717	211,882,732	(6,924,300)	209,586,703	6,708,500	216,295,203
Profit for the period		-	-	-	8,880,448	-	8,880,448	45,520	8,925,968
Gain on valuation of financial assets at fair value through other comprehensive income, net of tax		-	-	-	12	641,410	641,422	48,179	689,601
Share of other comprehensive income of associates and joint ventures, net of tax		-	-	-	-	55,455	55,455	124	55,579
Foreign currency translation, net of tax		-	-	-	-	3,240,454	3,240,454	56,985	3,297,439
Remeasurement of net defined benefit liabilities (assets), net of tax		-	-	-	-	(47,667)	(47,667)	122	(47,545)
Gain on valuation of derivatives		-	-	-	-	4,825	4,825	-	4,825
Total comprehensive income		-	-	-	8,880,460	3,894,477	12,774,937	150,930	12,925,867
Dividends		-	-	-	(4,199,288)	-	(4,199,288)	(5,188)	(4,204,476)
Capital transaction under common control		-	-	-	-	630	630	(375)	255
Changes in consolidated entities		-	-	-	-	-	-	(24)	(24)
Other		-	-	-	-	48	48	3,235	3,283
Total transactions with owners		-	-	-	(4,199,288)	678	(4,198,610)	(2,352)	(4,200,962)
Balance as of June 30, 2019		104,298	679,256	3,844,717	216,563,904	(3,029,145)	218,163,030	6,857,078	225,020,108

INTERIM CONSOLIDATED STATEMENTS OF CASH FLOWS

	Notes	For the three months ended June 30,			
		2019	2018	2019	2018
		KRW	KRW	USD	USD
Cash flows from operating activities					
Profit for the period		10,224,161	22,731,956	8,925,968	19,845,610
Adjustments	24	17,996,969	21,907,443	15,711,840	19,125,789
Changes in assets and liabilities arising from operating activities	24	(7,767,511)	(8,341,423)	(6,781,247)	(7,282,287)
Cash generated from operations		20,453,619	36,297,976	17,856,561	31,689,112
Interest received		1,068,089	779,529	932,470	680,550
Interest paid		(308,217)	(208,024)	(269,082)	(181,611)
Dividends received		170,601	156,669	148,939	136,776
Income tax paid		(9,544,916)	(7,972,024)	(8,332,968)	(6,959,792)
Net cash inflow from operating activities		11,839,176	29,054,126	10,335,920	25,365,035
Cash flows from investing activities					
Net decrease in short-term financial instruments		10,169,664	1,212,089	8,878,391	1,058,186
Net increase in short-term financial assets at amortized cost		(760,329)	(617,411)	(663,788)	(539,016)
Net decrease in short-term financial assets at fair value through profit or loss		436,327	-	380,925	-
Disposal of long-term financial instruments		1,186,873	116,265	1,036,172	101,502
Acquisition of long-term financial instruments		(6,780,511)	(1,571,571)	(5,919,569)	(1,372,024)
Disposal of financial assets at amortized cost		22,983	-	20,065	-
Acquisition of financial assets at amortized cost		(789,822)	(158,716)	(689,536)	(138,563)
Disposal of financial assets at fair value through other comprehensive income		293	2,230	256	1,947
Acquisition of financial assets at fair value through other comprehensive income		(36,810)	(317,963)	(32,136)	(277,590)
Disposal of financial assets at fair value through profit or loss		39,823	33,536	34,767	29,278
Acquisition of financial assets at fair value through profit or loss		(77,684)	(78,004)	(67,820)	(68,100)
Disposal of investments in associates and joint ventures		306	148	267	129
Acquisition of investments in associates and joint ventures		(5,500)	(17,137)	(4,802)	(14,961)
Disposal of property, plant and equipment		244,343	318,599	213,318	278,146
Acquisition of property, plant and equipment		(10,685,064)	(18,102,717)	(9,328,349)	(15,804,160)
Disposal of intangible assets		3,464	10,004	3,024	8,734
Acquisition of intangible assets		(561,613)	(477,055)	(490,303)	(416,482)
Cash outflow from business combinations		(957,944)	(19,140)	(836,311)	(16,710)
Cash inflow from other investing activities		22,571	111,768	19,705	97,576
Net cash outflow from investing activities		(8,528,630)	(19,555,075)	(7,445,724)	(17,072,108)

INTERIM CONSOLIDATED STATEMENTS OF CASH FLOWS

(In millions of Korean won, in thousands of US dollars (Note 2.4))

Notes	For the six months ended June 30,			
	2019	2018	2019	2018
	KRW	KRW	USD	USD
Cash flows from financing activities				
Net decrease in short-term borrowings	(1,726,736)	(2,845,304)	(1,507,487)	(2,484,027)
Acquisition of treasury shares	-	(875,111)	-	(763,995)
Proceeds from long-term borrowings	-	3,410	-	2,977
Repayment of long-term borrowings	(335,382)	(267,750)	(292,798)	(233,753)
Dividends paid	(4,814,335)	(5,338,747)	(4,203,044)	(4,660,871)
Net increase in non-controlling interests	293	3,056	256	2,668
Net cash outflow from financing activities	(6,876,160)	(9,320,446)	(6,003,073)	(8,137,001)
Effect of exchange rate changes on cash and cash equivalents	757,040	638,487	660,916	557,417
Net increase (decrease) in cash and cash equivalents	(2,808,574)	817,092	(2,451,961)	713,343
Cash and cash equivalents				
Beginning of the period	30,340,505	30,545,130	26,488,079	26,666,722
End of the period	27,531,931	31,362,222	24,036,118	27,380,065

2. Notes to consolidated financial statements

1. General Information

1.1 Company Overview

Samsung Electronics Co., Ltd. (“SEC”) was incorporated under the laws of the Republic of Korea in 1969 and listed its shares on the Korea Exchange in 1975. SEC and its subsidiaries (collectively referred to as the “Company”) operate four business divisions: Consumer Electronics (“CE”), Information technology & Mobile communications (“IM”), Device Solutions (“DS”) and Harman. The CE division includes digital TVs, monitors, air conditioners and refrigerators, and the IM division includes mobile phones, communication systems and computers. The DS division includes products such as Memory, Foundry and System LSI in the semiconductor business (“Semiconductor”), and LCD and OLED panels in the display business (“DP”). The Harman division includes connected car systems, audio and visual products, enterprise automation solutions and connected services. The Company is domiciled in the Republic of Korea and the address of its registered office is Suwon, the Republic of Korea.

These interim consolidated financial statements have been prepared in accordance with Korean International Financial Reporting Standards (“Korean IFRS”) 1110 *Consolidated Financial Statements*. SEC, as the controlling company, consolidates its 252 subsidiaries including Samsung Display and Samsung Electronics America (refer to Note 1.2). The Company also applies the equity method of accounting for its 44 associates and joint ventures, including Samsung Electro-Mechanics.

1.2 Consolidated Subsidiaries

(A) The consolidated subsidiaries as of June 30, 2019 are as follows:

Area	Subsidiaries	Industry	Percentage of ownership (%) ¹
Domestic	Samsung Display (SDC)	Manufacture and sale of display panels	84.8
	SU Materials	Manufacture of display components	50.0
	STECO	Manufacture of semiconductor components	70.0
	SEMES	Manufacture of semiconductor/FPD	91.5
	Samsung Electronics Service	Repair services for electronic devices	99.3
	Samsung Electronics Service Customer Satisfaction	Call center for repair services for electronic devices	100.0
	Samsung Electronics Sales	Sale of electronic devices	100.0
	Samsung Electronics Logitech	General logistics agency	100.0
	Samsung Medison	Manufacture and sale of medical equipment	68.5
	Samsung Venture Capital Union #21	Technology business, venture capital investments	99.0
	Samsung Venture Capital Union #22	Technology business, venture capital investments	99.0
	Samsung Venture Capital Union #26	Technology business, venture capital investments	99.0
	Samsung Venture Capital Union #27	Technology business, venture capital investments	99.0
	Samsung Venture Capital Union #28	Technology business, venture capital investments	99.0
	Samsung Venture Capital Union #29	Technology business, venture capital investments	99.0
	Samsung Venture Capital Union #32	Technology business, venture capital investments	99.0
	Samsung Venture Capital Union #33	Technology business, venture capital investments	99.0
	Samsung Venture Capital Union #37	Technology business, venture capital investments	99.0
	Samsung Venture Capital Union #40	Technology business, venture capital investments	99.0
	Samsung Venture Capital Union #42	Technology business, venture capital investments	99.0
	Samsung Venture Capital Union #43	Technology business, venture capital investments	99.0
	Samsung Venture Capital Union #45	Technology business, venture capital investments	99.0
	Mirero System	Development and supply of semiconductor process defect and quality control software	99.9
	Growth type private equity trust specialized in semiconductors	Investment on semiconductor industry	66.7
	Harman International Korea	Software development and supply, etc.	100.0
	Red Bend Software Korea	Software development and supply	100.0

¹ Ownership represents the Company’s ownership of the voting rights in each entity, including subsidiaries’ ownerships.

Area	Subsidiaries	Industry	Percentage of ownership (%) ¹
America	Samsung Electronics America (SEA)	Sale of electronic devices	100.0
	NeuroLogica	Medical equipment	100.0
	Samsung Semiconductor (SSI)	Sale of semiconductor/display panels	100.0
	Samsung Electronics Canada (SECA)	Sale of electronic devices	100.0
	Samsung Research America (SRA)	R&D	100.0
	Samsung Mexicana (SAMEX)	Manufacture of electronic devices	100.0
	Samsung International (SII)	Manufacture of TV/monitors	100.0
	Samsung Austin Semiconductor (SAS)	Manufacture of semiconductor	100.0
	Samsung Electronics Mexico (SEM)	Sale of electronic devices	99.9
	SEMES America (SEMESA)	Semiconductor equipment	100.0
	Samsung Electronics Digital Appliance Mexico (SEDAM)	Manufacture of electronic devices	100.0
	Samsung Electronics Latinoamerica Miami (SEMI)	Sale of electronic devices	100.0
	Samsung Electronics Latinoamerica (SELA)	Sale of electronic devices	100.0
	Samsung Electronics Venezuela (SEVEN)	Marketing and services	100.0
	Samsung Electronica Colombia (SAMCOL)	Sale of electronic devices	100.0
	Samsung Electronics Panama (SEPA)	Consulting	100.0
	Samsung Electronica da Amazonia (SEDA)	Manufacture and sale of electronic devices	100.0
	Samsung Electronics Argentina (SEASA)	Marketing and services	100.0
	Samsung Electronics Chile (SECH)	Sale of electronic devices	100.0
	Samsung Electronics Peru (SEPR)	Sale of electronic devices	100.0
	RT SV CO-INVEST (RT-SV)	Venture capital investments	99.9
	Samsung HVAC	Sale of air conditioning products	100.0
	SmartThings	Sale of smart home electronics	100.0
	Prismview	Manufacture and sale of LED displays	100.0
	Beijing Integrated Circuit Industry International Fund (Beijing Fund)	Venture capital investments	61.4
	Stellus Technologies	Manufacture and sale of semiconductor system	100.0
	Samsung Oak Holdings (SHI)	Holding company	100.0
	AdGear Technologies	Digital advertising platforms	100.0
	Joyent	Cloud services	100.0
	Samsung Next	Holding company	100.0
	Samsung Next Fund	Technology business, venture capital investments	100.0
	Dacor Holdings	Holding company	100.0
	Dacor	Manufacture and sale of home appliances	100.0
	Dacor Canada	Sale of home appliances	100.0
	EverythingDacor.com	Sale of home appliances	100.0
	Distinctive Appliances of California	Sale of home appliances	100.0
	Viv Labs	Research of AI technology	100.0
	SigMast Communications	RCS (Rich Communication Service)	100.0
	Harman Becker Automotive Systems	Manufacture and sale of audio products, R&D	100.0
	Harman Connected Services Engineering	Connected service provider	100.0
Harman Connected Services, Inc.	Connected service provider	100.0	
Harman Connected Services South America	Connected service provider	100.0	
Harman da Amazonia Industria Eletronica e Participacoes	Manufacture and sale of audio products	100.0	
Harman de Mexico S. de R.L. de C.V.	Manufacture of audio products	100.0	

¹ Ownership represents the Company's ownership of the voting rights in each entity, including subsidiaries' ownerships.

Area	Subsidiaries	Industry	Percentage of ownership (%) ¹
America	Harman do Brasil Industria Eletronica e Participacoes	Sale of audio products, R&D	100.0
	Harman Financial Group	Management company	100.0
	Harman International Industries Canada	Sale of audio products	100.0
	Harman International Industries, Inc.	Holding company	100.0
	Harman International Mexico S de RL de CV	Sale of audio products	100.0
	Harman Investment Group, LLC	Financing company	100.0
	Harman KG Holding, LLC	Holding company	100.0
	Harman Professional	Sale of audio products, R&D	100.0
	Red Bend Software	Software design	100.0
	Samsung Electronics Home Appliances America (SEHA)	Manufacture of home appliances	100.0
	China Materialia	Venture capital investments	99.0
	Zhilabs Inc.	Sale of network solutions	100.0
Europe/CIS	Samsung Electronics (UK) (SEUK)	Sale of electronic devices	100.0
	Samsung Electronics Holding (SEHG)	Holding company	100.0
	Samsung Semiconductor Europe GmbH (SSEG)	Sale of semiconductor/display panels	100.0
	Samsung Electronics GmbH (SEG)	Sale of electronic devices	100.0
	Samsung Electronics Iberia (SESA)	Sale of electronic devices	100.0
	Samsung Electronics France (SEF)	Sale of electronic devices	100.0
	Samsung Electronics Hungarian (SEH)	Manufacture and sale of electronic devices	100.0
	Samsung Electronics Czech and Slovak (SECZ)	Sale of electronic devices	100.0
	Samsung Electronics Italia (SEI)	Sale of electronic devices	100.0
	Samsung Electronics Europe Logistics (SELS)	Logistics	100.0
	Samsung Electronics Benelux (SEBN)	Sale of electronic devices	100.0
	Samsung Display Slovakia (SDSK)	Toll processing of display panels	100.0
	Samsung Electronics Romania (SEROM)	Sale of electronic devices	100.0
	Samsung Electronics Overseas (SEO)	Sale of electronic devices	100.0
	Samsung Electronics Polska (SEPOL)	Sale of electronic devices	100.0
	Samsung Electronics Portuguesa (SEP)	Sale of electronic devices	100.0
	Samsung Electronics Nordic (SENA)	Sale of electronic devices	100.0
	Samsung Semiconductor Europe (SSEL)	Sale of semiconductor/display panels	100.0
	Samsung Electronics Austria (SEAG)	Sale of electronic devices	100.0
	Samsung Electronics Slovakia (SESK)	Manufacture of TV/monitors	100.0
	Samsung Electronics Europe Holding (SEEH)	Holding company	100.0
	Samsung Electronics Poland Manufacturing (SEPM)	Manufacture of home appliances	100.0
	Samsung Electronics Greece (SEGR)	Sale of electronic devices	100.0
	Samsung Nanoradio Design Center (SNDC)	R&D	100.0
	Samsung Electronics Air Conditioner Europe B.V. (SEACE)	Sale of air conditioning products	100.0
	Samsung Electronics Rus Company (SERC)	Sale of electronic devices	100.0
	Samsung Electronics Baltics (SEB)	Sale of electronic devices	100.0
	Samsung Electronics Ukraine Company (SEUC)	Sale of electronic devices	100.0
	Samsung R&D Institute Rus (SRR)	R&D	100.0
	Samsung Electronics Central Eurasia (SECE)	Sale of electronic devices	100.0
Samsung Electronics Rus Kaluga (SERK)	Manufacture of TV	100.0	
Samsung Electronics (London) Limited (SEL)	Holding company	100.0	

¹ Ownership represents the Company's ownership of the voting rights in each entity, including subsidiaries' ownerships.

Area	Subsidiaries	Industry	Percentage of ownership (%) ¹
	Samsung Denmark Research Center (SDRC)	R&D	100.0
	Samsung Cambridge Solution Centre (SCSC)	R&D	100.0
	Samsung Electronics Switzerland GmbH (SESG)	Sale of electronic devices	100.0
	Samsung Electronics Caucasus (SECC)	Marketing	100.0
	Harman Connected Services OOO	Connected Service Provider	100.0
	Harman RUS CIS LLC	Sale of audio products	100.0
	AKG Acoustics	Manufacture and sale of audio products	100.0
	AMX UK	Sale of audio products	100.0
	Duran Audio B.V.	Sale of audio products, R&D	100.0
	Harman Audio Iberia Espana Sociedad Limitada	Sale of audio products	100.0
	Harman Automotive UK	Manufacture of audio products	100.0
	Harman Becker Automotive Systems (Germany)	Manufacture and sale of audio products, R&D	100.0
	Harman Becker Automotive Systems Italy	Sale of audio products	100.0
	Harman Becker Automotive Systems Manufacturing Kft	Manufacture of audio products, R&D	100.0
	Harman Belgium	Sale of audio products	100.0
	Harman Connected Services AB.	Connected service provider	100.0
	Harman Finland OY	Connected service provider	100.0
	Harman Connected Services (Germany)	Connected service provider	100.0
	Harman Connected Services	Connected service provider	100.0
	Harman Connected Services Poland Sp.zoo	Connected service provider	100.0
	Harman Connected Services UK	Connected service provider	100.0
	Harman Consumer Nederland B.V.	Sale of audio products	100.0
	Harman Deutschland	Sale of audio products	100.0
Europe/CIS	Harman Finance International GP S.a.r.l	Holding company	100.0
	Harman Finance International SCA	Financing company	100.0
	Harman France SNC	Sale of audio products	100.0
	Harman Holding & Co. KG	Management company	100.0
	Harman Hungary Financing	Financing company	100.0
	Harman Inc. & Co. KG	Holding company	100.0
	Harman International Estonia OU	R&D	100.0
	Harman International Industries (UK)	Sale of audio products and others	100.0
	Harman International Romania SRL	R&D	100.0
	Harman International s.r.o	Manufacture of audio products	100.0
	Harman International SNC	Sale of audio products	100.0
	Harman Management	Holding Company	100.0
	Harman Professional Kft	Manufacture of audio products, R&D	100.0
	Martin Manufacturing (UK)	Manufacture of audio products	100.0
	Harman Professional Denmark ApS	Sale of audio products, R&D	100.0
	Harman Professional France SAS	Sale of audio products	100.0
	Red Bend Software (UK)	Software design	100.0
	Red Bend Software SAS	Software design	100.0
	Studer Professional Audio	Sale of audio products, R&D	100.0
	Innoetics E.P.E.	Software development	100.0
	ARCAM	Holding company	100.0
	A&R Cambridge	Sale of audio products	100.0
	Zhilabs S.L.	Development and sale of network solutions	100.0
	FOODIENT	R&D	100.0

¹ Ownership represents the Company's ownership of the voting rights in each entity, including subsidiaries' ownerships.

Area	Subsidiaries	Industry	Percentage of ownership (%) ¹
Middle East and Africa	Samsung Electronics West Africa (SEWA)	Marketing	100.0
	Samsung Electronics East Africa (SEEA)	Marketing	100.0
	Samsung Gulf Electronics (SGE)	Sale of electronic devices	100.0
	Samsung Electronics Egypt (SEEG)	Manufacture and sale of electronic devices	100.0
	Samsung Electronics Israel (SEIL)	Marketing	100.0
	Samsung Electronics Tunisia (SETN)	Marketing	100.0
	Samsung Electronics Pakistan (SEPAK)	Marketing	100.0
	Samsung Electronics South Africa (SSA)	Sale of electronic devices	100.0
	Samsung Electronics Turkey (SETK)	Sale of electronic devices	100.0
	Samsung Semiconductor Israel R&D Center (SIRC)	R&D	100.0
	Samsung Electronics Levant (SELV)	Sale of electronic devices	100.0
	Samsung Electronics Maghreb Arab (SEMAG)	Sale of electronic devices	100.0
	Samsung Electronics South Africa Production (SSAP)	Manufacture of TV/monitors	100.0
	Global Symphony Technology Group	Holding company	100.0
	Harman Connected Services Morocco	Connected service provider	100.0
	Harman Industries Holdings Mauritius	Holding company	100.0
	iOnRoad	R&D	100.0
	iOnRoad Technologies	R&D	100.0
	Red Bend	Manufacture of audio products	100.0
	TowerSec (Israel)	R&D	100.0
Corephotonics	R&D	100.0	
Asia (Except China)	Samsung Japan (SJC)	Sale of electronic devices	100.0
	Samsung R&D Institute Japan (SRJ)	R&D	100.0
	Samsung Electronics Japan (SEJ)	Sale of electronic devices	100.0
	Samsung Electronics Display (M) (SDMA)	Manufacture of electronic devices	100.0
	Samsung Electronics (M) (SEMA)	Manufacture of home appliances	100.0
	Samsung Vina Electronics (SAVINA)	Sale of electronic devices	100.0
	Samsung Asia Private (SAPL)	Sale of electronic devices	100.0
	Samsung India Electronics (SIEL)	Manufacture and sale of electronic devices	100.0
	Samsung R&D Institute India-Bangalore (SRI-Bangalore)	R&D	100.0
	Samsung Nepal Services (SNSL)	Service	100.0
	Samsung Electronics Australia (SEAU)	Sale of electronic devices	100.0
	Samsung Electronics Indonesia (SEIN)	Manufacture and sale of electronic devices	100.0
	Samsung Telecommunications Indonesia (STIN)	Sale and service of electronic devices	100.0
	Thai Samsung Electronics (TSE)	Manufacture and sale of electronic devices	91.8
	Samsung Electronics Philippines (SEPCO)	Sale of electronic devices	100.0
	Samsung Malaysia Electronics (SME)	Sale of electronic devices	100.0
	Samsung R&D Institute Bangladesh (SRBD)	R&D	100.0
	Samsung Electronics Vietnam (SEV)	Manufacture of electronic devices	100.0
	Samsung Electronics Vietnam THAINGUYEN (SEVT)	Manufacture and sale of communication equipment	100.0
	Samsung Medison India (SMIN)	Medical equipment	100.0
	Samsung Electronics New Zealand (SENZ)	Sale of electronic devices	100.0
	Samsung Display Vietnam (SDV)	Manufacture of display panels	100.0
	Samsung Electronics HCMC CE Complex (SEHC)	Manufacture and sale of electronic devices	100.0
	Laos Samsung Electronics Sole (LSE)	Marketing	100.0
	AMX Products and Solutions Private	Sale of audio products	100.0

¹ Ownership represents the Company's ownership of the voting rights in each entity, including subsidiaries' ownerships.

Area	Subsidiaries	Industry	Percentage of ownership (%) ¹
Asia (Except China)	Harman Connected Services India	Connected service provider	100.0
	Harman International (India) Private	Sale of audio products, R&D	100.0
	Harman International Industries PTY	Holding company	100.0
	Harman International Singapore	Sale of audio products	100.0
	Harman Professional Singapore Pte.	Sale of audio products	100.0
	Martin Professional Pte.	Sale of audio products	100.0
	Harman Connected Services Japan	Connected service provider	100.0
	Harman International Japan	Sale of audio products, R&D	100.0
	Red Bend Software Japan	Software design	100.0
	Studer Japan	Holding company	100.0
China	Samsung Display Dongguan (SDD)	Manufacture of display panels	100.0
	Samsung Display Tianjin (SDT)	Manufacture of display panels	95.0
	Samsung Electronics Hong Kong (SEHK)	Sale of electronic devices	100.0
	Suzhou Samsung Electronics (SSEC)	Manufacture of home appliances	88.3
	Samsung Suzhou Electronics Export (SSEC-E)	Manufacture of home appliances	100.0
	Samsung (China) Investment (SCIC)	Sale of electronic devices	100.0
	Samsung Mobile R&D Center China-Guangzhou (SRC-Guangzhou)	R&D	100.0
	Samsung Tianjin Mobile Development Center (SRC-Tianjin)	R&D	100.0
	Samsung R&D Institute China-Shenzhen (SRC-Shenzhen)	R&D	100.0
	Samsung Electronics Suzhou Semiconductor (SESS)	Toll processing of semiconductor	100.0
	Samsung Electronics Huizhou (SEHZ)	Manufacture of electronic devices	99.9
	Tianjin Samsung Electronics (TSEC)	Manufacture of TV/monitors	91.2
	Samsung Electronics Taiwan (SET)	Sale of electronic devices	100.0
	Beijing Samsung Telecom R&D Center (SRC-Beijing)	R&D	100.0
	Tianjin Samsung Telecom Technology (TSTC)	Manufacture of communication equipment	90.0
	Shanghai Samsung Semiconductor (SSS)	Sale of semiconductor/display panels	100.0
	Samsung Electronics Suzhou Computer (SESC)	Manufacture of electronic devices	100.0
	Samsung Suzhou Module (SSM)	Toll processing of display panels	100.0
	Samsung Suzhou LCD (SSL)	Manufacture of display panels	60.0
	Shenzhen Samsung Electronics Telecommunication (SSET)	Manufacture of communication equipment	95.0
	Samsung Semiconductor (China) R&D (SSCR)	R&D	100.0
	Samsung Electronics China R&D Center (SRC-Nanjing)	R&D	100.0
	Samsung (China) Semiconductor (SCS)	Manufacture of semiconductor	100.0
	Tianjin Samsung LED (TSLED)	Manufacture of LED	100.0
	SEMES (Xian)	Semiconductor equipment	100.0
	Samsung Semiconductor Xian (SSCX)	Sale of semiconductor/display panels	100.0
	Harman (China) Technologies	Manufacture of audio products	100.0
	Harman (Suzhou) Audio and Infotainment Systems	Sale of audio products	100.0
	Harman Automotive Electronic Systems (Suzhou)	Manufacture of audio products, R&D	100.0
	Harman Commercial (Shanghai)	Sale of audio products	100.0
	Harman Holding	Sale of audio products	100.0
	Harman International (China) Holdings	Sale of audio products, R&D	100.0
Harman Technology (Shenzhen)	Sale of audio products, R&D	100.0	
Harman Connected Services Solutions (Beijing)	Connected service provider	100.0	
Harman Connected Services Solutions (Chengdu)	Connected service provider	100.0	

¹ Ownership represents the Company's ownership of the voting rights in each entity, including subsidiaries' ownerships.

(B) A summary of financial data of major consolidated subsidiaries is as follows:

(1) 2019

(In millions of Korean won)

Major subsidiaries ¹	As of June 30, 2019		For the three months ended June 30, 2019		For the six months ended June 30, 2019	
	Assets	Liabilities	Sales	Profit (loss) for the period	Sales	Profit (loss) for the period
Samsung Display (SDC)	₩ 45,218,756	₩ 5,244,982	₩ 6,787,987	₩ 411,838	₩ 11,843,974	₩ (60,843)
Samsung Electronics America (SEA)	32,761,258	12,926,674	7,139,518	10,858	15,631,324	240,606
Samsung (China) Investment (SCIC)	18,340,479	15,768,849	738,146	141,451	1,713,643	171,126
Harman and its subsidiaries ²	15,697,224	5,854,632	2,512,989	39,309	4,706,416	18,879
Samsung Electronics Vietnam THAINGUYEN (SEVT)	13,494,211	2,826,053	8,961,017	420,721	17,534,194	1,180,822
Samsung (China) Semiconductor (SCS)	11,966,439	2,304,321	1,678,890	237,251	2,652,856	371,038
Samsung Electronics Vietnam (SEV)	11,745,991	1,570,994	4,274,028	193,848	10,285,900	733,683
Samsung Electronics Europe Holding (SEEH)	8,914,732	6,325,055	-	11,461	-	13,947
Samsung Semiconductor (SSI)	8,897,474	3,647,849	3,926,807	131,640	6,936,046	63,941
Samsung Asia Private (SAPL)	8,896,886	717,666	396,345	852,850	776,355	894,837
Samsung India Electronics (SIEL)	8,511,082	5,125,921	3,690,668	137,977	6,552,597	267,764
Samsung Display Vietnam (SDV)	7,284,012	5,224,295	3,085,380	23,222	6,165,897	(34,787)
Samsung Electronica da Amazonia (SEDA)	6,841,729	1,633,853	1,888,222	166,169	3,574,984	368,954
Shanghai Samsung Semiconductor (SSS)	6,384,008	5,086,446	6,721,028	41,934	11,883,527	88,741
Samsung Austin Semiconductor (SAS)	6,084,917	495,836	993,723	137,993	1,892,565	278,027
Samsung Electronics Huizhou (SEHZ)	5,053,505	375,408	1,363,980	(48,619)	3,560,962	100,443
Thai Samsung Electronics (TSE)	2,839,773	516,218	1,109,908	63,666	2,138,490	73,277
Samsung Electronics (UK) (SEUK)	2,348,828	1,669,719	1,096,582	64,286	2,195,247	56,831
Samsung Electronics Hungarian (SEH)	2,091,838	379,349	615,217	36,532	1,269,077	65,290
Samsung Electronics HCMC CE Complex (SEHC)	2,085,551	893,230	1,213,778	165,217	2,480,482	292,544
Samsung Electronics GmbH (SEG)	1,990,340	1,973,793	1,215,743	32,562	2,640,739	(38,641)
Samsung Electronics Europe Logistics (SELS)	1,862,662	1,586,820	2,683,601	(30,801)	5,987,057	139,713
Samsung Suzhou LCD (SSL)	1,861,084	637,546	365,610	4,603	728,713	19,471
Samsung International (SII)	1,779,482	618,720	1,519,983	207,264	2,645,660	335,979
Samsung Electronics Benelux (SEBN)	1,766,552	570,599	498,175	16,886	1,151,714	18,329

¹ Above summary of condensed financial information is based on separate financial statements of each subsidiary.

² Consolidated financial data of an intermediate company that includes Harman International Industries, Inc. and its subsidiaries.

(2) 2018

(In millions of Korean won)	As of December 31, 2018		For the three months ended June 30, 2018		For the six months ended June 30, 2018	
	Assets	Liabilities	Sales	Profit (loss) for the period	Sales	Profit (loss) for the period
Major subsidiaries¹						
Samsung Display (SDC)	₩ 47,162,963	₩ 7,509,766	₩ 5,021,571	₩ (38,667)	₩ 11,228,996	₩ (58,836)
Samsung Electronics America (SEA)	30,681,097	11,862,223	6,638,981	113,909	14,085,888	323,146
Samsung (China) Investment (SCIC)	16,090,629	13,858,532	856,687	(91,680)	2,011,534	(92,500)
Harman and its subsidiaries ²	15,059,925	5,550,558	2,129,117	8,779	4,069,755	(89,116)
Samsung Electronics Vietnam (SEV)	11,501,682	1,607,991	5,431,737	745,556	11,531,839	1,441,035
Samsung Electronics Vietnam THAINGUYEN (SEVT)	11,360,811	2,209,962	6,307,765	639,183	13,821,368	1,442,684
Samsung (China) Semiconductor (SCS)	10,254,900	1,920,000	1,186,532	356,245	2,347,071	712,203
Samsung Semiconductor (SSI)	9,306,621	4,288,544	7,147,031	25,581	14,450,868	43,889
Samsung Electronics Europe Holding (SEEH)	8,586,022	6,388,302	-	10,124	-	11,279
Samsung Display Vietnam (SDV)	8,222,472	6,195,635	2,494,504	60,661	7,061,547	413,214
Samsung Asia Private (SAPL)	7,630,154	592,916	415,005	37,957	813,353	822,239
Samsung Electronics Huizhou (SEHZ)	6,539,392	586,349	2,460,965	133,732	5,873,887	252,967
Samsung India Electronics (SIEL)	6,410,825	3,438,807	2,893,781	107,926	5,576,611	299,892
Samsung Electronica da Amazonia (SEDA)	6,207,458	1,610,607	1,776,296	129,724	3,616,477	327,920
Samsung Austin Semiconductor (SAS)	5,642,117	511,596	937,600	82,182	1,795,259	162,710
Shanghai Samsung Semiconductor (SSS)	5,400,549	4,227,922	8,209,195	78,210	14,172,518	133,454
Thai Samsung Electronics (TSE)	2,465,999	397,248	1,098,174	60,821	2,199,318	129,142
Samsung Electronics (UK) (SEUK)	2,203,583	1,588,007	1,195,023	110,237	2,358,218	120,086
Samsung Electronics GmbH (SEG)	2,202,610	2,144,728	1,616,310	10,386	3,244,296	(38,581)
Samsung Electronics HCMC CE Complex (SEHC)	2,042,669	1,174,936	1,033,280	146,673	1,967,217	235,134
Samsung Electronics Europe Logistics (SELS)	1,904,358	1,778,710	2,911,364	(5,432)	6,751,113	326,646
Samsung Electronics Hungarian (SEH)	1,894,922	280,245	586,304	36,371	1,195,457	82,424
Samsung Suzhou LCD (SSL)	1,845,330	679,207	377,263	(16,058)	791,711	(6,682)
Samsung Electronics France (SEF)	1,761,117	1,412,971	878,782	47,937	1,849,760	24,131
Samsung Electronics Benelux (SEBN)	1,673,470	552,994	499,163	11,930	1,142,608	20,075

¹ Above summary of condensed financial information is based on separate financial statements of each subsidiary.

² Consolidated financial data of an intermediate company that includes Harman International Industries, Inc. and its subsidiaries.

(C) Changes in the scope of consolidation

(1) Subsidiaries newly excluded from the consolidation for the six months ended June 30, 2019:

Area	Subsidiary	Description
Middle East	Broadsense	Liquidation
China	Samsung Electronics (Beijing) Service (SBSC)	Merger ¹
Europe	Samsung France Research Center (SFRC)	Liquidation

¹ During January 2019, Samsung Electronics (Beijing) Service (SBSC) was merged into Samsung (China) Investment (SCIC), a subsidiary of the Company.

(2) Subsidiaries newly included in the consolidation for the six months ended June 30, 2019:

Area	Subsidiary	Description
Middle East	Corephotonics	Acquisition of shares
Europe	FOODIENT	Acquisition of shares
Domestic	Samsung Venture Capital Union #45	Incorporation

2. Significant Accounting Policies

2.1 Basis of Presentation

The Company maintains its accounting records in Korean won and prepares statutory financial statements in the Korean language (Hangul) in accordance with International Financial Reporting Standards as adopted by the Republic of Korea ("Korean IFRS"). The accompanying interim consolidated financial statements have been condensed, restructured and translated into English from the Korean language financial statements.

The interim consolidated financial statements for the six months ended June 30, 2019, have been prepared in accordance with Korean IFRS 1034 *Interim Financial Reporting*. These interim consolidated financial statements have been prepared in accordance with the Korean IFRS which is effective as of June 30, 2019.

(A) New and amended standards adopted by the Company

The Company applied the following amended and enacted standards for the first time for their annual period commencing on January 1, 2019:

- *Enactment of Korean IFRS 1116 Leases*

The Company has applied Korean IFRS 1116 *Leases* on January 1, 2019, the date of initial application. In accordance with the transitional provisions in Korean IFRS 1116, comparative figures have not been restated.

- *Amendments to Korean IFRS 1019 Employee Benefits*

The amendments require that an entity shall calculate current service cost and net interest for the remainder of the reporting period after a plan amendment, curtailment or settlement based on updated actuarial assumptions from the date of the change. The amendments also require that a reduction in a surplus must be recognized in profit or loss even if that surplus was not previously recognized because of the impact of the asset ceiling. The amendment does not have a significant impact on the consolidated financial statements.

- *Amendments to Korean IFRS 1028 Investments in Associates and Joint Ventures*

The amendments clarify that an entity shall apply Korean IFRS 1109 to financial instruments in an associate or joint venture to which the equity method is not applied. These include impairment of long-term interests that, in substance, form part of the entity's net investment in an associate or joint venture for which Korean IFRS 1109 should take precedence. The amendment does not have a significant impact on the consolidated financial statements.

- *Enactment to Interpretation of Korean IFRS 2123 Uncertainty over Income Tax Treatments*

The Interpretation explains how to recognize and measure deferred and current income tax assets and liabilities where there is uncertainty over a tax treatment, and includes guidance on how to determine whether each uncertain tax treatment is considered separately or together. It also presents examples of circumstances where a judgement or estimate is required to be reassessed. The enactment does not have a significant impact on the consolidated financial statements.

(B) New and amended standards not yet adopted by the Company

There are no major new accounting standards or amendments issued that are effective for the annual reporting period commencing January 1, 2019, and have not been early adopted by the Company.

2.2 Accounting Policies

Significant accounting policies and method of computation used in the preparation of the interim consolidated financial statements are consistent with those of the annual financial statements for the year ended December 31, 2018, except for the changes due to the application of amendments and enactments of standards described in Note 2.1 and as described below.

(A) Income tax expense

Income tax expense for the interim period is recognized based on management's best estimate of the weighted average annual income tax rate expected for the full financial year. The estimated average annual effective income tax rate is applied to the pre-tax income of the interim period.

(B) Leases

A lease is a contract, whereby the lessor conveys to the lessee, the right to control the use of an identified asset for a period of time in exchange for consideration.

At inception of a contract, the Company assesses whether the contract is, or contains, a lease. However, the Company did not reassess all contracts at initial application because the Company applied the practical expedient to contracts entered into before the date of initial application.

For a contract that is, or contains, a lease, both lessee and lessor account for each lease component within the contract as a lease separately from non-lease components of the contract. In lessee accounting, however, the Company does not account them separately but instead applies the practical expedient to account for each lease component and any associated non-lease components as a single lease component.

a) Lessee accounting

The Company recognizes a right-of-use asset representing its right to use the underlying leased asset and a lease liability representing its obligation to make lease payments at the commencement date of the lease.

The right-of-use asset is measured at its cost less subsequent accumulated depreciation and accumulated impairment loss with adjustments reflected arising from remeasurements of the lease liability. The right-of-use asset is depreciated over the shorter of the asset's useful life and the lease term on a straight-line basis from the commencement date of the lease and is classified as 'property, plant and equipment' in the financial statements.

At the commencement date, the lease liability is measured at present value of the lease payments that are not paid at that date. When measuring the present value, the lease payments are discounted using the interest rate implicit in the lease. If such implicit rate cannot be readily determined, the Company uses the Company's incremental borrowing rate. The lease liability is subsequently increased by the amount of interest expenses recognized on the lease liability and reduced by the lease payments made. Lease liabilities are remeasured when the future lease payments are changed due to the following:

- Changes in an index or a rate;
- Changes in amounts expected to be payable by the lessee under residual value guarantees;
- Changes in the assessment of whether a purchase option or an option to renew is reasonably certain to be exercised; or
- Changes in the assessment of whether it is reasonably certain that an option to terminate the lease will not be exercised.

Lease liabilities are classified as 'current portion of long-term liabilities' or 'long-term borrowings' in the financial statements.

The Company elected not to apply the requirements to the short-term leases (i.e., a lease term of 12 months or less at the commencement date) and low value assets (e.g. underlying assets below \$ 5,000). In these cases, lease payments are charged to profit or loss on a straight-line basis over the period of lease.

b) Lessor accounting

The accounting treatment as a lessor did not change significantly from the accounting policies applied for the preparation of the annual financial statements for the year ended December 31, 2018.

The Company classifies a lease as a finance lease if it transfers substantially all the risks and rewards incidental to ownership at the inception of the lease. A lease other than a finance lease is classified as an operating lease. Lease income from operating leases is recognized in income on a straight-line basis over the lease term. Initial direct costs incurred by the lessor in negotiating and arranging an operating lease is added to the carrying amount of the leased asset and recognized as an expense over the lease term on the same basis as the lease income.

2.3 Change in Accounting Policies

(A) Korean IFRS 1116 Leases

The Company has applied Korean IFRS 1116 *Leases* on January 1, 2019, the date of initial application. In accordance with the transitional provisions in Korean IFRS 1116, comparative figures have not been restated. The impacts of the application of Korean IFRS 1116 on the financial statements are as follows.

On January 1, 2019, the date of initial application, right-of-use assets and lease liabilities increased by ₩ 2,774,982 million and ₩ 2,344,756 million, respectively, and details of lease liabilities are as follows:

<i>(In millions of Korean won)</i>	Amount	
Financial lease liabilities as of December 31, 2018	₩	61,189
Adjustments in operating lease agreements as of January 1, 2019		2,344,756
Operating lease agreements as of December 31, 2018		2,785,140
Discounted operating lease agreements as of January 1, 2019		2,528,731
(Adjustments) Short-term lease and low value assets over which application exemption is applied		(183,975)
Lease liabilities as of January 1, 2019	₩	2,405,945

2.4 Convenience Translation into United States Dollar Amounts

The Company operates primarily in Korean won and its official accounting records are maintained in Korean won. The US dollar amounts provided in the consolidated financial statements represent supplementary information solely for the convenience of the reader. All Korean won amounts are expressed in US dollars at the rate of ₩ 1,145.44 to US \$1, the average exchange rate for the six month period ended June 30, 2019. Such presentation is not in accordance with generally accepted accounting principles, and should not be construed as a representation that the Korean won amounts shown could be readily converted, realized or settled in US dollars at this or at any other rate.

2.5 Critical Accounting Estimates and Assumptions

In preparing the interim consolidated financial statements, the management of the Company makes judgements, estimates and assumptions on matters which affect the application of policies and reported amounts of assets, liabilities, income and expenses. 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. The resulting accounting estimates, by definition, seldom equal the related actual results.

Critical accounting estimates and assumptions made in the preparation of the interim consolidated financial statements are consistent with those applied in the preparation of the annual consolidated financial statements for the year ended December 31, 2018, except for the estimates used to determine income tax expense, and accounting estimates and assumptions for implementation of Korean IFRS 1116.

3. Financial Instruments by Category

Categorizations of financial assets and liabilities as of June 30, 2019 and December 31, 2018 are as follows:

(1) As of June 30, 2019

<i>(In millions of Korean won)</i>	Financial assets measured at amortized cost		Financial assets measured at fair value through other comprehensive income		Financial assets measured at fair value through profit or loss		Other financial assets ¹		Total
Financial assets									
Cash and cash equivalents	₩	27,531,931	₩	-	₩	-	₩	-	₩ 27,531,931
Short-term financial instruments		60,705,062		-		-		-	60,705,062
Trade receivables		36,061,645		-		-		-	36,061,645
Financial assets at amortized cost		4,556,663		-		-		-	4,556,663
Financial assets at fair value through other comprehensive income		-		8,466,918		-		-	8,466,918
Financial assets at fair value through profit or loss		-		-		2,524,454		-	2,524,454
Other		11,643,315		-		33,815		28,574	11,705,704
Total	₩	140,498,616	₩	8,466,918	₩	2,558,269	₩	28,574	₩ 151,552,377

¹ Other financial assets include derivatives designated as hedging instruments, which are not subject to categorizations.

<i>(In millions of Korean won)</i>	Financial liabilities measured at amortized cost		Financial liabilities measured at fair value through profit or loss		Other financial liabilities ¹		Total
Financial liabilities							
Trade payables	₩	9,073,058	₩	-	₩	-	₩ 9,073,058
Short-term borrowings		2,215,404		-		9,608,767	11,824,171
Other payables		9,298,473		-		-	9,298,473
Current portion of long-term liabilities		40,442		-		701,181	741,623
Debentures		989,817		-		-	989,817
Long-term borrowings		-		-		1,908,663	1,908,663
Long-term other payables		2,149,444		2,314		-	2,151,758
Other		8,129,491		44,541		3,903	8,177,935
Total	₩	31,896,129	₩	46,855	₩	12,222,514	₩ 44,165,498

¹ Other financial liabilities include collateralized borrowings, lease liabilities and derivatives designated as hedging instruments, which are not subject to categorizations.

(2) As of December 31, 2018

<i>(In millions of Korean won)</i>	Financial assets measured at amortized cost	Financial assets measured at fair value through other comprehensive income	Financial assets measured at fair value through profit or loss	Other financial assets¹	Total
Financial assets					
Cash and cash equivalents	₩ 30,340,505	₩ -	₩ -	₩ -	₩ 30,340,505
Short-term financial instruments	65,893,797	-	-	-	65,893,797
Trade receivables	33,867,733	-	-	-	33,867,733
Financial assets at amortized cost	2,942,002	-	-	-	2,942,002
Financial assets at fair value through other comprehensive income	-	7,301,351	-	-	7,301,351
Financial assets at fair value through profit or loss	-	-	2,777,375	-	2,777,375
Other	9,229,044	-	58,127	25,962	9,313,133
Total	₩ 142,273,081	₩ 7,301,351	₩ 2,835,502	₩ 25,962	₩ 152,435,896

¹ Other financial assets include derivatives designated as hedging instruments, which are not subject to categorizations.

<i>(In millions of Korean won)</i>	Financial liabilities measured at amortized cost	Financial liabilities measured at fair value through profit or loss	Other financial liabilities¹	Total
Financial liabilities				
Trade payables	₩ 8,479,916	₩ -	₩ -	₩ 8,479,916
Short-term borrowings	1,456,201	-	12,130,459	13,586,660
Other payables	9,779,287	-	-	9,779,287
Current portion of long-term liabilities	33,386	-	-	33,386
Debentures	961,972	-	-	961,972
Long-term borrowings	85,085	-	-	85,085
Long-term other payables	2,846,585	13,417	-	2,860,002
Others	8,789,800	32,284	10,439	8,832,523
Total	₩ 32,432,232	₩ 45,701	₩ 12,140,898	₩ 44,618,831

¹ Other financial liabilities include collateralized borrowings and derivatives designated as hedging instruments, which are not subject to categorizations.

4. Financial Assets at Fair Value

(A) Details of financial assets at fair value as of June 30, 2019 and December 31, 2018 are as follows:

A. Financial assets at fair value through other comprehensive income

<i>(In millions of Korean won)</i>	June 30, 2019		December 31, 2018	
Non-current portion				
Equity instruments	₩	8,466,918	₩	7,301,351

B. Financial assets at fair value through profit or loss

<i>(In millions of Korean won)</i>	June 30, 2019		December 31, 2018	
Current portion				
Debt instruments	₩	1,687,030	₩	2,001,948
Non-current portion				
Equity instruments		550,877		453,642
Debt instruments		286,547		321,785
Subtotal		837,424		775,427
Total	₩	2,524,454	₩	2,777,375

(B) Details of listed equity securities of financial assets at fair value as of June 30, 2019 and December 31, 2018 are as follows:

<i>(In millions of Korean won)</i>	June 30, 2019			December 31, 2018	
	Number of shares owned	Percentage of ownership¹ (%)	Acquisition cost	Carrying amount (Market value)	Carrying amount (Market value)
Samsung Heavy Industries	100,693,398	16.0	₩ 735,488	₩ 821,658	₩ 746,138
Hotel Shilla	2,004,717	5.1	13,957	194,458	153,361
iMarket Korea	647,320	1.8	324	7,606	4,479
SFA	3,644,000	10.2	38,262	147,035	126,082
Wonik Holdings	3,518,342	4.6	30,821	14,161	12,349
Wonik IPS	3,701,872	7.5	32,428	88,660	74,408
ASML	6,297,787	1.5	363,012	1,521,787	1,104,944
Wacom	8,398,400	5.0	62,013	32,186	38,795
BYD	52,264,808	1.9	528,665	445,558	433,838
Other			273,991	235,075	200,363
Total			₩ 2,078,961	₩ 3,508,184	₩ 2,894,757

¹ Ownership represents the Company's ownership of ordinary shares issued in each entity.

5. Inventories

Inventories as of June 30, 2019 and December 31, 2018 are as follows:

(In millions of Korean won)	June 30, 2019			December 31, 2018		
	Gross amount	Valuation allowance	Carrying amount	Gross amount	Valuation allowance	Carrying amount
Finished goods	₩ 9,060,128	₩ (502,232)	₩ 8,557,896	₩ 9,206,754	₩ (370,656)	₩ 8,836,098
Work in process	13,494,263	(928,774)	12,565,489	11,862,033	(795,522)	11,066,511
Raw materials and supplies	9,230,047	(450,779)	8,779,268	8,658,212	(610,073)	8,048,139
Materials in transit	1,344,332	-	1,344,332	1,033,956	-	1,033,956
Total	₩ 33,128,770	₩ (1,881,785)	₩ 31,246,985	₩ 30,760,955	₩ (1,776,251)	₩ 28,984,704

6. Investments in Associates and Joint Ventures

(A) Changes in investments in associates and joint ventures for the six months ended June 30, 2019 and 2018 are as follows:

(In millions of Korean won)	2019	2018
Balance as of January 1	₩ 7,313,206	₩ 6,802,351
Acquisition	5,544	17,137
Disposal	(306)	(148)
Share of profit	142,173	170,671
Other ¹	(70,783)	(95,056)
Balance as of June 30	₩ 7,389,834	₩ 6,894,955

¹ Other consist of dividends, impairment, reclassification and the cumulative effect of changes in accounting principles.

(B) Major investments in associates and joint ventures as of June 30, 2019 are as follows:

(1) Investments in associates

Investee	Nature of relationship with associate	Percentage of ownership ¹ (%)	Principal business location	The end of reporting period
Samsung Electro-Mechanics	Manufacture and supply electronic components including passive components, circuit boards, and modules	23.7	Korea	December
Samsung SDS	Provide IT services including computer programming, system integration and management and logistical services	22.6	Korea	December
Samsung Biologics	New business investment	31.5	Korea	December
Samsung SDI ²	Manufacture and supply electronics including secondary cell batteries	19.6	Korea	December
Cheil Worldwide	Advertising agency	25.2	Korea	December

¹ Ownership represents the Company's ownership of ordinary shares issued in each entity.

² The Company's ownership of ordinary shares outstanding is 20.6%.

(2) Investments in joint ventures

Investee	Nature of relationship with joint venture	Percentage of ownership ¹ (%)	Principal business location	The end of reporting period
Samsung Corning Advanced Glass	Manufacture and supply industrial glass devices	50.0	Korea	December

¹ Ownership represents the Company's ownership of ordinary shares issued in each entity.

(C) Details of investments in associates and joint ventures as of June 30, 2019 and December 31, 2018 are as follows:

(1) Investments in associates

(In millions of Korean won)

Investee	June 30, 2019					
	Acquisition cost		Net asset value of equity shares ¹		Carrying amount	
Samsung Electro-Mechanics	₩	359,237	₩	1,227,472	₩	1,134,044
Samsung SDS		147,963		1,399,572		1,425,096
Samsung Biologics		443,193		1,291,732		1,295,428
Samsung SDI		1,242,605		2,457,301		2,233,378
Cheil Worldwide		506,162		253,186		553,084
Other		594,995		331,220		508,992
Total	₩	3,294,155	₩	6,960,483	₩	7,150,022

¹ The Company's portion of net asset value of associates is based on the Company's ownership percentage.

(In millions of Korean won)

Investee	December 31, 2018					
	Acquisition cost		Net asset value of equity shares ¹		Carrying amount	
Samsung Electro-Mechanics	₩	359,237	₩	1,127,805	₩	1,126,043
Samsung SDS		147,963		1,350,838		1,376,321
Samsung Biologics		443,193		1,308,650		1,308,546
Samsung SDI		1,242,605		2,402,697		2,197,335
Cheil Worldwide		506,162		253,062		549,165
Other		625,922		310,909		525,259
Total	₩	3,325,082	₩	6,753,961	₩	7,082,669

¹ The Company's portion of net asset value of associates is based on the Company's ownership percentage.

(2) Investments in joint ventures

(In millions of Korean won)

Investee	June 30, 2019					
	Acquisition cost		Net asset value of equity shares ¹		Carrying amount	
Samsung Corning Advanced Glass	₩	215,000	₩	174,746	₩	174,742
Other		259,994		66,725		65,070
Total	₩	474,994	₩	241,471	₩	239,812

¹ The Company's portion of net asset value of joint ventures is based on the Company's ownership percentage.

(In millions of Korean won)

Investee	December 31, 2018					
	Acquisition cost		Net asset value of equity shares ¹		Carrying amount	
Samsung Corning Advanced Glass	₩	215,000	₩	173,503	₩	173,499
Other		259,994		65,443		57,038
Total	₩	474,994	₩	238,946	₩	230,537

¹ The Company's portion of net asset value of joint ventures is based on the Company's ownership percentage.

(D) Details of the valuation of investments in associates and joint ventures using the equity method are as follows:

(1) For the six months ended June 30, 2019

(In millions of Korean won)	Balance as of January 1		Share of profit (loss)		Share of other comprehensive income		Other ¹		Balance as of June 30	
Samsung Electro-Mechanics	₩	1,126,043	₩	9,723	₩	15,971	₩	(17,693)	₩	1,134,044
Samsung SDS		1,376,321		74,476		9,243		(34,944)		1,425,096
Samsung Biologics		1,308,546		(17,216)		4,098		-		1,295,428
Samsung SDI		2,197,335		38,924		10,582		(13,463)		2,233,378
Cheil Worldwide		549,165		21,619		4,659		(22,359)		553,084
Samsung Corning Advanced Glass		173,499		1,243		-		-		174,742
Other		582,297		13,404		21,704		(43,343)		574,062
Total	₩	7,313,206	₩	142,173	₩	66,257	₩	(131,802)	₩	7,389,834

¹ Other consists of acquisitions, disposals, dividends, impairment and reclassification.

(2) For the six months ended June 30, 2018

<i>(In millions of Korean won)</i>	Balance as of		Share of profit		Share of other		Other ¹		Balance as of	
	January 1		(loss)		comprehensive				June 30	
	₩		₩		₩		₩		₩	
Samsung Electro-Mechanics	₩	991,579	₩	54,547	₩	4,996	₩	(13,988)	₩	1,037,134
Samsung SDS		1,282,205		71,849		4,129		(34,946)		1,323,237
Samsung Biologics		1,254,937		(20,074)		119		(43,839)		1,191,143
Samsung SDI		2,126,244		32,082		18,208		(13,463)		2,163,071
Cheil Worldwide		540,114		18,501		3,421		(22,068)		539,968
Samsung Corning Advanced Glass		170,425		595		-		-		171,020
Other		436,847		13,171		8,982		10,382		469,382
Total	₩	6,802,351	₩	170,671	₩	39,855	₩	(117,922)	₩	6,894,955

¹ Other consists of acquisitions, disposals, dividends, impairment, reclassification and the cumulative effect of changes in accounting principles.

(E) Summary of the condensed financial information of major associates and joint ventures

(1) A summary of condensed financial information of major associates and dividends received from associates as of June 30, 2019 and December 31, 2018, and for the six months ended June 30, 2019 and 2018, is as follows:

<i>(In millions of Korean won)</i>	2019									
	Samsung Electro- Mechanics	Samsung SDS	Samsung Biologics	Samsung SDI	Cheil Worldwide					
1. Condensed financial information										
Condensed statements of financial position:										
Current assets	₩	3,837,572	₩	6,144,614	₩	1,387,128	₩	5,216,672	₩	1,737,577
Non-current assets		4,938,862		2,656,789		4,439,515		14,549,135		518,835
Current liabilities		2,205,707		1,767,217		618,724		3,546,800		1,142,849
Non-current liabilities		1,185,797		663,817		1,106,170		3,701,785		221,707
Non-controlling interests		137,834		172,089		-		311,982		8,797
Condensed statements of comprehensive income:										
Revenue	₩	4,082,032	₩	5,278,539	₩	203,447	₩	4,708,570	₩	1,675,319
Profit or loss from continuing operations ¹		234,529		329,590		(53,242)		198,733		66,879
Profit from discontinued operation after income tax ¹		198,881		-		-		-		-
Other comprehensive income ¹		69,206		41,280		(477)		139,429		10,445
Total comprehensive income ¹		502,616		370,870		(53,719)		338,162		77,324
2. Dividends from associates										
Dividends	₩	17,693	₩	34,944	₩	-	₩	13,463	₩	22,359

¹ Profit (loss) attributable to owners of the parent company.

<i>(In millions of Korean won)</i>	2018				
	Samsung Electro- Mechanics	Samsung SDS	Samsung Biologics	Samsung SDI	Cheil Worldwide
1. Condensed financial information					
Condensed statements of financial position:					
Current assets	₩ 3,525,293	₩ 5,881,776	₩ 1,577,684	₩ 5,519,342	₩ 1,889,015
Non-current assets	5,119,621	2,132,073	4,402,725	13,830,379	378,586
Current liabilities	2,509,584	1,574,797	710,530	4,012,822	1,251,332
Non-current liabilities	1,188,833	290,501	1,114,410	3,111,680	123,476
Non-controlling interests	125,450	166,097	-	291,196	10,164
Condensed statements of comprehensive income:					
Revenue	₩ 3,828,545	₩ 4,829,124	₩ 256,465	₩ 4,156,830	₩ 1,722,383
Profit or loss from continuing operations ¹	233,178	317,756	(66,803)	231,984	65,005
Other comprehensive income ¹	1,983	26,692	1,695	100,822	4,661
Total comprehensive income ¹	235,161	344,448	(65,108)	332,806	69,666
2. Dividends from associates					
Dividends	₩ 13,270	₩ 34,944	₩ -	₩ 13,463	₩ 22,069

¹ Profit (loss) attributable to owners of the parent company.

(2) A summary of condensed financial information of major joint ventures and dividends received from joint ventures as of June 30, 2019 and December 31, 2018, and for the six months ended June 30, 2019 and 2018, is as follows:

<i>(In millions of Korean won)</i>	Samsung Corning Advanced Glass			
	2019	2018		
1. Condensed financial information				
Condensed statements of financial position:				
Current assets	₩	164,519	₩	145,733
- Cash and cash equivalent		10,988		19,047
Non-current assets		230,660		234,666
Current liabilities		40,996		33,393
- Financial liabilities ¹		20,941		17,710
Non-current liabilities		4,691		-
Condensed statements of comprehensive income²:				
Revenue	₩	123,099	₩	111,207
Depreciation and amortization		309		647
Interest income		272		217
Income tax expense		352		111
Profit from continuing operations		2,487		1,169
Other comprehensive income		-		-
Total comprehensive income		2,487		1,169
2. Dividends from joint ventures				
Dividends	₩	-	₩	-

¹ Trade payables, other payables and provisions are excluded.

² Amounts relate to the six months ended June 30, 2019 and 2018.

(3) Profit (loss) attributable to owners of the parent company from associates and joint ventures which are not individually material for the six months ended June 30, 2019 and 2018 are as follows:

<i>(In millions of Korean won)</i>	2019		2018	
	Associates	Joint ventures	Associates	Joint ventures
Profit for the period	₩ 12,857	₩ 547	₩ 12,697	₩ 474
Other comprehensive income	16,372	5,332	5,392	3,590
Total comprehensive income	₩ 29,228	₩ 5,878	₩ 18,089	₩ 4,064

(F) Details of marketable investments in associates as of June 30, 2019 and December 31, 2018 are as follows:

<i>(In millions of Korean won and number of shares)</i>	June 30, 2019		December 31, 2018	
	Number of shares held	Market value	Market value	
Samsung Electro-Mechanics	17,693,084	₩ 1,730,384	₩	1,831,234
Samsung SDS	17,472,110	3,756,504		3,564,310
Samsung Biologics	20,836,832	6,667,786		8,053,436
Samsung SDI	13,462,673	3,183,922		2,948,325
Cheil Worldwide	29,038,075	853,719		653,357

(G) Other matters

On July 12, 2018, the Korea Securities and Futures Commission determined a first measure following an investigation relating to Samsung Biologics Co., Ltd., an associate of the Company, and its accounting for its investment in Samsung Bioepis Co., Ltd, a joint venture between Biogen Therapeutics Inc. and Samsung Biologics Co., Ltd. The first measure included a recommendation to dismiss the director in charge, prosecution charges, and external auditor designation by the regulator, on the basis that the Joint Venture Agreement was not disclosed in the notes to the financial statements. On November 14, 2018, the Korea Securities and Futures Commission determined a second measure, which included a penalty of ₩ 8,000 million, a recommendation to dismiss the CEO, a requirement to restate its financial statements, and further prosecution charges.

Consequently, Samsung Biologics Co., Ltd. filed a suit for cancellation of the aforementioned measures to the Seoul Administrative Court to suspend the execution of these measures, and the respective court has pronounced a decision to suspend these measures until the final rulings on January 22, 2019 and February 19, 2019, relating to the second and first measures, respectively. The Korea Securities and Futures Commission immediately appealed against the decision to suspend execution but on May 13, 2019 and May 24, 2019, relating to the second and first measures, respectively, the Court dismissed the Korea Securities and Futures Commission's appeal. Accordingly, the Korea Securities and Futures Commission has re-appealed on May 23, 2019 and June 10, 2019, relating to the second and first measures, respectively.

Although the future outcome of the administrative litigation cannot be estimated, should Samsung Biologics Co., Ltd. be required to restate its financial statements to amend its historical accounting treatment relating to its investment in Samsung Bioepis Co., Ltd., the Company's share of profit or loss relating to its equity method investment, the amount of investment in associates, and retained earnings, for the years ended December 31, 2015 and onwards, and the profit on disposal of investment for the year ended December 31, 2016, may be impacted. Given the timing of completion and the final result of the administrative litigation between Samsung Biologics Co., Ltd. and the Korea Securities and Futures Commission is uncertain and cannot currently be estimated, it is not possible for the Company to recognize the effects of these proceedings in the current period financial statements.

7. Property, Plant and Equipment

(A) Changes in property, plant and equipment for the six months ended June 30, 2019 and 2018 are as follows:

<i>(In millions of Korean won)</i>	2019		2018	
Balance as of January 1	₩	115,416,724	₩	111,665,648
Acquisition and capital expenditures		11,221,619		16,647,807
Acquisitions through business combinations		399,323		-
Depreciation		(13,481,068)		(12,087,806)
Disposals/scrap/impairment		(476,482)		(310,393)
Other ¹		3,544,073		660,884
Balance as of June 30	₩	116,624,189	₩	116,576,140

¹ Other includes the cumulative effect of changes in accounting principles, effects of changes in foreign currency exchange rates and effects of the offset related to government grants.

(B) Details of depreciation of property, plant and equipment for the six months ended June 30, 2019 and 2018 are as follows:

<i>(In millions of Korean won)</i>	2019		2018	
Cost of sales	₩	12,026,558	₩	10,985,086
Selling and administrative expenses and other		1,454,510		1,102,720
Total	₩	13,481,068	₩	12,087,806

(C) Right-of-use assets as of June 30, 2019 amount to ₩ 2,966,180 million (January 1, 2019: ₩ 2,774,982 million). During the six months ended June 30, 2019, right-of-use assets of ₩ 510,193 million have been newly recognized and related depreciation of ₩ 365,511 million has been recognized.

8. Intangible Assets

(A) Changes in intangible assets for the six months ended June 30, 2019 and 2018 are as follows:

<i>(In millions of Korean won)</i>	2019		2018	
Balance as of January 1	₩	14,891,598	₩	14,760,483
Internally generated		260,043		189,478
External acquisitions		301,570		287,577
Acquisitions through business combinations		574,186		-
Amortization		(505,176)		(678,061)
Disposals/scrap/impairment		(24,473)		(24,740)
Other ¹		45,277		464,727
Balance as of June 30	₩	15,543,025	₩	14,999,464

¹ Other includes the cumulative effect of changes in accounting principles and effects of changes in foreign currency exchange rates.

(B) Details of amortization of intangible assets for the six months ended June 30, 2019 and 2018 are as follows:

<i>(In millions of Korean won)</i>	2019		2018	
Cost of sales	₩	164,839	₩	347,978
Selling and administrative expenses and other		340,337		330,083
Total	₩	505,176	₩	678,061

9. Borrowings

Details of the carrying amounts of borrowings as of June 30, 2019 and December 31, 2018 are as follows:

<i>(In millions of Korean won)</i>	Financial institutions	Annual interest rates (%) as of June 30, 2019	June 30, 2019		December 31, 2018³	
Short-term borrowings						
Collateralized borrowings ¹	Woori Bank and others	0.0 ~ 9.8	₩	9,608,767	₩	12,130,459
Non-collateralized borrowings	Citibank and others	0.0 ~ 6.1		2,215,404		1,456,201
Total			₩	11,824,171	₩	13,586,660
Current portion of long-term borrowings						
Bank borrowings	Shinhan Bank and others	3.2 ~ 3.5	₩	34,800	₩	16,880
Lease liabilities ²	CSSD and others	4.0		701,181		11,067
Total			₩	735,98	₩	27,9
				1		47
Long-term borrowings						
Bank borrowings	Shinhan Bank and others	-	₩	-	₩	34,963
Lease liabilities ²	CSSD and others	4.0		1,908,663		50,122
Total			₩	1,908,663	₩	85,085

¹ Collateralized borrowings are secured by trade receivables.

² Interest expenses arising from the lease liabilities during the six months ended June 30, 2019 amounts to ₩ 49,456 million, which were determined using the weighted average incremental borrowing rate. The right-of-use assets are pledged as collateral to the lessor in the event of default.

³ Lease liabilities as of December 31, 2018 represent financial lease liabilities in accordance with Korean IFRS 1017 (Note 2).

10. Debentures

Details of the carrying amounts of debentures as of June 30, 2019 and December 31, 2018 are as follows:

<i>(In millions of Korean won)</i>	Issue date	Due date	Annual interest rates (%) as of June 30, 2019	June 30, 2019		December 31, 2018	
US dollar denominated straight bonds ¹	1997.10.2	2027.10.1	7.7	₩	52,056	₩	50,315
					(US \$ 45 million)		(US \$ 45 million)
US dollar denominated debenture bonds ²	2015.5.6	2025.5.15	4.2		462,720		447,240
					(US \$ 400 million)		(US \$ 400 million)
EURO denominated debenture bonds ³	2015.5.20	2022.5.27	2.0		460,290		447,352
					(EUR €350 million)		(EUR €350 million)
Less: Current Portion					(5,784)		(5,591)
Less: Discounts					(1,133)		(1,208)
Add: Premium					21,668		23,864
Total				₩	989,817	₩	961,972

¹ US dollar denominated straight bonds are repaid annually for twenty years after a ten-year grace period from the date of issuance. Interest is paid semi-annually.

² Harman International Industries issued dollar denominated debenture bonds. Repayment of these debentures is due on the date of maturity and interest is paid semi-annually.

³ Harman Finance International SCA issued euro denominated debenture bonds. Repayment of these debentures is due on the date of maturity and interest is paid annually.

11. Net Defined Benefit Liabilities (Assets)

(A) Details of net defined benefit liabilities (assets) recognized in the consolidated statements of financial position as of June 30, 2019 and December 31, 2018 are as follows:

<i>(In millions of Korean won)</i>	June 30, 2019		December 31, 2018	
Present value of funded defined benefit obligations	₩	8,917,195	₩	8,443,465
Present value of unfunded defined benefit obligations		278,028		250,577
Subtotal		9,195,223		8,694,042
Fair value of plan assets		(8,741,356)		(8,752,334)
Total	₩	453,867	₩	(58,292)

(B) The amounts recognized in the consolidated statements of profit or loss for the six months ended June 30, 2019 and 2018 relating to defined benefit plans are as follows:

<i>(In millions of Korean won)</i>	2019		2018	
Current service cost	₩	461,358	₩	409,719
Net interest income		(1,384)		(11,250)
Past service cost		845		-
Other		692		166
Total	₩	461,511	₩	398,635

(C) The expenses related to defined benefit plans recognized in the consolidated statements of profit or loss for the six months ended June 30, 2019 and 2018 are as follows:

<i>(In millions of Korean won)</i>	2019		2018	
Cost of sales	₩	208,532	₩	167,088
Selling and administrative expenses and other		252,979		231,547
Total	₩	461,511	₩	398,635

12. Provisions

Changes in the provisions for the six months ended June 30, 2019 are as follows:

<i>(In millions of Korean won)</i>	Warranty (A)	Royalty expenses (B)	Long-term incentives (C)	Bonus (D)	Other (E, F)	Total
Balance as of January 1	₩ 1,873,869	₩ 1,134,379	₩ 777,073	₩ -	₩ 1,262,336	₩ 5,047,657
Charged to the statement of profit or loss	701,341	169,128	146,556	2,314,121	466,816	3,797,962
Payment	(753,640)	(475,889)	(270,411)	-	(363,336)	(1,863,276)
Other ¹	54,106	13,876	6,244	27,075	(4,557)	96,744
Balance as of June 30	₩ 1,875,676	₩ 841,494	₩ 659,462	₩ 2,341,196	₩ 1,361,259	₩ 7,079,087

¹ Other includes effects of changes in foreign currency exchange rates.

- (A) The Company accrues warranty reserves for estimated costs of quality assurance, exchanges, repairs and recalls, and future services based on historical experience and terms of warranty programs.
- (B) The Company recognizes provisions for the estimated royalty expenses that are under negotiation with counterparties. The timing and amount of payment depend on the settlement of the negotiation.
- (C) The Company has a long-term incentive plan for its executives based on a three-year management performance criteria and recognizes a provision for the estimated incentive cost for the accrued period.
- (D) The Company provides bonuses for its executives and employees, which are determined based on current-period performance. The estimated bonus cost for the accrued period has been recognized as a provision.
- (E) The Company records provisions for the estimated expenses occurring from discontinuing production, sale of products and other activities.
- (F) The Company makes provisions for the carrying amounts of emission rights held by the Company and the emission in excess of the emission rights for the applicable years. Details of emission rights and liabilities as of June 30, 2019 are as follows:

(1) Allocated amount of emission permits and the estimated amount of emission as of June 30, 2019 are as follows:

<i>(In ten thousand metric tons)</i>	June 30, 2019
Allocated emission permits	1,367
Estimated volume of emission	1,825

(2) Changes in the emission permits rights for the six months ended June 30, 2019 are as follows:

<i>(In millions of Korean won)</i>	2019
Balance as of January 1	₩ 31,647
Acquisition	-
Balance as of June 30	₩ 31,647

(3) Changes in the provisions for emissions liabilities for the six months ended June 30, 2019 are as follows:

<i>(In millions of Korean won)</i>	2019	
Balance as of January 1	₩	99,960
Charged to the statement of profit or loss		75,625
Submission		-
Balance as of June 30	₩	175,585

13. Commitments and Contingencies

(A) Guarantees

Details of guarantees of debt provided by the Company as of June 30, 2019 and December 31, 2018 are as follows:

<i>(In millions of Korean won)</i>	June 30, 2019		December 31, 2018	
Guarantees of debt for housing rental ¹	₩	252	₩	32,511

¹ The maximum amount of debt guarantee provided by the Company for employees seeking a first home mortgage from financial institutions is ₩ 106,044 million.

(B) Litigation

- As of June 30, 2019, the Company is involved in claims, disputes, and investigations conducted by regulatory bodies, including civil claims from some overseas buyers for price-fixing related to the sale of TFT-LCD. Although the outflow of resources and timing of these matters are uncertain, the Company believes the outcome will not have a material impact on the financial condition of the Company.
- In addition, the Company is involved in various claims, disputes, and investigations conducted by regulatory bodies, which arose during the normal course of business with numerous companies. Although the outflow of resources and timing of these matters are uncertain, as of the reporting date, the Company believes the outcome will not have a material impact on the financial position of the Company.

14. Contract Liabilities

The Company has recognized the following contract liabilities related to contracts with customers:

<i>(In millions of Korean won)</i>	June 30, 2019		December 31, 2018	
Contract liabilities ¹	₩	8,287,064	₩	9,021,400

¹ Contract liabilities are included in advances received, accrued expenses, other current liabilities and others.

15. Share Capital

As of June 30, 2019, the Company's total number of authorized shares is 25,000,000,000 shares (₩ 100 per share). The Company has issued 5,969,782,550 shares of ordinary shares and 822,886,700 shares of preference shares as of June 30, 2019, excluding retired shares. Due to the retirement of shares, the total par value of the shares issued is ₩ 679,267 million (ordinary shares of ₩ 596,978 million and preference shares of ₩ 82,289 million), which does not agree with paid-in capital of ₩ 897,514 million.

16. Retained Earnings

(A) Retained earnings as of June 30, 2019 and December 31, 2018 consist of the following:

<i>(In millions of Korean won)</i>	June 30, 2019		December 31, 2018	
Discretionary reserve and others	₩	151,632,194	₩	151,519,651
Unappropriated		96,428,764		91,179,305
Total	₩	248,060,958	₩	242,698,956

(B) On April 30, 2019 and July 31, 2019, the Company declared cash dividends to shareholders of ordinary shares and preference shares as interim dividends for the three months ended March 31, 2019 and June 30, 2019.

Details of interim dividends for the six months ended June 30, 2019 and 2018 are as follows:

<i>(In millions of Korean won)</i>		2019		2018	
	Number of shares eligible for dividends ¹	Ordinary shares	5,969,782,550	Ordinary shares	119,395,651
		Preference shares	822,886,700	Preference shares	16,457,734
1 st quarter	Dividend rate (based on par value)		354%		354%
	Dividend amount	Ordinary shares	₩	2,113,303	₩
Preference shares			291,302		291,302
	Total	₩	2,404,605	₩	2,404,605
	Number of shares eligible for dividends	Ordinary shares	5,969,782,550	Ordinary shares	5,969,782,550
		Preference shares	822,886,700	Preference shares	822,886,700
2 nd quarter	Dividend rate (based on par value)		354%		354%
	Dividend amount	Ordinary shares	₩	2,113,303	₩
Preference shares			291,302		291,302
	Total	₩	2,404,605	₩	2,404,605

¹ For the year ended December 31, 2018, the Company's number of shares has been changed by the share split.

17. Other Components of Equity

(A) Other components of equity as of June 30, 2019 and December 31, 2018 are as follows:

<i>(In millions of Korean won)</i>	June 30, 2019		December 31, 2018	
Gain on valuation of financial assets at fair value through other comprehensive income	₩	2,196,963	₩	1,462,266
Share of other comprehensive income (loss) of associates and joint ventures		19,308		(44,212)
Foreign currency translation		(4,900,996)		(8,612,742)
Remeasurement of net defined benefit assets		(851,163)		(796,563)
Other		66,184		59,881
Total	₩	(3,469,704)	₩	(7,931,370)

18. Expenses by Nature

Expenses by nature for the three and six months ended June 30, 2019 and 2018 consist of the following:

<i>(In millions of Korean won)</i>	June 30, 2019				June 30, 2018			
	3 Months		6 Months		3 Months		6 Months	
Changes in finished goods, work in process, etc.	₩	539,703	₩	(1,220,776)	₩	(1,586,580)	₩	(2,892,814)
Raw materials used, merchandise purchased, etc.		19,604,648		38,934,187		18,565,994		37,804,792
Wages and salaries		6,002,649		11,928,628		5,461,022		10,958,891
Post-employment benefit		273,719		553,953		233,786		468,167
Depreciation		6,640,252		13,481,068		6,172,543		12,087,806
Amortization		250,448		505,176		326,988		678,061
Welfare		1,184,796		2,346,648		1,085,035		2,109,524
Utilities		1,067,048		2,169,079		1,021,881		2,079,005
Outsourcing		1,240,431		2,427,118		1,217,875		2,420,400
Advertising		1,113,121		2,078,644		1,020,930		1,935,453
Sales promotion expenses		1,702,414		3,435,379		1,658,546		3,458,577
Other		9,910,810		19,043,199		8,435,603		17,427,305
Total¹	₩	49,530,039	₩	95,682,303	₩	43,613,623	₩	88,535,167

¹ Equal to the sum of cost of sales and selling and administrative expenses in the interim consolidated statements of profit or loss.

19. Selling and Administrative Expenses

Selling and administrative expenses for the three and six months ended June 30, 2019 and 2018 are as follows:

(In millions of Korean won)	June 30, 2019		June 30, 2018	
	3 Months	6 Months	3 Months	6 Months
1) Selling and administrative expenses				
Wages and salaries	₩ 1,603,967	₩ 3,180,098	₩ 1,504,300	₩ 3,087,245
Post-employment benefit	61,497	135,210	63,461	128,381
Commission and service charges	1,277,223	2,601,238	1,043,062	2,649,137
Depreciation	390,401	774,385	252,923	498,805
Amortization	109,274	213,751	108,218	214,662
Advertising	1,113,121	2,078,644	1,020,930	1,935,453
Sales promotion expenses	1,702,414	3,435,379	1,658,546	3,458,577
Transportation	528,536	1,032,771	603,131	1,182,382
Warranty	685,948	1,387,826	709,310	1,478,419
Other	1,160,556	2,296,865	1,006,177	2,124,427
Subtotal	8,632,937	17,136,167	7,970,058	16,757,488
2) Research and development expenses				
Total expenses	5,084,497	10,115,043	4,448,043	8,783,088
Capitalized expenses	(132,079)	(260,043)	(79,075)	(189,478)
Subtotal	4,952,418	9,855,000	4,368,968	8,593,610
Total	₩ 13,585,355	₩ 26,991,167	₩ 12,339,026	₩ 25,351,098

20. Other Non-Operating Income and Expenses

Details of other non-operating income and expenses for the three and six months ended June 30, 2019 and 2018 are as follows:

(In millions of Korean won)	June 30, 2019		June 30, 2018	
	3 Months	6 Months	3 Months	6 Months
Non-operating income				
Dividend income	₩ 49,932	₩ 84,643	₩ 40,637	₩ 74,964
Rental income	36,219	75,389	34,883	71,890
Gain on disposal of investments	13,693	25,056	9,179	10,737
Gain on disposal of property, plant and equipment	78,132	167,811	154,114	247,140
Other	182,183	329,042	128,775	333,833
Total	₩ 360,159	₩ 681,941	₩ 367,588	₩ 738,564

(In millions of Korean won)	June 30, 2019		June 30, 2018	
	3 Months	6 Months	3 Months	6 Months
Non-operating expenses				
Loss on disposal of property, plant and equipment	₩ 33,799	₩ 77,747	₩ 17,519	₩ 47,925
Donations	154,580	200,186	91,101	114,480
Other	124,504	292,081	113,789	305,267
Total	₩ 312,883	₩ 570,014	₩ 222,409	₩ 467,672

21. Financial Income and Expenses

(A) Details of financial income and expenses for the three and six months ended June 30, 2019 and 2018 are as follows:

<i>(In millions of Korean won)</i>	June 30, 2019		June 30, 2018	
	3 Months	6 Months	3 Months	6 Months
Financial income				
Interest income:	₩ 672,300	₩ 1,334,310	₩ 559,454	₩ 1,010,759
Interest income from financial assets measured at amortized cost	672,174	1,334,071	559,384	1,010,621
Interest income from financial assets measured at fair value through profit or loss	126	239	70	138
Foreign exchange differences	2,338,480	3,377,842	2,254,844	3,726,715
Gains from derivatives	140,803	355,967	304,762	664,786
Total	₩ 3,151,583	₩ 5,068,119	₩ 3,119,060	₩ 5,402,260

<i>(In millions of Korean won)</i>	June 30, 2019		June 30, 2018	
	3 Months	6 Months	3 Months	6 Months
Financial expenses				
Interest expenses:	₩ 180,619	₩ 354,680	₩ 156,383	₩ 292,606
Interest expenses from financial liabilities measured at amortized cost	66,542	137,915	65,622	137,364
Other financial liabilities	114,077	216,765	90,761	155,242
Foreign exchange differences	2,331,500	3,338,544	2,460,326	4,064,265
Losses from derivatives	168,933	367,000	216,036	415,414
Total	₩ 2,681,052	₩ 4,060,224	₩ 2,832,745	₩ 4,772,285

(B) The Company recognizes foreign exchange gains and losses arising from foreign currency transactions and translation as financial income and expenses.

22. Income Tax Expense

Income tax expense is recognized based on management's best estimate of the weighted average annual income tax rate expected for the full financial year. The average annual tax rate expected as of June 30, 2019 to be effective for the year ended December 31, 2019 is 27.4%.

23. Earnings per Share

(A) Basic earnings per share

Basic earnings per share for the three and six months ended June 30, 2019 and 2018 are calculated as follows:

(1) Ordinary shares

<i>(In millions of Korean won and thousands of number of shares)</i>	June 30, 2019		June 30, 2018	
	3 Months	6 Months	3 Months	6 Months
Profit for the period attributable to owners of the Parent company	₩ 5,064,530	₩ 10,172,020	₩ 10,981,547	₩ 22,593,380
Profit for the period available for ordinary shares	4,450,996	8,939,748	9,651,206	19,856,343
Weighted-average number of ordinary shares outstanding	5,969,783	5,969,783	5,969,783	5,971,125
Basic earnings per ordinary share (in Korean won)	₩ 746	₩ 1,497	₩ 1,617	₩ 3,325

(2) Preference shares

<i>(In millions of Korean won and thousands of number of shares)</i>	June 30, 2019		June 30, 2018	
	3 Months	6 Months	3 Months	6 Months
Profit for the period attributable to owners of the Parent company	₩ 5,064,530	₩ 10,172,020	₩ 10,981,547	₩ 22,593,380
Profit for the period available for preference shares	613,534	1,232,273	1,330,341	2,737,037
Weighted-average number of preference shares outstanding	822,887	822,887	822,887	823,199
Basic earnings per preference share (in Korean won)	₩ 746	₩ 1,497	₩ 1,617	₩ 3,325

(B) Diluted earnings per share

The Company does not have dilutive potential ordinary shares and as a result, basic earnings per share and diluted earnings per share are the same for the six months ended June 30, 2019 and 2018.

24. Cash Flows

(A) Adjustments and changes in assets and liabilities arising from operating activities for the six months ended June 30, 2019 and 2018 are as follows:

(1) Adjustments

<i>(In millions of Korean won)</i>	2019		2018	
Adjustments for:				
Income tax expense	₩	3,868,181	₩	8,850,787
Financial income		(2,267,491)		(2,943,011)
Financial expenses		1,357,477		2,195,581
Post-employment benefits		553,953		468,167
Depreciation		13,481,068		12,087,806
Amortization		505,176		678,061
Bad debt expenses (reversal)		42,026		(42,734)
Dividend income		(84,643)		(74,964)
Share of profit of associates and joint ventures		(142,173)		(170,671)
Gain on disposal of property, plant and equipment		(167,811)		(247,140)
Loss on disposal of property, plant and equipment		77,747		47,925
Loss on valuation of inventories		788,880		1,034,038
Gain on disposal of investments		(25,056)		(10,737)
Others		9,635		34,335
Total	₩	17,996,969	₩	21,907,443

(2) Changes in assets and liabilities arising from operating activities

<i>(In millions of Korean won)</i>	2019		2018	
Changes in assets and liabilities:				
Decrease in trade receivables	₩	747,983	₩	1,667,731
Decrease (increase) in other receivables		(104,210)		980,459
Decrease (increase) in advance payments		(152,627)		16,386
Decrease (increase) in long-term and short-term prepaid expenses		386,741		(263,272)
Increase in inventories		(2,332,910)		(3,149,586)
Decrease in trade payables		(1,175,012)		(639,687)
Decrease in long-term and short-term other payables		(1,321,087)		(2,975,268)
Increase (decrease) in advances received		60,562		(183,519)
Increase (decrease) in withholdings		(264,446)		59,821
Decrease in accrued expenses		(4,857,283)		(3,600,100)
Increase in provisions		1,934,686		1,548,783
Payment of post-employment benefits		(177,055)		(191,205)
Other		(512,853)		(1,611,966)
Total	₩	(7,767,511)	₩	(8,341,423)

(B) For the six months ended June 30, 2019, cash outflows from repayment of the principal (financial activities) and cash outflows due to interest expenses (operating activities) in relation to the lease liabilities amount to ₩ 316,286 million and ₩ 49,456 million, respectively.

25. Financial Risk Management

The Company's financial risk management focuses on minimizing market risk, credit risk, and liquidity risk arising from operating activities. To mitigate these risks, the Company closely monitors each risk factor and has in place corresponding financial risk management policies and a financial risk management program. The Company's use of derivative instruments for hedging specific risks are included in this program.

The finance team mainly carries out the Company's financial risk management. The finance team implements the global financial risk management policies, and periodically measures, evaluates and hedges financial risks.

The Company manages global financial risks by operating local finance centers within each major region (the United States, United Kingdom, Singapore, China, Brazil and Russia).

The Company's assets that are under financial risk management are comprised of cash and cash equivalents, short-term financial instruments, financial assets at amortized cost, trade receivables and others. The Company's liabilities under financial risk management are comprised of trade payables, borrowings and others.

(A) Market risk

(1) Foreign exchange risk

The Company operates internationally and is exposed to foreign exchange risks as it conducts transactions in currencies other than the functional currency of each entity. Major currencies that are exposed to foreign exchange risk include USD, EUR, JPY and INR.

The Company focuses on minimizing the impact from foreign exchange fluctuation by maintaining equal amounts of assets and liabilities denominated in foreign currency, irrespective of foreign exchange fluctuation considerations. To prevent foreign exchange exposure, the Company's foreign exchange management policy requires normal business transactions, including import and export, as well as financing transactions such as depositing and borrowing, to be in local currency or for the cash-in currency to be matched with the cash-out currency.

Additionally, in order to effectively manage foreign exchange risk, the Company prohibits foreign exchange transactions, with the exception of transactions made for hedging purposes, and periodically monitors and evaluates exchange risk.

(2) Price risk

The Company's investment portfolio consists of direct and indirect investments in equity instruments classified as financial assets at fair value through other comprehensive income and financial assets at fair value through profit or loss, which is in line with the Company's strategy.

As of June 30, 2019 and December 31, 2018, a price fluctuation in relation to equity instruments (listed shares) by 1% would result in changes in other comprehensive income (before income tax) of ₩ 35,082 million and ₩ 28,947 million, respectively.

(3) Interest rate risk

Risk of changes in interest rates for floating interest rate financial instruments is defined as the risk that the fair value of components of the statement of financial position, and future cash flows of interest income (expenses) of a financial instrument, will fluctuate because of changes in market interest rates. The Company's position with regard to interest rate risk exposure is mainly driven by its floating interest rate debt obligations and interest-bearing deposits. The Company implemented policies and operates to minimize uncertainty arising from changes in interest rates and financial expenses.

The Company maintains minimum external borrowings by facilitating cash pooling systems on a regional and global basis to limit its exposure to the interest rate risk. The Company manages exposed interest rate risk via periodic monitoring and handling risk factors on a timely basis.

(B) Credit risk

Credit risk arises during the normal course of transactions and investing activities where clients or counterparties fail to discharge an obligation. The Company sets and manages the client's and counterparty's credit limit, and evaluates their financial credit rating on a periodic basis based on the client's and counterparty's financial conditions, default history and other important factors. Adequate insurance coverage is maintained for trade receivables related to trading partners situated in higher risk countries.

Credit risk can arise from transactions with financial institutions which include financial instrument transactions such as cash and cash equivalents, deposits, and derivative instruments. To minimize such risk, the Company transacts only with banks which have strong international credit rating (S&P A and above), and all new transactions with financial institutions with no prior transaction history are approved, managed and monitored by the Company's finance team and the local finance center. The Company generally enters into a financial agreement with no restrictions, such as debt ratio covenants, provision of collateral and/or repayment of loans/ borrowings. The Company requires separate approval for contracts with restrictions.

As of June 30, 2019 and December 31, 2018, the Company estimates that its maximum exposure to credit risk is the carrying amount of its financial assets, net of impairment losses.

(C) Liquidity risk

Due to the nature of the Company's business that requires making large investments, maintaining adequate level of liquidity risk is crucial. The Company maintains and manages adequate level of liquidity by periodically forecasting its capital balances, estimating required cash and managing income and expenses.

The Company manages its liquidity risk in advance by periodically forecasting projected cash flows. When abnormalities are identified, the Company cooperates with the local finance center to provide liquidity support by utilizing a globally integrated finance structure including Cash Pooling. Also, the Company maintains a liquidity management process that provides additional financial support by the local finance center and the Company. The Cash Pooling program allows sharing of surplus funds among entities and contributes to minimizing liquidity risk and strengthening the Company's competitive position by reducing capital operation expenses and financial expenses.

In addition, the Company mitigates liquidity risk by contracting with financial institutions with respect to foreign trade finance and others, and by providing payment guarantees to subsidiaries to secure required credit limit. For large scale facility investments, liquidity risk is minimized by utilizing internal reserves and long term borrowings according to the capital injection schedule.

(D) Capital risk management

The purpose of capital management is to maintain a sound capital structure. The Company monitors capital on the basis of the ratio of total liabilities to total equity. This ratio is calculated by dividing total liabilities by total equity in the consolidated financial statements.

The Company's capital risk management policy has not changed since the prior reporting periods. The Company has maintained an AA- and Aa3 credit rating from S&P and Moody's, respectively.

The total liabilities to equity ratios as of June 30, 2019 and December 31, 2018 are as follows:

<i>(In millions of Korean won)</i>	June 30, 2019		December 31, 2018	
Total liabilities	₩	85,193,101	₩	91,604,067
Total equity		257,747,033		247,753,177
Total liabilities to equity ratio		33.1%		37.0%

(E) Fair value estimation

(1) Carrying amounts and fair values of financial instruments by category as of June 30, 2019 and December 31, 2018 are as follows:

<i>(In millions of Korean won)</i>	June 30, 2019		December 31, 2018	
	Carrying amount	Fair value	Carrying amount	Fair value
Financial assets				
Cash and cash equivalents	₩ 27,531,931	¹	₩ 30,340,505	¹
Short-term financial instruments	60,705,062	¹	65,893,797	¹
Short-term financial assets at amortized cost	3,646,364	¹	2,703,693	¹
Short-term financial assets at fair value through profit or loss	1,687,030	1,687,030	2,001,948	2,001,948
Trade receivables	36,061,645	¹	33,867,733	¹
Financial assets at amortized cost	910,299	¹	238,309	¹
Financial assets at fair value through other comprehensive income	8,466,918	8,466,918	7,301,351	7,301,351
Financial assets at fair value through profit or loss	837,424	837,424	775,427	775,427
Other ²	11,705,704	62,389	9,313,133	84,089
Total financial assets	₩ 151,552,377		₩ 152,435,896	
Financial liabilities				
Trade payables	₩ 9,073,058	¹	₩ 8,479,916	¹
Short-term borrowings	11,824,171	¹	13,586,660	¹
Other payables	9,298,473	¹	9,779,287	¹
Current portion of long-term liabilities ³	741,623	¹	33,386	¹
Debentures	989,817	1,038,123	961,972	964,182
Long-term borrowings ³	1,908,663	¹	85,085	¹
Long-term other payables ²	2,151,758	2,314	2,860,002	13,417
Other ²	8,177,935	48,444	8,832,523	42,723
Total financial liabilities	₩ 44,165,498		₩ 44,618,831	

¹ Assets and liabilities whose carrying amount is a reasonable approximation of fair value are excluded from the fair value disclosures.

² Financial assets of ₩ 11,643,315 million (December 31, 2018: ₩ 9,229,044 million) and financial liabilities of ₩ 10,278,935 million (December 31, 2018: ₩ 11,636,385 million) are excluded as the carrying amount is a reasonable approximation of fair value.

³ Lease liabilities, classified under the current portion of long-term liabilities and long-term borrowings, are excluded from the fair value disclosures in accordance with Korean IFRS 1107.

(2) Fair value hierarchy classifications of the financial instruments that are measured at fair value or its fair value is disclosed as of June 30, 2019 and December 31, 2018 are as follows:

June 30, 2019

<i>(In millions of Korean won)</i>	Level 1		Level 2		Level 3		Total balance	
1) Assets								
Financial assets at fair value through other comprehensive income	₩	3,479,245	₩	-	₩	4,987,673	₩	8,466,918
Financial assets at fair value through profit or loss		28,939		12,256		2,483,259		2,524,454
Other		-		62,389		-		62,389
2) Liabilities								
Debentures	₩	-	₩	1,038,123	₩	-	₩	1,038,123
Long-term other payables		-		-		2,314		2,314
Other		-		48,000		444		48,444

December 31, 2018

<i>(In millions of Korean won)</i>	Level 1		Level 2		Level 3		Total balance	
1) Assets								
Financial assets at fair value through other comprehensive income	₩	2,884,633	₩	-	₩	4,416,718	₩	7,301,351
Financial assets at fair value through profit or loss		10,124		18,503		2,748,747		2,777,375
Other		-		84,089		-		84,089
2) Liabilities								
Debentures	₩	-	₩	964,182	₩	-	₩	964,182
Long-term other payables		-		-		13,417		13,417
Other		-		41,639		1,085		42,723

The levels of the fair value hierarchy and its application to financial assets and liabilities are described below.

- Level 1 : Quoted prices (unadjusted) in active markets for identical assets or liabilities
- Level 2 : Inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly
- Level 3 : Inputs for the asset or liability that are not based on observable market data (that is, unobservable inputs)

The fair value of financial instruments traded in active markets is based on quoted market prices at the statement of financial position date. A market is regarded as active if quoted prices are readily and regularly available from an exchange, dealer, broker, industry group, pricing service, or regulatory agency, and those prices represent actual and regularly occurring market transactions on an arm's length basis. The quoted market price used for financial assets held by the Company is the current bid price. These instruments are included in Level 1. The instruments included in Level 1 are listed equity investments most of which are classified as financial assets at fair value through other comprehensive income.

The fair value of financial instruments that are not traded in an active market (for example, over-the-counter derivatives) is determined by using valuation techniques. These valuation techniques maximize the use of observable market data where it is available and rely as little as possible on entity specific estimates. If all significant inputs required to fair value an instrument are observable, the instrument is included in Level 2.

If one or more of the significant inputs are not based on observable market data, the instrument is included in Level 3.

The Company performs the fair value measurements required for financial reporting purposes, including Level 3 fair values and discusses valuation processes and results at least once every quarter in line with the Company's quarterly reporting dates. The

Company's policy is to recognize transfers between levels at the end of the reporting period, if corresponding events or changes in circumstances have occurred.

Specific valuation techniques used to value financial instruments include:

- Quoted market prices or dealer quotes for similar instruments
- The fair value of forward foreign exchange contracts is determined using forward exchange rates at the statement of financial position date, with the resulting value discounted back to present value

Other techniques, such as discounted cash flow analysis, are used to determine fair value for the remaining financial instruments. For trade and other receivables that are classified as current assets, the carrying amount approximates a reasonable estimate of fair value.

(3) Valuation technique and the inputs

The Company utilizes a present value technique to discount future cash flows using a proper interest rate for corporate bonds, government and public bonds, bank debentures, etc. that are classified as Level 2 in the fair value hierarchy.

The following table presents the valuation technique and the inputs used for major financial instruments classified as Level 3.

(In millions of Korean won)

Classification	Fair value	Valuation technique	Level 3 inputs	Input range (Weighted average)
Financial assets at fair value through other comprehensive income				
Maltani	₩ 11,625	Discounted cash flow	Permanent growth rate Weighted average cost of capital	-1.00% ~ 1.00% (0%) 8.32% ~ 10.32% (9.32%)
Samsung Venture Investment	7,720	Discounted cash flow	Permanent growth rate Weighted average cost of capital	-1.00% ~ 1.00% (0%) 17.53% ~ 19.53% (18.53%)
Corning Incorporated convertible preference shares	4,185,016	Trinomial model	Risk adjusted discount rate Price volatility	4.8% ~ 6.8% (5.8%) 22.3% ~ 28.3% (25.3%)
Long-term other payables				
Contingent financial liability	2,314	Probability-weighted discounted cash flow	Applicable probability rate	50%
Other				
Contingent financial liability	444	Monte Carlo simulation	Discount rate Asset volatility Credit spread	8.23% 33.2% 0.79%

(4) Changes in Level 3 instruments:

<i>(In millions of Korean won)</i>	2019		2018	
Financial Assets				
Balance as of January 1	₩	7,165,466	₩	3,652,574
Acquisitions		1,952,720		166,606
Disposals		(2,265,529)		(38,403)
Amount recognized in profit or loss		16,001		(3,594)
Amount recognized in other comprehensive income		504,177		(144,264)
Others ¹		98,097		1,177,828
Balance as of June 30	₩	7,470,932	₩	4,810,747

¹ Others include the effect of changes in accounting policy.

<i>(In millions of Korean won)</i>	2019		2018	
Financial Liabilities				
Balance as of January 1	₩	14,502	₩	351,918
Settlement		(671)		(322,920)
Amount recognized in profit or loss		(11,454)		5,992
Others		381		1,152
Balance as of June 30	₩	2,758	₩	36,142

(5) Sensitivity analysis for recurring fair value measurements categorized within Level 3

Sensitivity analysis of financial instruments is performed to measure favorable and unfavorable changes in the fair value of financial instruments which are affected by the unobservable parameters, using a statistical technique. When the fair value is affected by more than two input parameters, the amounts represent the most favorable or most unfavorable.

The results of the sensitivity analysis for the effect on profit or loss (before tax amount for other comprehensive income) from changes in inputs for major financial instruments which are categorized within Level 3 and subject to sensitivity analysis are as follows:

<i>(In millions of Korean won)</i>	Classification	Favorable changes		Unfavorable changes	
		Profit or loss	Equity	Profit or loss	Equity
Financial assets at fair value through other comprehensive income ¹	₩	-	₩ 115,972	₩	₩ (103,682)

¹ For equity instruments, changes in fair value are calculated with the correlation between growth rate (-1% ~ 1%), volatility (22.3% ~ 28.3%) and discount rate, which are significant unobservable inputs.

26. Segment Information

(A) Operating segment information

The chief operating decision maker has been identified as the Management Committee. The Company determines operating segments based on the units reported to the Management Committee. The Management Committee reviews operating profits of each operating segment in order to assess performance and to make strategic decisions regarding allocation of resources to the segment.

The operating segments are product-based and are identified based on the internal organization and revenue streams. As of the reporting date, the operating segments are comprised of CE, IM, Semiconductor, DP, Harman and others.

The segment information for each reporting period is prepared after the allocation of internal transaction adjustments such as depreciation, amortization of intangible assets and operating profit. Total assets and liabilities of each operating segment are excluded from the disclosure as these have not been provided regularly to the Management Committee.

(1) For the six months ended June 30, 2019

(In millions of Korean won)	DS						Total ¹	Intercompany elimination within the Company	Consolidated
	CE	IM	Total ¹	Semi- conductor	DP	Harman			
Total segment revenue	₩ 47,703,474	₩112,117,316	₩ 86,638,576	₩ 56,864,310	₩ 28,544,076	₩ 5,550,217	₩ 253,373,897	₩ (144,861,247)	₩ 108,512,650
Intercompany revenue	(26,594,609)	(59,056,569)	(42,491,909)	(26,304,211)	(14,798,087)	(837,578)	(144,861,247)	144,861,247	-
Net revenue ²	21,108,865	53,060,747	44,146,667	30,560,099	13,745,989	4,712,639	108,512,650	-	108,512,650
Depreciation	267,249	618,538	12,016,220	8,703,892	3,294,142	161,444	13,481,068	-	13,481,068
Amortization	16,719	50,959	231,231	175,097	52,575	112,562	505,176	-	505,176
Operating profit	1,253,352	3,835,257	7,683,110	7,520,639	187,445	100,371	12,830,347	-	12,830,347

¹ Includes amounts which does not specifically fall into specific operating segments presented above.

² Segment net revenue includes intersegment revenues.

(2) For the three months ended June 30, 2019

(In millions of Korean won)	DS						Total ¹	Intercompany elimination within the Company	Consolidated
	CE	IM	Total ¹	Semi- conductor	DP	Harman			
Total segment revenue	₩ 24,700,343	₩ 53,345,125	₩ 47,147,836	₩ 30,742,243	₩ 15,877,837	₩ 2,939,448	₩ 128,944,654	₩ (72,817,550)	₩ 56,127,104
Intercompany revenue	(13,632,393)	(27,484,649)	(23,616,539)	(14,654,552)	(8,256,251)	(421,545)	(72,817,550)	72,817,550	-
Net revenue ²	11,067,950	25,860,476	23,531,297	16,087,691	7,621,586	2,517,903	56,127,104	-	56,127,104
Depreciation	132,334	305,806	5,891,312	4,246,066	1,636,412	85,232	6,640,251	-	6,640,251
Amortization	8,281	25,820	114,366	86,882	25,702	57,732	250,448	-	250,448
Operating profit	712,311	1,560,969	4,146,967	3,398,248	748,187	92,374	6,597,065	-	6,597,065

¹ Includes amounts which does not specifically fall into specific operating segments presented above.

² Segment net revenue includes intersegment revenues.

(3) For the six months ended June 30, 2018

<i>(In millions of Korean won)</i>	DS							Intercompany elimination within the Company	Consolidated
	CE	IM	Total ¹	Semi-conductor	DP	Harman	Total ¹		
Total segment revenue	₩ 44,367,178	₩110,740,784	₩113,063,015	₩ 82,305,452	₩ 28,191,586	₩ 5,225,687	₩ 274,360,383	₩ (155,314,011)	₩ 119,046,372
Intercompany revenue	(24,224,410)	(58,295,269)	(57,019,451)	(39,530,072)	(14,989,015)	(1,150,349)	(155,314,011)	155,314,011	-
Net revenue ²	20,142,768	52,445,515	56,043,564	42,775,380	13,202,571	4,075,338	119,046,372	-	119,046,372
Depreciation	272,259	576,123	10,943,269	7,631,976	3,247,242	114,704	12,087,806	-	12,087,806
Amortization	19,503	66,290	382,232	315,504	59,838	108,676	678,061	-	678,061
Operating profit	788,214	6,438,794	23,453,974	23,156,272	543,790	8,225	30,511,205	-	30,511,205

¹ Includes amounts which does not specifically fall into specific operating segments presented above.

² Segment net revenue includes intersegment revenues.

(4) For the three months ended June 30, 2018

<i>(In millions of Korean won)</i>	DS							Intercompany elimination within the Company	Consolidated
	CE	IM	Total ¹	Semi-conductor	DP	Harman	Total ¹		
Total segment revenue	₩ 22,970,337	₩ 50,427,978	₩ 57,039,352	₩ 42,791,028	₩13,011,234	₩ 2,680,625	₩ 133,753,020	₩ (75,270,362)	₩ 58,482,658
Intercompany revenue	(12,569,243)	(26,432,576)	(29,341,891)	(20,798,834)	(7,345,249)	(546,126)	(75,270,362)	75,270,362	-
Net revenue ²	10,401,094	23,995,402	27,697,461	21,992,194	5,665,985	2,134,499	58,482,658	-	58,482,658
Depreciation	132,965	283,588	5,604,305	3,951,512	1,624,677	58,278	6,172,543	-	6,172,543
Amortization	5,345	32,113	179,954	147,315	29,236	54,285	326,988	-	326,988
Operating profit	513,061	2,669,171	11,690,318	11,605,913	135,527	44,965	14,869,035	-	14,869,035

¹ Includes amounts which does not specifically fall into specific operating segments presented above.

² Segment net revenue includes intersegment revenues.

(B) Regional information

The regional segment information provided to the Management Committee for the reportable segments as of and for the three and six months ended June 30, 2019 and 2018 is as follows:

(1) As of and for the six months ended June 30, 2019

<i>(In millions of Korean won)</i>	Korea	America	Europe	Asia and Africa	China	Intercompany elimination within the Company	Consolidated
Net segment revenue	₩16,214,659	₩33,718,420	₩20,044,227	₩21,349,656	₩17,185,688	₩ -	₩108,512,650
Non-current assets ¹	93,758,765	10,528,481	6,622,079	11,817,340	9,745,330	(304,781)	132,167,214

¹ Total of non-current assets other than financial instruments, deferred tax assets, and investments in associates and joint ventures.

(2) As of and for the three months ended June 30, 2019

<i>(In millions of Korean won)</i>	Korea	America	Europe	Asia and Africa	China	Intercompany elimination within the Company	Consolidated
Net segment revenue	₩8,897,591	₩17,004,312	₩9,806,214	₩11,106,459	₩9,312,528	₩ -	₩56,127,104
Non-current assets ¹	93,758,765	10,528,481	6,622,079	11,817,340	9,745,330	(304,781)	132,167,214

¹ Total of non-current assets other than financial instruments, deferred tax assets, and investments in associates and joint ventures.

(3) As of and for the six months ended June 30, 2018

<i>(In millions of Korean won)</i>	Korea	America	Europe	Asia and Africa	China	Intercompany elimination within the Company	Consolidated
Net segment revenue	₩14,787,586	₩38,762,089	₩21,533,375	₩22,398,365	₩21,564,957	₩ -	₩119,046,372
Non-current assets ¹	94,327,930	10,302,602	6,116,306	12,180,531	9,215,522	(567,287)	131,575,604

¹ Total of non-current assets other than financial instruments, deferred tax assets, and investments in associates and joint ventures.

(4) As of and for the three months ended June 30, 2018

<i>(In millions of Korean won)</i>	Korea	America	Europe	Asia and Africa	China	Intercompany elimination within the Company	Consolidated
Net segment revenue	₩6,266,803	₩18,962,735	₩10,509,378	₩10,786,080	₩11,957,662	₩ -	₩58,482,658
Non-current assets ¹	94,327,930	10,302,602	6,116,306	12,180,531	9,215,522	(567,287)	131,575,604

¹ Total of non-current assets other than financial instruments, deferred tax assets, and investments in associates and joint ventures.

27. Related Party Transactions

(A) Sale and purchase transactions

Sale and purchase transactions with related parties for the six months ended June 30, 2019 and 2018, are as follows:

		2019			
<i>(In millions of Korean won)</i>	Name of company¹	Sales	Disposal of non-current assets	Purchases	Purchase of non-current assets
Associates and Joint ventures	Samsung SDS	₩ 56,665	₩ -	₩ 1,070,182	₩ 180,487
	Samsung Electro-Mechanics	38,897	-	1,140,102	16
	Samsung SDI	61,194	16,061	308,318	29,238
	Cheil Worldwide	23,958	-	410,212	958
	Other	525,919	-	5,145,473	126,248
	Total (Associates and Joint	₩ 706,633	₩ 16,061	₩ 8,074,287	₩ 336,947
Other related parties	Samsung C&T		₩ -	₩ 171,422	₩ 2,342,820
	Other	93,932	-	549,807	307,728
	Total (Other related parties)	₩ 160,501	₩ -	₩ 721,229	₩ 2,650,548
Other ²	Samsung Engineering	₩ 1,68	₩ -	₩ 19,22	₩ 916,276
	S-1	10,916	-	199,928	6,539
	Other	68,270	-	116,525	170,783
	Total (Other)	₩ 80,87	₩ -	₩ 335,681	₩ 1,093,598

¹ Transactions with separate entities that are related parties of the Company.

² Although these entities are not related parties of the Company in accordance with Korean IFRS 1024, they belong to the same large enterprise group in accordance with the Monopoly Regulation and Fair Trade Act.

		2018			
<i>(In millions of Korean won)</i>	Name of company¹	Sales	Disposal of non-current assets	Purchases	Purchase of non-current assets
Associates and Joint ventures	Samsung SDS	₩ 48,658	₩ -	₩ 1,050,98	₩ 188,967
	Samsung Electro-Mechanics	36,202	-	1,159,082	-
	Samsung SDI	36,982	-	414,792	47,994
	Cheil Worldwide	23,980	-	441,335	2,587
	Other	543,460	-	4,561,210	102,105
	Total (Associates and Joint	₩ 689,282	₩ -	₩ 7,627,407	₩ 341,653
Other related parties	Samsung C&T	₩ 60,949	₩ 183	₩ 166,81	₩ 1,863,833
	Other	82,369	-	474,520	389,186
	Total (Other related parties)	₩ 143,318	₩ 183	₩ 641,33	₩ 2,253,019
Other ²	Samsung Engineering	₩ 2,30	₩ -	₩ 14,10	₩ 616,528
	S-1	14,239	258	186,957	20,474
	Other	98,985	-	118,099	77,921
	Total (Other)	₩ 115,533	₩ 258	₩ 319,16	₩ 714,923

¹ Transactions with separate entities that are related parties of the Company.

² Although these entities are not related parties of the Company in accordance with Korean IFRS 1024, they belong to the same large enterprise group in accordance with the Monopoly Regulation and Fair Trade Act.

(B) Balances of receivables and payables

Balances of receivables due from and payables due to related parties as of June 30, 2019 and December 31, 2018 are as follows:

<i>(In millions of Korean won)</i>		Name of company ¹	June 30, 2019			
			Receivables	Payables		
Associates and Joint ventures	Samsung SDS	₩	11,680	₩	538,548	
	Samsung Electro-Mechanics		2,174		309,219	
	Samsung SDI		107,130		108,564	
	Cheil Worldwide		238		375,318	
	Other		294,722		932,158	
		Total (Associates and Joint ventures)	₩	415,944	₩	2,263,807
Other related parties	Samsung C&T	₩	264,690	₩	1,796,327	
	Other		31,938		221,940	
	Total (Other related parties)	₩	296,628	₩	2,018,267	
Other ²	Samsung Engineering	₩	1,473	₩	265,257	
	S-1		1,987		26,943	
	Other		10,062		59,387	
	Total (Other)	₩	13,522	₩	351,587	

¹ Balances due from and to separate entities that are related parties of the Company.

² Although these entities are not related parties of the Company in accordance with Korean IFRS 1024, they belong to the same large enterprise group in accordance with the Monopoly Regulation and Fair Trade Act.

<i>(In millions of Korean won)</i>		Name of company ¹	December 31, 2018			
			Receivables	Payables		
Associates and Joint ventures	Samsung SDS	₩	5,294	₩	490,611	
	Samsung Electro-Mechanics		3,518		163,668	
	Samsung SDI		102,641		73,398	
	Cheil Worldwide		241		465,517	
	Other		282,849		1,067,439	
		Total (Associates and Joint ventures)	₩	394,543	₩	2,260,633
Other related parties	Samsung C&T	₩	225,606	₩	1,725,547	
	Other ²		19,676		183,395	
	Total (Other related parties)	₩	245,282	₩	1,908,942	
Other ³	Samsung Engineering	₩	1,078	₩	581,153	
	S-1		3,149		37,785	
	Other		4,696		47,502	
	Total (Other)	₩	8,923	₩	666,440	

¹ Balances due from and to separate entities that are related parties of the Company.

² As of December 31, 2018, there are no payables to Samsung Card relating to unsettled amounts from purchasing cards. The Company has a purchasing card agreement with Samsung Card with a limit of ₩ 2,543,000 million as of December 31, 2018. For the year ended December 31, 2018, the amounts used and reimbursed were ₩ 3,724,851 million and ₩ 4,846,182 million, respectively.

³ Although these entities are not related parties of the Company in accordance with Korean IFRS 1024, they belong to the same large enterprise group in accordance with the Monopoly Regulation and Fair Trade Act.

- (C) For the six months ended June 30, 2019, the Company invested ₩ 5,544 million (for the six months ended June 30, 2018: ₩ 17,137 million) in associates and joint ventures. And for the six months ended June 30, 2019, the Company recovered ₩ 306 million (for the six months ended June 30, 2018: ₩ 148 million) from associates and joint ventures. In addition, for the six months ended June 30, 2019, the Company acquired PLP business of Samsung Electro-Mechanics, an associate, at a price of ₩ 785,000 million. For six months ended June 30, 2018, the Company invested ₩ 204,055 million in Samsung Heavy Industries, one of the entities that are not related parties of the Company in accordance with Korean IFRS 1024, but belong to the same large enterprise group in accordance with the Monopoly Regulation and Fair Trade Act.
- (D) For the six months ended June 30, 2019, the Company declared ₩ 830,778 million of dividends (for the six months ended June 30, 2018: ₩ 941,308 million) to related parties. Also, for the six months ended June 30, 2019, the Company declared ₩ 62,872 million of dividends (for the six months ended June 30, 2018: ₩ 72,770 million) to the entities that are not related parties of the Company in accordance with Korean IFRS 1024, but belong to the same large enterprise group in accordance with the Monopoly Regulation and Fair Trade Act. As of June 30, 2019 and December 31, 2018, there are no unpaid dividends to these entities.
- (E) For the six months ended June 30, 2019, the Company has not entered into any lease agreement with its related parties, and lease payments to the related party amounts to ₩ 28,594 million.
- (F) Key management compensation

The compensation paid or payable to key management (executive directors) for their services for the six months ended June 30, 2019 and 2018 consists of:

<i>(In millions of Korean won)</i>	2019		2018	
Short-term employee benefits	₩	3,032	₩	5,118
Post-employment benefits		703		760
Other long-term employee benefits		3,225		4,433

28. Business Combination

Significant business combination for the six months ended June 30, 2019 are as follows:

(1) Acquisition of Corephotonics Ltd.

Samsung Electronics Benelux (SEBN), the Company's subsidiary, acquired 83.9% of the equity shares of Corephotonics Ltd. on January 28, 2019 and an additional 8.5% on March 4, 2019 to secure CIS optical technology and talent.

(1) Overview of the acquired company

Name of the acquired company	Corephotonics Ltd.
Headquarters location	Tel Aviv, Israel
Representative director	David Mendlovic
Industry	Development of camera solutions

(2) Purchase price allocation

<i>(In millions of Korean won)</i>	Amount
I. Consideration transferred	
Fair value of share equity prior to the merger ¹	₩ 13,326
Fair value of additional consideration transferred	160,214
Total consideration transferred	173,450
II. Identifiable assets and liabilities	
Cash and cash equivalents	6,069
Short-term financial assets, etc.	19,354
Trade and other receivables	1,199
Property, plant and equipment	339
Intangible assets	100,598
Other assets	82
Other payables	236
Deferred tax liabilities	23,138
Other liabilities	3,475
Total net identifiable assets	100,792
III. Total identifiable assets recognized as non-controlling interest ²	77
IV. Goodwill (I – II+ III)	₩ 72,735

¹ As of January 28, 2019, other expenses of ₩ 500 million were recognized relating to the remeasurement of fair value of the 7.6% shares of Corephotonics Ltd. held by Samsung Venture Capital Union #28, the Company's subsidiary, prior to the business combination.

² Non-controlling interest from business combination is measured proportionately to the share of the fair valued Corephotonics Ltd.'s identifiable net assets.

Had Corephotonics Ltd. been consolidated from January 1, 2019, the revenue and consolidated loss for the period would be ₩ 845 million and ₩ 12,339 million, respectively. The revenue and consolidated loss for the period contributed by Corephotonics Ltd. since the acquisition amounts to ₩ 526 million and ₩ 7,729 million, respectively.

(2) Acquisition of PLP business

In accordance to the resolution of the Board of Directors on April 30, 2019, the Company acquired Samsung Electro-Mechanics Co., Ltd.'s PLP business at a price of ₩ 785,000 million on June 1, 2019 to strengthen its semiconductor competitiveness through securing next-generation package technology.

<i>(In millions of Korean won)</i>	Amount	
I. Fair value of consideration transferred	₩	785,000
II. Identifiable assets and liabilities		
Inventories		10,906
Property, plant and equipment		398,984
Intangible assets		182,171
Other assets		1,561
Other liabilities		15,363
Total net identifiable assets		578,259
III. Goodwill (I – II)	₩	206,741

Had PLP business been acquired from January 1, 2019, there would be no revenue transferred, and consolidated loss for the period would be ₩ 82,116 million. PLP business has not recorded any revenue since the acquisition. Consolidated loss for the period contributed by PLP business since the acquisition amounts to ₩ 12,303 million.

3. Other financial information

A. Restatement of financial statements and other matters to note

(1) Restatement of financial statements: N/A

(2) Acquisition, divestment, asset transfer and transfer of business (separate only)

The major divestment and transfer of business transactions in the past three business years on a parent basis (separate basis) are as follows. For information on the business combinations and divestitures of subsidiaries, please refer to the notes on the business combination and assets held for sale (assets of disposal group) of the consolidated financial statements.

[S-Printing Solution]

- Details on the Split

- Company Name: S-Printing Solution Corp.
- Location: 129 Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do
- Purpose of split: To improve the competitiveness of S-Printing Solution
- Date of Approval: October 27, 2016 (at the extraordinary general meeting of shareholders)
- Date of split: November 1, 2016

- Details on the selling

The Company on September 12, 2016 agreed to sell the Printing Solutions business including shares of S-Printing Solution Corp to HP Inc. (location: Palo Alto, USA; CEO: Dion Weisler) for USD 1.05 billion and completed the deal on November 1, 2017.

- Details of the above statement can be found in the “Important Matters Report“, published in DART (<http://dart.fss.or.kr/>).

[PLP Business]

- Details of acquisition

In accordance to the resolution of the Board of Directors on April 30, 2019, the Company acquired Samsung Electro-Mechanics Co., Ltd.(location: South Korea; CEO: Yun Tae Lee)’s PLP business at a price of KRW 785,000 million on June 1, 2019 to strengthen its semiconductor competitiveness through securing next-generation package technology.

- Details of the above statement can be found in the “Business Acquisition from Related Parties”, published in DART (<http://dart.fss.or.kr/>).

(KRW 100 mil)

	Account	Forecast		Actual			
		1st Year	2nd Year	1st Year		2nd Year	
				Actual	Difference	Actual	Difference
PLP Business	Sales	101	219	-	-	-	-
	Operating Income	-1,273	-2,155	-	-	-	-
	Net Income	-1,273	-2,155	-	-	-	-

※ The first year forecast is our prediction for 7 month period from June 1 to December 31, 2019, and difference between actual and forecast will be included in 2019 Annual Report.

- (3) Information on the accounting treatment of the sales of assets and contingent liabilities relating to the asset backed securities

Litigation

- The Company is involved in claims, disputes, and investigations conducted by regulatory bodies at the reporting date, including civil claims from some overseas buyers for price-fixing related to the sale of TFT-LCD. Although the outflow of resources and timing of these matters are uncertain, the Company believes the outcome will not have a material impact on the financial condition of the Company.
- In addition, during the normal course of business with numerous companies, the Company has been involved in various claims, disputes, and investigations conducted by regulatory bodies. Although the outflow of resources and timing of these matters are uncertain, the Company believes the outcome will not have a material impact on the financial condition of the Company.

Debt guarantee

- Domestic: As of June 30, 2019, the Company provided a debt guarantee of KRW 252 million to its employees who took debt from financial institutions in order to finance employee housing rental. The Company's housing rental debt guarantee limit is KRW 252 million.

- Overseas:

(USD thousand)

Company	Relationship	Creditor	Guarantee expiry date	Transactions				Limit of guarantee
				Beginning of period	Increase	Decrease	End of period	
SEA	Subsidiary	BOA etc.	Jun 13, 2020	0	0	0	0	1,398,000
SEM	Subsidiary	BBVA etc.	Jun 13, 2020	0	0	0	0	546,000
SAMCOL	Subsidiary	Citibank etc.	Jun 13, 2020	85,662	0	9,364	76,298	168,000
SEDA	Subsidiary	BRADESCO etc.	Dec 17, 2019	0	0	0	0	654,000
SECH	Subsidiary	Santander etc.	Jun 13, 2020	0	0	0	0	178,000
SEPR	Subsidiary	BBVA etc.	Jun 13, 2020	58,710	0	267	58,443	180,000
SSA	Subsidiary	SCB etc.	Jun 13, 2020	0	0	0	0	323,000
SEMAG	Subsidiary	SocGen etc.	Dec 16, 2019	0	0	0	0	110,000
SETK	Subsidiary	BNP etc.	Jun 13, 2020	64,519	0	64,519	0	822,000
SECE	Subsidiary	Citibank etc.	Dec 16, 2019	0	0	0	0	75,775
SEEG	Subsidiary	HSBC	Jun 13, 2020	0	0	0	0	50,000
SEIN	Subsidiary	BNP etc.	Jun 13, 2020	0	0	0	0	186,000
SJC	Subsidiary	Mizuho Bank etc.	May 31, 2020	0	0	0	0	901,226
SEUC	Subsidiary	Credit Agricole etc.	Jun 13, 2020	0	0	0	0	150,000
SEDAM	Subsidiary	Citibank etc.	Jun 13, 2020	0	0	0	0	341,000
SELA	Subsidiary	Citibank	Dec 16, 2019	0	0	0	0	50,000
SEEH	Subsidiary	HSBC etc.	Jun 13, 2020	0	0	0	0	705,000
SERK	Subsidiary	SOCGEN etc.	Jun 13, 2020	0	0	0	0	245,000
SELV	Subsidiary	Citibank	Dec 16, 2019	0	0	0	0	10,000
SAPL	Subsidiary	BOA etc.	Jun 13, 2020	0	0	0	0	411,000
SEV	Subsidiary	SCB	Nov 08, 2019	0	0	0	0	15,000
SAVINA	Subsidiary	HSBC etc.	Jun 13, 2020	0	0	0	0	71,000
SET	Subsidiary	SCB	Nov 08, 2019	0	0	0	0	30,000
SCIC	Subsidiary	HSBC etc.	Jun 13, 2020	0	0	0	0	350,000
SME	Subsidiary	SCB	Nov 08, 2019	0	0	0	0	110,000
SAMEX	Subsidiary	Citibank	Dec 16, 2019	0	0	0	0	5,000
SEASA	Subsidiary	Citibank	Dec 16, 2019	0	0	0	0	1,000
SSAP	Subsidiary	SCB	Nov 08, 2019	0	0	0	0	30,000
SEHK	Subsidiary	HSBC	Jun 13, 2020	0	0	0	0	2,000
SEPM	Subsidiary	HSBC	Jun 13, 2019	7,712	0	7,712	0	0
Adgear	Subsidiary	BOA	Nov 08, 2019	0	0	0	0	2,000
Harman Finance International, SCA	Subsidiary	JP Morgan etc.	May 27, 2022	400,101	0	2,202	397,899	397,899
Harman International Japan Co., Ltd.	Subsidiary	MUFG	Nov 08, 2019	0	0	0	0	25,000
Harman RUS CIS LLC	Subsidiary	SOCGEN	Nov 08, 2019	0	0	0	0	15,000
Harman International Industries, Inc.	Subsidiary	JP Morgan	Jun 13, 2020	0	0	0	0	100,000
Harman Holding Limited	Subsidiary	HSBC	Jun 13, 2020	0	0	0	0	30,000
Total				616,703	0	84,063	532,640	8,687,900

※ SEC requires Board approval for individual guarantees exceeding 2.5% of total equity. When the guarantee amount is between 0.1% and/or less than 2.5%, the approval decision is delegated to the Management Committee.

※ SEC receives fees on the debt it guarantees depending on the maturity date of each debt guarantee, general loan interest rate, etc. In 2018, the Company claimed approximately USD 464,000 in guarantee fee and, as of the reporting date, has received the full amount.

Refer to the notes to the consolidated financial statements for the information on contingent liabilities.

(4) Other matters requiring attention in relation to the use of the financial statements: N/A

B. Allowance for bad debt

The allowances for bad debt by account over the past 3 years are as follows:

(KRW mil)

Period	Account	Receivables amount	Allowance amount	Allowance (%)
2Q19	Trade receivables	36,671,959	610,314	1.7%
	Short-term loans	7,302	70	1.0%
	Other receivables	3,545,523	31,916	0.9%
	Advances	1,606,398	2,680	0.2%
	Trade receivables (long-term)	1,201,793	8,384	0.7%
	Other receivables (long-term)	292,241	2,931	1.0%
	Advances (long-term)	888,320	8,506	1.0%
	Long-term loans	126,159	600	0.5%
	Total	44,339,695	665,401	1.5%
2018	Trade receivables	34,433,876	566,143	1.6%
	Short-term loans	10,177	54	0.5%
	Other receivables	3,111,442	30,708	1.0%
	Advances	1,364,111	2,304	0.2%
	Trade receivables (long-term)	1,046,252	5,421	0.5%
	Other receivables (long-term)	223,986	337	0.2%
	Advances (long-term)	960,392	9,366	1.0%
	Long-term loans	125,700	549	0.4%
	Total	41,275,936	614,882	1.5%
2017	Trade receivables	28,333,822	635,815	2.2%
	Short-term loans	7,258	81	1.1%
	Other receivables	4,135,935	26,975	0.7%
	Advances	1,758,547	4,874	0.3%
	Trade receivables (long-term)	1,983,136	1,397	0.1%
	Other receivables (long-term)	139,472	330	0.2%
	Advances (long-term)	134,192	836	0.6%
	Long-term loans	130,550	467	0.4%

Period	Account	Receivables amount	Allowance amount	Allowance (%)
	Total	36,622,912	670,775	1.8%

※ Receivables amount represents the value after deducting present value discount account (consolidated)

Allowance for bad debt by year

(KRW mil)

	2Q19	2018	2017
1. Allowance for bad debt (beginning balance)	614,882	670,775	457,957
2. Net bad debt expense (① - ② ± ③)	-6,935	18,697	3,685
① Bad debt expense, etc (write-off)	1,522	24,721	38,584
② Bad debt recovered	2,805	6,024	559
③ Others	-5,652	-	-34,340
3. Bad debts expense	43,584	-37,196	216,503
4. Allowance for bad debts (Ending balance)	665,401	614,882	670,775

※ Based on consolidated financial statements.

The guideline for bad debt allowances for trade receivables

(1) Calculation of bad debt allowance

- Bad debt allowance is calculated using an expected credit loss impairment model which is based on write-off experience rate and future expected bad debt amount.

(2) Calculation basis of write-off experience rate and future expected bad debt:

- Write-off experience rate for each aging group of receivables is calculated based on the actual rate of credit losses to three-year average receivables balance.
- Future expected bad debt is determined within the range of 1%–100% of the receivable balance, taking into consideration cases of debtor bankruptcy, compulsory execution, death, disappearance, credit information of debtor and forward-looking information.

[Bad debt allowance by circumstance]

Circumstance	Rate of allowance
Dispute or conflict	25%
Receivable through utilization of third party collection agency	50%
Receivable under litigation	75%
Customer filed or in the process of filing bankruptcy	100%

(3) Instruction: Write-off is recorded when trade receivables contain the following characteristics:

- Objective proof of bad debts, such as bankruptcy, compulsory execution, discontinuance of business, debtor's death or disappearance
- Legal action has failed or the right of collection has been extinguished.
- When the collection agency gives as notice that collection is not possible.
- When the collateral is sold or insurance is received.
- The collection expenses exceed the amount of receivables.

The outstanding period of trade receivables

(KRW mil)

	Less than 6 months	6 months-1 year	1 year-3 years	More than 3 years	Total
Amount	37,608,383	43,529	167,993	53,847	37,873,752
Ratio	99.4%	0.1%	0.4%	0.1%	100.0%

※ Receivables amount on net present value (consolidated)

C. Inventory

- The inventory status by Division over the last three years is as follows:

(KRW mil)

Division		Category	2Q19	2018	2017	Note
CE		Finished goods	1,849,212	1,606,820	1,827,162	
		Work in process	176,169	112,043	110,179	
		Raw material	2,577,532	2,445,758	2,505,575	
		Material in transit	2,021,294	1,916,504	1,684,923	
		Total	6,624,207	6,081,125	6,127,839	
IM		Finished goods	2,393,860	2,525,787	2,327,139	
		Work in process	561,331	624,129	721,194	
		Raw material	3,798,911	3,305,566	4,541,940	
		Material in transit	821,987	715,361	867,103	
		Total	7,576,089	7,170,843	8,457,376	
DS	Semi-conductor	Finished goods	2,155,410	2,498,132	1,094,967	
		Work in process	11,104,897	9,378,528	5,179,312	
		Raw material	1,160,035	863,607	659,223	
		Material in transit	102,788	22,697	39,312	
		Total	14,523,130	12,762,964	6,972,814	
	DP	Finished goods	413,598	549,432	746,856	
		Work in process	629,119	559,960	638,268	
		Raw Material	623,917	720,622	849,786	
		Material in transit	38,399	82,677	133,038	
		Total	1,705,033	1,912,691	2,367,948	
	DS total	Finished goods	2,606,086	3,107,878	1,872,648	
		Work in process	11,772,367	10,297,065	6,256,420	
		Raw material	1,820,499	1,741,613	1,708,632	
		Material in transit	137,538	48,306	64,934	
		Total	16,336,490	15,194,862	9,902,634	
Harman	Finished goods	634,759	558,014	432,184		
	Work in process	103,766	87,751	77,696		
	Raw material	376,645	363,432	322,649		
	Material in transit	165,078	141,524	140,939		
	Total	1,280,248	1,150,721	973,468		
Total	Finished goods	8,557,896	8,836,098	7,304,437		
	Work in process	12,565,489	11,066,511	7,113,901		
	Raw material	8,779,268	8,048,139	9,413,217		
	Material in transit	1,344,332	1,033,956	1,151,800		
	Total	31,246,985	28,984,704	24,983,355		
Inventory ratio (%) [Inventory ÷ Total Assets]			9.1%	8.5%	8.3%	
Inventory turnover (x) [Yearly COGS ÷ {(Beginning of inventory + End of inventory)÷2}]			4.6	4.9	6.0	

Inventory counts

(1) Inspection date

- End of May and November (twice a year)
- For the difference in inventory values between the inspection date and at the end of the first year, check the all warehouse record for the period in order to confirm the existence of the inventories as of the date of the financial statements.

(2) Inspection method

- Internal warehouse: Closed & Total Inspection
- ※ Sample check in semiconductor and DP inventory, SVC materials
- Outside warehouse
Perform check for the possession confirmation documents and sample tests at the third party warehouse and Inventory in transit
- External auditors join and observe the inspection and carry out sample tests to check the existence and completeness.
- ※ For the HQ, the most recent inventory inspection was conducted on May 31, June 1, and June 3, 2019, and the subsidiaries conducted the inventory inspection during the same period.

Inventory aging and valuation

Inventories are stated at the lower of cost or net realizable value. Inventory as of June 30, 2019 was as follows:

(KRW mil)

Category	Acquisition cost	Inventory valuation reserve	Balance	Note
Finished goods	9,060,128	502,232	8,557,896	
Work in process	13,494,263	928,774	12,565,489	
Raw material	9,230,047	450,779	8,779,268	
Material in transit	1,344,332	-	1,344,332	
Total	33,128,770	1,881,785	31,246,985	

- ※ Consolidated basis

D. Fair value estimation

Refer to 6. Financial Instruments by Category and 31. Financial Risk Management in 『III. Financial Affairs』.

E. List of issued debt securities

Issued debt securities

(As of June 30, 2019)

(KRW mil, %)

Issuing company	Type of securities	Issuance method	Date of Issuance	Total nominal amount	Interest rate	Rating (rating institution)	Maturity date	Payment status	Management company
Samsung Electronics	Corporate bonds	Public offering	Oct 2, 1997	115,680	7.7	AA-(S&P), Aa3(Moody's)	Oct 1, 2027	Partial redemption	Goldman Sachs et al.
Harman International Industries, Inc	Corporate bonds	Public offering	May 6, 2015	462,720	4.2	Baa1 (Moody's), BBB+ (S&P)	May 15, 2025	Unredeemed	J.P.Morgan et al.
Harman Finance International, SCA	Corporate bonds	Public offering	May 20, 2015	460,290	2.0	Baa1 (Moody's), BBB+ (S&P)	May 27, 2022	Unredeemed	HSBC et al.
SEMES	Commercial paper	Private placement	Jan 8, 2019	20,000	2.7	A1	Apr 5, 2019	Redeemed	-
SEMES	Commercial paper	Private placement	Jan 23, 2019	25,000	2.7	A1	Apr 19, 2019	Redeemed	-
SEMES	Commercial paper	Private placement	Jan 30, 2019	40,000	2.7	A1	Apr 26, 2019	Redeemed	-
SEMES	Commercial paper	Private placement	Feb 1, 2019	10,000	2.7	A1	Apr 29, 2019	Redeemed	-
SEMES	Commercial paper	Private placement	Mar 6, 2019	10,000	2.7	A1	Jun 4, 2019	Redeemed	-
SEMES	Commercial paper	Private placement	Apr 4, 2019	10,000	2.7	A1	Jul 2, 2019	Unredeemed	-
SEMES	Commercial paper	Private placement	Apr 11, 2019	25,000	2.7	A1	Jul 9, 2019	Unredeemed	-
SEMES	Commercial paper	Private placement	Jun 25, 2019	50,000	2.2	A1	Sep 23, 2019	Unredeemed	-
Total	-	-	-	1,228,690	-	-	-	-	-

※ The exchange rate as of the base date has been applied.

※ The rating institutions of Commercial paper are NICE Investors Service, Seoul Credit Rating and Korea Ratings Corporation.

Details and Compliance of the Bond Management Contract (Samsung Electronics)

(Base Date of Preparation: June 30, 2019)

(KRW mil, %)

Name of security	Date of issuance	Maturity date	Issued amount	Settlement date of bond management contract	Debenture management company
US\$ 100,000,000 7.7% debenture	Oct 2, 1997	Oct 1, 2027	115,680	Oct 2, 1997	The Bank of New York Mellon Trust Company, N.A.

(Base Date of Implementation: December 31, 2018)

Financial ratios	Contract details	Not applicable
	Implementation status	Not applicable
Constraint on collateral	Contract details	Less than 10% of net tangible assets
	Implementation status	Compliant (there is no collateral for the relevant assets)
Constraint on disposal of assets	Contract details	Certain requirements, such as transfer of obligations on the bond, must be satisfied to dispose all or most of an asset
	Implementation status	Compliant (disposal of assets accounted for 0.1% of the total during 2019)
Constraint on governance	Contract Details	Not applicable
	Implementation Status	Not applicable
Submission of implementation report	Implementation status	Not applicable

※ The date of the bond management contract was signed on the same day as the Fiscal Agency Agreement; accordingly, the Bank of New York Mellon Trust Company, N.A. is under the authority of the Fiscal Agent.

※ The exchange rate as of the base date has been applied.

※ The net tangible assets subjected to the limitation of collaterals are production facilities and stocks owned by the Company.

※ The base date of implementation is the date when most recent financial statements were prepared, which are used to determine the status of implementation.

※ The constraint on Governance is as of the Reporting Date.

Commercial Paper Balance

(Base Date: June 30, 2019)

(KRW mil)

Maturity		Under 10 days	Above 10 days / under 30 days	Above 30 days / under 90 days	Above 90 days / under 180 days	Above 180 days / under 1 year	Above 1 year / under 2 years	Above 2 years / under 3 years	Above 3 years	Total
Balance	Public	-	-	-	-	-	-	-	-	-
	Private	35,000	-	50,000	-	-	-	-	-	85,000
	Total	35,000	-	50,000	-	-	-	-	-	85,000

Asset-Backed Short Term Bond Unredeemed Balance

N/A

(Base Date: June 30, 2019)

(KRW mil)

Maturity		Under 10 days	Above 10 days / under 30 days	Above 30 days / under 90 days	Above 90 days / under 180 days	Above 180 days / under 1 year	Total	Issue limit	Balance limit
Balance	Public	-	-	-	-	-	-	-	-
	Private	-	-	-	-	-	-	-	-
	Total	-	-	-	-	-	-	-	-

Corporate Bond Unredeemed Balance

(Base Date: June 30, 2019)

(KRW mil)

Maturity		Under 1 year	Above 1 year / under 2 years	Above 2 years / under 3 years	Above 3 years / under 4 years	Above 4 years / under 5 years	Above 5 years / under 10 years	Above 10 years	Total
Balance	Public	5,784	5,784	466,074	5,784	5,784	485,856	-	975,066
	Private	-	-	-	-	-	-	-	-
	Total	5,784	5,784	466,074	5,784	5,784	485,856	-	975,066

※ The exchange rate as of the base date has been applied.

- Corporate Bond Unredeemed Balance (Samsung Electronics)

(Base Date: June 30, 2019)

(KRW mil)

Maturity		Under 1 year	Above 1 year / under 2 years	Above 2 years / under 3 years	Above 3 years / under 4 years	Above 4 years / under 5 years	Above 5 years / under 10 years	Above 10 years	Total
Unredeemed balance	Public	5,784	5,784	5,784	5,784	5,784	23,136	-	52,056
	Total	5,784	5,784	5,784	5,784	5,784	23,136	-	52,056

※ The exchange rate as of the base date has been applied.

- Corporate Bond Unredeemed Balance (Harman)

(Base Date: June 30, 2019)

(KRW mil)

Maturity		Under 1 year	Above 1 year / under 2 years	Above 2 years / under 3 years	Above 3 years / under 4 years	Above 4 years / under 5 years	Above 5 years / under 10 years	Above 10 years	Total
Unredeemed balance	Public	-	-	460,290	-	-	462,720	-	923,010
	Total	-	-	460,290	-	-	462,720	-	923,010

※ The exchange rate as of the base date has been applied.

Hybrid Bond Outstanding Balance

N/A

(Base Date: June 30, 2019)

(KRW mil)

Maturity		Under 1 year	Above 1 year / under 5 years	Above 5 years / under 10 years	Above 10 years / under 15 years	Above 15 years / under 20 years	Above 20 years / under 30 years	Above 30 years	Total
Unredeemed balance	Public	-	-	-	-	-	-	-	-
	Private	-	-	-	-	-	-	-	-
	Total	-	-	-	-	-	-	-	-

Contingent Convertible Bond Outstanding Balance

N/A

(Base Date: June 30, 2019)

(KRW mil)

Maturity		Under 1 year	Above 1 year / under 2 years	Above 2 years / under 3 years	Above 3 years / under 4 years	Above 4 years / under 5 years	Above 5 years / under 6 years	Above 10 years / under 20 years	Above 20 years / under 30 years	Above 30 years	Total
Unredeemed balance	Public	-	-	-	-	-	-	-	-	-	-
	Private	-	-	-	-	-	-	-	-	-	-
	Total	-	-	-	-	-	-	-	-	-	-

IV. Management Discussion and Analysis

Pursuant to the reporting guidelines set forth by the *Financial Supervisory Service* of South Korea, the Management Discussion and Analysis section, reported in the annual Business Report, is not included in quarterly and half year reports.

V. Auditor's Report

1. Introduction

Samil PwC has reviewed the interim consolidated/separate financial position of the Company as at June 30, 2019, related interim consolidated/separate statements of profit or loss and comprehensive income for the three-month and six-month periods ended June 30, 2019, and the interim consolidated/separate statements of changes in equity and cash flows for the three-month and six-month periods ended June 30, 2019. Nothing has come to attention that causes them to believe the accompanying interim consolidated/separate financial statements are not presented fairly, in all material respects, in accordance with the Korean IFRS 1034, Interim Financial Reporting. Samil PwC also conducted audits on the consolidated/separate financial statements of financial position of the Company as at December 31, 2017 and 2018, and the related consolidated/separate statements of profit or loss, comprehensive income, changes in equity and cash flows for the year then ended and expressed an unqualified opinion on those financial statements.

There are 252 subsidiaries as at June 30, 2019. The newly acquired entities, FOODIENT LTD., and Corephotonics Ltd. appointed PwC and E&Y as the external auditor at their own decision.

Period end	Company Auditor	Audit Opinion	Remarks
Jun 30, 2019	Samil PwC	Not applicable	Not applicable
Dec 31, 2018	Samil PwC	Unqualified	Not applicable
Dec 31, 2017	Samil PwC	Unqualified	Not applicable

< Review plan for the three-month and three-month periods ended March 31, 2019 >

Review Period		Planned Dates
2019 1Q	Pre-review	Mar 4, 2019 – Mar 22, 2019
	Review	Apr 5, 2019 – May 13, 2019
2019 2Q	Pre-review	Jun 3, 2019 ~ Jun 21, 2019
	Review	Jul 5, 2019 ~ Aug 13, 2019

[Audit Contract Description]

(KRW mil)

Fiscal Period	Group Auditor	Description	Compensation	Total Hours
Six-month Periods ended Jun 30, 2019	Samil PwC	- Review of the interim consolidated/separate financial statements	1,463	15,733
Year ended Dec 31, 2018	Samil PwC	- Review of the interim consolidated/separate financial statements - Audit on consolidated/separate financial statements	4,400	50,401
Year ended Dec 31, 2017	Samil PwC	- Review of the interim consolidated/separate financial statements - Audit on consolidated/separate financial statements	4,030	46,576

Samil PwC has performed non-audit services and has been paid KRW 115 million by the Company during the six-month periods ended June 30, 2019.

[Non-Audit Service Contract Description]

(KRW mil)

Fiscal Period	Contract Date	Non-audit Service Description	Period for Service	Compensation	Note
Six-month Periods ended June 30, 2019	Feb 2019	Other	Feb ~ Jun 2019	115	
Year ended Dec 31, 2018	Nov 2017	Tax advisory	Jan – Mar 2018	194	
	Dec 2018	Tax advisory	Dec 2018	149	
	Dec 2016	Custom tax advisory	Jan – Dec 2018	253	
	Subtotal			596	
Year ended Dec 31, 2017	Jan 2017	Tax advisory	Jan – Dec 2017	196	
	Dec 2016	Custom tax advisory	Jan – Dec 2017	810	
	Subtotal			1,006	

VI. Corporate Governance

1. Board of Directors

A. Overview

As of June 30, 2019, the Board of Directors consisted of eleven (11) directors, five (5) of whom are executive directors (Sang-Hoon Lee, Jae-Yong Lee, Ki-Nam Kim, Hyun-Suk Kim, and Dong-Jin Koh) and six (6) independent directors (Jae-Wan Bahk, Sun-Uk Kim, Byung-Gook Park, Jeong Kim, Curie Ahn, and Han-Jo Kim). The Board has appointed Mr. Sang-Hoon Lee, former CFO, as Chairman as he will be able to mediate the different opinions of Directors and is most qualified to manage Board activities. The roles of Board Chairman and CEO have been separated to enhance the Board's independence and transparency.

The Board has six (6) committees: Management Committee, Audit Committee, Independent Director Recommendation Committee, Related Party Transactions Committee, Compensation Committee, and Governance Committee.

[As of Jun 30, 2019]

Classification	Composition	Members	Head	Role
Board of Directors	Five Executive Directors Six Independent Directors	Sang-Hoon Lee, Jae-Yong Lee, Ki-Nam Kim, Hyun-Suk Kim, Dong-Jin Koh Jae-Wan Bahk, Sun-Uk Kim, Byung-Gook Park, Jeong Kim, Curie Ahn, Han-Jo Kim	Sang-Hoon Lee (Executive Director)	- Make resolutions on matters provided for by the relevant laws and regulations or the Articles of Incorporation, matters delegated by a general meeting of shareholders, as well as on important matters concerning basic policies and execution of business. - Supervise management.
Management Committee	Three Executive Directors	Ki-Nam Kim, Hyun-Suk Kim, Dong-Jin Koh	Ki-Nam Kim (Executive Director)	- Deliberate and decide on matters related to finance, general management, and on matters specifically delegated by the Board.
Audit Committee	Three Independent Directors	Jae-Wan Bahk, Sun-Uk Kim, Han-Jo Kim	Jae-Wan Bahk (Independent Director)	- Review and audit matters concerning management of the Company, including the Company's financial situation.
Independent Director Recommendation Committee	Three Independent Directors	Jeong Kim, Byung-Gook Park, Curie Ahn	Jeong Kim (Independent Director)	- Assess the independence, diversity, and ability of potential candidates for Independent Director positions. - Recommend candidates.
Related Party Transactions Committee	Three Independent Directors	Sun-Uk Kim, Jae-Wan Bahk, Han-Jo Kim	Sun-Uk Kim (Independent Director)	- Voluntarily comply with fair transaction regulations to enhance corporate transparency.
Compensation Committee	Three Independent Directors	Jae-Wan Bahk, Byung-Gook Park, Jeong Kim	-	- Ensure the objectivity and transparency of the decision-making process for Director compensation.
Governance Committee	Six Independent Directors	Jae-Wan Bahk, Sun-Uk Kim, Byung-Gook Park, Jeong Kim, Curie Ahn, Han-Jo Kim	Jae-Wan Bahk (Independent Director)	- Promote the Company's corporate social responsibility and act to enhance shareholder value.

* On March 20, 2019, Independent Director Jae-Wan Bahk was reappointed and Independent Directors Han-Jo Kim and Curie Ahn were newly appointed. Independent Directors In-Ho Lee and Kwang-Soo Song retired.

* The head of the Compensation Committee is scheduled to be appointed at the next Committee meeting.

B. Agendas considered and voting results

Date	Agenda	Results	Executive Directors					Independent Directors					
			Sang-Hoon Lee	Jae-Yong Lee	Ki-Nam Kim	Hyun-Suk Kim	Dong-Jin Koh	In-Ho Lee	Kwang-Soo Song	Sun-Uk Kim	Jae-Wan Bahk	Byung-Gook Park	Jeong Kim
Jan 31, 2019	① Approval of FY18 financial statements and annual business report	Approved	For	Absent	For	For	For	For	For	For	For	For	For
	② Revision of internal accounting management regulations	Approved	For	Absent	For	For	For	For	For	For	For	For	For
	③ Approval of business plan for 2019	Approved	For	Absent	For	For	For	For	For	For	For	For	For
	④ Lease contract with Samsung Display	Approved	For	Absent	For	For	For	For	For	For	For	For	For
	⑤ Purchase of research equipment and lease contract with Samsung SDI	Approved	For	Absent	For	For	For	For	For	For	For	For	For
	⑥ Approval of the 2019 social contribution matching fund	Approved	For	Absent	For	For	For	For	For	For	For	For	For
	⑦ Charitable contribution to Samsung Dream Scholarship Foundation	Approved	For	Absent	For	For	For	For	For	For	For	For	For
※ Reported items													
① Report on the internal accounting management system													
② Assessment of the internal accounting management system													
Feb 26, 2019	① Decision to convene the 50th AGM	Approved	For	Absent	For	For	Absent	For	For	For	For	For	For
	② Decisions on the 50th AGM agenda items	Approved	For	Absent	For	For	Absent	For	For	For	For	For	For
	- Reported Items: 1) FY18 annual audit report, 2) FY18 annual business report, 3) Assessment of the internal accounting management system												
	- Item 1: Approval of FY18 financial statements, including balance sheet, income statement, and the statement of appropriation of retained earnings (draft), etc.												
	- Item 2: Appointment of Directors Item 2-1: Appointment of Independent Directors Item 2-2: Appointment of Audit Committee members												
- Item 3: Approval of remuneration limit for Directors													
③ Application for product liability insurance	Approved	For	Absent	For	For	Absent	For	For	For	For	For	For	For
④ Sponsoring the WorldSkills Competition	Approved	For	Absent	For	For	Absent	For	For	For	For	For	For	For
⑤ Donation to Chung-nam Samsung Institute	Approved	For	Absent	-	For	Absent	For	For	For	For	For	For	For

* On March 20, 2019, Independent Directors In-Ho Lee and Kwang-Soo Song retired and Independent Director Jae-Wan Bahk was reappointed.

* On February 26, 2019, Director Ki-Nam Kim did not exercise his voting right on the agenda of donation to Chung-nam Samsung Institute as the donations is regarded as a transaction between a Director and Company under the Commercial Act and the Director has special interest in the Company as the CEO.

Date	Agenda	Results	Executive Directors					Independent Directors					
			Sang-Hoon Lee	Jae-Yong Lee	Ki-Nam Kim	Hyun-Suk Kim	Dong-Jin Koh	Jae-Wan Bahk	Sun-Uk Kim	Byung-Gook Park	Jeong Kim	Curie Ahn	Han-Jo Kim
Mar 20, 2019	① Appointment of Board committee members	Approved	For	Absent	For	For	For	For	For	For	For	For	For
	② Setting remuneration of Directors	Approved	For	Absent	For	For	For	For	For	For	For	For	For
Apr 30, 2019	① Approval of 1Q19 interim business report and quarterly dividend	Approved	For	Absent	For	For	For	For	For	For	For	For	For
	② Application for New Technology Business Investment Association	Approved	For	Absent	For	For	For	For	For	For	For	For	For
	③ Acquisition of PLP business	Approved	For	Absent	For	For	For	For	For	For	For	For	For
	④ Group health insurance plan for employees	Approved	For	Absent	For	For	For	For	For	For	For	For	For
	⑤ Charitable contributions	Approved	For	Absent	For	For	For	For	For	For	For	For	For
	⑥ Donation to Korea Occupational Safety and Health Agency	Approved	For	Absent	For	For	For	For	For	For	For	For	For
	⑦ Donation to incentive fund for DS Division's suppliers	Approved	For	Absent	For	For	For	For	For	For	For	For	For

* On March 20, 2019, Independent Director Jae-Wan Bahk was reappointed and Independent Directors Han-Jo Kim and Curie Ahn were newly appointed.

C. Committees

(1) Composition of Board Committees

[As of Jun 30, 2019]

Committee Name	Composition	Member Name	Responsibilities and Authorities	Note
Management	Three Executive Directors	Ki-Nam Kim (head), Hyun-Suk Kim, Dong-Jin Koh	See below	-
Related Party Transactions	Three Independent Directors	Sun-Uk Kim (head), Jae-Wan Bahk, Han-Jo Kim		-
Compensation	Three Independent Directors	Jae-Wan Bahk, Byung-Gook Park, Jeong Kim		-
Governance	Six Independent Directors	Jae-Wan Bahk (head), Sun-Uk Kim, Byung-Gook Park, Jeong Kim, Curie Ahn, Han-Jo Kim		-

※ The Audit Committee and Independent Director Recommendation Committee were excluded according to Corporate Disclosure Guidelines set forth by the Financial Supervisory Service Authority of South Korea.

※ The head of the Compensation Committee is scheduled to be appointed at the next committee meeting.

i) The Management Committee

- Responsibilities: The Management Committee deliberates and decides on matters specified by Board regulations and resolutions or specifically delegated by the Board. The composition and operation of the management committee are determined by the Board.

- Authorities:

(A) General management

1. Annual or mid to long-term management policy and strategy
2. Key management strategy

3. Business planning and restructuring
4. Establishment, relocation, and withdrawal of overseas branch and corporation
5. Initiating cooperation such as strategic partnership with foreign companies
6. Acquisition or disposal of domestic and overseas subsidiaries
(provided that the value of transaction exceeds 0.1% of total equity)
7. Other major management matters
8. Establishment, relocation, and withdrawal of branches and operations
9. Appointment or dismissal of supervisors
10. Suspension or shutdown of production over 5% of the total production in the recent year
11. Licensing agreements and technology transfer, partnership in regards to technology of over 0.5% of the total equity
12. Acquisitions and transfers of patents related to new material and new technology of over 0.5% of the total equity
13. Collection and destruction of products corresponding to over 5% of the total sales in the recent business year
14. Contracting for over 5% of the total sales in the recent business year
15. Contracting or canceling of single sales agency and suppliers over 5% of the total sales in the recent business year
16. Establishment of basic principles of organization management
17. Decision making on basic principles and any changes related to wages, bonus, and fringe benefits
18. Appointments, dismissals and changes of transfer agent
19. Closing of shareholder register and setting reference date
20. Establishment of corporate guidelines for business and management related activities

(B) Matters related to Finance

1. Acquisitions or disposals of equity investments with a value no less than 0.1% and less than 2.5% of the total equity
2. Direct overseas investments with a value no less than 0.1% and less than 2.5% of the total equity
3. New debt guarantee (excluding extension of period) or collateral issuance with a value no less than 0.1% and less than 2.5% of the total equity
 - A. Collateral: Only in the case of providing collateral for others
 - B. Guarantee: Excludes performance guarantee (eg., bid, contract, defect, difference guarantee) and tax payment guarantee
4. New credit agreement contract (excluding extension of period) with a value no less than 0.1% and less than 5% of the total equity
5. Approval of related party transactions:
Related party transactions with affiliates involving cash (loans and payments), equity (stocks and bonds) or assets (such as real estate and intangible property rights) with a value between KRW 3 billion and/or less than KRW 5 billion, as defined in the Monopoly Regulation and Fair Trade Act
※ Excluding cases where existing contracts are renewed without significant change.
6. Issuance of corporate bonds
7. Acquisition and disposal of real estate with a value of over 0.1% of the total equity, provided that the transaction is with a third party
8. Any matters that the CEO deems necessary and important for the business (eg., capex)

(C) All other matters except for those delegated to the Board and other committees in accordance with Board regulations

ii) Related Party Transactions Committee

- Responsibilities: Improve management transparency through the establishment of a voluntary compliance system
- Authorities:
 - 1) Right to receive reports on related party transactions:

The Committee can request reports on related party transactions with affiliates

※ According to the Monopoly Regulation and Fair Trade Act, the Related Party Transactions committee is permitted to conduct preliminary reviews and approves on related party transactions over KRW 5 billion and other transactions that are deemed as significant

- 2) Right to order ex officio investigation of related party transactions
- 3) Right to propose corrective measures for related party transactions

iii) Compensation Committee

- Responsibilities: Provide transparent and objective decision making process related to remuneration of directors

- Authorities:

- 1) Propose remuneration limit of directors at AGM
- 2) Establish the director remuneration system
- 3) Other matters delegated by the Board

iv) Governance Committee

- Responsibilities: Fulfill corporate social responsibility and enhance shareholder value

- Authorities:

- 1) Matters related to corporate social responsibility
- 2) Matters related to shareholder value enhancement
 - Preliminary review on shareholder return policies
 - Activities for improving shareholders' rights and interests
 - Other important management matters that can significantly impact shareholder value
- 3) Establishment, composition, operation of organizations under the committee including research groups, councils, etc.
- 4) Other matters delegated by the Board

(2) Committee Activities

※ The Audit Committee and Independent Director Recommendation Committee were excluded according to Corporate Disclosure Guidelines set forth by the Financial Supervisory Service Authority of South Korea.

□ The Management Committee

Date	Agenda	Voting results	Director (attendance)		
			Ki-Nam Kim (100%)	Hyun-Suk Kim (100%)	Dong-Jin Koh (75%)
Feb 15, 2019	① Licensing agreement	Approved	For	For	For
	② Merger of overseas subsidiary	Approved	For	For	For
Mar 8, 2019	① Liquidation of overseas subsidiary	Approved	For	For	For
	② Closing of shareholder register for quarterly dividend	Approved	For	For	For
Apr 5, 2019	① Investment in memory business	Approved	For	For	For
	② Investment in Pyeongtaek complex	Approved	For	For	For
	③ Investment in foundry business	Approved	For	For	For
	④ Liquidation of overseas subsidiary	Approved	For	For	For
Jun 7, 2019	① Closing of shareholder register for quarterly dividend	Approved	For	For	Absent

□ **The Related Party Transactions Committee**

Date	Agenda	Voting Results	Directors (attendance)				
			In-Ho Lee (100%)	Kwang-Soo Song (100%)	Sun-Uk Kim (100%)	Jae-Wan Bahk (100%)	Han-Jo Kim (100%)
Jan 30, 2019	① Prior review on large-scale related party transactions 1) Lease contract with Samsung Display 2) Purchase of research equipment and lease contract with Samsung SDI	-	-	-	-	N/A (newly appointed)	N/A (newly appointed)
	② Report on 4Q18 related party transactions	-	-	-	-		
Feb 26, 2019	① Prior review on large-scale related party transactions 1) Application for product liability insurance	-	-	-	-		
Apr 29, 2019	① Appointment of the head of the Related Party Transactions Committee	Approved			For	For	For
	② Prior review on large-scale related party transactions 1) Application for new technology business investment association 2) Acquisition of PLP business 3) Group health insurance plan for employees 4) Charitable contributions ③ Report on 1Q19 related party transactions	-	N/A (retired)	N/A (retired)	-	-	-

※ On March 20, 2019 Independent Directors In-Ho Lee and Kwang-Soo Song retired and Independent Directors Jae-Wan Bahk and Han-Jo Kim were appointed.

□ **The Compensation Committee**

Date	Agenda	Voting Results	Directors (attendance)				
			Kwang-Soo Song (100%)	In-Ho Lee (100%)	Jeong Kim (100%)	Jae-Wan Bahk (N/A)	Byung-Gook Park (N/A)
Feb 25, 2019	① Review on 2019 remuneration limit for Directors	Approved	For	For	For	N/A (newly appointed)	N/A (newly appointed)

※ On March 20, 2019 Independent Directors Kwang-Soo Song and In-Ho Lee retired and Independent Directors Jae-Wan Bahk and Byung-Gook Park were appointed.

□ **The Governance Committee**

Date	Agenda	Voting Results	Directors (attendance)							
			In-Ho Lee (N/A)	Kwang-Soo Song (N/A)	Jae-Wan Bahk (100%)	Sun-Uk Kim (100%)	Byung-Gook Park (100%)	Jeong Kim (100%)	Curie Ahn (100%)	Han-Jo Kim (100%)
Apr 30, 2019	Appointment of the head of the Committee	Approved	N/A (retired)	N/A (retired)	For	For	For	For	For	For

※ On March 20, 2019, Independent Directors In-Ho Lee and Kwang-Soo Song retired and Independent Directors Curie Ahn and Han-Jo Kim were appointed.

D. Director independence

(1) Appointment of Directors

The Board nominates Executive Director candidates and the Independent Director Recommendation Committee nominates Independent Director candidates. Directors are then appointed at the general meeting.

A candidate for Director needs to meet the requirements of relevant laws and the Articles of Incorporation. Executive Directors are appointed based on his or her expertise and leadership among a list of candidates that is constantly updated. Independent Directors should have no material interests with the Company and its largest shareholder, possess knowledge and experience in IT, accounting, finance, law, economics, ESG, etc., and be able to fulfill the roles and responsibilities of supervising management from an independent position. The company has not set separate standards with respect to the independence of Directors besides the requirements in relevant laws and the Article of Incorporation.

Please refer to 『VIII. Executives and Employees』 for more information about the career of each Director.

The Board submits shareholders' proposal for appointment of Directors at the general shareholder meeting as a separate agenda if the proposal satisfies related laws and regulations.

The composition of the Board of Directors, as appointed by shareholders, is as follows:

[As of Jun 30, 2019]

Position	Name	Term	Reasons for appointment	Nominator	Responsibility	Relationship with the Company's largest/major shareholders
Executive Director	Sang-Hoon Lee	Mar 2018–Mar 2021	Director Sang-Hoon Lee, former CFO (2013-2017), is an expert in finance and business management and can lead Board activities by effectively coordinating opinions of Executive and Independent Directors.	The Board	Chairman of the Board	Related party
Executive Director	Jae-Yong Lee	Oct 2016–Oct 2019	Director Jae-Yong Lee, former COO, has led earnings growth and restructuring amid difficult business conditions and will contribute to further enhancing corporate value and strengthening leadership.	The Board	Overall management of Company operations	Related party
Executive Director (CEO)	Ki-Nam Kim	Mar 2018–Mar 2021	Director Ki-Nam Kim has built expertise based on his experience as the president of Samsung Advanced Institute of Technology, head of the memory business, and president of the semiconductor business. He will play a critical role in solidifying leadership of the component business despite growing external uncertainty.	The Board	Head of DS Division	Related party
Executive Director (CEO)	Hyun-Suk Kim	Mar 2018–Mar 2021	Director Hyun-Suk Kim is an expert in display R&D and played a crucial role in positioning the company as the leader in the global TV market. He will use this successful experience in other businesses such as the home appliance business to create synergies within the CE division.	The Board	Head of CE Division	Related party

Executive Director (CEO)	Dong-Jin Koh	Mar 2018–Mar 2021	Director Dong-Jin Koh is an expert in mobile development and has contributed in advancing our mobile business with the galaxy lineup. He will play a critical role in becoming a first mover in the stagnant yet competitive smartphone market.	The Board	Head of IM Division	Related party
Independent Director	Jae-Wan Bahk	Mar 2016–Mar 2022 (second term)	Director Jae-Wan Bahk is an expert in finance and public sector with abundant experience relative to state affairs and policy design. He can contribute to objective supervision of the management and the Board's strategic decisions.	Independent Director Recommendation Committee	Overall management	None
Independent Director	Sun-Uk Kim	Mar 2018–Mar 2021	Director Sun-Uk Kim is a legal expert and has experience as a professor at a school of law and the Legislation Minister. She can present a new perspective to the Board based on objective and juridical reasoning.	Independent Director Recommendation Committee	Overall management	None
Independent Director	Byung-Gook Park	Mar 2018–Mar 2021	Director Byung-Gook Park is a professor at electrical engineering and an expert in flash memory. He will play a crucial role in strengthening expertise of the Board.	Independent Director Recommendation Committee	Overall management	None
Independent Director	Jeong Kim	Mar 2018–Mar 2021	Director Jeong Kim is an IT expert and an entrepreneur. He will contribute to the Board's strategic decisions by utilizing his expertise, wide network, and business capability.	Independent Director Recommendation Committee	Overall management	None
Independent Director	Curie Ahn	Mar 2019–Mar 2022	Director Curie Ahn is a medical expert who has been working for the marginalized and public good. Director Ahn will help address the increasingly important ESG issues, improving social communication and achieving sustainable growth.	Independent Director Recommendation Committee	Overall management	None
Independent Director	Han-Jo Kim	Mar 2019–Mar 2022	Director Han-Jo Kim has built expertise in finance and business management through his experience as a President of Korea Exchange Bank and now serves as the chairman of a social contribution foundation. He will contribute to the Company by providing valuable insight on overall business issues and by utilizing expertise in finance, co-growth, etc.	Independent Director Recommendation Committee	Overall management	None

※ Relationship with Company's largest/major shareholder is in accordance with Article 542-8 of the Commercial Act.

(2) Independent Director Recommendation Committee

The Independent Director Recommendation Committee assesses the independence and ability of potential candidates and recommends selected candidates to be appointed at the annual general meeting of shareholders. As of the reporting date, the committee is composed of three Independent Directors (Jeong Kim, Byung-Gook Park, and Curie Ahn) based on related laws that states more than a majority of members should be independent directors in accordance with clause 4 of Article 542-8 of the Commercial Law.

Date	Agenda	Voting Results	Directors (attendance)			
			Jeong Kim (100%)	Jae-Wan Bahk (100%)	Byung-Gook Park (100%)	Curie Ahn (N/A)
Jan 31, 2019	① Appointment of head of Committee ② Determination of deadline for recommendation of independent director candidates	Approved Approved	For For	For For	For For	N/A (newly appointed)
Feb 25, 2019	① Recommendation of independent director candidates	Approved	For	-	For	

* On March 20, 2019, Independent Director Jae-Wan Bahk's term ended and Independent Director Curie Ahn was appointed.

* On February 25, 2019, Independent Director Jae-Wan Bahk did not exercise his voting right on the agenda of recommending himself as a Director Candidate.

(3) Expertise of Independent Directors

1) Support team for Independent Directors

- Support team: HR team of Corporate Management Office
- Number of responsible staff: Six

[As of Jun 30, 2019]

Position (number of employees)	Continuous service years	Service years in the support team
Executive Vice President (1)	33 years and 4 month	3 years and 11 months
Senior Vice President (1)	28 years and 7 months	6 months
Vice President (1)	26 years and 4 month	6 months
Principal Professional (1)	18 years and 5 months	16 years and 2 months
Senior Professional (2)	11 years and 6 months (average)	3 years and 6 months (average)

- Major tasks: Support the operation of the AGM, Board, and Committees; supports performance of duties of Independent Directors; provide education of Independent Directors; build database regarding Director candidates; provide information related to resolutions to each Director; support operation of meetings, records Board and Committee meetings.

2) Education programs to provide updates on key management issues for Independent Directors

(1) Inspection of domestic and overseas business sites

Date	Organizer	Participants	Reasons for absence	Education contents
May 2017	HR team and management team of the region where the inspection takes place	In-Ho Lee, Han-Joong Kim, Kwang-Soo Song, Byeong-Gi Lee, Jae-Wan Bahk	N/A	On-site inspection to check business operations

Jan 2018	HR team and management team of the region where the inspection takes place	In-Ho Lee, Han-Joong Kim, Kwang-Soo Song, Byeong-Gi Lee, Jae-Wan Bahk	N/A	On-site inspection to check business operations
Aug 2018	HR team and management team of the region where the inspection takes place	In-Ho Lee, Kwang-Soo Song, Sun-Uk Kim, Jae-Wan Bahk, Byung-Gook Park, Jeong Kim	N/A	On-site inspection to check business operations

(2) Orientation for newly appointed Independent Directors

Date	Organizer	Participants	Reasons for absence	Education contents
Mar 2018	HR team	Sun-Uk Kim, Byung-Gook Park, Jeong Kim	N/A	Key issues regarding Board activities and management
Apr 2018	HR team and relevant management team	Sun-Uk Kim, Byung-Gook Park, Jeong Kim	N/A	Key issues regarding Board activities and management
Mar 2019	HR team	Curie Ahn, Han-Jo Kim	N/A	Key issues regarding Board activities and management
Apr 2019	HR team and relevant management team	Curie Ahn, Han-Jo Kim	N/A	Key issues regarding Board activities and management

(3) Orientation for Independent Directors

Date	Organizer	Participants	Reasons for absence	Education contents
Jan 2019	Support Team	In-Ho Lee, Kwang-Soo Song, Jae-Wan Bahk, Sun-Uk Kim, Byung-Gook Park, Jeong Kim	N/A	Business plans for 2019
Jan 2019	Network business	In-Ho Lee, Kwang-Soo Song, Jae-Wan Bahk, Sun-Uk Kim, Byung-Gook Park, Jeong Kim	N/A	Briefing on 5G technology and tour of production lines

2. Audit System

A. Profiles of Audit Committee members

As of June 30, 2019, SEC operates an Audit Committee consisting of three (3) Independent Directors. Directors Jae-Wan Bahk (head) and Han-Jo Kim are experts in finance and qualify as members in accordance with relevant regulations. Director Jae-Wan Bahk earned his doctorate in financial administration in 1992 and has been a professor of Public Administration at Sungkyunkwan University since 1996. He served at the Board of Audit and Inspection in 1983–1992, Ministry Of Finance /Ministry of Finance and Economy in 1992–1994, and the Ministry of Strategy and Finance in 2011–2013 as the Minister. Director Han-Jo Kim joined the Korea Exchange Bank (KEB) in 1982 and headed the Hongje Station Branch over 1999–2000, the Yeouido Banking Center Branch over 2001–2002, and the Gangnam Station Branch in 2004–2005. He served as the head of KEB Corporate Group in 2012–2013, the President of KEB Capital in 2013–2014, the Chairman of KEB in 2014–2015, and the Vice-Chairman of Hana Financial Group in 2015–2016.

Name	Career	Reasons for appointment	Concurrent position in other company
Jae-Wan Bahk (Head)	<ul style="list-style-type: none"> – Professor at the Department of Public Administration Graduate School of Governance of Sungkyunkwan University (1996~) – Minister of Strategy and Finance (2011–2013) – Minister of Employment and Labor (2010–2011) – Member of the 17th National Assembly (2004–2008) 	Director Jae-Wan Bahk is an expert in finance and public sector with abundant experience relative to state affairs and policy design. He can contribute to the Audit Committee through objective supervision of the management.	Independent Director at Lotte Shopping (2016~)
Sun-Uk Kim	<ul style="list-style-type: none"> – Professor Emeritus at School of Law of Ewha Womans University (2018~) – Professor at School of Law, Ewha Womans University (1995–2018) – President at Ewha Womans University (2010–2014) – Minister of Government Legislation (2005–2007) 	Director Sun-Uk Kim is a legal expert and can serve with objectivity based on her expertise in administration, financial affairs, and external cooperation.	-
Han-Jo Kim	<ul style="list-style-type: none"> – Chairman of Hana Foundation (2019~) – Chairman of Hana Nanum Foundation (2015–2019) – Vice-Chairman of Hana Financial Group (2015–2016) – President of KEB (2014–2015) – President of KEB Capital (2013–2014) 	Director Han-Jo Kim is a financial expert with abundant experience and expertise. He will contribute to the Audit Committee through objective supervision of the management	-

* On March 20, 2019, Independent Directors In-Ho Lee and Kwang-Soo Song retired and Independent Directors Jae-Wan Bahk and Han-Jo Kim were appointed.

B. Audit Committee independence

Pursuant to related laws and the Articles of Incorporation, SEC has prepared internal audit regulations which encompass composition, operation, authority, and responsibility of the Audit Committees to carry out audit related activities.

The Audit Committee is exclusively composed of Independent Directors recommended by the Board and appointed at the general shareholder meeting. Currently, it includes financial experts Jae-Wan Bahk (head) and Han-Jo Kim and legal expert Sun-Uk Kim. Committee members do not have any relation to the Company's largest/major shareholder that may undermine the independence of the Committee. Also, the Audit Committee satisfies requirements of relevant laws (eg., the stipulation that the role of head of the committee be held by an Independent Director).

Requirements	Requirement status	Applicable Acts, etc.
- The audit committee shall consist of at least three directors.	Satisfied (the committee consists of three Directors)	Article 415-2 (2) of the

- The ratio of independent directors shall exceed two thirds of the total number of members.	Satisfied (all members are independent directors)	Commercial Act, Article 2 of the Company's Audit Committee Regulation
- At least one member of the committee shall be an accounting or financing expert.	Satisfied (Jae-Wan Bahk, Han-Jo Kim)	Article 542-11 (2) of the Commercial Act, Article 3 of the Company's Audit Committee Regulation
- The representative of the committee shall be an independent director.	Satisfied	
- Other conditions (related party of the largest shareholder, etc.)	Satisfied (n/a)	Article 542-11 (3) of the Commercial Act

The Audit Committee reviews accounting documents including financial statements and audit process related documents presented by the external auditor, and if needed, requests the external auditor to perform additional reviews on accounting books and records. To ensure the reliability of accounting related disclosures, the audit committee receives and reviews a report on internal accounting control systems prepared by internal accounting managers. In addition, the Committee attends the Board meetings and other significant meetings. The Committee receives reports on deliberations of the Management Committee and on business performance from Directors and requests additional reviews and supplementation of data as needed.

C. Major activities of the Audit Committee

Date	Agenda	Voting Results	Directors (attendance)				
			In-Ho Lee (100%)	Kwang-Soo Song (100%)	Jae-Wan Bahk (100%)	Sun-Uk Kim (100%)	Han-Jo Kim (100%)
Jan 30, 2019	- Report on 2018 internal accounting management system activities	-	-	-	N/A (newly appointed)	-	N/A (newly appointed)
	- Approval of revisions of internal accounting management regulations	Approved	For	For		For	
	- Report on 2018 financial statement and business report	-	-	-		-	
	- Report on 4Q18 non-audit activities	-	-	-		-	
	- Report on 4Q18 external contributions	-	-	-		-	
	- Report on 2018 audit activities	-	-	-		-	
Feb 26, 2019	- Review of the 2018 AGM agenda	-	-	-		-	
	- Report on activities of internal compliance system in 2018	-	-	-		-	
Apr 29, 2019	- Appointment to head of the Audit Committee	Approved			For	For	For
	- Report on 1Q19 interim business report	-			-	-	-
	- Report on 1Q19 non-audit activities	-	N/A (retired)	N/A (retired)	-	-	-
	- Inspection plans for 2019 internal accounting management system activities	-			-	-	-
	- Report on 1Q19 external contributions	-			-	-	-
	- Evaluation plans for 2019 internal accounting management system activities	-			-	-	-
	- Plans for 2019 and 1Q19 review for external audit activities	-			-	-	-

※ On March 20, 2019, Independent Directors In-Ho Lee and Kwang-Soo Song retired and Independent Directors Jae-Wan Bahk and Han-Jo Kim were appointed.

D. Education programs for the Audit Committee

(1) Plans

In accordance with the working guide for internal accounting management system, we plan to conduct additional training on the Company's internal accounting management system to ensure the expertise of the Audit Committee. The training will be provided within 2H19, organized by external experts, finance team, and audit team.

(2) Previous Training(s)

Date	Organizer	Participants	Reasons for absence	Education contents
Apr 29, 2019	Audit team Finance team HR team External experts	Jae-Wan Bahk Sun-Uk Kim Han-Jo Kim	N/A	Introduction materials

E. Support team for the Audit Committee

[As of Jun 30, 2019]

Team	Composition	Service years on team	Major tasks
Audit team	1 Senior Vice President, 3 Senior Professionals	Senior Vice President: 5 years and 2 months Senior Professionals: 11 months (average)	Support the Audit Committee
Internal accounting assessment support group	1 Vice President, 1 Lawyer, 1 Senior Professional	Vice President: 6 months Lawyer: 6 months Professional: 6 months	Support assessment of the internal accounting management system

F. Compliance Officer

[As of Jun 30, 2019]

1. Compliance Officer	Name	Young-Soo Kim
	Age	50
	Academic background	Bachelor's Degree in Law (Seoul National University)
	Current position	Corporate Compliance Team leader at Samsung Electronics Legal Affairs Office (Mar 2018-current)
	Career	- 2000–2012: Judge at the Seoul District Court, Suwon District Court, etc. - Mar 2013: Vice president of Samsung Electronics Legal & Compliance Team - Dec 2015: Vice president of Samsung Electronics Legal Team - Mar 2018: Head of Compliance Team (Vice President) and Chief Privacy Officer of Samsung Electronics Global Privacy Office - Dec 2018: Head of Compliance Team (Senior Vice President) and Chief Privacy Officer of Samsung Electronics Global Privacy Office
2. Date of Board resolution		Mar 23, 2018
3. Disqualifications		N/A
4. Others		N/A

G. Major compliance activities

The Company conducts compliance assessments on a regular and ad-hoc basis and reflects the results in the Company's business activities to improve compliance of the Company and its employees.

Date	Assessment subject	Assessment area	Results
Jan 2019	Compliance of marketing organizations	Fair trade, business secret, etc.	Overall result was satisfactory. Internal policies were followed in areas where there was room for improvement.
	Compliance of overseas 3rd party production customers	Technology leak, product liability, etc.	
	Patent process	Technology misappropriation, business secret, etc.	

	Violation of customers' business secrets	Business secret	
Mar 2019	Compliance of subsidiaries	Fair trade, business secret, etc.	
Apr 2019	Self-assessment on compliance of overseas subsidiaries	Compliance programs	
	Patent application process	Technology misappropriation, business secrets, etc.	
May 2019	Compliance of subsidiaries	Business secrets, personal information protection, etc.	
	Regular assessment of domestic business activities	Potential business risks such as business secrets, intellectual property, etc.	
Jun 2019	Compliance of overseas third party production customers	Technology leaks, product liability, etc.	

* Date is the quarter the assessment was completed.

* Each assessment was conducted on selected organizations.

H. Support team for the Compliance Officer

[As of Jun 30, 2019]

Team	Composition	Service years in the team (average)	Major tasks
Compliance team, etc.	2 Vice Presidents 10 Principal professionals 14 Lawyers 21 Senior Professionals 6 Professionals (Total: 53)	Vice Presidents (4 years and 11 months) Principal professionals (6 years and 3 months) Lawyers (3 years and 8 months) Senior Professionals (5 years and 2 months) Professionals (2 year and 4 month)	Supports activities of the Compliance Officer

3. Voting rights of shareholders

A. Voting method

The Company has not adopted a cumulative voting system, voting in writing, or an electronic voting system.

B. Minority shareholder rights

No minority shareholder rights were exercised during the reporting period.

C. Competition over management rights

No competition over management rights occurred during the reporting period.

VII. Information on Shareholders

1. Ownership of shares by the largest shareholder and related parties

The following table presents changes in shares held by the largest shareholder and related parties as of the beginning and end of the reporting period.

[As of Jun 30, 2019]

Name	Relationship	Type of share	Ownership				Notes
			Period start		Period end		
			Shares	Stake (%)	Shares	Stake (%)	
Kun-Hee Lee	Largest shareholder	Common	249,273,200	4.18	249,273,200	4.18	-
Kun-Hee Lee	Largest shareholder	Preferred	619,900	0.08	619,900	0.08	-
Samsung C&T	Affiliate	Common	298,818,100	5.01	298,818,100	5.01	-
Samsung Welfare Foundation	Funded foundation	Common	4,484,150	0.08	4,484,150	0.08	-
Samsung Foundation Of Culture	Funded foundation	Common	1,880,750	0.03	1,880,750	0.03	-
Ra-Hee Hong	Spouse of the largest shareholder	Common	54,153,600	0.91	54,153,600	0.91	-
Jae-Yong Lee	Son of the largest shareholder	Common	42,020,150	0.70	42,020,150	0.70	-
Samsung Life Insurance	Affiliate	Common	508,157,148	8.51	508,157,148	8.51	-
Samsung Life Insurance	Affiliate	Preferred	43,950	0.01	43,950	0.01	-
Samsung Life Insurance (special accounts)	Affiliate	Common	19,048,733	0.32	19,764,411	0.33	Open market transactions
Samsung Life Insurance (special accounts)	Affiliate	Preferred	1,268,546	0.15	846,123	0.10	Open market transactions
Samsung Fire & Marine Insurance	Affiliate	Common	88,802,052	1.49	88,802,052	1.49	-
Sang-Hoon Lee	Executive member	Common	28,500	0.00	28,500	0.00	-
Ki-Nam Kim	Executive member	Common	175,000	0.00	200,000	0.00	Open market transactions
Hyun-Suk Kim	Executive member	Common	99,750	0.00	99,750	0.00	-
Dong-Jin Koh	Executive member	Common	50,000	0.00	75,000	0.00	Open market transactions
Curie Ahn	Executive member	Common	0	0.00	200	0.00	Open market transactions
Han-Jo Kim	Executive member	Common	0	0.00	2,175	0.00	Open market transactions
Total		Common	1,266,991,133	21.22	1,267,759,186	21.24	-
		Preferred	1,932,396	0.23	1,509,973	0.18	-

※ Preferred shares and certain common shares do not carry full voting rights.

For information on voting rights, please refer to 『 I . Corporate Overview-5. Voting Shares 』

※ Relationships are in accordance with Article 3-1 of Enforcement Decree Of The Act On Corporate Governance Of Financial Companies.

[The largest shareholder]

- Name: Kun-Hee Lee
- Career (recent 5 years): Chairman of Samsung Electronics (March 2010–)
 Honorary member of the International Olympic Committee (2017–)
 Member of the International Olympic Committee (1996–2017)

- The largest shareholder of record has not changed during the reporting period.

2. Ownership of shares

As of June 30, 2019, the date of Suspension of Entry in the Register of Shareholders, shareholders with 5% and above voting shares, excluding the largest shareholder, were as follows:

[As of Jun 30, 2019]

Classification	Name	Number of shares owned	Share ratio	Note
Shareholders with over 5% voting shares	National Pension Service	595,086,303	9.97%	-
	Samsung Life Insurance	527,903,559	8.84%	-
	BlackRock	300,391,061	5.03%	Based on the Report on Mass Holding of Securities (disclosed on February 7, 2019)
	Samsung C&T	298,818,100	5.01%	-
Employee Stock Ownership Association		-	-	-

※ Information on BlackRock is as of January 28, 2019.

※ The number of shares owned and share ratio of Samsung Life Insurance includes special accounts.

For more information, please refer to 『 I . Corporate Overview-5. Voting Shares 』

3. Minority Shareholders

[As of Jun 30, 2019]

Classification	Shareholder		Shares owned		Note
	Number of shareholders	Portion	Number of shares	Portion	
Minority shareholder	689,802	99.98%	3,720,788,724	62.33%	Shareholders with shares less than 1/100 of total issued stocks
Total	689,921	100.00%	5,969,782,550	100.00%	

※ Based on the number of common stock with voting rights.

4. Stock affairs

Preemptive Rights in the Articles of Incorporation	<p>1. New shares to be issued by the Company shall be allocated to the shareholders in proportion to their respective shareholdings in accordance with Paragraph 6, Article 8. If shares are not subscribed for as a result of waiver or loss of the preemptive right of the shareholders to subscribe for new shares, or if fractional shares remain at the time of allocation of new shares, such shares may be disposed of by a resolution of the Board of Directors in accordance with applicable laws and regulations.</p> <p>2. Notwithstanding the above Paragraph 1, new shares may be allocated to persons other than shareholders in the following cases:</p> <ul style="list-style-type: none">a. If the Company issues new shares or causes underwriters to underwrite new shares by a resolution of the Board of Directors in accordance with applicable laws and regulations including the Financial Investment Services and Capital Markets Act;b. If the Company allocates new shares preferentially to members of the Employee Stock Ownership Association by a resolution of the Board of Directors in accordance with applicable laws and regulations including the Financial Investment Services and Capital Markets Act;c. If the Company issues new shares for the issuance of depositary receipts (DR) by a resolution of the Board of Directors in accordance with the applicable laws and regulations including the Financial Investment Services and Capital Markets Act;d. If the Company issues new shares by public offering in accordance with Article 11-3;e. If new shares are issued by the exercise of stock options in accordance with Article 11-4;f. If the Company issues new shares to the extent of 20% of the total issued and outstanding shares to domestic or foreign financial institutions for the purpose of obtaining financing urgently or to the relevant partner company for the purpose of inducing technology therefrom, etc., by a resolution of the Board of Directors; provided that the issue price of the new shares shall not be less than the price prescribed by the Financial Investment Services and Capital Markets Act and other applicable laws and regulations. <p>☞ (Note) Paragraph 6, Article 8</p> <p>In the case of rights issue, bonus issue or stock dividend, the holders of common shares shall be entitled to common shares, and the holders of preferred shares shall be entitled to preferred shares, in proportion to their respective shareholdings; provided that in the case of rights issue and stock dividend the Company may, if necessary, issue only one kind of shares, where all the shareholders shall be entitled to such kind of shares to be issued.</p> <p>☞ (Note) Article 11-3 (Public Offering)</p> <p>1. The Company may issue new shares by public offering to the extent that the new shares do not exceed 20% of the total number of issued and outstanding shares by a resolution of the Board of Directors, pursuant to Article 165-6, Paragraph 1, Item 3 of the Financial Investment Services and Capital Markets Act.</p> <p>2. If the Company issues new shares by public offering, the type, quantity and issue price of the shares to be newly issued shall be determined by a resolution of the Board of Directors; provided that the issue price of such new shares shall not be less than the price prescribed by the Financial Investment Services and Capital Markets Act and other applicable laws and regulations.</p> <p>☞ (Note) Article 11-4 (Stock Options)</p>
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Preemptive Rights in the Articles of Incorporation	<p>1. The Company may grant stock options to its officers and employees (including officers and employees of the related companies as set forth in Article 542-3, Paragraph 1 of the Commercial Code; the same shall apply for the purpose of this Article) by a special resolution of the general meeting of shareholders pursuant to Article 542-3 of the Commercial Code, to the extent permitted by the Commercial Code; provided, however, that the Company may grant the stock options to its officers and employees (except for the directors of the Company) by a resolution of the Board of Directors to the extent determined by the relevant laws and regulations.</p> <p>2. The person to whom stock options may be granted are the officers and employees who have contributed or have the capacity to contribute to the establishment, management, overseas business, technical innovation, etc. of the Company; provided, however, that the officers and employees who may not be entitled to stock options under the relevant laws and regulations shall be excluded.</p> <p>3. The shares to be issued to the officers or employees by the exercise of their stock options (in case the Company pays, either in cash or treasury shares, the difference between the exercise price of stock options and the market price, they refer to the shares which are the basis for such calculation) shall be common shares in registered form or preferred shares in registered form.</p> <p>4. Total number of shares to be delivered in accordance with the exercise of stock options shall be up to the extent permitted by the relevant laws and regulations.</p> <p>5. The stock options may be exercised until an expiry date determined by a resolution of the general meeting of shareholders or the Board of Directors and such expiry date shall be determined within a period not exceeding eight (8) years from the date when two (2) years have elapsed from the date of the general meeting of shareholders or the date of the Board of Directors' meeting at which a resolution to grant such stock options is adopted; provided, however, that the person to whom a stock option is granted should serve the Company for at least two (2) years after the date of such resolution in order to exercise such stock option, unless otherwise set forth by relevant laws and regulations.</p> <p>6. The terms and conditions for stock options, such as the contents and exercise price thereof shall be determined by a special resolution of the general meeting of shareholders or by a resolution of the Board of Directors in accordance with the relevant laws and regulations and the Articles of Incorporation; provided, however, that such matters which are not provided for as matters reserved for resolutions of the general meeting of shareholders or the Board of Directors' meeting under the relevant laws and regulations or the Articles of Incorporation may be determined by the Board of Directors or a committee authorized by the Board of Directors.</p> <p>7. The Company may cancel the grant of stock options by a resolution of the Board of Directors in any of the following cases:</p> <ol style="list-style-type: none"> In case the relevant officer or employee voluntarily retires from his/her office or leaves the Company after the grant of stock options; In case the relevant officer or employee causes substantial damages to the Company due to his/her willful misconduct or negligence; In case any of the causes for cancellation set forth in the stock option agreement occurs. 			
Settlement date	Dec 31	Annual General Meetings of Shareholders	Within 3 months after the end of every business year	
Shareholder register closing period			One month from Jan 1	
Stock type	1,5,10,50,100,500,1000,10000(8 types)			
Transfer agent	Korea Securities Depository (T: +82-2-3774-3000): 23, Yeouinaru-ro 4-gil, Yeongdeungpo-gu, Seoul, Korea			
Shareholder benefit	n/a	Published on	Joongang Daily	

5. Stock price and stock transactions

A. Domestic stock market

(KRW)

Type			Jan 2019	Feb 2019	Mar 2019	Apr 2019	May 2019	Jun 2019
Common stock	Stock price	High	46,400	47,500	46,550	47,250	45,900	47,000
		Low	37,450	44,800	43,650	44,650	41,200	43,450
		Average	41,600	46,309	44,560	46,061	43,024	44,866
	Volume	High (day)	22,789,395	23,569,321	21,138,016	13,697,399	24,506,881	16,906,541
		Low (day)	7,847,664	6,741,395	6,821,306	5,513,658	6,562,916	6,085,066
		Month	301,784	194,923	223,261	209,113	271,585	194,668
Preferred stock	Stock price	High	37,500	38,000	37,850	38,000	37,200	38,250
		Low	30,450	36,000	34,750	36,000	33,000	35,650
		Average	34,252	37,206	35,863	37,152	34,786	36,847
	Volume	High (day)	2,574,883	6,438,669	4,793,498	1,440,697	4,397,225	2,893,202
		Low (day)	743,231	598,749	492,846	417,733	558,669	741,107
		Month	35,774	23,473	27,558	19,301	29,240	27,629

※ Monthly trading volume in 1,000 shares

B. Overseas stock market

Name of stock exchange: London Stock Exchange (common stock)

Type				Jan 2019	Feb 2019	Mar 2019	Apr 2019	May 2019	Jun 2019
Common stock	Price	High	USD	1,029.00	1,058.00	1,011.00	1,042.00	991.00	1,017.00
			KRW	1,149,599	1,190,991	1,142,834	1,181,524	1,147,776	1,176,466
		Low	USD	837.00	986.50	947.50	959.50	870.50	918.00
			KRW	935,766	1,108,234	1,073,233	1,100,451	1,035,721	1,086,912
		Average (USD)		925.98	1,027.50	978.90	1,009.20	910.60	953.95
	Volume	High (day)		54,621	22,454	101,105	20,231	45,669	20,353
		Low (day)		7,449	6,356	6,682	5,319	3,195	4,994
		Month		462	298	378	233	393	264

※ Monthly volume in 1,000 Depository Receipt (DR) shares.

※ Stock price in KRW is based on the closing exchange rate of the applicable trading day.
Conversion ratio between GDRs and original shares is 1:25.

Name of stock exchange: Luxembourg Stock Exchange (preferred stock)

Type				Jan 2019	Feb 2019	Mar 2019	Apr 2019	May 2019	Jun 2019
Preferred stock	Price	High	USD	833.00	846.00	821.00	835.00	796.00	832.00
			KRW	930,628	952,342	928,058	951,232	921,927	962,458
		Low	USD	680.00	790.00	755.00	767.00	696.00	753.00
			KRW	760,920	887,486	855,189	879,672	828,101	890,799
		Average (USD)		761.05	825.85	786.43	809.70	736.14	784.00
	Volume	High (day)		5,724	3,290	4,799	17,766	6,915	2,574
		Low (day)		439	116	112	605	115	159
		Month		55	26	33	61	40	23

※ Monthly volume in 1,000 DR shares.

※ Stock price in KRW is based on the closing exchange rate of the applicable trading day.
Conversion ratio between GDRs and original shares is 1:25.

VIII. Executives and Employees

1. Executives and employees

A. Registered Executives

[As of Jun 30, 2019]

(Shares)

Name	Gender	Date of birth	Position	Full/part-time	Responsibility	Major career	Number of shares owned		Relationship with the largest shareholder	Length of service (months)	Term expiration
							Common	Preferred			
Sang-Hoon Lee	M	Jun 1955	Executive Director	Full time	Chairman of the Board	- Bachelor's degree in Economics from Kyungbook University - Former head of Corporate Management Office	28,500	0	Executive member	72	Mar 22, 2021
Jae-Yong Lee	M	Jun 1968	Executive Director	Full time	Overall management of company operation	- Harvard Business School Doctorate program - Vice Chairman	42,020,150	0	Son of the largest shareholder	33	Oct 26, 2019
Ki-Nam Kim	M	Apr 1958	CEO	Full time	Head of DS Division	- Doctor's degree in Electrical Engineering from UCLA - Head of DS Division	200,000	0	Executive member	16	Mar 22, 2021
Hyun-Suk Kim	M	Jan 1961	CEO	Full time	Head of CE Division	- Master's degree in Electrical Engineering from Portland State University - Head of CE Division	99,750	0	Executive member	16	Mar 22, 2021
Dong-Jin Koh	M	Mar 1961	CEO	Full time	Head of IM Division	- Master's degree in Technology Policy from University of Sussex - Head of IM Division	75,000	0	Executive member	16	Mar 22, 2021
Jae-Wan Bahk	M	Jan 1955	Independent Director	Part time	Overall management	- Doctor's degree in Public Policy from Harvard University - Professor of Public Administration at Sungkyunkwan University	0	0	Executive member	40	Mar 10, 2022
Sun-Uk Kim	F	Dec 1952	Independent Director	Part time	Overall management	- Doctor's degree in Administrative Law from University of Konstanz - Professor Emeritus at Ewha Womans University	0	0	Executive member	16	Mar 22, 2021
Byung-Gook Park	M	Apr 1959	Independent Director	Part time	Overall management	- Doctor's degree in Electrical Engineering from Stanford University - Professor of Electrical Engineering at Seoul National University	0	0	Executive member	16	Mar 22, 2021
Jeong Kim	M	Aug 1960	Independent Director	Part time	Overall management	- Doctor's degree in Reliability Engineering from the University of Maryland - President of Kiswe Mobile	0	0	Executive member	16	Mar 22, 2021
Curie Ahn	F	Mar 1955	Independent Director	Part time	Overall management	- Doctor's degree in Medicine from Seoul National University - Professor at the Division	200	0	Executive member	4	Mar 19, 2022

						of Nephrology of Seoul National University					
Han-Jo Kim	M	Jul 1956	Independent Director	Part time	Overall management	- Bachelor's degree in French language and Literature from Yonsei University - Chairman of Hana Nanum Foundation	2,175	0	Executive member	4	Mar 19, 2022

※ Relationships with the largest shareholder is in accordance with Article 3-1 of Enforcement Decree Of The Act On Corporate Governance Of Financial Companies.

B. Concurrent positions with other companies

[As of Jun 30, 2019]

Concurrent office holder		Company		
Name	Position	Name of company	Position	Period
Jae-Wan Bahk	Independent Director	Lotte Shopping Co., Ltd	Independent director	2016–present
Jeong Kim	Independent Director	Kiswe Mobile	President	2013–present

C. Employees

[As of Jun 30, 2019]

(KRW mil)

Division	Gender	Number of employees				Average length of service (years)	Total compensation	Average compensation per employee
		Regular	Contract-based	Others	Total			
CE	M	10,092	64	-	10,156	15.0	-	-
CE	F	2,081	17	-	2,098	10.0	-	-
IM	M	20,101	168	-	20,269	12.9	-	-
IM	F	7,570	33	-	7,603	10.7	-	-
DS	M	38,460	133	-	38,593	10.6	-	-
DS	F	15,444	14	-	15,458	10.6	-	-
Others	M	8,433	120	-	8,553	14.2	-	-
Others	F	2,279	35	-	2,314	10.4	-	-
Gender Total	M	77,086	485	-	77,571	12.2	3,731,657	49
Gender Total	F	27,374	99	-	27,473	10.6	885,296	35
Total		104,460	584	-	105,044	11.8	4,616,953	46

※ Total compensation and average compensation per employee were calculated before income tax and other deductions based on the earned income payment record submitted to the district tax office in accordance with Article 20 of the Income Tax Law.

※ The number of employees represent domestic employees who reside in Korea, including employees on leave and excluding five Executive Directors and six Independent Directors.

※ Average compensation per employee was calculated based on average number of employees — 100,952 employees (male: 75,600, female: 25,352).

D. Non-registered Executives

[As of Jun 30, 2019]

(KRW mil)

Classification	Number of employees	Total compensation	Average compensation per employee	Note
Non-registered Executives	872	265,732	305	-

※ Number of employees only includes those non-registered executives who are active and the amount of compensation is calculated based on the earned income payment record submitted to the district tax office in accordance with Article 20 of the Income Tax Law.

※ There are 169 non-registered executives who were not included (eg., resident employees who do not have domestic earned income payment).

2. Remuneration for directors

A. Summary on total remuneration

(1) Remuneration approved at the annual general meetings of shareholders

(KRWm)

	Number of persons	Amount approved at shareholders' meeting	Note
Executive Directors	5	-	-
Independent Directors	3	-	-
Audit Committee member or Auditor	3	-	-
Total	11	46,500	-

(2) Remuneration Paid

[Remuneration paid for directors and auditors]

(KRWm)

Number of persons	Total amount of remuneration	Average remuneration per Director	Note
11	6,134	558	-

- ※ Number of persons is as of the Reporting Date.
- ※ The total amount is the income based on the Income Tax Law that incumbent or retired executive directors, independent directors, and members of audit committee in the fiscal year received in accordance with Article 159 of the Financial Investment Services and Capital Markets Act and Article 168 of the enforcement decree of the same law. (Remuneration for the 1H19 interim report is based on the amount paid from January to June.)
- ※ Average remuneration per person was calculated by dividing total remuneration by the number of persons as of the Reporting Date.
- ※ Remuneration for registered executives is the total remuneration which includes remuneration they received as non-registered executives.
- ※ There is no recognized expenses (compensation expenses) in this term from granting stock options.

[Remuneration paid by type of director]

(KRW mil)

	Number of persons	Total amount of remuneration	Average remuneration per Director	Note
Executive Director (not including Independent Directors and Audit Committee members)	5	5,665	1,133	-
Independent Director (not including Audit Committee members)	3	243	81	-
Audit Committee member	3	226	75	-
Auditor	-	-	-	-

- ※ Number of persons is as of the Reporting Date.
- ※ The total amount is the income based on the Income Tax Law that incumbent or retired executive directors, independent directors, and members of audit committee in the fiscal year received in accordance with Article 159 of the Financial Investment Services and Capital Markets Act and Article 168 of the enforcement decree of the same law. Remuneration for the 1H19 interim report is based on the amount paid from January to June.)
- ※ Average remuneration per person was calculated by dividing total remuneration by the number of persons as of the Reporting Date.
- ※ Remuneration for registered executives is the total remuneration which includes remuneration they received as non-registered executives.
- ※ There is no recognized expenses (compensation expenses) in this term from granting stock options.

B. Remuneration for individual Executive Directors

Remuneration for individual Executive directors is disclosed on a semi-annual basis, in Half-year report and Business report, in accordance with the Financial Investment Services and Capital Markets Act (revised on March 2016).

(1) Summary on Remuneration by Executive

(KRW mil)

Name	Position	Total amount of remuneration	Remuneration not included in total amount
Ki-Nam Kim	CEO	1,386	-
Hyun-Suk Kim	CEO	974	-
Dong-Jin Koh	CEO	1,096	-
Sang-Hoon Lee	Director	2,196	-

- ※ The total amount is the income based on the Income Tax Law that incumbent or retired executive directors, independent directors, and members of audit committee in the fiscal year received in accordance with Article 159 of the Financial Investment Services and Capital Markets Act and Article 168 of the enforcement decree of the same law. Remuneration for the 1H19 interim report is based on the amount paid from January to June.)
- ※ Remuneration for registered executives is the total remuneration which includes remuneration they received as non-registered executives.

(2) Criteria and methodology

(KRW mil)

Name	Type of remuneration		Total amount	Criteria and methodology
Ki-Nam Kim (CEO)	Earned Income	Salary	685	In accordance with internal regulations for executive treatment (Board resolution), remuneration is determined based on position (vice chairman), responsibilities, and performance results. He was paid KRW 114 million per month from January to June.
		Bonus	689	<ul style="list-style-type: none"> - Traditional holiday bonus: 100% of monthly wage - Target achievement incentive: Paid biannual basis within the range of 0–200% of monthly wage, and CEO decides the amount according to the level of target achieved. (Adjusted according to division performance) - Performance incentive: When performance exceeds the Company's goal; CEO decides the amount based on 20% profit. Paid once a year within 0–50% of salary. (Adjusted according to individual performance) - Long-term incentive: Calculated within the director remuneration limit, based on the average salary of 3 years, using ROE, stock performance, and EBIT margin as criteria. Paid over the course of 3 years. <p>※ Quantitative indicators suggest that the Company achieved a ROE of 12.6%, EBIT margin of 13.9%, and stock performance of 18% over 2014–2016; and that the DS division achieved sales of KRW 44.1 trillion and operating profit of KRW 7.7 trillion in 1H19. Qualitative indicators include solid performance in the DS division, excellent leadership in memory market, and contributions to enhancing future competitiveness with aggressive investments in the non-memory business including System LSI and Foundry. The amount of the bonus was determined based on the indicators.</p>
		Profit from exercising stock option	-	n/a
		Other Income	12	- Fringe benefits: Medical services, checkups, group accident insurance are provided in line with the internal regulations for executive treatment (Board resolution)
	Retirement Income	-	n/a	
	Other Income	-	n/a	

(KRW mil)

Name	Type of remuneration		Total amount	Criteria and methodology
Hyun-Suk Kim (CEO)	Earned Income	Salary	457	In accordance with internal regulations for executive treatment (Board resolution), remuneration is determined based on position (president), responsibilities, and performance results. He was paid KRW 76 million per month from January to June.
		Bonus	509	<ul style="list-style-type: none"> - Traditional holiday bonus: 100% of monthly wage - Target achievement incentive: Paid biannual basis within the range of 0–200% of monthly wage, and CEO decides the amount according to the level of target achieved. (Adjusted according to division performance) - Performance incentive: When performance exceeds the Company's goal; CEO decides the amount based on 20% profit. Paid once a year within 0–50% of salary. (Adjusted according to individual performance) - Long-term incentive: Calculated within the director remuneration limit, based on the average salary of 3 years, using ROE, stock performance, and EBIT margin as criteria. Paid over the course of 3 years. <p>※ Quantitative indicators suggest that the Company achieved ROE of 12.6%, EBIT margin of 13.9%, and stock performance of 18% in 2014–2016; and that the CE division achieved sales of KRW 21.1 trillion and operating profit of KRW 1.3 trillion in 1H19. Qualitative indicators include strengthening product leadership in the market by</p>

			launching innovative products such as QLED TVs and Bespoke refrigerators despite a challenging environment and enhancing profitability via improving operational structure. The amount of the bonus was determined based on the indicators.
		Profit from exercising stock option	-
		Other Income	8
		Retirement Income	-
		Other Income	-

(KRW mil)

Name	Type of remuneration	Total amount	Criteria and methodology
Dong-Jin Koh (CEO)	Earned Income	Salary	585
		Bonus	470
		Profit from exercising stock option	-
		Other Income	41
	Retirement Income	-	
	Other Income	-	

(KRW mil)

Name	Type of remuneration	Total amount	Criteria and methodology
Sang-Hoon Lee (Director)	Earned Income	Salary	389
		Bonus	1,787

			(Adjusted according to division performance) - Performance Incentive: When performance exceeds the Company's goal; CEO decides the amount based on 20% profit. Paid once a year within 0–50% of salary. (Adjusted according to individual performance) - Long-term incentive: Calculated within the director remuneration limit, based on the average salary of 3 years, using ROE, stock performance, and EBIT margin as criteria. Paid over the course of 3 years. ※ Quantitative indicators suggest that the Company achieved ROE of 12.6%, EBIT margin of 13.9%, and stock performance of 18% in 2014–2016; and that the Company achieved sales of KRW 108.5 trillion and operating profit of KRW 12.8 trillion in 1H19. Qualitative indicators include increasing transparency of the Board and enhancing shareholder value as the Chairman of the Board. The amount of the bonus was determined based on the indicators.
	Profit from exercising stock option	-	n/a
	Other Income	20	- Fringe benefits: Medical services, checkups, group accident insurance are provided in line with the internal regulations for executive treatment (Board resolution)
	Retirement Income	-	n/a
	Other Income	-	n/a

C. Remuneration for five (5) highest-paid Executive Directors (KRW 500 million or more)

(1) Summary on remuneration by Executive

(KRW mil)

Name	Position	Total amount of remuneration	Remuneration not included in total amount
Oh-Hyun Kwon	Chairman	3,167	-
Jong-Kyun Shin	Vice Chairman	2,639	-
Boo-Keun Yoon	Vice Chairman	2,633	-
Sang-Hoon Lee	Director	2,196	-
Ki-Nam Kim	CEO	1,386	-

※ The total amount is the income based on the Income Tax Law that incumbent or retired executive directors, independent directors, and members of audit committee in the fiscal year received in accordance with Article 159 of the Financial Investment Services and Capital Markets Act and Article 168 of the enforcement decree of the same law. Remuneration for the 1H19 interim report is based on the amount paid from January to June.)

※ Remuneration for registered executives is the total remuneration which includes remuneration they received as non-registered executives.

(2) Criteria and methodology

(KRW mil)

Name	Type of remuneration	Total amount	Criteria and methodology
Oh-Hyun	Earned Salary	625	In accordance with internal regulations for executive treatment (Board resolution),

Kwon	Income			remuneration is determined based on position (chairman), responsibilities, and performance results. He was paid KRW 104 million per month from January to June.
		Bonus	2,535	<ul style="list-style-type: none"> - Traditional holiday bonus: 100% of monthly wage - Target achievement incentive: Paid biannual basis within the range of 0–200% of monthly wage, and CEO decides the amount according to the level of target achieved. (Adjusted according to division performance) - Performance incentive: When performance exceeds the Company's goal; CEO decides the amount based on 20% profit. Paid once a year within 0–50% of salary. (Adjusted according to individual performance) - Long-term incentive: Calculated within the director remuneration limit, based on the average salary of 3 years, using ROE, stock performance, and EBIT margin as criteria. Paid over the course of 3 years. <p>※ Quantitative indicators suggest that the Company achieved ROE of 12.6%, EBIT margin of 13.9%, and stock performance of 18% in 2014–2016; and that the Company achieved sales of KRW 108.5 trillion and operating profit of KRW 12.8 trillion in 1H19. Qualitative indicators include laying the foundation for the highest performance in semiconductor business, identifying future technologies and new business areas, presenting mid-to-long term business direction, and nurturing the next generation executives. The amount of bonus was determined based on the indicators.</p>
		Profit from exercising stock option	-	n/a
		Other Income	7	- Fringe benefits: Medical services, checkups, group accident insurance are provided in line with the internal regulations for executive treatment (Board resolution)
		Retirement Income	-	n/a
		Other Income	-	n/a

(KRW mil)

Name	Type of remuneration		Total amount	Criteria and methodology
Jong-Kyun Shin	Earned Income	Salary	518	In accordance with internal regulations for executive treatment (Board resolution), remuneration is determined based on his position (vice chairman), responsibilities, and performance results. He was paid KRW 86 million per month from January to June.
		Bonus	2,102	<ul style="list-style-type: none"> - Traditional holiday bonus: 100% of monthly wage - Target achievement incentive: Paid biannual basis within the range of 0–200% of monthly wage, and CEO decides the amount according to the level of target achieved. (Adjusted according to division performance) - Performance incentive: When performance exceeds the Company's goal; CEO decides the amount based on 20% profit. Paid once a year within 0–50% of salary. (Adjusted according to individual performance) - Long-term incentive: Calculated within the director remuneration limit, based on the average salary of 3 years, using ROE, stock performance, and EBIT margin as criteria. Paid over the course of 3 years. <p>※ Quantitative indicators suggest that the Company achieved ROE of 12.6%, EBIT margin of 13.9%, and stock performance of 18% in 2014–2016; and that the Company achieved sales of KRW 108.5 trillion and operating profit of KRW 12.8 trillion in 1H19. Qualitative indicators include passing on management insights, identifying the next generation executives, and enhancing the competency of Company's human resource as the person responsible for HR development. The amount of the bonus was determined based on the indicators.</p>
		Profit from exercising stock option	-	n/a

	Other Income	19	- Fringe benefits: Medical services, checkups, group accident insurance are provided in line with the internal regulations for executive treatment (Board resolution)
	Retirement Income	-	n/a
	Other Income	-	n/a

(KRW mil)

Name	Type of remuneration	Total amount	Criteria and methodology
Boo-Keun Yoon	Salary	518	In accordance with internal regulations for executive treatment (Board resolution), remuneration is determined based on position (executive vice president), responsibilities, and performance results. He was paid KRW 86 million per month from January to June.
	Bonus	2,102	<ul style="list-style-type: none"> - Traditional holiday bonus: 100% of monthly wage - Target achievement incentive: Paid biannual basis within the range of 0–200% of monthly wage, and CEO decides the amount according to the level of target achieved. (Adjusted according to division performance) - Performance incentive: When performance exceeds the Company's goal; CEO decides the amount based on 20% profit. Paid once a year within 0–50% of salary. (Adjusted according to individual performance) - Long-term incentive: Calculated within the director remuneration limit, based on the average salary of 3 years, using ROE, stock performance, and EBIT margin as criteria. Paid over the course of 3 years. <p>※ Quantitative indicators suggest that the Company achieved ROE of 12.6%, EBIT margin of 13.9%, and stock performance of 18% in 2014–2016; and that the Company achieved sales of KRW 108.5 trillion and operating profit of KRW 12.8 trillion in 1H19. Qualitative indicators include acting as the Company's spokesperson in major events hosted by government and economic organizations as the person responsible for Corporate Relations. He also contributed to management by identifying external risks for the business. The amount of the bonus was determined based on the indicators.</p>
	Profit from exercising stock option	-	n/a
	Other Income	13	- Fringe benefits: Medical services, checkups, group accident insurance are provided in line with the internal regulations for executive treatment (Board resolution)
	Retirement Income	-	n/a
	Other Income	-	n/a

(KRW mil)

Name	Type of remuneration	Total amount	Criteria and methodology
Sang-Hoon Lee (Director)	Salary	389	In accordance with internal regulations for executive treatment (Board resolution), remuneration is determined based on position (president), responsibilities, and performance results. He was paid KRW 65 million per month from January to June.
	Bonus	1,787	<ul style="list-style-type: none"> - Traditional holiday bonus: 100% of monthly wage - Target Achievement Incentive: Paid biannual basis within the range of 0–200% of monthly wage, and CEO decides the amount according to the level of target achieved. (Adjusted according to division performance) - Performance Incentive: When performance exceeds the Company's goal; CEO decides the amount based on 20% profit. Paid once a year within 0–50% of salary. (Adjusted according to individual performance) - Long-term incentive: Calculated within the director remuneration limit, based on the

			average salary of 3 years, using ROE, stock performance, and EBIT margin as criteria. Paid over the course of 3 years. ※ Quantitative indicators suggest that the Company achieved ROE of 12.6%, EBIT margin of 13.9%, and stock performance of 18% in 2014–2016; and that the Company achieved sales of KRW 108.5 trillion and operating profit of KRW 12.8 trillion in 1H19. Qualitative indicators include increasing the transparency of the board of directors and enhancing shareholder value as the Chairman of the Board. The amount of bonus was determined based on the indicators.
	Profit from exercising stock option	-	n/a
	Other Income	20	- Fringe benefits: Medical services, checkups, group accident insurance are provided in line with the internal regulations for executive treatment (Board resolution)
	Retirement Income	-	n/a
	Other Income	-	n/a

(KRW mil)

Name	Type of remuneration	Total amount	Criteria and methodology
Ki-Nam Kim (CEO)	Salary	685	In accordance with internal regulations for executive treatment (Board resolution), remuneration is determined based on position (vice chairman), responsibilities, and performance results. He was paid KRW 114 million per month from January to June.
	Bonus	689	- Traditional holiday bonus: 100% of monthly wage - Target achievement incentive: Paid biannual basis within the range of 0–200% of monthly wage, and CEO decides the amount according to the level of target achieved. (Adjusted according to division performance) - Performance Incentive: When performance exceeds the Company's goal; CEO decides the amount based on 20% profit. Paid once a year within 0–50% of salary. (Adjusted according to individual performance) - Long-term incentive: Calculated within the director remuneration limit, based on the average salary of 3 years, using ROE, stock performance, and EBIT margin as criteria. Paid over the course of 3 years. ※ Quantitative indicators suggest that the Company achieved ROE of 12.6%, EBIT margin of 13.9%, and stock performance of 18% in 2014–2016; and that the DS division achieved sales of KRW 44.1 trillion and operating profit of KRW 7.7 trillion in 1H19. Qualitative indicators include solid performance in the DS division, excellent leadership in memory market, and contribution to enhancing future competitiveness with aggressive investment in non-memory business including System LSI and Foundry. The amount of bonus was determined based on the indicators.
	Profit from exercising stock option	-	n/a
	Other Income	12	- Fringe benefits: Medical services, checkups, group accident insurance are provided in line with the internal regulations for executive treatment (Board resolution)
	Retirement Income	-	n/a
	Other Income	-	n/a

3. Stock options granted and exercised

A. Status of stock options granted to registered Directors

There have been no stock options granted to, or exercised by, the executive Board or Audit Committee members during the reporting period.

B. Status of stock options granted to non-registered Executives

As of June 30, 2019, there was no accumulated-basis unexercised stock option.

IX. Affiliates and Subsidiaries

1. Affiliates & subsidiaries

A. Affiliates

- Name of affiliated group: Samsung

As of June 30, 2019, Samsung Group had a total of sixty-two (62) domestic affiliates. Among the Samsung Group's sixty-two (62) domestic affiliates, sixteen (16) affiliates including Samsung Electronics are listed, and forty-six (46) affiliates are unlisted.

[As of June 30, 2019]

	No. of affiliates	Name of affiliates
Listed	16	Samsung C&T; Samsung Electronics; Samsung SDI; Semco; Samsung Fire & Marine Insurance; Samsung Heavy Industries; Samsung Life Insurance; Multicampus; Samsung Securities; Samsung SDS; Samsung Card; Samsung Engineering; S1; Cheil Worldwide; Hotel Shilla; Samsung Biologics
Unlisted	46	Seoul Lakeside CC; Samwoo Architects & Engineers; CVnet Corporation; Samsung Bioepis; Samsung Display; Samsung Corning Advanced Glass; SU Materials; STECO; SEMES; Samsung Electronics Service; Samsung Electronics Sales; Samsung Electronics Logitech; Suwon Samsung Bluewings FC; Samsung Medison; Samsung Claim Adjustment Service; Samsung Fire & Marine Insurance Service; Samsung Fire & Marine Insurance Financial Service; Samsung Electronics Service CS; Samsung Futures; Samsung Asset Management; Saengbo; Samsung Life Service; Samsung SRA Asset Management; Samsung Life Financial Service; SD Flex; Cheil Fashion Retail Co., Ltd.; Natural9; Samsung Welstory; SECUI; STM; S-Core; OpenHands; Miracom; Samsung Card Customer Service; Human TSS; S-1CRM; Shilla Stay; HDC Shilla Duty Free LTD; Samsung Economic Research Institute (SERI); Samsung Lions; Samsung Venture Investment Corporation; Samsung Active Asset Management; Samsung Hedge Asset Management; Harman International Korea; Red Bend Software Korea; SBTM
Total	62	

B. Ownership status of affiliates and subsidiaries

1) Domestic

Investee Investor	Samsung C&T Corp	Samsung Electronics	Samsung SDI	Semco	Samsung Heavy Industries	Hotel Shilla	Samsung Engineering	Cheil Worldwide	S1 Corporation	Samsung SDS	Samsung Lions	SERI	STECO
Samsung C&T Corporation		5.0			0.1		7.0			17.1		1.0	
Samsung Electronics			19.6	23.7	16.0	5.1		25.2		22.6		29.8	70.0
Samsung SDI					0.4	0.1	11.7		11.0			29.6	
Samsung Electro-mechanics					2.2							23.8	
Samsung Heavy Industries												1.0	
Cheil Worldwide					0.1						67.5		
Hotel Shilla													
S1 Corporation													
SERI													
Samsung SDS													
Samsung Life Insurance	0.1	8.8	0.2	0.3	3.3	7.6	0.1	0.2	5.4	0.1		14.8	
Samsung Fire & Marine Insurance		1.5					0.2		1.0				
Samsung Securities.						3.1			1.3				
Samsung Card						1.3		3.0	1.9				
SDC													
Samsung BioLogics													
Samsung Asset Management													
Miracom													
Samsung Electronics Service													
Harman International Industries, Inc.													
Harman International Industries Limited													
Total	0.1	15.3	19.7	24.0	22.0	17.2	19.0	28.4	20.6	39.8	67.5	100	70.0

※ Percent of ownership as of June 30, 2019 based on common shares

Investee Investor	SEMES	Samsung Electronics Service	Samsung Electronics Sales	Suwon Samsung Bluewings FC	Samsung Electronics Logitech	Samsung Display	Samsung Medison	Samsung BioLogics	Samsung BioEpis	Samsung Corning Advanced Glass	SU Materials	CVnet	Seoul Lakeside CC
Samsung C&T Corporation								43.4				40.1	100
Samsung Electronics	91.5	99.3	100		100	84.8	68.5	31.5					
Samsung SDI						15.2							
Samsung Electro-mechanics													
Samsung Heavy Industries													
Cheil Worldwide				100									
Hotel Shilla													
S1 Corporation													
SERI													
Samsung SDS												9.4	
Samsung Life Insurance								0.1					
Samsung Fire & Marine Insurance													
Samsung Securities.													
Samsung Card													
SDC										50.0	50.0		
Samsung BioLogics									50.0				
Samsung Asset Management													
Miracom													
Samsung Electronics Service													
Harman International Industries, Inc.													
Harman International Industries Limited													
Total	91.5	99.3	100	100	100	100	68.5	75.0	50.0	50.0	50.0	49.5	100

※ Percent of ownership as of June 30, 2019 based on common shares

Investee Investor	Samwoo Architects & Engineers	SD Flex	Cheil Fashion Retail	Natural9	Samsung Welstory	Service CS	SECUI	Human TSS	S-1CRM	STM	MULTI CAMPUS	S-Core	Open Hands
Samsung C&T Corporation	100		100	51.0	100		8.7						
Samsung Electronics													
Samsung SDI		50.0								100			
Samsung Electro-mechanics													
Samsung Heavy Industries													
Cheil Worldwide												5.2	
Hotel Shilla													
S1 Corporation								100	100			0.6	
SERI											15.2		
Samsung SDS							56.5				47.2	81.8	100
Samsung Life Insurance													
Samsung Fire & Marine Insurance													
Samsung Securities.													
Samsung Card													
SDC													
Samsung BioLogics													
Samsung Asset Management													
Miracom												0.5	
Samsung Electronics Service						100							
Harman International Industries, Inc.													
Harman International Industries Limited													
Total	100	50.0	100	51.0	100	100	65.2	100	100	100	62.4	88.1	100

※ Percent of ownership as of June 30, 2019 based on common shares

Investee Investor	Miracom	Shilla Stay	HDC Shilla Duty Free LTD	SBTM	Samsung Life Insurance	Saengbo	Samsung Life Service	Samsung SRA Asset Management	Samsung Life Financial Service	Samsung Fire & Marine Insurance	Samsung Claim Adjustment Service	Samsung Fire & Marine Insurance Service	Samsung Fire & Marine Financial Service
Samsung C&T Corporation					19.3								
Samsung Electronics													
Samsung SDI													
Samsung Electro-mechanics													
Samsung Heavy Industries													
Cheil Worldwide	5.4												
Hotel Shilla		100	50.0	100									
S1 Corporation	0.6												
SERI													
Samsung SDS	83.6												
Samsung Life Insurance						50.0	99.8	100	100	15.0			
Samsung Fire & Marine Insurance											100	100	100
Samsung Securities.													
Samsung Card													
SDC													
Samsung BioLogics													
Samsung Asset Management													
Miracom													
Samsung Electronics Service													
Harman International Industries, Inc.													
Harman International Industries Limited													
Total	89.6	100	50.0	100	19.3	50.0	99.8	100	100	15.0	100	100	100

※ Percent of ownership as of June 30, 2019 based on common shares

Investee Investor	Samsung Securities	Samsung Card	Samsung Card Customer Service	Samsung Asset Management	Samsung Futures	Samsung Venture Investment	Samsung Active Asset Management	Samsung Hedge Asset Management	Harman International Korea	Red Bend Software Korea
Samsung C&T Corporation						16.7				
Samsung Electronics						16.3				
Samsung SDI						16.3				
Samsung Electro-mechanics						17.0				
Samsung Heavy Industries						17.0				
Cheil Worldwide										
Hotel Shilla										
S1 Corporation										
SERI										
Samsung SDS										
Samsung Life Insurance	29.5	71.9		100						
Samsung Fire & Marine Insurance										
Samsung Securities.					100	16.7				
Samsung Card			100							
SDC										
Samsung BioLogics										
Samsung Asset Management							100	100		
Miracom										
Samsung Electronics Service										
Harman International Industries, Inc.									100	
Harman International Industries Limited										100
Total	29.5	71.9	100	100	100	100	100	100	100	100

※ Percent of ownership as of June 30, 2019 based on common shares

2) Overseas

Investor	Investee	Ownership
Samwoo Architects & Engineers	SAMOO DESIGNERS & ENGINEERS INDIA PRIVATE LIMITED	100.0
Samwoo Architects & Engineers	SAMOO (KL) SDN. BHD.	100.0
Samsung C&T America Inc.	Meadowland Distribution	100.0
Samsung C&T America Inc.	Samsung Green repower, LLC	100.0
Samsung C&T America Inc.	Samsung Solar Construction Inc.	100.0
Samsung C&T America Inc.	QSSC, S.A. de C.V.	20.0
Samsung C&T America Inc.	Samsung Solar Energy LLC	100.0
Samsung C&T America Inc.	S-print Inc	24.0
Samsung Renewable Energy Inc.	SRE GRW EPC GP Inc.	100.0
Samsung Renewable Energy Inc.	SRE GRW EPC LP	100.0
Samsung Renewable Energy Inc.	SRE SKW EPC GP Inc.	100.0
Samsung Renewable Energy Inc.	SRE SKW EPC LP	100.0
Samsung Renewable Energy Inc.	SRE GRW LP Holdings LP	100.0
Samsung Renewable Energy Inc.	SRE SKW LP Holdings LP	100.0
Samsung Renewable Energy Inc.	SRE WIND PA GP INC.	100.0
Samsung Renewable Energy Inc.	SRE WIND PA LP	100.0
Samsung Renewable Energy Inc.	SRE GRS Holdings GP Inc.	100.0
Samsung Renewable Energy Inc.	SRE GRS Holdings LP	100.0
Samsung Renewable Energy Inc.	SRE K2 EPC GP Inc.	100.0
Samsung Renewable Energy Inc.	SRE K2 EPC LP	100.0
Samsung Renewable Energy Inc.	SRE KS HOLDINGS GP INC.	100.0
Samsung Renewable Energy Inc.	SRE KS HOLDINGS LP	100.0
Samsung Renewable Energy Inc.	SRE Belle River LP Holdings LP	100.0
Samsung Renewable Energy Inc.	SRE Armow EPC GP Inc.	100.0
Samsung Renewable Energy Inc.	SRE Armow EPC LP	100.0
Samsung Renewable Energy Inc.	SRE Armow LP Holdings LP	100.0
Samsung Renewable Energy Inc.	SRE North Kent 1 LP H.LP	100.0
Samsung Renewable Energy Inc.	SRE Wind GP Holding Inc.	100.0
Samsung Renewable Energy Inc.	SRE North Kent 2 LP Holdings LP	100.0
Samsung Renewable Energy Inc.	SRE Solar Development GP Inc.	100.0
Samsung Renewable Energy Inc.	SRE Solar Development LP	100.0
Samsung Renewable Energy Inc.	SRE Windsor Holdings GP Inc.	100.0
Samsung Renewable Energy Inc.	SRE Southgate Holdings GP Inc.	100.0
Samsung Renewable Energy Inc.	SRE Solar Construction Management GP Inc.	100.0
Samsung Renewable Energy Inc.	SRE Solar Construction Management LP	100.0
Samsung Renewable Energy Inc.	SRE DEVELOPMENT GP INC.	100.0
Samsung Renewable Energy Inc.	SRE DEVELOPMENT LP	100.0
Samsung Renewable Energy Inc.	SRE BRW EPC GP INC.	100.0
Samsung Renewable Energy Inc.	SRE BRW EPC LP	100.0
Samsung Renewable Energy Inc.	SRE North Kent 1 GP Holdings Inc	100.0
Samsung Renewable Energy Inc.	SRE North Kent 2 GP Holdings Inc	100.0
Samsung Renewable Energy Inc.	SRE Belle River GP Holdings Inc	100.0
Samsung Renewable Energy Inc.	SRE NK1 EPC GP Inc	100.0
Samsung Renewable Energy Inc.	SRE NK1 EPC LP	100.0
Samsung Renewable Energy Inc.	SRE Summerside Construction GP Inc.	100.0
Samsung Renewable Energy Inc.	SRE Summerside Construction LP	100.0
Samsung Green repower, LLC	SOLAR PROJECTS SOLUTIONS,LLC	50.0
SP Armow Wind Ontario GP Inc	SP Armow Wind Ontario LP	0.0
Samsung C&T Oil & Gas Parallel Corp.	PLL Holdings LLC	83.6
Samsung C&T Oil & Gas Parallel Corp.	PLL E&P LLC	90.0
SRE GRW EPC GP Inc.	SRE GRW EPC LP	0.0
SRE SKW EPC GP Inc.	SRE SKW EPC LP	0.0
PLL Holdings LLC	Parallel Petroleum LLC	61.0
SRE GRW LP Holdings LP	Grand Renewable Wind LP Inc.	45.0
SRE SKW LP Holdings LP	South Kent Wind LP Inc.	50.0
SRE WIND PA GP INC.	SRE WIND PA LP	0.0
SRE GRS Holdings GP Inc.	Grand Renewable Solar GP Inc.	50.0
SRE GRS Holdings GP Inc.	SRE GRS Holdings LP	0.0
SRE K2 EPC GP Inc.	SRE K2 EPC LP	0.0

Investor	Investee	Ownership
SRE KS HOLDINGS GP INC.	KINGSTON SOLAR GP INC.	50.0
SRE KS HOLDINGS GP INC.	SRE KS HOLDINGS LP	0.0
SRE Belle River LP Holdings LP	SP Belle River Wind LP	42.5
SP Belle River Wind GP Inc	SP Belle River Wind LP	0.0
SRE Armow EPC GP Inc.	SRE Armow EPC LP	0.0
SRE Armow LP Holdings LP	SP Armow Wind Ontario LP	50.0
SRE North Kent 1 LP H.LP	North Kent Wind 1 LP	35.0
SRE Wind GP Holding Inc.	SP Armow Wind Ontario GP Inc	50.0
SRE Wind GP Holding Inc.	SRE GRW LP Holdings LP	0.0
SRE Wind GP Holding Inc.	SRE SKW LP Holdings LP	0.0
SRE Wind GP Holding Inc.	SRE Armow LP Holdings LP	0.0
SRE Wind GP Holding Inc.	South Kent Wind GP Inc.	50.0
SRE Wind GP Holding Inc.	Grand Renewable Wind GP Inc.	50.0
South Kent Wind GP Inc.	South Kent Wind LP Inc.	0.0
Grand Renewable Wind GP Inc.	Grand Renewable Wind LP Inc.	0.0
North Kent Wind 1 GP Inc	North Kent Wind 1 LP	0.0
SRE Solar Development GP Inc.	SRE Solar Development LP	0.0
SRE Solar Construction Management GP Inc.	SRE Solar Construction Management LP	0.0
SRE DEVELOPMENT GP INC.	SRE DEVELOPMENT LP	0.0
SRE BRW EPC GP INC.	SRE BRW EPC LP	0.0
SRE North Kent 1 GP Holdings Inc	SRE North Kent 1 LP H.LP	0.0
SRE North Kent 1 GP Holdings Inc	North Kent Wind 1 GP Inc	50.0
SRE North Kent 2 GP Holdings Inc	SRE North Kent 2 LP Holdings LP	0.0
SRE Belle River GP Holdings Inc	SRE Belle River LP Holdings LP	0.0
SRE Belle River GP Holdings Inc	SP Belle River Wind GP Inc	50.0
SRE NK1 EPC GP Inc	SRE NK1 EPC LP	0.0
SRE Summerside Construction GP Inc.	SRE Summerside Construction LP	0.0
Samsung Solar Energy LLC	Samsung Solar Energy 1 LLC	100.0
Samsung Solar Energy LLC	Samsung Solar Energy 2 LLC	100.0
Samsung Solar Energy LLC	Samsung Solar Energy 3, LLC	100.0
Samsung Solar Energy 1 LLC	CS SOLAR LLC	50.0
Samsung Solar Energy 3, LLC	SST SOLAR, LLC	50.0
Samsung C&T Deutschland GmbH	SCNT Investment Atlantic SPRL	0.0
Samsung C&T Deutschland GmbH	POSS-SLPC, s.r.o	20.0
Samsung C&T Deutschland GmbH	Solluce Romania 1 B.V.	20.0
Samsung C&T Deutschland GmbH	S.C. Otelinox S.A	94.3
Solluce Romania 1 B.V.	LJG GREEN SOURCE ENERGY ALPHA S.R.L.	78.0
Cheil Holding Inc.	Samsung Const. Co. Phils.,Inc.	75.0
Samsung C&T Singapore Pte., Ltd.	Samsung Chemtech Vina LLC	48.3
Samsung C&T Singapore Pte., Ltd.	S-print Inc	16.0
Samsung C&T Singapore Pte., Ltd.	PT. INSAM BATUBARA ENERGY	10.0
Samsung C&T Singapore Pte., Ltd.	Malaysia Samsung Steel Center Sdn.Bhd	30.0
Samsung C&T Singapore Pte., Ltd.	S&G Biofuel PTE.LTD	12.6
S&G Biofuel PTE.LTD	PT. Gandaerah Hendana	95.0
S&G Biofuel PTE.LTD	PT. Inecda	95.0
Samsung C&T Hongkong Ltd.	Samsung C&T Thailand Co., Ltd	13.2
Samsung C&T Hongkong Ltd.	SAMSUNG (TIANJIN) INTERNATIONAL TRADING CO., LTD	100.0
Samsung C&T Hongkong Ltd.	SAMSUNG TRADING (SHANGHAI) CO., LTD	100.0
Samsung C&T Hongkong Ltd.	Samsung Precision Stainless Steel(pinghu) Co.,Ltd.	45.0
Samsung Electronics	Samsung Japan Corporation	100.0
Samsung Electronics	Samsung R&D Institute Japan Co. Ltd.	100.0
Samsung Electronics	Samsung Electronics America, Inc.	100.0
Samsung Electronics	Samsung Electronics Canada, Inc.	100.0
Samsung Electronics	Samsung Electronics Mexico S.A. De C.V.	63.6
Samsung Electronics	Samsung Electronics (UK) Ltd.	100.0
Samsung Electronics	Samsung Electronics(London) Ltd.	100.0
Samsung Electronics	Samsung Electronics Holding GmbH	100.0
Samsung Electronics	Samsung Electronics Iberia, S.A.	100.0
Samsung Electronics	Samsung Electronics France S.A.S	100.0
Samsung Electronics	Samsung Electronics Hungarian Private Co. Ltd.	100.0
Samsung Electronics	Samsung Electronics Italia S.P.A.	100.0

Investor	Investee	Ownership
Samsung Electronics	Samsung Electronics Europe Logistics B.V.	100.0
Samsung Electronics	Samsung Electronics Benelux B.V.	100.0
Samsung Electronics	Samsung Electronics Overseas B.V.	100.0
Samsung Electronics	Samsung Electronics Polska, SP.Zo.o	100.0
Samsung Electronics	Samsung Electronics Portuguesa S.A.	100.0
Samsung Electronics	Samsung Electronics Nordic Aktiebolag	100.0
Samsung Electronics	Samsung Electronics Austria GmbH	100.0
Samsung Electronics	Samsung Electronics Slovakia s.r.o	55.7
Samsung Electronics	Samsung Electronics Europe Holding Cooperatief U.A.	100.0
Samsung Electronics	Samsung Electronics Display (M) Sdn. Bhd.	75.0
Samsung Electronics	Samsung Electronics (M) Sdn. Bhd.	100.0
Samsung Electronics	Samsung Vina Electronics Co., Ltd.	100.0
Samsung Electronics	Samsung Asia Private Ltd.	100.0
Samsung Electronics	Samsung India Electronics Private Ltd.	100.0
Samsung Electronics	Samsung R&D Institute India-Bangalore Private Limited	100.0
Samsung Electronics	Samsung Electronics Australia Pty. Ltd.	100.0
Samsung Electronics	PT Samsung Electronics Indonesia	100.0
Samsung Electronics	Thai Samsung Electronics Co., Ltd.	91.8
Samsung Electronics	Samsung Malaysia Electronics (SME) Sdn. Bhd.	100.0
Samsung Electronics	Samsung Electronics Hong Kong Co., Ltd.	100.0
Samsung Electronics	Suzhou Samsung Electronics Co., Ltd.	69.1
Samsung Electronics	Samsung (CHINA) Investment Co., Ltd.	100.0
Samsung Electronics	Samsung Electronics Suzhou Semiconductor Co., Ltd.	100.0
Samsung Electronics	Samsung Electronics Huizhou Co., Ltd.	89.6
Samsung Electronics	Tianjin Samsung Electronics Co., Ltd.	48.2
Samsung Electronics	Samsung Electronics Taiwan Co., Ltd.	100.0
Samsung Electronics	Tianjin Samsung Telecom Technology Co., Ltd.	90.0
Samsung Electronics	Shanghai Samsung Semiconductor Co., Ltd.	100.0
Samsung Electronics	Samsung Electronics Suzhou Computer Co., Ltd.	73.7
Samsung Electronics	Shenzhen Samsung Electronics Telecommunication Co., Ltd.	100.0
Samsung Electronics	Samsung Semiconductor (China) R&D Co., Ltd.	100.0
Samsung Electronics	Samsung (China) Semiconductor Co., Ltd.	100.0
Samsung Electronics	Samsung Semiconductor Xian	100.0
Samsung Electronics	Samsung Gulf Electronics Co., Ltd.	100.0
Samsung Electronics	Samsung Electronics Egypt S.A.E	0.1
Samsung Electronics	Samsung Electronics South Africa(Pty) Ltd.	100.0
Samsung Electronics	Samsung Electronics Latinoamerica (Zona Libre)	100.0
Samsung Electronics	Samsung Electronica da Amazonia Ltda.	87.0
Samsung Electronics	Samsung Electronics Argentina S.A.	98.0
Samsung Electronics	Samsung Electronics Chile Limitada	4.1
Samsung Electronics	Samsung Electronics Rus Company LLC	100.0
Samsung Electronics	Samsung Electronics Rus Kaluga LLC	100.0
Samsung Electronics	Tianjin Samsung LED Co., Ltd.	100.0
Samsung BioEpis	SAMSUNG BIOEPIS UK LIMITED	100.0
Samsung BioEpis	Samsung Bioepis NL B.V.	100.0
Samsung BioEpis	Samsung Bioepis CH GmbH	100.0
Samsung BioEpis	SAMSUNG BIOEPIS AU PTY LTD	100.0
Samsung BioEpis	SAMSUNG BIOEPIS NZ LIMITED	100.0
Samsung BioEpis	SAMSUNG BIOEPIS IL LTD	100.0
Samsung BioEpis	SAMSUNG BIOEPIS BR PHARMACEUTICAL LTDA	100.0
Samsung Display	Intellectual Keystone Technology LLC	41.9
Samsung Display	Samsung Display Slovakia s.r.o.	100.0
Samsung Display	Samsung Display Vietnam Co., Ltd.	100.0
Samsung Display	Samsung Suzhou Module Co., Ltd.	100.0
Samsung Display	Samsung Suzhou LCD Co., Ltd.	60.0
Samsung Display	Samsung Display Dongguan Co., Ltd.	100.0
Samsung Display	Samsung Display Tianjin Co., Ltd.	95.0
Samsung Display	NovaLED GmbH	9.9
SEMES	SEMES America, Inc.	100.0
SEMES	SEMES (XIAN) Co., Ltd.	100.0
Samsung Medison	Samsung Medison India Private Ltd.	100.0

Investor	Investee	Ownership
Studer Japan Ltd.	Harman International Japan Co., Ltd.	100.0
Samsung Electronics America, Inc.	NeuroLogica Corp.	100.0
Samsung Electronics America, Inc.	Dacor Holdings, Inc.	100.0
Samsung Electronics America, Inc.	Samsung HVAC America, LLC	100.0
Samsung Electronics America, Inc.	SmartThings, Inc.	100.0
Samsung Electronics America, Inc.	Samsung Oak Holdings, Inc.	100.0
Samsung Electronics America, Inc.	Joyent, Inc.	100.0
Samsung Electronics America, Inc.	Prismview, LLC	100.0
Samsung Electronics America, Inc.	Samsung Semiconductor, Inc.	100.0
Samsung Electronics America, Inc.	Samsung Research America, Inc	100.0
Samsung Electronics America, Inc.	Samsung Electronics Home Appliances America, LLC	100.0
Samsung Electronics America, Inc.	Samsung International, Inc.	100.0
Samsung Electronics America, Inc.	Harman International Industries, Inc.	100.0
Dacor Holdings, Inc.	Dacor	100.0
Dacor Holdings, Inc.	EverythingDacor.com, Inc.	100.0
Dacor Holdings, Inc.	Distinctive Appliances of California, Inc.	100.0
Dacor	Dacor Canada Co.	100.0
Samsung Oak Holdings, Inc.	Stellus Technologies, Inc.	100.0
Samsung Semiconductor, Inc.	Samsung Austin Semiconductor LLC.	100.0
Samsung Electronics Canada, Inc.	AdGear Technologies Inc.	100.0
Samsung Electronics Canada, Inc.	SigMast Communications Inc.	100.0
Samsung Research America, Inc	SAMSUNG NEXT LLC	100.0
Samsung Research America, Inc	Viv Labs, Inc.	100.0
SAMSUNG NEXT LLC	SAMSUNG NEXT FUND LLC	100.0
Samsung International, Inc.	Samsung Mexicana S.A. de C.V	100.0
Samsung Electronics Mexico S.A. De C.V.	Samsung Electronics Digital Appliance Mexico, SA de CV	100.0
Harman International Industries, Inc.	Studer Japan Ltd.	100.0
Harman International Industries, Inc.	Harman International Industries Canada Ltd.	100.0
Harman International Industries, Inc.	Harman Becker Automotive Systems, Inc.	100.0
Harman International Industries, Inc.	Harman Professional, Inc.	100.0
Harman International Industries, Inc.	Red Bend Software Inc.	100.0
Harman International Industries, Inc.	Harman Connected Services, Inc.	100.0
Harman International Industries, Inc.	Harman Financial Group LLC	100.0
Harman International Industries, Inc.	Harman Belgium SA	100.0
Harman International Industries, Inc.	Harman France SNC	100.0
Harman International Industries, Inc.	Harman International SNC	0.0
Harman International Industries, Inc.	Harman Inc. & Co. KG	66.0
Harman International Industries, Inc.	Harman KG Holding, LLC	100.0
Harman International Industries, Inc.	Harman Becker Automotive Systems Italy S.R.L.	100.0
Harman International Industries, Inc.	Harman Finance International, SCA	100.0
Harman International Industries, Inc.	Harman Finance International GP S.a.r.l	100.0
Harman International Industries, Inc.	Harman International Singapore Pte. Ltd.	100.0
Harman International Industries, Inc.	Harman Industries Holdings Mauritius Ltd.	100.0
Harman International Industries, Inc.	Harman International Mexico, S. de R.L. de C.V.	99.9
Harman Becker Automotive Systems, Inc.	Harman International Estonia OU	100.0
Harman Investment Group, LLC	Harman Becker Automotive Systems Manufacturing Kft	5.0
Harman Investment Group, LLC	Harman do Brasil Industria Eletronica e Participacoes Ltda.	100.0
Harman Professional, Inc.	AMX UK Limited	100.0
Harman Professional, Inc.	Harman Singapore Pte Ltd	100.0
Harman Professional, Inc.	Harman da Amazonia Industria Eletronica e Participacoes Ltda.	0.0
Harman Professional, Inc.	Harman do Brasil Industria Eletronica e Participacoes Ltda.	0.0
Red Bend Software Inc.	Red Bend Software SAS	100.0
Harman Connected Services, Inc.	Harman Connected Services Engineering Corp.	100.0
Harman Connected Services, Inc.	Harman Connected Services South America S.R.L.	100.0
Harman Connected Services, Inc.	Harman Connected Services AB.	100.0
Harman Connected Services, Inc.	Harman Connected Services UK Ltd.	100.0
Harman Connected Services, Inc.	Harman Connected Services Corp. India Pvt. Ltd.	1.6
Harman Connected Services, Inc.	Global Symphony Technology Group Private Ltd.	100.0
Harman Financial Group LLC	Harman International (India) Private Limited	0.0
Harman Financial Group LLC	Harman International Mexico, S. de R.L. de C.V.	0.1
Harman Financial Group LLC	Harman de Mexico, S. de R.L. de C.V.	0.0

Investor	Investee	Ownership
Samsung Electronics (UK) Ltd.	Samsung Semiconductor Europe Limited	100.0
Samsung Electronics Holding GmbH	Samsung Semiconductor Europe GmbH	100.0
Samsung Electronics Holding GmbH	Samsung Electronics GmbH	100.0
Samsung Electronics Hungarian Private Co. Ltd.	Samsung Electronics Czech and Slovak s.r.o.	31.4
Samsung Electronics Hungarian Private Co. Ltd.	Samsung Electronics Slovakia s.r.o	44.3
Samsung Electronics Benelux B.V.	Samsung Electronics Mexico S.A. De C.V.	36.4
Samsung Electronics Benelux B.V.	SAMSUNG ELECTRONICS BALTICS SIA	100.0
Samsung Electronics Benelux B.V.	Samsung Electronics West Africa	100.0
Samsung Electronics Benelux B.V.	Samsung Electronics East Africa	100.0
Samsung Electronics Benelux B.V.	Samsung Electronics Egypt S.A.E	99.9
Samsung Electronics Benelux B.V.	Samsung Electronics Israel Ltd.	100.0
Samsung Electronics Benelux B.V.	Samsung Electronics Tunisia S.A.R.L	99.0
Samsung Electronics Benelux B.V.	Samsung Electronics Pakistan(Private) Ltd.	100.0
Samsung Electronics Benelux B.V.	Samsung Electronics South Africa Production (pty) Ltd.	100.0
Samsung Electronics Benelux B.V.	Samsung Electronics Turkey	100.0
Samsung Electronics Benelux B.V.	Samsung Semiconductor Israel R&D Center,Ltd.	100.0
Samsung Electronics Benelux B.V.	Samsung Electronics Levant Co.,Ltd.	100.0
Samsung Electronics Benelux B.V.	Samsung Electronics Maghreb Arab	100.0
Samsung Electronics Benelux B.V.	Samsung Electronics Venezuela, C.A.	100.0
Samsung Electronics Benelux B.V.	Samsung Electronica da Amazonia Ltda.	13.0
Samsung Electronics Benelux B.V.	Samsung Electronics Chile Limitada	95.9
Samsung Electronics Benelux B.V.	Samsung Electronics Peru S.A.C.	100.0
Samsung Electronics Benelux B.V.	Samsung Electronics Ukraine Company LLC	100.0
Samsung Electronics Benelux B.V.	Samsung R&D Institute Rus LLC	100.0
Samsung Electronics Benelux B.V.	Samsung Electronics Central Eurasia LLP	100.0
Samsung Electronics Benelux B.V.	Samsung Electronics Caucasus Co. Ltd	100.0
Samsung Electronics Benelux B.V.	Corephotonics Ltd.	92.4
Zhilabs, S.L.	Zhilabs Inc.	100.0
Samsung Electronics Nordic Aktiebolag	Samsung Nanoradio Design Center	100.0
AKG Acoustics GmbH	Harman Professional Denmark ApS	100.0
AKG Acoustics GmbH	Studer Professional Audio GmbH	100.0
Harman Professional Denmark ApS	Martin Professional Japan Ltd.	40.0
Harman Professional Denmark ApS	Harman International s.r.o	100.0
Harman Professional Denmark ApS	Harman Professional France SAS	100.0
Harman Professional Denmark ApS	Martin Professional Pte. Ltd.	100.0
Harman France SNC	Harman International SNC	100.0
Harman International SNC	Harman France SNC	0.0
Harman Becker Automotive Systems GmbH	Harman International Romania SRL	0.0
Harman Holding GmbH & Co. Kg	Harman Becker Automotive Systems GmbH	100.0
Harman Holding GmbH & Co. Kg	Harman Deutschland GmbH	100.0
Harman Holding GmbH & Co. Kg	Harman Becker Automotive Systems Manufacturing Kft	95.0
Harman Holding GmbH & Co. Kg	Duran Audio B.V.	100.0
Harman Holding GmbH & Co. Kg	Harman RUS CIS LLC	100.0
Harman Inc. & Co. KG	Harman Holding GmbH & Co. Kg	100.0
Harman Inc. & Co. KG	Harman Management GmbH	100.0
Harman Inc. & Co. KG	Harman Hungary Financing Ltd.	100.0
Harman Connected Services GmbH	Harman Connected Services OOO	100.0
Harman KG Holding, LLC	Harman Inc. & Co. KG	34.0
Harman Becker Automotive Systems Manufacturing Kft	Harman Professional Kft	100.0
Harman Becker Automotive Systems Manufacturing Kft	Harman Consumer Nederland B.V.	100.0
Harman Becker Automotive Systems Manufacturing Kft	Harman International Romania SRL	100.0
Harman Becker Automotive Systems Manufacturing Kft	Red Bend Ltd.	100.0
Harman Hungary Financing Ltd.	Harman International Industries Limited	100.0
Harman Finance International GP S.a.r.l	Harman Finance International, SCA	0.0
Harman Consumer Nederland B.V.	AKG Acoustics GmbH	100.0
Harman Consumer Nederland B.V.	Harman Holding Limited	100.0
Duran Audio B.V.	Harman Investment Group, LLC	100.0
Duran Audio B.V.	Duran Audio Iberia Espana S.L.	100.0
Harman Connected Services AB.	Harman Connected Services Japan Co., Ltd.	100.0
Harman Connected Services AB.	Harman Connected Services Finland OY	100.0
Harman Connected Services AB.	Harman Connected Services GmbH	100.0

Investor	Investee	Ownership
Harman Connected Services AB.	Harman Connected Services Poland Sp.zoo	100.0
Harman Connected Services AB.	Harman Connected Services Solutions (Beijing) Co., Ltd.	100.0
Harman Connected Services AB.	Harman Connected Services Solutions (Chengdu) Co., Ltd.	100.0
Harman Automotive UK Limited	Harman de Mexico, S. de R.L. de C.V.	100.0
Harman International Industries Limited	Harman Automotive UK Limited	100.0
Harman International Industries Limited	Martin Manufacturing (UK) Ltd	100.0
Harman International Industries Limited	Harman Connected Services Limited	100.0
Harman International Industries Limited	Arcam Limited	100.0
Harman International Industries Limited	Harman International Industries PTY Ltd.	100.0
Harman Connected Services UK Ltd.	Harman Connected Services Morocco	100.0
Arcam Limited	A&R Cambridge Limited	100.0
Samsung Electronics Austria GmbH	Samsung Electronics Switzerland GmbH	100.0
Samsung Electronics Europe Holding Cooperatief U.A.	Samsung Electronics Czech and Slovak s.r.o.	68.6
Samsung Electronics Europe Holding Cooperatief U.A.	Samsung Electronics Romania LLC	100.0
Samsung Electronics Europe Holding Cooperatief U.A.	Zhilabs, S.L.	100.0
Samsung Electronics Europe Holding Cooperatief U.A.	Porta Nuova Varesine Building 2 S.r.l.	49.0
Samsung Electronics Europe Holding Cooperatief U.A.	Samsung Electronics Poland Manufacturing SP.Zo.o	100.0
Samsung Electronics Europe Holding Cooperatief U.A.	Samsung Electronics Greece S.A.	100.0
Samsung Electronics Europe Holding Cooperatief U.A.	Samsung Electronics Air Conditioner Europe B.V.	100.0
Samsung Electronics Europe Holding Cooperatief U.A.	Innoetics E.P.E.	100.0
Samsung Electronics Europe Holding Cooperatief U.A.	FOODIENT LTD.	100.0
Samsung Electronics Europe Holding Cooperatief U.A.	Samsung Denmark Research Center ApS	100.0
Samsung Electronics Europe Holding Cooperatief U.A.	Samsung Cambridge Solution Centre Limited	100.0
Samsung Electronics Europe Holding Cooperatief U.A.	Novaled GmbH	40.0
Samsung Asia Private Ltd.	Samsung Electronics Japan Co., Ltd.	100.0
Samsung Asia Private Ltd.	Samsung Electronics Display (M) Sdn. Bhd.	25.0
Samsung Asia Private Ltd.	Samsung Electronics New Zealand Limited	100.0
Samsung Asia Private Ltd.	Samsung Electronics Philippines Corporation	100.0
Samsung Asia Private Ltd.	Samsung R&D Institute BanglaDesh	100.0
Samsung Asia Private Ltd.	Samsung Electronics Vietnam Co., Ltd.	100.0
Samsung Asia Private Ltd.	Samsung Electronics Vietnam THAINGUYEN Co., Ltd.	100.0
Samsung Asia Private Ltd.	Samsung Electronics HCMC CE Complex Co. Ltd.,	100.0
Samsung Asia Private Ltd.	Samsung Electro-Mechanics(Thailand) Co., Ltd.	25.0
Samsung Asia Private Ltd.	iMarket Asia Co., Ltd.	11.4
Samsung India Electronics Private Ltd.	Samsung Nepal Services Pvt, Ltd	100.0
PT Samsung Electronics Indonesia	PT Samsung Telecommunications Indonesia	100.0
Thai Samsung Electronics Co., Ltd.	LAOS Samsung Electronics Sole Co., Ltd	100.0
Harman Singapore Pte Ltd	AMX Products And Solutions Private Limited	99.0
Harman International Industries Limited	AMX Products And Solutions Private Limited	1.0
Samsung Electronics Hong Kong Co., Ltd.	iMarket Asia Co., Ltd.	11.3
Suzhou Samsung Electronics Co., Ltd.	Samsung Suzhou Electronics Export Co., Ltd.	100.0
Samsung (CHINA) Investment Co., Ltd.	Suzhou Samsung Electronics Co., Ltd.	19.2
Samsung (CHINA) Investment Co., Ltd.	Samsung Mobile R&D Center China-Guangzhou	100.0
Samsung (CHINA) Investment Co., Ltd.	Samsung Tianjin Mobile Development Center	100.0
Samsung (CHINA) Investment Co., Ltd.	Samsung R&D Institute China-Shenzhen	100.0
Samsung (CHINA) Investment Co., Ltd.	Samsung Electronics Huizhou Co., Ltd.	10.3
Samsung (CHINA) Investment Co., Ltd.	Tianjin Samsung Electronics Co., Ltd.	43.1
Samsung (CHINA) Investment Co., Ltd.	Beijing Samsung Telecom R&D Center	100.0
Samsung (CHINA) Investment Co., Ltd.	Samsung Electronics Suzhou Computer Co., Ltd.	26.3
Samsung (CHINA) Investment Co., Ltd.	Samsung Electronics China R&D Center	100.0
Harman International (China) Holdings Co., Ltd.	Harman (Suzhou) Audio and Infotainment Systems Co., Ltd.	100.0
Harman International (China) Holdings Co., Ltd.	Harman Technology (Shenzhen) Co., Ltd.	100.0
Harman International (China) Holdings Co., Ltd.	Harman (China) Technologies Co., Ltd.	100.0
Harman Holding Limited	Harman Commercial (Shanghai) Co., Ltd.	100.0
Harman Holding Limited	Harman International (China) Holdings Co., Ltd.	100.0
Harman Holding Limited	Harman Automotive Electronic Systems (Suzhou) Co., Ltd.	100.0
Samsung Gulf Electronics Co., Ltd.	Samsung Electronics Egypt S.A.E	0.1
Samsung Electronics Maghreb Arab	Samsung Electronics Tunisia S.A.R.L	1.0
Harman Industries Holdings Mauritius Ltd.	Harman International (India) Private Limited	100.0
Global Symphony Technology Group Private Ltd.	Harman Connected Services Corp. India Pvt. Ltd.	98.4
iOnRoad Technologies Ltd	iOnRoad Ltd	100.0

Investor	Investee	Ownership
Red Bend Ltd.	Red Bend Software Japan Co., Ltd.	100.0
Red Bend Ltd.	Red Bend Software Ltd.	100.0
Red Bend Ltd.	iOnRoad Technologies Ltd	100.0
Red Bend Ltd.	Towersec Ltd.	100.0
Samsung Electronics Latinoamerica (Zona Libre)	Samsung Electronics Latinoamerica Miami, Inc.	100.0
Samsung Electronics Latinoamerica (Zona Libre)	Samsung Electronica Colombia S.A.	100.0
Samsung Electronics Latinoamerica (Zona Libre)	Samsung Electronics Panama. S.A.	100.0
Samsung Electronica da Amazonia Ltda.	Samsung Electronics Argentina S.A.	2.0
Harman do Brasil Industria Eletronica e Participacoes Ltda.	Harman da Amazonia Industria Eletronica e Participacoes Ltda.	100.0
Samsung Electronics Central Eurasia LLP	Samsung Electronics Caucasus Co. Ltd	0.0
Samsung SDI	Intellectual Keystone Technology LLC	41.0
Samsung SDI	Samsung SDI Japan Co., Ltd.	89.2
Samsung SDI	Samsung SDI America, Inc.	91.7
Samsung SDI	Samsung SDI Hungary Rt.	100.0
Samsung SDI	Samsung SDI Europe GmbH	100.0
Samsung SDI	Samsung SDI Battery Systems GmbH	100.0
Samsung SDI	Samsung SDI Vietnam Co., Ltd.	100.0
Samsung SDI	Samsung SDI Energy Malaysia Sdn, Bhd.	100.0
Samsung SDI	Samsung SDI India Private Limited	100.0
Samsung SDI	Samsung SDI(Hong Kong) Ltd.	97.6
Samsung SDI	Samsung SDI China Co., Ltd.	100.0
Samsung SDI	Samsung SDI-ARN (Xi'An) Power Battery Co., Ltd.	50.0
Samsung SDI	Samsung SDI (Changchun) Power Battery Co., Ltd.	50.0
Samsung SDI	Samsung SDI (Tianjin) Battery Co., Ltd.	80.0
Samsung SDI	Samsung SDI Brasil Ltda.	45.0
Samsung SDI	Novaled GmbH	50.1
Samsung SDI	SAMSUNG SDI WUXI CO.,LTD.	100.0
Samsung SDI	Samsung SDI(Wuxi) Battery Systems Co., Ltd.	50.0
Samsung SDI	iMarket Asia Co., Ltd.	8.7
Samsung SDI America, Inc.	Samsung SDI Brasil Ltda.	40.4
Samsung SDI(Hong Kong) Ltd.	Tianjin Samsung SDI Co., Ltd.	80.0
Samsung SDI(Hong Kong) Ltd.	Samsung SDI Brasil Ltda.	14.6
Samsung Electro-Mechanics	Samsung Electro-Mechanics Japan Co., Ltd.	100.0
Samsung Electro-Mechanics	Samsung Electro-Mechanics America, Inc.	100.0
Samsung Electro-Mechanics	Samsung Electro-Mechanics GmbH	100.0
Samsung Electro-Mechanics	Samsung Electro-Mechanics(Thailand) Co., Ltd.	75.0
Samsung Electro-Mechanics	Samsung Electro-Mechanics Philippines, Corp.	100.0
Samsung Electro-Mechanics	Calamba Premier Realty Corporation	39.8
Samsung Electro-Mechanics	Samsung Electro-Mechanics Pte Ltd.	100.0
Samsung Electro-Mechanics	Samsung Electro-Mechanics Vietnam Co., Ltd.	100.0
Samsung Electro-Mechanics	Samsung Electro-Mechanics Software India Bangalore Private Limited	99.9
Samsung Electro-Mechanics	Dongguan Samsung Electro-Mechanics Co., Ltd.	100.0
Samsung Electro-Mechanics	Tianjin Samsung Electro-Mechanics Co., Ltd.	81.8
Samsung Electro-Mechanics	Samsung High-Tech Electro-Mechanics(Tianjin) Co., Ltd.	95.0
Samsung Electro-Mechanics	Samsung Electro-Mechanics (Shenzhen) Co., Ltd.	100.0
Samsung Electro-Mechanics	Kunshan Samsung Electro-Mechanics Co., Ltd.	100.0
Samsung Electro-Mechanics	iMarket Asia Co., Ltd.	8.7
Calamba Premier Realty Corporation	Batino Realty Corporation	100.0
Samsung Electro-Mechanics Pte Ltd.	Samsung Electro-Mechanics Software India Bangalore Private Limited	0.1
Samsung Fire & Marine Insurance	SAMSUNG FIRE & MARINE MANAGEMENT CORPORATION	100.0
Samsung Fire & Marine Insurance	SAMSUNG FIRE & MARINE INSURANCE COMPANY OF EUROPE	100.0
Samsung Fire & Marine Insurance	P.T.Asuransi Samsung Tugu	70.0
Samsung Fire & Marine Insurance	Samsung Vina Insurance Co., Ltd	75.0
Samsung Fire & Marine Insurance	SAMSUNG REINSURANCE PTE. LTD	100.0
Samsung Fire & Marine Insurance	Samsung Property & Casualty Insurance Company(China), Ltd	100.0
Samsung Fire & Marine Insurance	Samsung Fire & Marine Insurance Management Middle East	100.0
Samsung Fire & Marine Insurance	SAMSUNG FIRE & MARINE CONSULTORIA EM SEGUROS LTDA.	100.0
Samsung Heavy Industries Co.,Ltd.	Camellia Consulting Corporation	100.0
Samsung Heavy Industries Co.,Ltd.	Samsung Heavy Industries India Pvt.Ltd.	100.0
Samsung Heavy Industries Co.,Ltd.	SAMSUNG HEAVY INDUSTRIES (M) SDN.BHD	100.0
Samsung Heavy Industries Co.,Ltd.	Samsung Heavy Industries(Ningbo) Co., Ltd	100.0

Investor	Investee	Ownership
Samsung Heavy Industries Co.,Ltd.	Samsung Heavy Industries(Rongcheng) Co., Ltd	100.0
Samsung Heavy Industries Co.,Ltd.	Rongcheng Gaya Heavy Industries Co., Ltd	100.0
Samsung Heavy Industries Co.,Ltd.	SAMSUNG HEAVY INDUSTRIES NIGERIA LIMITED	100.0
Samsung Heavy Industries Co.,Ltd.	Samsung Heavy Industries Mozambique LDA	100.0
Samsung Heavy Industries Co.,Ltd.	SHI BRAZIL CONSTRUCTION	100.0
SAMSUNG HEAVY INDUSTRIES NIGERIA LIMITED	SHI - MCI FZE	70.0
Samsung Life Insurance	Porta Nuova Varesine Building 2 S.r.l.	51.0
Samsung Life Insurance	THAI SAMSUNG LIFE INSURANCE CO., LTD.	48.9
Samsung Life Insurance	Beijing Samsung Real Estate Co., Ltd	90.0
Samsung Asset Management	Samsung Asset Management (New York), Inc.	100.0
Samsung Asset Management	Samsung Asset Management(London) Ltd.	100.0
Samsung Asset Management	Samsung Private Equity Manager I Co., Ltd	100.0
Samsung Asset Management	Samsung Asset Management (Hong Kong) Ltd.	100.0
Samsung Asset Management (Hong Kong) Ltd.	Samsung Asset Management (Beijing) Ltd.	100.0
CHEIL INDUSTRIES ITALY SRL	COLOMBO VIA DELLA SPIGA S.R.L	100.0
Samsung Fashion Trading Co.,Ltd	Eight Seconds(Shanghai)Co., Ltd.	100.0
Samsung C&T Corporation	MYODO METAL CO., LTD.	100.0
Samsung C&T Corporation	Samsung C&T Japan Corporation	100.0
Samsung C&T Corporation	Samsung C&T America Inc.	100.0
Samsung C&T Corporation	Samsung E&C America, INC.	100.0
Samsung C&T Corporation	Samsung Renewable Energy Inc.	100.0
Samsung C&T Corporation	QSSC, S.A. de C.V.	60.0
Samsung C&T Corporation	Samsung C&T Oil & Gas Parallel Corp.	100.0
Samsung C&T Corporation	Samsung C&T Canada Ltd.	100.0
Samsung C&T Corporation	Samsung C&T Deutschland GmbH	100.0
Samsung C&T Corporation	Samsung C&T U.K. Ltd.	100.0
Samsung C&T Corporation	Samsung C&T ECUK Limited	100.0
Samsung C&T Corporation	Whessoe engineering Limited	100.0
Samsung C&T Corporation	SCNT Investment Atlantic SPRL	100.0
Samsung C&T Corporation	POSS-SLPC, s.r.o	50.0
Samsung C&T Corporation	Solluce Romania 1 B.V.	80.0
Samsung C&T Corporation	SAM investment Manzanilo.B.V	53.3
Samsung C&T Corporation	Samsung C&T (KL) Sdn.,Bhd.	100.0
Samsung C&T Corporation	Samsung C&T Malaysia SDN. BHD	100.0
Samsung C&T Corporation	Erdsam Co., Ltd.	100.0
Samsung C&T Corporation	Samsung Chemtech Vina LLC	51.7
Samsung C&T Corporation	S-print Inc	40.0
Samsung C&T Corporation	Samsung C&T Thailand Co., Ltd	43.9
Samsung C&T Corporation	Cheil Holding Inc.	40.0
Samsung C&T Corporation	Samsung Const. Co. Phils.,Inc.	25.0
Samsung C&T Corporation	PT. INSAM BATUBARA ENERGY	90.0
Samsung C&T Corporation	Samsung C&T India Pte., Ltd.	100.0
Samsung C&T Corporation	Samsung C&T Corporation India Private Limited	100.0
Samsung C&T Corporation	Malaysia Samsung Steel Center Sdn.Bhd	70.0
Samsung C&T Corporation	Samsung C&T Singapore Pte., Ltd.	100.0
Samsung C&T Corporation	S&G Biofuel PTE.LTD	50.5
Samsung C&T Corporation	SAMSUNG C&T Mongolia LLC.	70.0
Samsung C&T Corporation	Samsung C&T Eng.&Const. Mongolia LLC.	100.0
Samsung C&T Corporation	S&WOO CONSTRUCTION PHILIPPINES,INC.	100.0
Samsung C&T Corporation	Samsung C&T Hongkong Ltd.	100.0
Samsung C&T Corporation	Samsung C&T Taiwan Co., Ltd.	100.0
Samsung C&T Corporation	Samsung Precision Stainless Steel(pinghu) Co.,Ltd.	55.0
Samsung C&T Corporation	SAMSUNG C&T (SHANGHAI) CO., LTD.	100.0
Samsung C&T Corporation	Samsung C&T (Xi'an) Co., Ltd.	100.0
Samsung C&T Corporation	SAMSUNG C&T CORPORATION SAUDI ARABIA	100.0
Samsung C&T Corporation	SAM Gulf Investment Limited	100.0
Samsung C&T Corporation	Samsung C&T Chile Copper SpA	100.0
Samsung C&T Corporation	SCNT Power Kelar Inversiones Limitada	100.0
Samsung C&T Corporation	Samsung C&T Corporation Rus LLC	100.0
Samsung C&T Corporation	JSC BALKHASH THERMAL POWER PLANT	50.0
Samsung C&T Corporation	Samsung SDI America, Inc.	8.3

Investor	Investee	Ownership
Samsung C&T Corporation	Samsung SDI(Hong Kong) Ltd.	2.4
Samsung C&T Corporation	Beijing Samsung Real Estate Co., Ltd	10.0
Samsung C&T Corporation	Cheil Industries Corp., USA	100.0
Samsung C&T Corporation	CHEIL INDUSTRIES ITALY SRL	100.0
Samsung C&T Corporation	Samsung Fashion Trading Co., Ltd	100.0
Samsung C&T Corporation	CHEIL INDUSTRIES INC. VIETNAM COMPANY LIMITED	100.0
Samsung C&T Corporation	Samsung C&T Corporation UEM Construction JV Sdn Bhd	60.0
Samsung C&T Corporation	iMarket Asia Co., Ltd.	19.3
Samsung Welstory	WELSTORY VIETNAM COMPANY LIMITED	90.0
Samsung Welstory	Shanghai Ever-Hongjun Business Mgt Service Co.,LTD	85.0
Samsung Welstory	Shanghai Welstory Food Company Limited	70.0
MULTICAMPUS	LANGUAGE TESTING INTERNATIONAL, INC	82.4
Eight Seconds(Shanghai)Co., Ltd.	Eight Seconds (Shanghai) Trading Co., Ltd.	100.0
PengTai Greater China Co., Ltd.	PengTai China Co., Ltd.	100.0
PengTai Greater China Co., Ltd.	PengTai Taiwan Co., Ltd.	100.0
PengTai Greater China Co., Ltd.	PengTai Interactive Advertising Co.,Ltd.	100.0
PengTai China Co., Ltd.	PengTai e-Commerce Co.,Ltd.	100.0
PengTai China Co., Ltd.	PengTai Marketing Service Co., Ltd.	100.0
PengTai Interactive Advertising Co.,Ltd.	MEDIALYTICS Inc.	51.0
PengTai Interactive Advertising Co.,Ltd.	Beijing Pengtai Baozun E-commerce Co., Ltd.	51.0
iMarket Asia Co., Ltd.	iMarket China Co., Ltd.	80.0
Samsung Securities	Samsung Securities (America), Inc.	100.0
Samsung Securities	Samsung Securities (Europe) Limited.	100.0
Samsung Securities	Samsung Securities (Asia) Limited.	100.0
Samsung SDS	iMarket Asia Co., Ltd.	40.6
Samsung SDS	Samsung SDS Global SCL America, Inc.	100.0
Samsung SDS	SAMSUNG SDS GSCL CANADA., LTD.	100.0
Samsung SDS	Samsung SDS America, Inc.	100.0
Samsung SDS	Neo EXpress Transportation (NEXT), Inc.	51.0
Samsung SDS	Samsung SDS Europe Ltd.	100.0
Samsung SDS	Samsung SDS Global SCL Hungary Kft.	100.0
Samsung SDS	Samsung SDS Global SCL Slovakia, s.r.o.	100.0
Samsung SDS	Samsung SDS Global SCL Poland Sp. Z o.o.	100.0
Samsung SDS	Samsung GSCL Sweden AB	100.0
Samsung SDS	Samsung SDS Global SCL France SAS	100.0
Samsung SDS	Samsung SDS Global SCL Greece Societe Anonyme	100.0
Samsung SDS	Samsung SDS Global SCL Baltics, SIA	100.0
Samsung SDS	Samsung SDS Global SCL Italy S.R.L. A Socio Unico	100.0
Samsung SDS	Samsung SDS Global Supply Chain Logistics Spain S.L.U	100.0
Samsung SDS	Samsung SDS Global SCL Netherlands Cooperatief U.A	100.0
Samsung SDS	Samsung SDS Global SCL Germany GmbH	100.0
Samsung SDS	Samsung GSCL Portugal, Sociedade Unipessoal Lda	100.0
Samsung SDS	Samsung SDS Global SCL Austria GmbH	100.0
Samsung SDS	Samsung SDS Global SCL Czech s.r.o.	100.0
Samsung SDS	Samsung SDS GSCL Romania SRL	100.0
Samsung SDS	Samsung SDS Asia Pacific Pte. Ltd.	100.0
Samsung SDS	Samsung Data Systems India Private Limited	100.0
Samsung SDS	Samsung SDS India Private Limited	100.0
Samsung SDS	VASCO SUPPLY CHAIN SOLUTIONS PRIVATE LIMITED	51.0
Samsung SDS	Samsung SDS GSCL Vietnam Co Ltd	100.0
Samsung SDS	PT. Samsung SDS Global SCL Indonesia	100.0
Samsung SDS	Samsung SDS Global SCL Philippines Co., Ltd.	100.0
Samsung SDS	Samsung SDS Global SCL Thailand Co.,Ltd	100.0
Samsung SDS	Samsung SDS Global SCL Malaysia SDN.BHD.	100.0
Samsung SDS	SAMSUNG SDS GLOBAL SCL AUSTRALIA PTY., LTD.	100.0
Samsung SDS	SDS-ACUTECH CO., LTD	50.0
Samsung SDS	ALS SDS Joint Stock Company	51.0
Samsung SDS	SDS-MP LOGISTICS JOINT STOCK COMPANY	51.0
Samsung SDS	Samsung SDS China, Ltd.	100.0
Samsung SDS	Samsung IT Services (Beijing) Co., Ltd.	100.0
Samsung SDS	Samsung SDS Global SCL Hong Kong Ltd	100.0

Investor	Investee	Ownership
Samsung SDS	SDS Kerry (Shanghai) Supply Chain Solutions Limited	50.0
Samsung SDS	SAMSUNG SDS Global SCL Egypt Co. Ltd.	100.0
Samsung SDS	Samsung SDS Global SCL South Africa (PTY) Ltd.	100.0
Samsung SDS	Samsung SDS Global SCL Transport and Logistics Joint Stock Company	100.0
Samsung SDS	Samsung SDS Global Supply Chain Logistics Middle East DWC-LLC	100.0
Samsung SDS	Samsung SDS Latin America Solucoes Em Tecnologia Ltda	99.7
Samsung SDS	SAMSUNG SDS GLOBAL SCL LATIN AMERICA LOGISTICA LTD	99.7
Samsung SDS	Inte-SDS Logistics, S.A de C.V.	51.0
Samsung SDS	Samsung SDS Global SCL Rus Limited Liability Company	100.0
Miracom	MIRACOM INC ASIA PACIFIC LTD	100.0
Samsung SDS Global SCL America, Inc.	Samsung SDS Latin America Solucoes Em Tecnologia Ltda	0.3
Samsung SDS Global SCL America, Inc.	Samsung SDS Mexico, S.A. DE C.V.	99.0
Samsung SDS Global SCL America, Inc.	Samsung SDS Global SCL Panama S. A.	100.0
Samsung SDS Global SCL America, Inc.	Samsung SDS Global SCL Chile Limitada	100.0
Samsung SDS Global SCL America, Inc.	Samsung SDS Global SCL Peru S.A.C.	100.0
Samsung SDS Global SCL America, Inc.	Samsung SDS Global SCL Colombia S.A.S.	100.0
Samsung SDS Global SCL America, Inc.	SAMSUNG SDS GLOBAL SCL LATIN AMERICA LOGISTICA LTD	0.3
Samsung SDS Europe Ltd.	Samsung SDS Global SCL UK Ltd.	100.0
Samsung SDS Europe Ltd.	Samsung SDS Global SCL Netherlands Cooperatief U.A	0.0
Samsung SDS Global SCL Netherlands Cooperatief U.A	Samsung SDS Global SCL Poland Sp. Z.o.o.	0.0
Samsung SDS Global SCL Netherlands Cooperatief U.A	Samsung SDS Global SCL Greece Societe Anonyme	0.0
Samsung SDS Global SCL Netherlands Cooperatief U.A	Samsung SDS GSCL Romania SRL	0.0
Samsung SDS Global SCL Netherlands Cooperatief U.A	Samsung SDS Global SCL Rus Limited Liability Company	0.0
Samsung SDS China, Ltd.	Samsung SDS Global SCL Beijing Co., Ltd	100.0
Samsung IT Services (Beijing) Co., Ltd.	Samsung SDS Global Development Center Xi'an	100.0
MIRACOM INC ASIA PACIFIC LTD	MIRACOM INC CHINA LTD	100.0
Samsung Engineering	Samsung Engineering America Inc.	100.0
Samsung Engineering	Samsung Engineering Hungary Ltd.	100.0
Samsung Engineering	Samsung Engineering Italy S.R.L	100.0
Samsung Engineering	Samsung Engineering (Malaysia) SDN. BHD.	100.0
Samsung Engineering	PT Samsung Engineering Indonesia Co., Ltd.	100.0
Samsung Engineering	Samsung Engineering (Thailand) Co., Ltd.	81.0
Samsung Engineering	Samsung Engineering India Private Ltd.	100.0
Samsung Engineering	Samsung Engineering Vietnam Co., Ltd.	100.0
Samsung Engineering	Samsung Engineering Construction(Shanghai) Co., Lt	100.0
Samsung Engineering	Samsung Engineering Construction Xi' an Co., Ltd.	100.0
Samsung Engineering	Samsung Saudi Arabia Co., Ltd.	100.0
Samsung Engineering	Muharrag Wastewater Services Company W.L.L.	64.8
Samsung Engineering	Muharrag STP Company B.S.C.	4.6
Samsung Engineering	Muharrag Holding Company 1 Ltd.	45.0
Samsung Engineering	Samsung Ingenieria Mexico Construccion Y Operacion S.A. De C.V.	99.9
Samsung Engineering	Samsung Engineering Trinidad Co., Ltd.	100.0
Samsung Engineering	Samsung Ingenieria Manzanillo, S.A. De C.V.	99.9
Samsung Engineering	Grupo Samsung Ingenieria Mexico, S.A. De C.V.	100.0
Samsung Engineering	Samsung Ingenieria Energia S.A. De C.V.	100.0
Samsung Engineering	Samsung Engineering Bolivia S.A	100.0
Samsung Engineering	Samsung Ingenieria DUBA S.A. de C.V.	100.0
Samsung Engineering	Samsung Engineering Kazakhstan LLP	100.0
Samsung Engineering America Inc.	SEA Construction, LLC	100.0
Samsung Engineering America Inc.	SEA Louisiana Construction, L.L.C.	100.0
Samsung Engineering (Malaysia) SDN. BHD.	Muharrag Wastewater Services Company W.L.L.	0.3
Samsung Engineering India Private Ltd.	Samsung Saudi Arabia Co., Ltd.	0.0
Samsung Saudi Arabia Co., Ltd.	Samsung EPC Co., Ltd	75.0
Muharrag Holding Company 1 Ltd.	Muharrag Holding Company 2 Ltd.	100.0
Muharrag Holding Company 2 Ltd.	Muharrag STP Company B.S.C.	89.9
S1 Corporation	S-1 CORPORATION HUNGARY LLC	100.0
S1 Corporation	SOCM LLC	100.0
S1 Corporation	S-1 CORPORATION VIETNAM CO., LTD	100.0
S1 Corporation	Samsung Beijing Security Systems	100.0
Cheil Worldwide	Cheil USA Inc.	100.0
Cheil Worldwide	Cheil Central America Inc.	100.0

Investor	Investee	Ownership
Cheil Worldwide	IRIS Worldwide Holdings Limited	100.0
Cheil Worldwide	Cheil Europe Ltd.	100.0
Cheil Worldwide	Cheil Germany GmbH	100.0
Cheil Worldwide	Cheil France SAS	100.0
Cheil Worldwide	Cheil Nordic AB	100.0
Cheil Worldwide	Cheil India Pvt. Ltd.	100.0
Cheil Worldwide	Cheil (Thailand) Ltd.	100.0
Cheil Worldwide	Cheil Singapore Pte. Ltd.	100.0
Cheil Worldwide	Cheil Vietnam Co. Ltd.	99.0
Cheil Worldwide	Cheil Integrated Marketing Philippines, Inc.	100.0
Cheil Worldwide	Cheil Malaysia SDN BHD	100.0
Cheil Worldwide	Cheil China	100.0
Cheil Worldwide	Cheil Hong Kong Ltd.	100.0
Cheil Worldwide	Bravo Asia Limited	100.0
Cheil Worldwide	Bravo Asia-Shanghai	100.0
Cheil Worldwide	Cheil MEA FZ-LLC	100.0
Cheil Worldwide	Cheil South Africa Pty., Ltd.	100.0
Cheil Worldwide	CHEIL KENYA LIMITED	99.0
Cheil Worldwide	Cheil Communications Nigeria Ltd.	99.0
Cheil Worldwide	Cheil Jordan LLC	100.0
Cheil Worldwide	Cheil Ghana Limited	100.0
Cheil Worldwide	Cheil Brazil Communications Ltda.	100.0
Cheil Worldwide	Cheil Mexico Inc. SA de CV	98.0
Cheil Worldwide	Cheil Chile SpA.	100.0
Cheil Worldwide	Cheil Peru SAC	100.0
Cheil Worldwide	Cheil Argentina S.A.	98.0
Cheil Worldwide	Cheil Rus LLC	100.0
Cheil Worldwide	Cheil Ukraine LLC	100.0
Cheil Worldwide	Cheil Kazakhstan LLC	100.0
Hotel Shilla	Samsung Hospitality America Inc.	100.0
Hotel Shilla	Shilla Travel Retail Pte. Ltd.	100.0
Hotel Shilla	Samsung Shilla Business Service Beijing Co., Ltd.	100.0
Hotel Shilla	Shilla Travel Retail Hong Kong Limited	100.0
Hotel Shilla	Shilla Travel Retail Taiwan Limited	64.0
HDC Shilla Duty Free LTD	HDC SHILLA (SHANGHAI) CO., LTD	100.0
SBTM	Samsung Hospitality U.K. Inc.	100.0
SBTM	Samsung Hospitality Europe GmbH	100.0
SBTM	SAMSUNG HOSPITALITY ROMANIA SRL	100.0
SBTM	Samsung Hospitality Vietnam Co., Ltd.	99.0
SBTM	Samsung Hospitality Philippines Inc.	100.0
SBTM	Samsung Hospitality India Private Limited	100.0
Iris Americas, Inc.	Iris USA, Inc.	100.0
Iris Americas, Inc.	Iris Atlanta, Inc.	100.0
Iris Americas, Inc.	Iris Experience, Inc.	100.0
Iris Americas, Inc.	Iris Latin America, Inc.	100.0
Iris Americas, Inc.	Iris Worldwide San Diego, Inc.	100.0
Iris Americas, Inc.	89 Degrees, Inc.	75.0
Iris Latin America, Inc.	Irisnation Latina No.2, S. de R.L. de C.V.	0.0
Iris Latin America, Inc.	Irisnation Latina, S. de R.L. de C.V.	0.0
Iris Canada Holdings Ltd	Pricing Solutions Ltd	100.0
Cheil USA Inc.	The Barbarian Group LLC	100.0
Cheil USA Inc.	McKinney Ventures LLC	100.0
Cheil USA Inc.	Cheil India Pvt. Ltd.	0.0
Cheil USA Inc.	Cheil Mexico Inc. SA de CV	2.0
IRIS Worldwide Holdings Limited	Iris Nation Worldwide Limited	100.0
IRIS Worldwide Holdings Limited	Josh & James Limited	100.0
Iris Nation Worldwide Limited	Iris Americas, Inc.	100.0
Iris Nation Worldwide Limited	Irisnation Latina No.2, S. de R.L. de C.V.	100.0
Iris Nation Worldwide Limited	Irisnation Latina, S. de R.L. de C.V.	100.0
Iris Nation Worldwide Limited	Iris Canada Holdings Ltd	100.0
Iris Nation Worldwide Limited	Iris London Limited	100.0

Investor	Investee	Ownership
Iris Nation Worldwide Limited	Iris Promotional Marketing Ltd	100.0
Iris Nation Worldwide Limited	Iris Ventures 1 Limited	100.0
Iris Nation Worldwide Limited	Founded Partners Limited	100.0
Iris Nation Worldwide Limited	Iris Products (Worldwide) Limited	100.0
Iris Nation Worldwide Limited	Iris Korea Limited	100.0
Iris Nation Worldwide Limited	Iris PR Limited	100.0
Iris Nation Worldwide Limited	Iris Concise Limited	100.0
Iris Nation Worldwide Limited	Iris Digital Limited	100.0
Iris Nation Worldwide Limited	Iris Amsterdam B.V.	100.0
Iris Nation Worldwide Limited	Datalytics Limited	100.0
Iris Nation Worldwide Limited	Iris Ventures (Worldwide) Limited	100.0
Iris Nation Worldwide Limited	Iris Culture Limited	100.0
Iris Nation Worldwide Limited	Concise Consultants Limited	100.0
Iris Nation Worldwide Limited	Atom42 Limited	100.0
Iris Nation Worldwide Limited	WDMP Limited	49.0
Iris Nation Worldwide Limited	Pricing Solutions (UK) Limited	100.0
Iris Nation Worldwide Limited	Iris Services Limited Doel Skopje	100.0
Iris Nation Worldwide Limited	Irisnation Singapore Pte Limited	100.0
Iris Nation Worldwide Limited	Iris Worldwide Integrated Marketing Pvt Limited	100.0
Iris Nation Worldwide Limited	Iris Sydney PTY Ltd	100.0
Iris Nation Worldwide Limited	Iris Worldwide (Thailand) Limited	100.0
Iris Nation Worldwide Limited	Iris (Beijing) Advertising Company Limited	100.0
Iris Nation Worldwide Limited	Irisnation Hong Kong Limited	100.0
Iris London Limited	Iris Partners LLP	100.0
Iris Promotional Marketing Ltd	Holdings BR185 Limited	100.0
Iris Ventures 1 Limited	Iris Germany GmbH	100.0
Founded Partners Limited	Founded Partners, Inc.	100.0
Iris Ventures (Worldwide) Limited	THE ELEPHANT ROOM LIMITED	49.0
Iris Ventures (Worldwide) Limited	Fixers Group B.V.	49.0
Iris Germany GmbH	Pepper NA, Inc.	100.0
Iris Germany GmbH	Pepper Technologies Pte Limited	100.0
Cheil Europe Ltd.	BEATTIE MCGUINNESS BUNGAY LIMITED	100.0
Cheil Europe Ltd.	Cheil Italia S.r.l	100.0
Cheil Europe Ltd.	CHEIL SPAIN S.L	100.0
Cheil Europe Ltd.	CHEIL BENELUX B.V.	100.0
Cheil Germany GmbH	Cheil Austria GmbH	100.0
Cheil Germany GmbH	Centrade Integrated SRL	60.0
Centrade Integrated SRL	Centrade Cheil HU Kft.	100.0
Centrade Integrated SRL	Centrade Cheil Adriatic	100.0
Cheil India Pvt. Ltd.	Experience Commerce Software Pvt Ltd	100.0
Cheil Singapore Pte. Ltd.	PengTai Greater China Co., Ltd.	95.7
Cheil Singapore Pte. Ltd.	PT. CHEIL WORLDWIDE INDONESIA	100.0
Cheil Integrated Marketing Philippines, Inc.	Cheil Philippines Inc.	30.0
Cheil Hong Kong Ltd.	PengTai Greater China Co., Ltd.	3.1
Samsung Shilla Business Service Beijing Co., Ltd.	Tianjin Samsung International Travel Service Co., Ltd	100.0
Cheil MEA FZ-LLC	One Agency FZ LLC	100.0
Cheil MEA FZ-LLC	One RX Project Management Design and Production Limited Company	0.0
Cheil South Africa Pty., Ltd.	CHEIL KENYA LIMITED	1.0
Cheil South Africa Pty., Ltd.	Cheil Communications Nigeria Ltd.	1.0
One Agency FZ LLC	One RX India PVT. LTD	100.0
One Agency FZ LLC	One RX Project Management Design and Production Limited Company	100.0
One Agency FZ LLC	One RX Interior Design LLC	100.0
One Agency FZ LLC	One RX Printing LLC	100.0
One Agency FZ LLC	One Agency South Africa Pty., Ltd.	100.0
One RX Interior Design LLC	One RX India PVT. LTD	0.0
Holdings BR185 Limited	Brazil 185 Participacoes Ltda	100.0
Brazil 185 Participacoes Ltda	Iris Router Marketing Ltda	100.0
Cheil Brazil Communications Ltda.	Cheil Argentina S.A.	2.0
Samwoo Architects & Engineers	SAMOO DESIGNERS & ENGINEERS INDIA PRIVATE LIMITED	100.0

※ Percent of ownership as of June 30, 2019 based on common shares

C. Related statute & regulation

Restrictions on cross-holdings within Samsung Group in accordance with the Monopoly Regulation and Fair Trade Act

(1) Date of announcement by authorities of companies deemed Samsung Group companies for the current year:
May 15, 2019

(2) Summary of Regulation

- Restriction on cross-holdings
- Restriction on debt guarantee between affiliates
- Restriction on affiliate voting rights of financial & insurance companies
- Decision making of board committee and public disclosure of large-scale inter-affiliate transactions
- Public disclosure of important matters of unlisted companies
- Other public disclosures related to Group status

D. Concurrent position with other affiliates

[As of June 30, 2019]

Name	Concurrent position		
	Name of company	Position	Full/part time
Dong-soo Jun	Samsung Medison	CEO	Full time
Weon-jin Choi	Samsung Electronics Logitech	Auditor	Part time
	Samsung Electronics Sales	Auditor	Part time
	Samsung Electronics Service	Auditor	Part time
Tae-yang Yoon	SEMES	Non-Executive director	Part time
Sung-woo Shin	STECO	Auditor	Part time
Sung-won Son	Samsung Medison	Auditor	Part time
Dong-woo Lee	SEMES	Auditor	Part time
Won-joon Lee	SERI	Auditor	Part time
Khi-jae Cho	Samsung Display	Auditor	Part time
Byeong-seong Kim	Samsung Medison	Executive director	Full time
Seung-won Lee	STECO	Non-Executive director	Part time
Bang-young Song	Samsung Venture Investment	Auditor	Part time
Se-yeon Jang	SEMES	Non-Executive director	Part time

E. Equity investments in other corporations

(1) The total book value of equity investments in other corporations as of June 30, 2019 is KRW 57,917 billion (for the purpose of business operations, etc.)

[As of June 30, 2019]

(1,000 shares, KRW million, %)

Account	Name of Company	Acquisition Date	Objective	Acquisition Cost	Beginning Balance			Increase/Decrease			Ending Balance			Current Financial Stats	
					Qty	Owner ship (%)	Book Value	Acquisition/Disposal		Valuation	Qty	Owner ship (%)	Book Value	Total Asset	Net Income (Loss)
								Qty	Amount						
Listed	Samsung Electro-Mechanics	1977.01	Business	250	17,693	23.7	445,244				17,693	23.7	445,244	8,644,914	685,019
Unlisted	STECO	1995.06	Management	24,000	2,590	70.0	35,861				2,590	70.0	35,861	169,786	7,215
Unlisted	SEMES	1992.12	Management	1,000	2,173	91.5	71,906				2,173	91.5	71,906	1,080,229	104,122
Unlisted	SERI	1991.05	Business	320	3,576	29.8	24,942				3,576	29.8	24,942	136,967	194
Listed	Samsung SDS	1992.07	Business	6,160	17,472	22.6	560,827				17,472	22.6	560,827	8,013,849	638,792
Unlisted	Samsung Electronics Service	1998.01	Management	30,000	6,000	99.3	48,121				6,000	99.3	48,121	387,220	-25,696
Unlisted	Samsung Electronics Sales	2000.12	Management	3,100	1,767	100.0	247,523				1,767	100.0	247,523	652,337	2,368
Unlisted	Samsung Electronics Logitech	1999.04	Management	76	1,011	100.0	46,669				1,011	100.0	46,669	173,309	10,214
Unlisted	Samsung Display	2012.04	Management	16,009,547	221,969	84.8	18,509,307				221,969	84.8	18,509,307	47,162,963	1,263,050
Unlisted	SVIC #21	2011.11	Management	19,800	1	99.0	83,506	-0	-7,524		1	99.0	75,982	83,047	-160
Unlisted	SVIC #22	2011.11	Management	19,800	1	99.0	129,066	-0	-14,850		1	99.0	114,216	132,618	16,820
Unlisted	SVIC #26	2014.11	Management	19,800	2	99.0	167,181	-0	-2,970		2	99.0	164,211	200,834	13,397
Unlisted	SVIC #27	2014.09	Management	5,940	0	99.0	31,739	0	2,921		0	99.0	34,660	32,638	3,145

* Account noted here reflects approved for sales securities

Account	Name of Company	Acquisition Date	Objective	Acquisition Cost	Beginning Balance			Increase/Decrease			Ending Balance			Current Financial Stats	
					Qty	Ownership (%)	Book Value	Acquisition/Disposal		Valuation	Qty	Ownership (%)	Book Value	Total Asset	Net Income (Loss)
								Qty	Amount						
Unlisted	SVIC #28	2015.02	Management	7,425	2	99.0	169,831	-0	-11,839		2	99.0	157,992	226,667	34,254
Unlisted	SVIC #32	2016.08	Management	19,800	1	99.0	140,080	0	37,679		2	99.0	177,759	137,250	1,946
Unlisted	SVIC #33	2016.11	Management	4,950	1	99.0	133,497	0	339		1	99.0	133,836	140,123	9,663
Unlisted	SVIC #42	2018.11	Management	4,950	0	99.0	4,950				0	99.0	4,950	5,007	-105
Unlisted	SVIC #45	2019.05	Management	19,800	-	-	-	0	19,800		0	99.0	19,800	-	-
Unlisted	Samsung Medison	2011.02	Management	286,384	87,350	68.5	351,792				87,350	68.5	351,792	345,288	53,594
Listed	Samsung BioLogics	2011.04	Business	30,000	20,837	31.5	443,193				20,837	31.5	443,193	5,980,409	224,109
Unlisted	Intellectual Discovery	2011.05	Business	5,000	357	15.7	1,922				357	15.7	1,922	33,922	782
Listed	Samsung Heavy Industries	1977.09	Business	125	100,693	16.0	746,138			75,520	100,693	16.0	821,658	14,282,892	-388,189
Listed	Hotel Shilla	1979.12	Business	252	2,005	5.1	153,361			41,097	2,005	5.1	194,458	2,303,742	110,308
Listed	Cheil Worldwide	1988.09	Business	185	29,038	25.2	491,599				29,038	25.2	491,599	2,172,078	131,869
Listed	A-Tech Solution	2009.11	Business	26,348	1,592	15.9	12,418			3,582	1,592	15.9	16,000	176,521	652
Listed	iMarket Korea	2000.12	Business	1,900	647	1.8	4,479			3,127	647	1.8	7,606	1,078,276	20,722
Listed	KT Skylife	2001.12	Business	3,344	240	0.5	2,760			-228	240	0.5	2,532	816,001	52,010
Listed	Samsung SDI	1977.01	Business	304	13,463	19.6	1,242,605				13,463	19.6	1,242,605	19,349,721	745,049
Listed	Wonik IPS	2016.04	Business	16,214	1,851	4.5	37,204			7,126	1,851	3.8	44,330	512,346	86,860
Listed	Wonik Holdings	2013.12	Business	15,411	1,759	2.3	6,175			906	1,759	2.3	7,081	1,209,057	96,370

※ Account noted here reflects approved for sales securities

Account	Name of Company	Acquisition Date	Objective	Acquisition Cost	Beginning Balance			Increase/Decrease			Ending Balance			Current Financial Stats	
					Qty	Ownership (%)	Book Value	Acquisition/Disposal		Valuation	Qty	Ownership (%)	Book Value	Total Asset	Net Income (Loss)
								Qty	Amount						
Listed	Dongjin Semichem	2017.11	Business	48,277	2,468	4.8	18,040			6,762	2,468	4.8	24,802	760,452	47,958
Listed	Soulbrain	2017.11	Business	55,618	835	4.8	39,709			-250	835	4.8	39,459	1,006,120	102,957
Unlisted	Korea Business Banking	1995.01	Business	5,000	1,000	17.2	5,231			-595	1,000	17.2	4,636	86,384	1,229
Unlisted	The Korea Economic Daily	1987.05	Business	150	72	0.4	365				72	0.4	365	371,583	23,890
Unlisted	Samsung Venture Investment	1999.11	Business	4,900	980	16.3	7,313			407	980	16.3	7,720	120,484	9,820
Unlisted	Cyber Bank	2000.12	Business	8,000	1,083	7.5	0				1,083	7.5	0	0	0
Unlisted	FineChips	2001.12	Business	10	2	3.8	10				2	3.8	10	6,718	498
Unlisted	Inkel	2006.11	Business	130	0	0.0	0				0	0.0	0	83,438	5,567
Listed	Yongpyong Resort	2007.05	Business	1,869	400	0.8	2,436			696	400	0.8	3,132	812,776	10,186
Unlisted	Sambo Computer	2012.09	Withdrawal	0	0	0.0	0				0	0.0	0	45,040	3,322
Unlisted	Icube #1	2009.12	Business	4,000	0	16.2	1,614				0	16.2	1,614	1,994	163
Unlisted	Shinsung Eng & Construction	2010.07	Withdrawal	1	0	0.0	0				0	0.0	0	182,249	-9,517
Unlisted	Woobang	2010.07	Withdrawal	0	1	0.0	0				1	0.0	0	540,484	15,992
Unlisted	Daewoo Development	2012.12	Withdrawal	0	0	0.0	0				0	0.0	0	220,148	19,975
Unlisted	Daewoo Songdo Development	2012.12	Withdrawal	0	9	0.0	0				9	0.0	0	19,367	-350

※ Account noted here reflects approved for sales securities

Account	Name of Company	Acquisition Date	Objective	Acquisition Cost	Beginning Balance			Increase/Decrease			Ending Balance			Current Financial Stats	
					Qty	Ownership (%)	Book Value	Acquisition/Disposal		Valuation	Qty	Ownership (%)	Book Value	Total Asset	Net Income (Loss)
								Qty	Amount						
Unlisted	Zyle Motor Sales	2012.12	Withdrawal	0	1	0.0	0				1	0.0	0	267,881	19,562
Unlisted	Sungwon Construction	2014.04	Withdrawal	0	1	0.0	0				1	0.0	0	27,744	-627
Unlisted	Inhee	2014.04	Withdrawal	0	2	0.2	0	-2			0	0.1	0	9,147	-241
Unlisted	Poonglim	2014.05	Withdrawal	0	1	0.4	0				1	0.4	0	111,616	-452,889
Unlisted	Semiconductor Growth Fund	2017.03	Business	500	50,000,000	66.7	50,000				50,000,000	66.7	50,000	75,263	105
Unlisted	JNT	2011.02	Business	1,800	0	24.0	1,758				0	24.0	1,758	5,200	-112
Unlisted	SV	2011.02	Business	1,850	0	14.9	0				-	-	-	-	-
Unlisted	Seoul Investment Partners	2011.1	Business	1,550	0	19.4	1,925	-0	-271		0	19.4	1,654	4,642	-2,985
Unlisted	Daishin Aju IB	2011.08	Business	258	0	3.0	681				0	3.0	681	13,933	-4,452
Unlisted	TS	2011.11	Business	1,700	0	20.5	306	-0	-306		0	20.5	0	5,093	-872
Unlisted	L&S	2012.07	Business	848	0	7.5	1,681	-0	-194		0	7.5	1,487	16,063	-6,418
Unlisted	Maltani Corp.	2012.04	Business	16,544	45	15.0	12,358			-733	45	15.0	11,625	72,328	908
Unlisted	Pantech	2013.06	Business	53,000	53,000	10.0	0				53,000	10.0	0	59,122	-539
Unlisted	KTCNP-GC	2013.12	Business	960	0	3.6	2,996	-0	-72		0	3.6	2,924	270,854	171,486
Unlisted	POSCO Social Enterprise Fund	2013.12	Business	600	0	10.0	440				0	10.0	440	4,088	-160

※ Account noted here reflects approved for sales securities

Account	Name of Company	Acquisition Date	Objective	Acquisition Cost	Beginning Balance			Increase/Decrease			Ending Balance			Current Financial Stats	
					Qty	Ownership (%)	Book Value	Acquisition/Disposal		Valuation	Qty	Ownership (%)	Book Value	Total Asset	Net Income (Loss)
								Qty	Amount						
Unlisted	AI Research Institute	2016.07	Business	3,000	600	14.3	3,000				600	14.3	3,000	16,772	-1,201
Unlisted	SECA	1992.08	Position Security	3,823	0	100.0	90,922				0	100.0	90,922	1,070,163	62,851
Unlisted	SEA	1978.07	Position Security	59,362	492	100.0	17,053,807	0	112,750		492	100.0	17,166,557	30,681,097	870,814
Unlisted	SELA	1989.04	Position Security	319	40	100.0	86,962				40	100.0	86,962	430,737	37,194
Unlisted	SEM	1995.07	Position Security	3,032	3,837	63.6	165,638				3,837	63.6	165,638	1,358,641	57,036
Unlisted	SEASA	1996.06	Position Security	4,696	21,854	98.0	6,779				21,854	98.0	6,779	53,998	8,219
Unlisted	SEDA	1994.01	Position Security	13,224	77,205,709	87.0	647,620				77,205,709	87.0	647,620	6,207,458	778,124
Unlisted	SECH	2002.12	Position Security	597	0	4.1	597				0	4.1	597	478,751	19,700
Unlisted	SESA	1989.01	Position Security	3,276	8,021	100.0	142,091				8,021	100.0	142,091	993,982	33,064
Unlisted	SENA	1992.03	Position Security	392	1,000	100.0	69,372				1,000	100.0	69,372	967,089	34,563
Unlisted	SEH	1991.05	Position Security	1,954	753	100.0	650,157				753	100.0	650,157	1,894,922	90,956
Unlisted	SEP	1982.09	Position Security	204	1,751	100.0	37,616				1,751	100.0	37,616	207,183	5,469
Unlisted	SEF	1991.08	Position Security	230	2,700	100.0	234,115				2,700	100.0	234,115	1,761,117	59,956
Unlisted	SEUK	1995.07	Position Security	33,908	109,546	100.0	433,202				109,546	100.0	433,202	2,203,583	103,488
Unlisted	SEHG	1982.02	Position Security	28,042	0	100.0	354,846				0	100.0	354,846	793,465	104,065

※ Account noted here reflects approved for sales securities

Account	Name of Company	Acquisition Date	Objective	Acquisition Cost	Beginning Balance			Increase/Decrease			Ending Balance			Current Financial Stats	
					Qty	Ownership (%)	Book Value	Acquisition/Disposal		Valuation	Qty	Ownership (%)	Book Value	Total Asset	Net Income (Loss)
								Qty	Amount						
Unlisted	SEAG	2002.01	Position Security	40	0	100.0	32,162				0	100.0	32,162	342,392	20,631
Unlisted	SEI	1993.05	Position Security	862	677	100.0	143,181				677	100.0	143,181	1,148,534	50,470
Unlisted	SEBN	1995.07	Position Security	236	539,138	100.0	914,751				539,138	100.0	914,751	1,673,470	29,536
Unlisted	SELS	1991.05	Position Security	18,314	1,306	100.0	24,288				1,306	100.0	24,288	1,904,358	19,347
Unlisted	SEPOL	1996.04	Position Security	5,462	106	100.0	78,267				106	100.0	78,267	783,805	41,932
Unlisted	SSA	1998.12	Position Security	263	2,000	100.0	32,622				2,000	100.0	32,622	421,122	6,588
Unlisted	SESK	2002.06	Position Security	8,976	0	55.7	263,767				0	55.7	263,767	1,302,612	81,359
Unlisted	SEEH	2008.01	Position Security	4,214	0	100.0	1,369,992				0	100.0	1,369,992	8,586,022	9,439
Unlisted	SEO	1997.01	Position Security	120	0	100.0	-10,043				0	100.0	-10,043	114,563	-422
Unlisted	SERC	2006.01	Position Security	24,877	0	100.0	188,290				0	100.0	188,290	1,390,623	75,601
Unlisted	SERK	2007.07	Position Security	4,600	0	100.0	204,555				0	100.0	204,555	987,881	135,778
Unlisted	SEAU	1987.11	Position Security	392	53,200	100.0	111,964				53,200	100.0	111,964	433,723	26,820
Unlisted	SEMA	1989.09	Position Security	4,378	16,247	100.0	103,402				16,247	100.0	103,402	168,590	18,107
Unlisted	SGE	1995.05	Position Security	827	0	100.0	32,836				0	100.0	32,836	905,591	-13,797
Unlisted	SEEG	2012.07	Position Security	23	0	0.1	39				0	0.1	39	600,240	65,700

※ Account noted here reflects approved for sales securities

Account	Name of Company	Acquisition Date	Objective	Acquisition Cost	Beginning Balance			Increase/Decrease			Ending Balance			Current Financial Stats	
					Qty	Ownership (%)	Book Value	Acquisition/Disposal		Valuation	Qty	Ownership (%)	Book Value	Total Asset	Net Income (Loss)
								Qty	Amount						
Unlisted	SEIN	1991.08	Position Security	7,463	46	100.0	118,909				46	100.0	118,909	1,051,835	24,081
Unlisted	SDMA	1995.03	Position Security	21,876	71,400	75.0	18,741				71,400	75.0	18,741	24,489	-847
Unlisted	SIEL	1995.08	Position Security	5,414	216,787	100.0	75,263				216,787	100.0	75,263	6,410,825	309,632
Unlisted	SRI-B	2005.05	Position Security	7,358	17	100.0	31,787				17	100.0	31,787	256,224	31,249
Unlisted	SAVINA	1995.01	Position Security	5,839	0	100.0	28,365				0	100.0	28,365	251,818	29,898
Unlisted	TSE	1988.01	Position Security	1,390	11,020	91.8	279,163				11,020	91.8	279,163	2,465,999	171,407
Unlisted	STE	1996.01	Position Security	4,206	2	49.0	0				2	49.0	0	6,266	0
Unlisted	SME	2003.05	Position Security	4,796	17,100	100.0	7,644				17,100	100.0	7,644	474,905	17,875
Unlisted	SAPL	2006.07	Position Security	793	877,133	100.0	981,483				877,133	100.0	981,483	7,630,154	1,111,559
Unlisted	SEHK	1988.09	Position Security	349	274,250	100.0	79,033				274,250	100.0	79,033	1,208,622	26,390
Unlisted	SET	1994.11	Position Security	456	27,270	100.0	112,949				27,270	100.0	112,949	1,168,651	53,219
Unlisted	SESS	1994.12	Position Security	18,875	0	100.0	504,313				0	100.0	504,313	1,004,312	85,428
Unlisted	SCIC	1996.03	Position Security	23,253	0	100.0	640,452				0	100.0	640,452	16,090,629	127,448
Unlisted	SEHZ	1992.12	Position Security	792	0	89.6	255,535				0	89.6	255,535	6,539,392	532,767
Unlisted	SSEC	1995.04	Position Security	32,128	0	69.1	130,551				0	69.1	130,551	533,301	-4,872
Unlisted	TSEC	1993.04	Position Security	15,064	0	48.2	138,101				0	48.2	138,101	578,119	51,796

* Account noted here reflects approved for sales securities

Account	Name of Company	Acquisition Date	Objective	Acquisition Cost	Beginning Balance			Increase/Decrease			Ending Balance			Current Financial Stats	
					Qty	Ownership (%)	Book Value	Acquisition/Disposal		Valuation	Qty	Ownership (%)	Book Value	Total Asset	Net Income (Loss)
								Qty	Amount						
Unlisted	TSTC	2001.03	Position Security	10,813	0	90.0	490,041			-126,917	0	90.0	363,124	962,448	-207,087
Unlisted	SSET	2002.02	Position Security	6,009	0	100.0	41,182				0	100.0	41,182	41,371	-18,603
Unlisted	SESC	2002.09	Position Security	5,471	0	73.7	34,028				0	73.7	34,028	920,461	47,446
Unlisted	SSS	2001.01	Position Security	1,200	0	100.0	19,189				0	100.0	19,189	5,400,549	286,956
Unlisted	SSCR	2006.09	Position Security	3,405	0	100.0	9,332				0	100.0	9,332	30,543	2,323
Unlisted	TSLED	2012.04	Position Security	119,519	0	100.0	119,519				0	100.0	119,519	439,574	47,273
Unlisted	SCS	2012.09	Position Security	111,770	0	100.0	4,577,360	0	698,400		0	100.0	5,275,760	10,254,900	1,489,906
Unlisted	SSCX	2016.04	Position Security	1,141	0	100.0	1,141				0	100.0	1,141	491,590	32,077
Unlisted	SJC	1975.12	Position Security	273	1,560	100.0	253,108				1,560	100.0	253,108	1,196,129	-564
Unlisted	SRJ	1992.08	Position Security	3,120	122	100.0	117,257				122	100.0	117,257	151,975	3,694
Unlisted	TSST Japan	2004.03	Business	1,639	30	49.0	0				30	49.0	0	274	-50
Unlisted	Semiconductor Portal	2002.12	Business	38	0	1.2	10				0	1.2	10	1,922	56
Unlisted	Nanosys	2010.08	Business	4,774	1,747	1.4	2,387				1,747	1.4	2,387	24,643	-10,429
Unlisted	ONE BLUE LLC	2011.07	Business	1,766	0	16.7	1,766				0	16.7	1,766	30,238	650
Unlisted	TidalScale	2013.08	Business	1,112	2,882	8.3	1,112				2,882	8.3	1,112	15,227	-6,940
Unlisted	Sentiance	2012.12	Business	3,422	7	7.5	3,422				7	7.5	3,422	5,688	-994

※ Account noted here reflects approved for sales securities

Account	Name of Company	Acquisition Date	Objective	Acquisition Cost	Beginning Balance			Increase/Decrease			Ending Balance			Current Financial Stats	
					Qty	Ownership (%)	Book Value	Acquisition/Disposal		Valuation	Qty	Ownership (%)	Book Value	Total Asset	Net Income (Loss)
								Qty	Amount						
Unlisted	Mantis Vision	2014.01	Business	1,594	355	2.1	1,980				355	2.1	1,980	8,435	-10,327
Unlisted	Leman	2014.08	Business	1,019	17	3.4	1,019				17	3.4	1,019	2,369	-2,952
Unlisted	Alces	2014.09	Business	4,832	421	18.5	0	-421			-	-	-	-	-
Unlisted	Keyssa	2016.01	Business	3,332	1,235	2.1	3,332				1,235	2.1	3,332	20,757	-13,515
Unlisted	Zyomed	2016.01	Business	2,044	1,464	2.9	2,044				1,464	2.9	2,044	16,521	-304
Unlisted	SensiFree	2016.01	Business	2,111	490	17.9	2,111				490	17.9	2,111	657	-2,407
Unlisted	Unispectral	2016.02	Business	1,112	2,308	7.9	2,130				2,308	7.9	2,130	7,550	-4,727
Unlisted	Quobyte	2016.04	Business	2,865	729	11.8	2,865				729	11.8	2,865	1,812	-2,264
Unlisted	Afero	2016.05	Business	5,685	723	5.5	5,685				723	5.5	5,685	2,974	-13,954
Unlisted	Graphcore	2016.06	Business	3,494	3,000	4.5	3,494				3,000	4.5	3,494	267,931	-57,847
Unlisted	Soundhound	2016.12	Business	7,059	306	1.1	7,059				306	1.1	7,059	119,637	-38,507
Unlisted	Aimotive	2017.12	Business	3,302	2	3.2	3,302				2	3.2	3,302	35,273	-12,860
Unlisted	Fasetto	2019.01	Business	6,701	-	-	-	338	6,701		338	2.5	6,701	253,516	-8,338

※ Account noted here reflects approved for sales securities

※ Based on separate financial statements

※ Ownership percentage is calculated based on the number of common shares issued

※ Financial stats of Sungwon Construction is as of December 31 2016, financial stats of Daewoo Songdo Development and Mantis Vision are as of December 31 2017, due to difficulties of obtaining the most recent financial data.

※ Impairment loss of KRW 126,917 million was recognized for TSTC using net asset valuation method.

X. Related Party Transactions

1. Credit offerings for affiliates and subsidiaries

A. Details on debt guarantee (as of June 30, 2019)

- Domestic: N/A

- Overseas:

(USD thousand)

Company	Relationship	Creditor	Guarantee expiry date	Transactions				Limit of Guarantee
				Beginning of period	Increase	Decrease	End of period	
SEA	Subsidiary	BOA etc.	Jun 13, 2020	0	0	0	0	1,398,000
SEM	Subsidiary	BBVA etc.	Jun 13, 2020	0	0	0	0	546,000
SAMCOL	Subsidiary	Citibank etc.	Jun 13, 2020	85,662	0	9,364	76,298	168,000
SEDA	Subsidiary	BRADESCO etc.	Dec 17, 2019	0	0	0	0	654,000
SECH	Subsidiary	Santander etc.	Jun 13, 2020	0	0	0	0	178,000
SEPR	Subsidiary	BBVA etc.	Jun 13, 2020	58,710	0	267	58,443	180,000
SSA	Subsidiary	SCB etc.	Jun 13, 2020	0	0	0	0	323,000
SEMAG	Subsidiary	SocGen etc.	Dec 16, 2019	0	0	0	0	110,000
SETK	Subsidiary	BNP etc.	Jun 13, 2020	64,519	0	64,519	0	822,000
SECE	Subsidiary	Citibank etc.	Dec 16, 2019	0	0	0	0	75,775
SEEG	Subsidiary	HSBC	Jun 13, 2020	0	0	0	0	50,000
SEIN	Subsidiary	BNP etc.	Jun 13, 2020	0	0	0	0	186,000
SJC	Subsidiary	Mizuho Bank etc.	May 31, 2020	0	0	0	0	901,226
SEUC	Subsidiary	Credit Agricole etc.	Jun 13, 2020	0	0	0	0	150,000
SEDAM	Subsidiary	Citibank etc.	Jun 13, 2020	0	0	0	0	341,000
SELA	Subsidiary	Citibank	Dec 16, 2019	0	0	0	0	50,000
SEEH	Subsidiary	HSBC etc.	Jun 13, 2020	0	0	0	0	705,000
SERK	Subsidiary	SOCGEN etc.	Jun 13, 2020	0	0	0	0	245,000
SELV	Subsidiary	Citibank	Dec 16, 2019	0	0	0	0	10,000
SAPL	Subsidiary	BOA etc.	Jun 13, 2020	0	0	0	0	411,000
SEV	Subsidiary	SCB	Nov 08, 2019	0	0	0	0	15,000
SAVINA	Subsidiary	HSBC etc.	Jun 13, 2020	0	0	0	0	71,000
SET	Subsidiary	SCB	Nov 08, 2019	0	0	0	0	30,000
SCIC	Subsidiary	HSBC etc.	Jun 13, 2020	0	0	0	0	350,000
SME	Subsidiary	SCB	Nov 08, 2019	0	0	0	0	110,000
SAMEX	Subsidiary	Citibank	Dec 16, 2019	0	0	0	0	5,000
SEASA	Subsidiary	Citibank	Dec 16, 2019	0	0	0	0	1,000
SSAP	Subsidiary	SCB	Nov 08, 2019	0	0	0	0	30,000
SEHK	Subsidiary	HSBC	Jun 13, 2020	0	0	0	0	2,000
SEPM	Subsidiary	HSBC	Jun 13, 2019	7,712	0	7,712	0	0
Adgear	Subsidiary	BOA	Nov 08, 2019	0	0	0	0	2,000
Harman Finance International SCA	Subsidiary	JP Morgan etc.	May 27, 2022	400,101	0	2,202	397,899	397,899
Harman International Japan Co., Ltd.	Subsidiary	MUFG	Nov 08, 2019	0	0	0	0	25,000
Harman RUS CIS LLC	Subsidiary	SOCGEN	Nov 08, 2019	0	0	0	0	15,000
Harman International Industries, Inc.	Subsidiary	JP Morgan	Jun 13, 2020	0	0	0	0	100,000

Harman Holding Limited	Subsidiary	HSBC	Jun 13, 2020	0	0	0	0	30,000
Total				616,703	0	84,063	532,640	8,687,900

- ※ SEC requires Board approval for individual guarantees that equal or exceed 2.5% of total equity. When the guarantee amount is between 0.1% and/or less than 2.5%, the approval decision is delegated to the Management Committee.
- ※ SEC receives fees on the debt it guarantees depending on the maturity date of each debt guarantee, general loan interest rate, etc. In 2018, the Company claimed approximately USD 464,000 of fee and has received the full amount in 2019.

B. Purchase and sales of securities

N/A

2. Acquisitions and disposals of assets with affiliates and subsidiaries

In the first half of 2019, the Company acquired Samsung Electro-Mechanics' PLP business and sold assets to affiliates including SCS (Samsung China Semiconductor LLC.) to increase production capacity of such affiliates. Also, the Company acquired assets including facility equipment from affiliates to improve efficiency of domestic production.

(KRW mil)

Company	Relationship	Transaction type	Transaction date	Date based on	Asset	Amount	Gain or loss on disposal
Samsung Electro-Mechanics	Affiliates	Business acquisition	Jun 01, 2019	Date of purchase	Machinery, etc.	785,000	-
SCS	Affiliates	Asset sale/purchase	Jun 30, 2019	Date of sale/purchase	Machinery, etc.	93,124	28,837
Samsung SDI	Affiliates	Asset sale	Feb 08, 2019	Date of sale	Machinery, etc.	16,061	3,278
SESS	Affiliates	Asset sale/purchase	May 23, 2019	Date of sale/purchase	Machinery, etc.	8,177	-33
SAS	Affiliates	Asset sale	Feb 21, 2019	Date of sale	Machinery, etc.	4,299	-89
TSTC	Affiliates	Asset purchase	Mar 05, 2019	Date of purchase	Machinery, etc.	1,188	-
SEHZ	Affiliates	Asset purchase	Jun 18, 2019	Date of purchase	Machinery, etc.	746	-
SEV	Affiliates	Asset sale/purchase	Jun 18, 2019	Date of sale/purchase	Machinery, etc.	713	236
SEVT	Affiliates	Asset sale/purchase	May 30, 2019	Date of sale/purchase	Machinery, etc.	635	27
TSEC	Affiliates	Asset purchase	May 21, 2019	Date of purchase	Machinery, etc.	462	-
SEHC	Affiliates	Asset sale	May 08, 2019	Date of sale	Machinery, etc.	306	7
SESK	Affiliates	Asset sale	Jan 03, 2019	Date of sale	Machinery, etc.	210	7

※ Transaction date: most recent transaction

※ Transaction amount was properly calculated by an appropriate method based upon market value assessment. Transaction was made under normal conditions (eg., terms of cash payment within the 15th, 30th of the following month of transaction).

※ Acquisitions and disposals of assets listed above are not subject to a resolution of the Board with the exception of transactions with Samsung Electro-Mechanics and Samsung SDI.

3. Business Transactions with Affiliates and Subsidiaries

(KRW mil)

Company	Relationship	Type of transaction	Date	Details	Amount
SEVT	Subsidiary	Sales/Purchases	2019.01 - 2019.06	Purchases/sales of HHP, etc.	13,932,834
SEA	Subsidiary	Sales/Purchases	2019.01 - 2019.06	Purchases/sales of HHP and Home Appliance, etc.	12,561,065
SSS	Subsidiary	Sales/Purchases	2019.01 - 2019.06	Purchases/sales of semiconductors, etc.	8,852,813

During the first half of 2019, SEC conducted purchase and sales transactions with SEVT (Samsung Electronics Vietnam Thainguyen Co., Ltd.), etc.

4. Transactions with Stakeholders other than Affiliates and Subsidiaries

As of June 30, 2019, the Company's outstanding loan amount is KRW 124.939 billion related to support for supplier companies for product competitiveness and mutual development as well as home loan and educational expenses for employee welfare.

(KRW mil)

Company	Relationship	Loans				
		Account title	Transaction			End of period (June 30, 2019)
			Beginning of period (Jan 1, 2019)	Increase	Decrease	
SEST Co., Ltd., etc.	Partner company	Short-term loans	30,887	2,615	831	32,671
Bumjin I&D, etc.	Partner company and employee	Long-term loans	91,527	17,314	16,573	92,268
Total			122,414	19,929	17,404	124,939

※ The amount shown above reflects the discounted present value of debts before accounting for impaired debts (impairment losses).

XI. Other Information

1. Changes in public disclosure

- N/A

2. Results of shareholder meetings

[As of Jun 30, 2019]

Date	Agenda	Results
The 50th AGM (Mar 20, 2019)	1. Approval of Balance Sheet, Income Statement, and Statement of Appropriation of Retained Earnings (draft), etc. for 2018 2. Appointment of Directors/Committee Members 2.1: Independent Directors 2.1.1: Jae-Wan Bahk 2.1.2: Han-Jo Kim 2.1.3: Curie Ahn 2.2: Audit Committee 2.2.1: Jae-Wan Bahk 2.2.2: Han-Jo Kim 3. Approval of remuneration limit for Directors	Approved Approved Approved Approved Approved Approved Approved
The 49th AGM (Mar 23, 2018)	1. Approval of Balance Sheet, Income Statement, and Statement of Appropriation of Retained Earnings (draft), etc. for 2017 2. Appointment of Directors/Committee Members 2.1: Independent Directors 2.1.1: Jeong Kim 2.1.2: Sun-Uk Kim 2.1.3: Byong-Gook Park 2.2: Executive Directors 2.2.1: Sang-Hoon Lee 2.2.2: Ki-Nam Kim 2.2.3: Hyun-Suk Kim 2.2.4: Dong-Jin Koh 2.3: Audit Committee 2.3.1: Sun-Uk Kim 3. Approval of remuneration limit for Directors 4. Approval of a stock split and amendments to relevant Articles of Incorporation	Approved Approved Approved Approved Approved Approved Approved Approved Approved Approved Approved
The 48th AGM (Mar 24, 2017)	1. Approval of Balance Sheet, Income Statement, and Statement Of Appropriation Of Retained Earnings (draft), etc. for 2016 2. Approval of remuneration limit for Directors	Approved Approved

3. Litigation

- (1) The Company is involved in claims, disputes, and investigations conducted by regulatory bodies at the reporting date, including civil claims from some overseas buyers for price-fixing related to the sale of TFT-LCD. Although the outflow of resources and timing of these matters are uncertain, the Company believes the outcome will not have a material impact on the financial condition of the Company.
- (2) In addition, during the normal course of business with numerous companies, the Company has been involved in various claims, disputes, and investigations conducted by regulatory bodies. Although the outflow of resources and timing of these matters are uncertain, the Company believes the outcome will not have a material impact on the financial condition of the Company.

4. Guarantees

- Domestic: As of June 30, 2019, the Company provided a debt guarantee of KRW 252 million to its employees who took debt from financial institutions in order to finance employee housing rental. The Company's housing rental debt guarantee limit is KRW 252 million.

- Overseas:

(USD thousand)

Company	Relationship	Creditor	Guarantee expiry date	Transactions				Limit of guarantee
				Beginning of period	Increase	Decrease	End of period	
SEA	Subsidiary	BOA etc.	Jun 13, 2020	0	0	0	0	1,398,000
SEM	Subsidiary	BBVA etc.	Jun 13, 2020	0	0	0	0	546,000
SAMCOL	Subsidiary	Citibank etc.	Jun 13, 2020	85,662	0	9,364	76,298	168,000
SEDA	Subsidiary	BRADESCO etc.	Dec 17, 2019	0	0	0	0	654,000
SECH	Subsidiary	Santander etc.	Jun 13, 2020	0	0	0	0	178,000
SEPR	Subsidiary	BBVA etc.	Jun 13, 2020	58,710	0	267	58,443	180,000
SSA	Subsidiary	SCB etc.	Jun 13, 2020	0	0	0	0	323,000
SEMAG	Subsidiary	SocGen etc.	Dec 16, 2019	0	0	0	0	110,000
SETK	Subsidiary	BNP etc.	Jun 13, 2020	64,519	0	64,519	0	822,000
SECE	Subsidiary	Citibank etc.	Dec 16, 2019	0	0	0	0	75,775
SEEG	Subsidiary	HSBC	Jun 13, 2020	0	0	0	0	50,000
SEIN	Subsidiary	BNP etc.	Jun 13, 2020	0	0	0	0	186,000
SJC	Subsidiary	Mizuho Bank etc.	May 31, 2020	0	0	0	0	901,226
SEUC	Subsidiary	Credit Agricole etc.	Jun 13, 2020	0	0	0	0	150,000
SEDAM	Subsidiary	Citibank etc.	Jun 13, 2020	0	0	0	0	341,000
SELA	Subsidiary	Citibank	Dec 16, 2019	0	0	0	0	50,000
SEEH	Subsidiary	HSBC etc.	Jun 13, 2020	0	0	0	0	705,000
SERK	Subsidiary	SOCGEN etc.	Jun 13, 2020	0	0	0	0	245,000
SELV	Subsidiary	Citibank	Dec 16, 2019	0	0	0	0	10,000
SAPL	Subsidiary	BOA etc.	Jun 13, 2020	0	0	0	0	411,000
SEV	Subsidiary	SCB	Nov 08, 2019	0	0	0	0	15,000
SAVINA	Subsidiary	HSBC etc.	Jun 13, 2020	0	0	0	0	71,000

SET	Subsidiary	SCB	Nov 08, 2019	0	0	0	0	30,000
SCIC	Subsidiary	HSBC etc.	Jun 13, 2020	0	0	0	0	350,000
SME	Subsidiary	SCB	Nov 08, 2019	0	0	0	0	110,000
SAMEX	Subsidiary	Citibank	Dec 16, 2019	0	0	0	0	5,000
SEASA	Subsidiary	Citibank	Dec 16, 2019	0	0	0	0	1,000
SSAP	Subsidiary	SCB	Nov 08, 2019	0	0	0	0	30,000
SEHK	Subsidiary	HSBC	Jun 13, 2020	0	0	0	0	2,000
SEPM	Subsidiary	HSBC	Jun 13, 2019	7,712	0	7,712	0	0
Adgear	Subsidiary	BOA	Nov 08, 2019	0	0	0	0	2,000
Harman Finance International, SCA	Subsidiary	JP Morgan etc.	May 27, 2022	400,101	0	2,202	397,899	397,899
Harman International Japan Co., Ltd.	Subsidiary	MUFG	Nov 08, 2019	0	0	0	0	25,000
Harman RUS CIS LLC	Subsidiary	SOCGEN	Nov 08, 2019	0	0	0	0	15,000
Harman International Industries, Inc.	Subsidiary	JP Morgan	Jun 13, 2020	0	0	0	0	100,000
Harman Holding Limited	Subsidiary	HSBC	Jun 13, 2020	0	0	0	0	30,000
Total				616,703	0	84,063	532,640	8,687,900

※ SEC requires Board approval for individual guarantees exceeding 2.5% of total equity. When the guarantee amount is between 0.1% and/or less than 2.5%, the approval decision is delegated to the Management Committee.

※ SEC receives fees on the debt it guarantees depending on the maturity date of each debt guarantee, general loan interest rate, etc.

In 2018, the Company claimed approximately USD 464,000 in guarantee fee and, as of the reporting date, has received the full amount.

5. Sanctions and others

Pursuant to the results of a Process Safety Management (PSM) inspection on the Giheung and Hwasung sites by the Ministry of Employment and Labor conducted from December 5 through December 9, 2016, the Company was ordered to pay a fine of KRW 3.5 million for violating the obligation of implementing safety measures in accordance with the Article 49-2 (7) of Occupational Safety and Health Act (Submission of Process Safety Reports) on December 14, 2016 and has subsequently paid the fine.

Pursuant to the results of a Process Safety Management (PSM) inspection on the Pyeongtaek site by the Ministry of Employment and Labor conducted from June 20 through June 22, 2018, the Company was ordered to pay a fine of KRW 4.8 million for violating Article 49-2 (7) of Occupational Safety and Health Act (Submission of Process Safety Reports) on June 25, 2018 and has subsequently paid the fine.

Pursuant to the results of a the 2nd Process Safety Management (PSM) inspection on the Pyeongtaek site (P1-2) by the Ministry of Employment and Labor over September 10 through September 13, 2018, the Company was ordered to pay a fine of KRW 10 million for violating Article 48 (1) of Occupational Safety and Health Act (Submission of hazard prevention and risk control plan) on January 3, 2019 and has subsequently paid the fine.

In order to comply with relevant laws, the Company established a PSM innovation organization and a PSM management system which manages activities related to approval, design, 12 key tasks, expertise improvement, etc. We also foster on-site process safety experts and conduct voluntary process safety evaluation.

Special prosecutor investigating an influence-peddling scandal involving South Korea's president has indicted five of the Company's executives (Jae-Yong Lee, Vice Chairman, Gee-Sung Choi, former Vice Chairman, Choong-Ki Chang, former President, Sang-Jin Park, former President, and Seong-Soo Hwang, former Senior Vice President) on allegations of violating the Act on the Aggravated Punishment, etc. of Specific Economic Crimes (embezzlement) on February 28, 2017. The Seoul Central District Court found them partially guilty on the charges on August 25, 2017, and sentenced Vice Chairman Jae-Yong Lee to five years in jail, former Vice Chairman Gee-Sung Choi to four years in jail, former President Choong-Ki Chang to four years in jail. Former President Sang-Jin Park received a three-year jail term, suspended for five years, and former Senior Vice President Seong-Soo Hwang was sentenced to two and a half years, suspended for four years. On February 5, 2018, the Seoul High Court reversed the first trial judgment and Vice Chairman Jae-Yong Lee was suspended for four years and former Vice Chairman Gee-Sung Choi, former President Choong-Ki Chang, former President Sang-Jin Park, and former Senior Vice President Seong-Soo Hwang were suspended for two years each. The appeal against the decision has been filed. The Company will check on future developments of the court proceedings and relevant matters.

With regards to an optic cable auction by SK Broadband on May 2009 and November 2010, the Company was subject to a correction order and ordered to pay a fine of KRW 520 million for violating Restrictions on Improper Concerted Acts in accordance with Article 19 (Paragraph 1.3 and 1.8) of Monopoly Regulation and Fair Trade Act on February 6, 2018 and has subsequently paid the fine.

On October 4, 2018 the Company was subject to a correction order and ordered to pay a fine of KRW 488 million for violating the Prohibition, etc. against Unfair Labeling or Advertising in accordance with Article 3 (Paragraph 1.2) of Act on Fair Labeling and Advertising and Article 3 (Paragraph 2) of the Enforcement Decree Of The Act On Fair Labeling And Advertising and has subsequently paid the fine. The Company is currently in litigation to cancel the order.

To ensure compliance with relevant regulations, the Company has strengthened internal management standard and provides preventive education to employees to prevent unfair trade practices and advertising.

With regards to CO2 leak accident at the Gi-heung plant on September 4, 2018, pursuant to the results of a special investigation by the Ministry of Employment and Labor conducted from October 10 through November 9, 2018, the Company was ordered to pay a fine of KRW 515 million for violating Article 36-1 and 36-4 of Occupational Safety and Health Act on November 16, 2018 and has subsequently paid the fine.

The Company was also fined KRW 2 million by the Yong-in Fire Station for violating Article 20-7 of the Act On Fire Prevention And Installation, Maintenance, And Safety Control Of Fire-Fighting Systems on November 28, 2018 and a fine of KRW 2 million for violating Article 25-2 of the same act on December 12, 2018, and has subsequently paid the fines.

Pursuant to the results of a special investigation by the Yong-in Fire Station conducted from November 27 through December 6, 2018, the Company was ordered to pay a fine of KRW 5 million for violating Article 20-6 of the Occupational Safety and Health Act on January 18, 2019 and has subsequently paid the fine.

The Company was fined KRW 1 million on October 23, 2018, as two of our paramedics (years of service: 11, 5) violated Article 49 of the Emergency Medical Service Act and has subsequently paid the fine. The Company was also fined KRW 0.5 million on the same date as one of our paramedics (years of service: 6) violated Article 20-6 of the Act On Fire Prevention And Installation, Maintenance, And Safety Control Of Fire-Fighting Systems, and has subsequently paid the fine.

To prevent recurrence and strengthen compliance, the Company has built a legal safety assessment evaluation system and conducts regular assessment.

The Fair Trade Commission filed a complaint against Chairman Kun-hee Lee on November 21, 2018 for omitting Samoo Architects & Engineers and Seoyoung Engineering from Samsung affiliates when submitting required materials in 2014 under Article 14-4 of the Monopoly Regulation and Fair Trade Act. The prosecution filed a summary indictment and Chairman Kun-hee Lee was ordered to pay a fine of KRW 100 million by the Seoul Central District Court on April 18, 2019, and the fine was subsequently paid.

The Company (including Samsung Display) has joint responsibility for reimbursement of liabilities that Samsung Display accrued before the separation.

For information on the Company's commitments and contingencies, refer to Commitments and Contingencies notes in the Consolidated Financial Statements.

6. Return of short-swing profits

The Company has not received any notification of short-swing profits from the Securities & Futures Commission (the Governor of the Financial Supervisory Service) in the past three years and until the date of this report.

7. External Contributions

Contribution	Amount	Details	Others
Management plans for the Social Contribution Fund for 2018	KRW 12.21 billion	- The Social Contribution Fund consists of voluntary contributions of employees and matching funds raised by SEC. SEC plans to contribute KRW 12.21 billion in matching funds in 2018. - The contribution will be used for domestic and overseas volunteer programs as well as and local social contribution activities.	The Board approved this action at the meeting held on January 31, 2018.
Samsung Dream Scholarship Foundation	KRW 1.12 billion	- The contribution was made to support education of low-income high school students.	
Donation to Chung-nam Samsung Institute	KRW 2.742 billion	- The contribution was made to improve education of the region.	The Board approved this action at the meeting held on February 23, 2018.
Donation of Electronics to celebrate Samsung's 80th anniversary	Approximately KRW 7.5 billion	- Electronics were donated to about 1,500 social welfare centers to celebrate the 80th anniversary of Samsung.	The Board approved this action at the meeting held on March 23, 2018.
Samsung Welfare Foundation	KRW 19.5 billion	- The contribution was made to support education of low-income middle school students.	The Board approved this action at the meeting held on April 26,

Samsung Life Public Welfare Foundation	KRW 41.5 billion	- The contribution was made to support the Samsung Medical Center.	2018.
Ho-Am Foundation	KRW 4.0 billion	- The contribution was made to support the Foundation's activities such as the Ho-Am Award.	
Sungkyunkwan University	KRW 15.0 billion	- The contribution was made to support Samsung Scholarship.	
Smart Factory	KRW 60 billion	- The contribution was made to support small- and mid-sized enterprises strengthen manufacturing competitiveness, foster talent, and achieve sustainable growth.	The Board approved this action at the meeting held on July 31, 2018.
Samsung Software Academy For Youth	KRW 499.6 billion	- The contribution was made to provide quality software education and support job seekers foster capabilities expected by companies. (Date: Dec 2018–Jun 2024)	The Board approved this action at the meeting held on October 31, 2018.
2019 Annual Fundraising	KRW 25.2 billion	- The contribution was made to fulfill corporate social responsibilities and help the marginalized.	The Board approved this action at the meeting held on November 30, 2018.
Performance incentive to secondary suppliers of the DS division	Approximately KRW 4.32 billion	- The contribution was provided to 89 suppliers of the DS division to improve safety accident prevention, boost productivity, and enable co-growth with suppliers.	
Management plans for Social Contribution Fund for 2019	KRW 11.73 billion	- The Social Contribution Fund consists of voluntary contributions of employees and matching funds raised by SEC. SEC plans to contribute KRW 11.73 billion in matching funds for 2019. - The contribution will be used for domestic and overseas volunteer programs as well as and local social contribution activities.	The Board approved this action at the meeting held on January 31, 2019.
Samsung Dream Scholarship Foundation	KRW 1.12 billion	- The contribution was made to support education of low-income high school students.	
Sponsoring the WorldSkills Competition	EUR 1.5 million (approximately KRW 1.95 billion)	- The contribution was made to support the Organizing Committee of WorldSkills International in WordSkills Kazan 2019 as the top sponsor.	The Board approved this action at the meeting held on February 26, 2019.
Donation to Chung-nam Samsung Institute	KRW 2.991 billion	- The contribution was made to improve education of the region.	
Contribution to the Korea Occupational Safety & Health Agency	KRW 31.0 billion	- The fund is for building an electronics industry health and safety center and establishing health and safety infrastructure.	The Board approved this action at the meeting held on April 30, 2019.
Performance incentive to suppliers of the DS division	KRW 77.45 billion	- The contribution was provided to 296 primary and secondary suppliers of the DS division to prevent work accidents, improve productivity, and promote co-prosperity of the Company and its partner companies.	

※ External contributions are based on the resolution of Board

8. Subsequent events

N/A

9. Acquisition and divestments

The major divestment and transfer of business transactions in the past three business years on a parent basis (separate basis) are as follows. For information on the business combinations and divestitures of subsidiaries, please refer to the notes on the business combination and assets held for sale (assets of disposal group) of the consolidated financial statements.

[S-Printing Solution]

(1) Details on the Split

- Company Name: S-Printing Solution Corp.
- Location: 129 Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do
- Purpose of split: S-Printing Solution competitiveness improvement
- Date of approval: October 27, 2016 (temporary shareholders' meeting)
- Date of split: November 1, 2016

(2) Details on the selling

The Company on September 12, 2016 agreed to sell the Printing Solutions business including shares of S-Printing Solution Corp to HP Inc. (location: Palo Alto, USA; CEO: Dion Weisler) for USD 1.05 billion and completed the deal on November 1, 2017.

Details of the above statement can be found in the "Important Matters Report", published in DART (<http://dart.fss.or.kr/>).

[PLP Business]

(1) Details of acquisition

In accordance to the resolution of the Board of Directors on April 30, 2019, the Company acquired Samsung Electro-Mechanics Co., Ltd.(location: South Korea; CEO: Yun Tae Lee)'s PLP business at a price of KRW 785,000 million on June 1, 2019 to strengthen its semiconductor competitiveness through securing next-generation package technology.

Details of the above statement can be found in the "Business Acquisition from Related Parties", published in DART (<http://dart.fss.or.kr/>).

(KRW 100 mil)

	Account	Forecast		Actual			
		1st Year	2nd Year	1st Year		2nd Year	
				Actual	Difference	Actual	Difference
PLP Business	Sales	101	219	-	-	-	-
	Operating Income	-1,273	-2,155	-	-	-	-
	Net Income	-1,273	-2,155	-	-	-	-

※ The first year forecast is our prediction for 7 month period from June 1 to December 31, 2019, and difference between actual and forecast will be included in 2019 Annual Report.

Please refer to the Management Combination and Non-current Assets Held-for-Sale (Assets of disposal group) notes in the Consolidated Financial Statements for acquisition and divestments on the consolidation basis.

10. Green management

The Company is actively securing “Green Technology Certifications” to follow the Low Carbon Green Growth policy of the Korean government.

(Green Technology Certification)

The Company is acquiring Green Technology Certifications in accordance with Clause 2, Article 32 of the Framework Act on Low Carbon Green Growth. Green technology development is a part of our “Planet First” strategy, which strives to conduct business activities in a manner that respect people and nature. Since the certification system was introduced in 2010, the Company has secured 10 valid Green Technology Certifications as of June 30, 2019. In addition, the Company has acquired 46 ‘Green Technology’ product certificates for 339 models of commercialized products.

Certified Green Technologies as of June 30, 2019 are as follows:

Division	Name of green technology and green projects	No.
CE	Monitor standby power reduction technology, etc.	8
IM	Power reduction technology for wireless LAN based on user pattern, etc.	2
Total		10

※ The data reported above is with respect to Samsung Electronics Co., Ltd. only.

(Designation of Green Enterprise)

The Company strives to fulfill its responsibility as an eco-friendly enterprise by reducing pollutants, conserving resources and energy, establishing/utilizing a green management system, etc. Our business sites in Suwon, Giheung, and Hwasung have been designated as green enterprises in accordance with Article 16-2 of the Support for Environmental Technology and Environmental Industry Act.

※ Please refer to the 『11. Other Information (B. Environmental regulations) 』 in 『II. Businesses Overview』 for greenhouse gas emission and energy use.