

2018. 12. 3

Company Update



Seungwoo Yang, CFA Analyst sw45.yang@samsung.com 822 2020 7813

Junsung Choi

Research Associate junsung.choi@samsung.com 822 2020 7837

AT A GLANCE

SELL	HOLD	BUY
Target price	KRW140,00	(28.3%)
Current price	KRW109,100)
Market cap	KRW3.1t/USI	D2.8b
Shares (float)	28,037,240 (2	23.9%)
52-week high/low	KRW119,800	/KRW57,800
Avg daily trading value (60-day)	KRW16.0b/ USD14.3m	

ONE-YEAR PERFORMANCE

	1M	6M	12M
Studio Dragon (%)	21.9	6.2	73.7
Vs Kosdaq (%pts)	10.4	32.9	95.3

KEY CHANGES

(KRW)	New	Old	Diff
Recommend.	BUY	BUY	
Target price	140,000	140,000	0.0%
2018E EPS	1,423	1,423	0.0%
2019E EPS	2,409	2,409	0.0%

SAMSUNG vs THE STREET

No of estimates	17
Target price	137,588
Recommendation	4.0

BUY***: 5/BUY: 4/HOLD: 3/SELL: 2/SELL***: 1

Studio Dragon (253450)

Becoming a regional big shot

- We recently presented investment merits of Studio Dragon to US institutional investors and accompanied the firm on a non-deal roadshow (NDR) in Asia.
- US investors were interested in the firm based on their understanding of Netflix's growth and potential, while those in Asia approach it as a candidate for long/short strategies.
- We believe the stock retains sufficient upside given the growth potential of Chinese OTT service providers like iQiyi, although US investors retain doubts regarding this.

WHAT'S THE STORY?

[US marketing] *Investors agree that OTT platforms boast growth prospects:* In our marketing pitch to US investors, we detailed investment merits of the: 1) growth potential of Korea's media industry; 2) fierce domestic pay TV competition; and 3) high content quality enabled by steady investments. Participants were unfamiliar with Studio Dragon, but they showed interest in the company and agreed with our contention that the OTT services market enjoys high growth potential.

- Japan tops Korea in terms of population and economic size, but we believe the latter
 has the second-most suitable environment in Asia to produce strong media content. A
 nation's media market is swayed greatly by the size of its GDP and population.
- Pay TV penetration is high in Korea, but not in Japan, where terrestrial broadcasters
 are mainstream, while the former saw CATV operators spring up in the late 1990s
 before telcos launched IPTV services. Cutthroat competition between hundreds of
 channels has seen Korean content gain competitiveness.
- CJ ENM has invested steadily in drama content since starting in 2006—with the parent spinning off its production unit into Studio Dragon in 2016—and its dramas now on par or exceeding those of terrestrial broadcasters that had dominated for decades. The firm's high-quality dramas should gain access to overseas viewers via global OTT platforms.

[Asia NDR] Update on overseas operation: Investors in Asia have approached Studio Dragon from the perspective of pair trading, with its major business updates including: 1) a contract to produce Love Alarm as a Netflix Original Series; 2) the sale of Memories of the Alhambra to a Chinese OTT services firm; and 3) an MOU with a Chinese OTT platform to remake several Korean dramas. We believe the stock has sufficient upside, backed by Netflix increasing investments in Korean content and Chinabound exports to OTT firms.

SUMMARY FINANCIAL DATA

	2017	2018E	2019E	2020E
Revenue (KRWb)	287	394	562	736
Net profit (adj) (KRWb)	24	40	68	87
EPS (adj) (KRW)	1,050	1,423	2,409	3,109
EPS (adj) growth (% y-y)	84.5	35.6	69.2	29.1
EBITDA margin (%)	25.9	29.1	32.4	32.8
ROE (%)	9.5	10.3	15.3	16.8
P/E (adj) (x)	103.9	76.6	45.3	35.1
P/B (x)	8.3	7.5	6.4	5.4
EV/EBITDA (x)	38.7	24.8	15.2	11.0
Dividend yield (%)	0.0	0.0	0.0	0.0

Source: Company data, Samsung Securities estimates

US investors familiar with Netflix for over a decade

US marketing takeaways

One of the three points made during our marketing pitch in LA, Florida, Boston, and New York over Nov 5-9 was the growth potential of Korea's media industry by combining Netflix and high-quality Korean content. We expect Studio Dragon to turn into a mature dragon in Asia, or at least at home, within three years, which Netflix is well aware of. (Unlike Europeans, Asians view dragons in a positive light.) The stock's upside should be determined by Netflix's growth potential and investments in Korean content, so such upside cannot be calculated with current valuation multiples.

First, Japan tops Korea in terms of population and economic size, but we believe the latter has the second-most suitable environment in Asia to produce strong media content. Media and entertainment industries grow during the final stage of economic growth, so in Asia they can flourish in Japan, South Korea, Taiwan, Hong Kong, and Singapore. However, the world's traditional media market (excluding the US) has been inextricably linked to the TV advertising industry, which is influenced heavily by the size of population. As such, Hong Kong and Singapore are not good candidates given their diminutive populations. Taiwan has around 23m residents with a sufficiently developed media industry, but it suffered serious outflows of production staff bound for mainland China amid rapid expansion of the latter's market since the 2000s.

Chart 1. Per-capita nominal GDP in Asia (USD) 60,000 50,000 40,000 30,000 20.000 10,000 0 1980 1985 1990 1995 2000 2005 2010 2015

South Korea

Hong Kong

Japan

Thailand

Table 1. Nominal GDP and population

Country	Nominal GDP (USDb)	Population (millions)
China	12,015	1,415
Japan	4,872	127
India	2,611	1,354
South Korea	1,538	51
Indonesia	1,015	267
Turkey	849	82
Taiwan	579	24
Thailand	455	69
Hong Kong	342	7
Singapore	324	6

Source: IMF, UN

Source: IMF

China

Taiwan

Second, South Korea's pay TV penetration is high, unlike Japan, where terrestrial broadcasters are mainstream as every household is required to pay NHK JPY14,000 (KRW140,000) annually. The nation's pay TV penetration is therefore extremely low, with only commercial facilities (eq., hotels) paying for such services. Any market entrant is required to obtain a license (entry barrier), so competition is fierce among the country's six terrestrial broadcasters (including NHK). South Korea's CATV operators sprang up in the late 1990s followed by telcos launching IPTV services, with pay TV penetration theoretically exceeding 170%, so anyone can enter the market they have content to fill a channel. It should be reasonable to say that there is gap in content competitiveness between Japan's broadcasters and Korean pay TV channels that survived cutthroat competition among hundreds of channels over the past two decades.

Table 2. Japan's terrestrial channels

Channel	NHK	Fuji TV	Nippon TV	TV Asahi	TBS	TV Tokyo
	W W K		0テレ	🖊 tv asahi	TBS	TV TOKYO
Туре	Public	Private	Private	Private	Private	Private
Foundation	1953	1959	1953	1959	1955	1964
Operator	Japan Broadcasting Corporation	Sankei	Yomiuri	Asahi	Mainichi	Nikkei

Source: Company data, Samsung Securities

Table 3. Domestic pay TV penetration (Million) (%)Household penetration (RHS) 35 200 30 180 25 160 20 15 140 10 120 5 0 100 2013 2014 2015 2016 2017 2018E IPTV Satellite Cable

Source: Company data, KCTA

Table 4. Domestic broadcasting operators and channels

		0 1
Broadcasting		Note
Number of operators	352	
Terrestrial	51	
Cable TV	96	
Program provider	158	
Content provider	44	IPTV
DMB	3	
Number of channels	429	
Terrestrial	6	KBS (2), EBS (2), MBC, SBS
GPC*	4	JTBC, MBN, Channel A, TV Chosun
Regional	12	
Others	407	CJ ENM (20), T.cast (8), IHQ (5), etc.

Note: * General programming channel

Source: Korea Communications Commission, Ministry of Science and ICT

Controversy over obligatory payment of subscription fees to NHK

Article 64 of Japan's Broadcasting Law stipulates that a person or an institution who has installed equipment capable of receiving NHN broadcasts is mandated to reach a subscription contract (with NHK). This is the legal basis for the broadcaster to charge monthly fees. NHK sued an elderly man in Sep 2011 after he refused to enter into a contract and pay the monthly fee, arguing that the: 1) company neglected its legal duty to uphold political neutrality, which threatened democracy; and 2) fee collection system violated the freedom of contract guaranteed by Japan's Constitution. District courts ruled in favor of NHK and ordered the defendant to pay around JPY200,000 on the grounds that the fees are essential for public welfare.

Japan's Supreme Court ruled on Dec 6, 2017 that TV owners must sign up with the public broadcaster and pay the subscription fee, which was the first such ruling by the highest court of some 300 lawsuits filed by NHK against individuals refusing to pay the fee. The court said the obligatory payment is needed to satisfy the public's right to know and to ensure freedom of expression.

Third, Studio Dragon's high drama quality stems from the CJ Group's strategy. The group's major channel tvN competed fiercely with numerable CATV players since its 2006 launch, with its dramas now as (or even more) competitive than those of terrestrial broadcasters that had dominated for decades. This is the case at least for younger viewers (teens plus 20- and 30-something viewers), with its success owing to competitive dramas. In the run-up to OTT service market expansion, CJ ENM in 2016 spun off its drama production business into Studio Dragon to prevent conflicts of interest since the parent sells TV ads. The only other local player to invest as heavily in dramas is Jcontentree, but it only joined the competition in 2011.

Table 5. Weekly CATV VOD sales rankings

Rank	Oct (week 5)	Nov (week 2)	Nov (week 3)
1	100 Days My Prince (tvN)	Beauty Inside (JTBC)	Beauty Inside (JTBC)
2	Beauty Inside (JTBC)	100 Days My Prince (tvN)	My Only One (MBC)
3	Sunny Again Tomorrow (KBS1)	My Only One (MBC)	New Tales of Gisaeng (SBS)
4	The Guest (OCN)	Player (OCN)	Hide and Seek (MBC)
5	Mr. Sunshine (tvN)	Hide and Seek (MBC)	100 Days My Prince (tvN)
6	My Only One (MBC)	Mr. Sunshine (tvN)	Dae Jo Yeong (KBS1)
7	Player (OCN)	My Secret Terrius (MBC)	Player (OCN)
8	My Secret Terrius (MBC)	Room No. 9 (tvN)	Mr. Sunshine (tvN)
9	Hide and Seek (MBC)	I Am the Mother Too (SBS)	The Third Charm (JTBC)
10	Room No. 9 (tvN)	New Tales of Gisaeng (SBS)	Secret Garden (SBS)

Note: Shading denotes CJ ENM channels

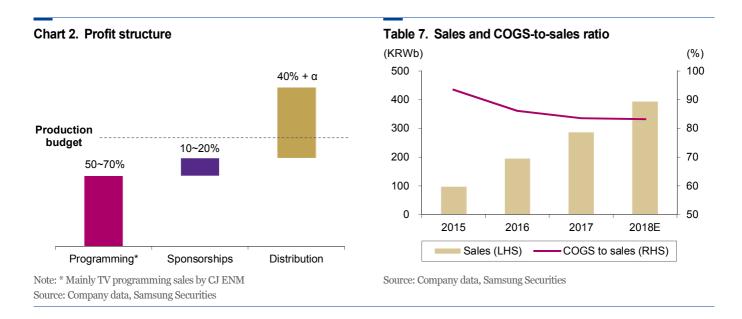
Source: Home Choice

Table 6. Studio Dragon: Major drama lineup

Title	The Legend of the Blue Sea	Guardian	Stranger	Mr. Sunshine	Memories of the Alhambra
	To have been been been been been been been be		利型等	미스터 전사인	요합보인 공전인수어
Premier	Nov 2016	Dec 2016	Jun 2017	Jul 2018	Dec 2018
Writer	Ji-eun Park	Eun-sook Kim	Su-yeon Kim	Eun-sook Kim	Jae-jung Song
Stars	Ju-hyun Jeon, Min-ho Lee	Gong-yoo, Go-eun Kim	Seung-woo Cho, Doo-na Bae	Byung-heon Lee, Tae-li Kim	Hyun-bin, Shin-hye Park
Production budget	KRW22b	KRW15b	KRW6b	KRW40b	KRW20b
Ratings	Average 17.6% Highest 21.0%	Average 12.8% Highest 18.7%	Average 4.6% Highest 6.6%	Average 13.0% Highest 18.1%	n/a

Source: Company data, AGB Nielson, Samsung Securities

The only risk factor for Studio Dragon is how smoothly it can switch its business model to an OTT platform. Broadcasting rights sales to CJ ENM accounts for 50-70% of the firm's drama production costs, so it could be affected if the emergence of a powerful domestic OTT service provider dampens the parent's TV ad sales. Investors should monitor how the company adapts to streaming services, which will likely see OTT platforms emerge victorious—such a player might buy part of CJ ENM's stake in the drama producer.



Investor feedback

US investors witness to the growth of Netflix and long used its services have no doubt that the OTT market boasts growth potential. Still, they were surprised that few firms have the same business model as Studio Dragon, which focuses on drama production and owns captive channels. Jountentree has a similar business model, but most of its earnings come from theater operations. Participants were also unfamiliar with Studio Dragon as this was its first US NDR since its Nov 2017 IPO. Of note, the firm's foreign ownership stands at just 2.6%.

[Asia NDR takeaways]

Due to a no-broker policy, we were not allowed to attend Studio Dragon's meetings with US investors, during which it detailed business progress, including: 1) a contract to produce Love Alarm as a Netflix Original Series; 2) the sale of Memories of the Alhambra to a Chinese OTT services firm; and 3) an MOU with a Chinese OTT platform to remake several Korean dramas

Producing Netflix Original Series to reaffirm Korean firm's potential

Studio Dragon inked a deal with Netflix to produce Love Alarm as Netflix Original Series, which should include eight episodes on production costs for each to be on par with a tent-pole drama. Shooting began recently with broadcasting to commence in 2H19 and could last several seasons. The firm might also a few more contracts from the US giant next year, while producing a Netflix Original Series ought to serve as a stepping stone for the Korean player to switch its TV-oriented business model to an OTT-based one. As such, the company ought to focus on enhancing drama quality. If Love Alarm makes a splash in Asia, Netflix should quickly increase Korean content investments. Margins from Netflix Originals tend to be 10-15% of production costs, but Studio Dragon might see additional earnings from selling such dramas in China (where Netflix lacks presence) in accordance with the provision of revenue sharing.

China already tops the US in terms of OTT service penetration...

CJ ENM during its 3Q conference call showed the copyright of Memories of the Alhambra was sold to a Chinese OTT service provider, although negotiations continue in terms of contract and price, but details should be known soon as the first episode was broadcast on Dec 1. The growth potential of China's OTT market remains unknown, but we examined its media market in our Oct 16 report, "Streaming services moving to center stage", which includes company visits (eg, iQiyi) and market analysis. We conclude that China's OTT service penetration rate already outpaces that of the US, and investors should note that iQiyi planned to spend KRW3t to secure content this year (vs KRW9t for Netflix), while its sales jumped 55% in 2017 (vs 32% for Netflix) on robust advertising sales and subscription fees growth.

...but along with cutthroat competition Studio Dragon recently signed an MOU with a Chinese OTT platform to remake Korean dramas, and while details remain sketchy, investors need to consider that: 1) China's top three OTT services are making significant pre-emptive investments; 2) production costs have soared so much that Beijing capped pay for actors; and 3) despite a ban on Korean cultural content, illegally procured K-dramas enjoy enormous popularity in China.

China caps pay for actors

The Communist Party's Central Publicity Department and four other government departments issued a directive on Jun 27 calling for an end to unreasonable pay and for better oversight of yin-yang contracts (real and fake agreements) used to evade taxes. Under the directive, compensation to performers must not exceed 40% of total production costs. In addition, leading actors cannot be paid over 70% of total cast remuneration. Officials said extravagant pay and tax evasion have fueled money worship and twisted social values, with a directive made for the movie industry to put social benefits ahead of income or reviews for a production.

The move came after a former TV host posted two pictures online in May and claimed that Fan Bingbing—who was China's best-paid performer last year taking in KRW50b—received CNY60m (KRW10.2b) for appearance fees, but used yin-yang contracts to evade taxes. The actress was fined CNY880m (KRW143.1b) in back taxes and fines.

Table 8. 4Q drama lineup

Title	The Smile Has Left Your Eyes	Room No. 9	Tale of Fairy	Encounter	Memories of the Alhambra
	The state of the s	Liols	THE PROOF OF THE P	AMERICAN AND AND AND AND AND AND AND AND AND A	会社は またり 本の
Premier	Oct 3	Oct 6	Nov 5	Nov 28	Dec 1
Writer	Hye-jin Song	Sung-hee Jung	Kyung-seon Yu	Young-a Yu	Jae-jung Song
Channel	tvN	tvN	tvN	tvN	tvN
Cast	In-guk Seo, So-min Jung, Sung-woong Park	Hee-seon Kim, Hae-suk Kim	Chae-won Moon, Hyun-min Yun	Bo-gum Park, Hye-kyo Song	Hyun-bin, Shin-hye Park

Source: Company data

Table 9. Results and forecasts

(KRWb)	2017	2018E	2019E	1Q17	2Q17	3Q17	4Q17	1Q18	2Q18	3Q18	4Q18E	1Q19E	2Q19E	3Q19E	4Q19E
Sales	287	394	562	75	62	77	72	80	74	124	116	132	144	137	149
Broadcasting	131	178	228	26	24	42	39	41	34	49	54	56	57	52	63
Copyright sales	112	175	283	36	26	23	26	32	29	63	50	64	74	72	73
Other	44	42	51	13	12	12	7	7	11	11	12	12	12	13	13
Cost of goods sold	240	328	454	59	50	67	64	66	64	99	99	105	117	106	125
Production	210	289	396	49	42	60	58	59	56	86	88	92	102	92	111
Commission	17	26	42	5	4	3	4	5	4	10	8	10	11	11	11
Other	13	12	15	4	3	4	2	2	3	3	4	4	4	4	4
Gross profit	47	66	108	17	12	11	7	14	11	25	17	27	27	30	23
SG&A	14	14	18	3	3	4	4	3	3	3	5	4	4	4	6
Operating profit	33	52	90	14	9	7	3	11	7	21	12	23	23	26	17
Pre-tax profit	30	56	92	13	9	6	2	10	11	22	13	24	24	26	18
Net profit	24	43	69	13	3	6	2	7	9	17	10	18	18	20	13
Adj. EPS (KRW)	1,050	1,423	2,409												
Margins (%)															
Operating margin	11.5	13.1	16.0	18.5	14.3	8.6	4.8	13.4	9.9	17.4	10.6	17.7	16.0	19.0	11.7
Pre-tax margin	10.6	14.2	16.4	17.6	14.5	8.2	2.3	12.3	14.9	17.8	11.1	18.1	16.4	19.4	12.1
Net margin	8.3	10.9	12.3	17.8	4.5	7.3	2.8	8.6	12.0	14.0	8.3	13.6	12.3	14.6	9.1

Source: Company data, Samsung Securities

Income statement

Year-end Dec 31(KRWb)	2016	2017	2018E	2019E	2020E
Sales	154	287	394	562	736
Cost of goods sold	133	240	328	454	604
Gross profit	22	47	66	108	133
Gross margin (%)	14.0	16.4	16.8	19.2	18.0
SG&A expenses	5	14	15	18	22
Operating profit	17	33	52	90	111
Operating margin (%)	10.8	11.5	13.1	16.0	15.1
Non-operating gains (losses)	(6)	(3)	0	0	7
Financial profit	1	1	4	5	7
Financial costs	2	3	0	(1)	(1)
Equity-method gains (losses)	0	0	0	0	0
Other	(5)	(0)	(4)	(5)	0
Pre-tax profit	10	30	52	90	118
Taxes	2	6	12	23	31
Effective tax rate (%)	22.4	21.2	23.4	25.0	26.3
Profit from continuing operations	8	24	40	68	87
Profit from discontinued operations	0	0	0	0	0
Net profit	8	24	40	68	87
Net margin (%)	5.3	8.3	10.1	12.0	11.8
Net profit (controlling interests)	8	24	40	68	87
Net profit (non-controlling interests)	0	0	0	0	0
EBITDA	39	74	115	182	242
EBITDA margin (%)	25.1	25.9	29.1	32.4	32.8
EPS (parent-based) (KRW)	569	1,050	1,423	2,409	3,109
EPS (consolidated) (KRW)	569	1,050	1,423	2,409	3,109
Adjusted EPS (KRW)*	569	1,050	1,423	2,409	3,109

Balance sheet

Year-end Dec 31(KRWb)	2016	2017	2018E	2019E	2020E
Current assets	81	290	309	396	503
Cash & equivalents	12	51	59	133	226
Accounts receivable	37	55	58	61	64
Inventories	0	1	1	1	1
Other current assets	33	182	191	201	211
Fixed assets	161	170	204	232	262
Investment assets	2	4	5	7	10
Tangible assets	1	1	1	1	1
Intangible assets	124	128	151	178	205
Other long-term assets	33	37	46	46	46
Total assets	242	459	513	628	765
Current liabilities	84	91	104	152	201
Accounts payable	6	6	8	12	16
Short-term debt	8	0	(7)	(7)	(7)
Other current liabilities	71	85	103	146	192
Long-term liabilities	21	0	0	1	1
Bonds & long-term debt	20	0	0	0	0
Other long-term liabilities	2	0	0	1	1
Total liabilities	106	91	105	152	201
Owners of parent equity	136	368	408	476	563
Capital stock	11	14	14	14	14
Capital surplus	115	320	320	320	320
Retained earnings	8	32	72	140	227
Other	2	3	3	3	3
Non-controlling interests' equity	0	0	0	0	0
Total equity	136	368	408	476	563
Net debt	16	(182)	(213)	(295)	(396)

Cash flow statement

Year-end Dec 31(KRWb)	2016	2017	2018E	2019E	2020E
Cash flow from operations	(12)	(7)	125	197	255
Net profit	8	24	40	68	87
Non-cash profit and expenses	27	46	72	110	155
Depreciation	0	0	0	0	0
Amortization	22	41	63	92	131
Other	5	5	8	17	24
Changes in A/L from operating activities	(46)	(73)	25	42	44
Cash flow from investments	(70)	(141)	(100)	(124)	(162)
Change in tangible assets	(1)	(0)	0	0	0
Change in financial assets	(2)	(142)	(8)	(10)	(10)
Other	(66)	1	(92)	(114)	(152)
Cash flow from financing	93	188	(17)	1	1
Change in debt	28	(18)	(16)	0	0
Change in equity	126	208	0	0	0
Dividends	0	0	0	0	0
Other	(60)	(2)	(0)	1	1
Change in cash	12	40	8	74	94
Cash at beginning of year	0	12	51	59	133
Cash at end of year	12	51	59	133	226
Gross cash flow	35	70	111	177	242
Free cash flow	(14)	(7)	38	78	96

Note: * Excluding one off items, ** Fully diluted, excluding one-off items
*** From companies subject to equity-method valuation

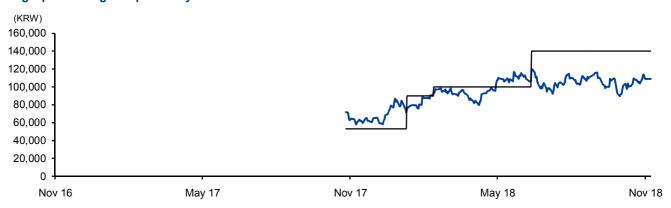
Source: Company data, Samsung Securities estimates

Financial ratios					
Year-end Dec 31	2016	2017	2018E	2019E	2020E
Growth (%)					
Sales	nm	85.7	37.3	42.6	31.1
Operating profit	nm	98.3	57.0	73.5	23.5
Net profit	nm	192.9	67.4	69.2	29.1
Adjusted EPS**	nm	84.5	35.6	69.2	29.1
Per-share data (KRW)					
EPS (parent-based)	569	1,050	1,423	2,409	3,109
EPS (consolidated)	569	1,050	1,423	2,409	3,109
Adjusted EPS**	569	1,050	1,423	2,409	3,109
BVPS	6,176	13,141	14,565	16,973	20,082
DPS (common)	0	0	0	0	0
Valuations (x)					
P/E***	191.7	103.9	76.6	45.3	35.1
P/B***	17.7	8.3	7.5	6.4	5.4
EV/EBITDA	79.2	38.7	24.8	15.2	11.0
Ratios (%)					
ROE	6.0	9.5	10.3	15.3	16.8
ROA	3.4	6.8	8.2	11.8	12.5
ROIC	8.5	15.6	21.4	37.2	49.6
Payout ratio	0.0	0.0	0.0	0.0	0.0
Dividend yield (common)	0.0	0.0	0.0	0.0	0.0
Net debt to equity	12.1	(49.4)	(52.3)	(61.9)	(70.3)
Interest coverage (x)	19.5	19.0	324.8	(151.3)	(186.9)

Compliance notice

- As of Nov 30, 2018, the covering analyst(s) did not own any shares, or debt instruments convertible into shares, of any company covered in this report.
- As of Nov 30, 2018, Samsung Securities' holdings of shares and debt instruments convertible into shares of each company covered in this report would not, if such debt instruments were converted, exceed 1% of each company's outstanding shares.
- This report has been prepared without any undue external influence or interference, and accurately reflects the views of the analyst(s) covering the company or companies herein.
- All material presented in this report, unless specifically indicated otherwise, is under copyright to Samsung Securities.
- Neither the material nor its content (including copies) may be altered in any form, or by any means transmitted, copied, or distributed to another party, without prior express written permission from Samsung Securities.
- This memorandum is based upon information available to the public. While we have taken all reasonable care to ensure its reliability, we do not guarantee its accuracy or completeness. This memorandum is not intended to be an offer, or a solicitation of any offer, to buy or sell the securities mentioned herein. Samsung Securities shall not be liable whatsoever for any loss, direct or consequential, arising from the use of this memorandum or its contents. Statements made regarding affiliates of Samsung Securities are also based upon publicly available information and do not necessarily represent the views of management at such affiliates.
- This material has not been distributed to institutional investors or other third parties prior to its publication.

Target price changes in past two years



Rating changes over past two years (adjusted share prices)

Date	2017/11/23	2018/2/8	3/13	7/12
Recommendation	BUY	BUY	BUY	BUY
Target price (KRW)	53,000	90,000	100,000	140,000
Gap* (average)	29.29	(7.62)	(1.06)	
(max or min)**	64.15	1.11	17.10	

Note: * [(average, maximum, or minimum share price over duration of target price minus target price) / target price] \times 100%

Samsung Securities uses the following investment ratings.

Company	Industry
---------	----------

Expected to increase in value by 10% or more within 12 months and is highly attractive within sector

Expected to increase/decrease in value by less than 10% within 12 months

HOLD SELL Expected to decrease in value by 10% or more within 12 months **OVERWEIGHT** Expected to outperform market by 5% or more within 12 months NEUTRAL Expected to outperform/underperform market by less than

5% within 12 months

UNDERWEIGHT Expected to underperform market by 5% or more within 12 months

Percentage of ratings in 12 months prior to Sep 30, 2018

BUY (85%) | HOLD (15%) | SELL (0%)

BUY

^{*} Maximum/minimum share price if new target is higher/lower than market close on the business day prior to target price change

Global Disclosures & Disclaimers

General

This research report is for information purposes only. It is not and should not be construed as an offer or solicitation of an offer to purchase or sell any securities or other financial instruments or to participate in any trading strategy. This report does not provide individually tailored investment advice. This report does not take into account individual client circumstances, objectives, or needs and is not intended as recommendations of particular securities, financial instruments or strategies to any particular client. The securities and other financial instruments discussed in this report may not be suitable for all investors. The recipient of this report must make its own independent decisions regarding any securities or financial instruments mentioned herein and investors should seek the advice of a financial adviser.

This report may not be altered, reproduced, distributed, transmitted or published in whole or in part for any purpose. References to "Samsung Securities" are references to any company in the Samsung Securities, Co., Ltd. group of companies.

Samsung Securities and/or other affiliated companies, its and their directors, officers, representatives, or employees may have long or short positions in any of the securities or other financial instruments mentioned in this report or of issuers described herein and may purchase and/or sell, or offer to purchase and/or sell, at any time, such securities or other financial instruments in the open market or otherwise, as either a principal or agent. Any pricing of securities or other financial instrument contained herein is as of the close of market for such day, unless otherwise stated. Opinions and estimates contained herein constitute our judgment as of the date of this report and are subject to change without notice.

The information provided in this report is provided "AS IS". Although the information contained herein has been obtained from sources believed to be reliable, no representation or warranty, either expressed or implied, is provided by Samsung Securities in relation to the accuracy, completeness or reliability of such information or that such information was provided for any particular purpose and Samsung Securities expressly disclaims any warranties of merchantability or fitness for a particular purpose. Furthermore, this report is not intended to be a complete statement or summary of the securities, markets or developments referred to herein.

Samsung Securities does not undertake that investors will obtain any profits, nor will it share with investors any investment profits. Samsung Securities, its affiliates, or any of its and their affiliates, directors, officers, employees or agents disclaim any and all responsibility or liability whatsoever for any loss (direct or consequential) or damage arising out of the use of all or any part of this report or its contents or otherwise arising in connection therewith. Information and opinions contained herein are subject to change without notice. Past performance is not indicative of future results. Foreign currency rates of exchange may adversely affect the value, price or income of any security or financial instrument mentioned in this report. For investment advice, trade execution or other enquiries, clients should contact their local sales representative. Any opinions expressed in this report are subject to change without notice and may differ or be contrary to opinions expressed by other business areas or groups of Samsung Securities. Any analysis contained herein is based on numerous assumptions. Different assumptions may result in materially different results. Samsung Securities is under no obligation to update or keep current the information contained herein. Samsung Securities relies on information barriers to control the flow of information contained in one or more areas or groups within Samsung Securities into other areas or groups of Samsung Securities. Any prices stated in this report are for information purposes only and do not represent valuations for individual securities or other financial instruments. Samsung Securities makes no representation that any transaction can or could have been effected at those prices and any prices contained herein may not reflect Samsung Securities' internal books and records or theoretical model-based valuations and may be based on certain assumptions. Different assumptions by Samsung Securities or any other source may yield substantially different results. Additional information is available upon request.

For reports to be distributed to US:

Securities research is prepared, issued and exclusively distributed by Samsung Securities Co., Ltd., an organization licensed with the Financial Supervisory Service of South Korea. This research may be distributed in the United States only to major institutional investors as defined in Rule 15a-6 of the U.S. Securities Exchange Act of 1934, as amended, and may not be circulated to any other person otherwise. All transactions by U.S. investors involving securities discussed in this report must be effected through Samsung Securities (America) Inc., a broker-dealer registered with the U.S. Securities & Exchange Commission and a member of the Financial Industry Regulatory Authority/SIPC, and not through any non-U.S. affiliate thereof. The analysts listed [on the front of this report] are employees of Samsung Securities Co., Ltd., or a non-U.S. affiliate thereof, and are not registered/qualified as research analysts under applicable U.S. rules and regulations and may not be subject to U.S. restrictions on communications with covered companies, public appearances, and trading securities held by a research analyst account.

For reports to be distributed to UK:

This report is not an invitation nor is it intended to be an inducement to engage in investment activity for the purpose of section 21 of the Financial Services and Markets Act 2000 of the United Kingdom ("FSMA"). To the extent that this report does constitute such an invitation or inducement, it is directed only at (i) persons who are investment professionals within the meaning of Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2001 (as amended) of the United Kingdom (the "Financial Promotion Order"); (ii) persons who fall within Articles 49(2)(a) to (d) ("high net worth companies, unincorporated associations etc.") of the Financial Promotion Order; and (iii) any other persons to whom this report can, for the purposes of section 21 of FSMA, otherwise lawfully be made (all such persons together being referred to as "relevant persons").

Any investment or investment activity to which this report relates is available only to relevant persons and will be engaged in only with relevant persons. Persons who are not relevant persons must not act or rely on this report.

For reports to be distributed to Korea:

This report is for private circulation only, not for sale, and is issued and distributed only to persons permitted under the laws and regulations of Korea.

For reports to be distributed to Singapore:

This report is provided pursuant to the financial advisory licensing exemption under Regulation 27(1)(e) of the Financial Advisers Regulation of Singapore and accordingly may only be provided to persons in Singapore who are "institutional investors" as defined in Section 4A of the Securities and Futures Act, Chapter 289 of Singapore. This report is intended only for the person to whom Samsung Securities has provided this report and such person may not send, forward or transmit in any way this report or any copy of this report to any other person.

Analyst certification

The views expressed in this research report accurately reflect the personal views of the analyst(s) about the subject securities or issuers and no part of the compensation of such analyst(s) was, is, or will be directly or indirectly related to the inclusion of specific recommendations or views in this research report. The analyst(s) principally responsible for the preparation of this research report receives compensation based on determination by research management and senior management (not including investment banking), based on the overall revenues, including investment banking revenues of Samsung Securities Co., Ltd. and its related entities and has taken reasonable care to achieve and maintain independence and objectivity in making any

Copyright © 2010 Samsung Securities Co., Ltd.. All rights reserved. This report or any portion hereof may not be reprinted, sold or redistributed without the prior written consent of Samsung Securities America Inc.