

# Hansol Chemical (014680)

**BUY (Initiate), TP W100,000**

Stock price (Apr 19, KRW)	80,600
Market cap (USD mn)	798
Shares outstanding (mn)	11
52W High/Low (KRW)	92,400/70,400
6M avg. daily turnover (USD mn)	3.2
Free float (%)	77.2
Foreign ownership (%)	14.8
Major shareholders (%)	
KB Asset Management	15.4
Dong-Hyeok Cho and 4 others	15.0

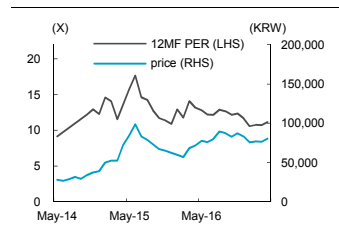
Yr to	Sales	OP	NP	EPS	% chg	EBITDA	PE	EV/EBITDA	PB	ROE	DY
Dec	(W bn)	(W bn)	(W bn)	(KRW)	(YoY)	(W bn)	(x)	(x)	(x)	(%)	(%)
2015A	368	49	34	3,093	60.1	71	20.1	12.5	2.9	15.0	1.3
2016A	460	82	56	5,314	71.8	109	15.7	11.2	3.3	21.3	1.2
2017F	588	104	75	6,797	27.9	142	11.9	8.4	2.7	24.2	1.2
2018F	644	117	84	7,620	12.1	157	10.6	7.5	2.2	22.6	1.2
2019F	676	121	88	7,973	4.6	165	10.1	7.1	1.9	19.9	1.2

Note: NP in equity-method accounting

## Performance

	1M	6M	12M
Absolute (%)	5.4	(1.0)	10.4
Rel. to Kospi (%p)	6.6	(5.8)	4.1

## 12MF PE trend



## Appealing comprehensive materials manufacturer

**Valuations rising on improving semiconductor business:** We initiate coverage of Hansol Chemical with BUY and a TP of W100,000 as the company's sales and OP are both growing backed by increasing market share at clients, new business expansion and improved product mix. We derived our TP by applying 15x 2017F PE. The multiple is the upper PE range from 2H16 when domestic semiconductor manufacturers' profitability rebounded on the back of rising memory chip prices. Semiconductor makers are witnessing a steady earnings improvement thanks to better NAND market conditions amid a shortage of 3D NAND. In the current conditions, materials manufacturers' valuations could go up.

**Sales and OP both spiking:** In 2017, sales should reach W587.6bn (+28% YoY) and OP W104.4bn (+27% YoY). The sales weighting of lucrative semiconductor-use hydrogen peroxide, a core product, is maximizing profitability due to limited production. The fast-growing electronic materials segment fueled by quantum dot (QD) materials and precursors should achieve sales of W109.1bn, up 39%, in 2017, delivering the biggest growth among all divisions. The earnings at Tapex, which was consolidated in June 2016, will be fully reflected and the subsidiary's 2017 sales and OP are forecast to swell 119% and 131%, respectively. It is also attractive as a steady player with a broad portfolio covering IT materials and that features big growth potential.

**Steady sales fueled by hydrogen peroxide:** The main product hydrogen peroxide is used to clean wafers by oxidation to remove impurities that arise during fabrication. The shift to semiconductor microfabrication lifts the number of processes and subsequently requires more cleaning steps and materials usage. Hansol Chemical's subsidiary, Samyoung Pure Chemicals (Mitsubishi Gas Chemical-Hansol Chemical JV), is responsible for the secondary refining of hydrogen peroxide that has already undergone primary refining at the Hansol Chemical, and then delivered to the end-users Samsung Electronics and SK Hynix. As Hansol Chemical owns 49% of Samyoung Pure Chemicals, Hansol Chemical is insulated from pricing pressure. Hansol Chemical's competitor is Dongwoo Fine-Chem (subsidiary of Japan's Sumitomo Chemical) and the two dominate the market. Samyoung Pure Chemicals has won orders for new lines at key clients, including one at a client where it held weak market share. Accordingly, the company's domestic sales of semiconductor-use hydrogen peroxide should reach 37,000 tonnes, up 35% YoY. At Samsung Electronics' Xi'an plant, the Hansol Chemical China subsidiary exclusively supplies 7,000 tonnes through Dongwoo Fine-Chem. Meanwhile, hydrogen peroxide usage for etching in displays started when LG Display first applied copper wires to LCD panels in 2003. Copper wires are more suitable than aluminum when it comes to large and high-resolution

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panels, and demand should remain steady going forward as LG Display features copper wires at most of its large panel lines.

**Supply shortage is an opportunity:** Hansol Chemical has an annual domestic hydrogen peroxide capacity of 90,000 and, considering total sales in 2016, facilities appear to be operating at full capacity. The hydrogen peroxide capacity at its competitor OCI is an annual 85,000 tonnes. With Samsung Electronics and SK Hynix planning capacity augmentations with more lines, demand will undoubtedly increase for semiconductor-use hydrogen peroxide. We also anticipate deliveries to SK Hynix's expanded Cheongju fab and the second new line at Samsung's Pyeongtaek plant. To address such additions, the materials manufacturer should increase its weighting of semiconductor-bound deliveries and expand capacity, which would fuel sales growth. In 2017, Hansol Chemical plans to diminish its exposure to displays and other industrial sectors and scale up supplies for high-margin semiconductors in order to ease the supply shortage. As the ASP for semiconductor-use hydrogen peroxide is loftier than for displays and other industrial uses, and costs less, the OPM for the segment should steeply outperform the company-wide OPM of 18%. Hansol Chemical's market share for domestic semiconductor-use hydrogen peroxide should reach 48% in 2018, up from 31% in 2016.

**Hydrogen peroxide capex possible:** Given the absolute short supply of hydrogen peroxide, adding capacity would rapidly increase revenue without hitting sales volume. A competitor appears to be focusing on the photovoltaic energy business and is therefore unlikely to ramp up capacity. Hansol Chemical has three hydrogen peroxide plants and each has ~30,000 tonnes annual capacity. Back in 2010, adding 30,000 tonnes capacity would cost ₩63bn. The time is right for capex as there is little risk of sales eroding given its current market share and growth pace. Considering that construction takes longer than a year, sales growth could show up from as early as end-2018. Domestic hydrogen peroxide sales are estimated to reach ₩71.6bn in 2018 and if sales can grow in tandem with capacity augmentation, a simple calculation says that building one plant would drive annual hydrogen peroxide sales up 33% to touch ₩95.5bn.

**Sales growth potential highlighted as dominant player in QD materials:** In 2015, Hansol Chemical signed a contract with Samsung Electronics to jointly develop and exclusively supply QD materials. In the first year of deliveries, QD materials were featured in 0.8mn TVs. Samsung Electronics shipped a total 48mn LCD TVs (worth USD23.5bn) in 2016, of which Hansol Chemical's QD materials seemingly appeared in 6% or 2.7mn units. Although only a small weighting of TVs feature QD as of yet, there is ample growth potential as the weighting of QD TVs are forecast to rise with more mega-size TVs and premium models. In a conservative assumption of 3.5mn QD TVs in 2017, QD materials sales would reach ₩70.5bn, up 28% YoY. LG Display's white OLED TV panels that feature competing technology have the disadvantage of high manufacturing costs, giving QD displays a favorable edge, but demand for both technologies should persist for the time being. A decade has passed since large LCD panels have become mainstream, but large OLED panels have yet to be widely commercialized. In the coming 10 years, QD display panels will feature quantum dot enhancement film (QDEF) rather than quantum dot light-emitting diode (QLED) panels, which should steadily push up sales of related materials at Hansol Chemical. We estimate QD materials sales to achieve 21% CAGR and reach ₩79.9bn in 2018.

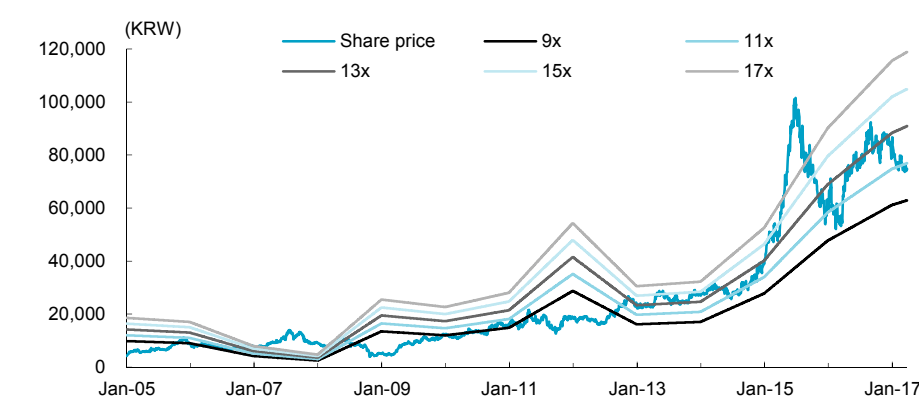
**Precursors achieve the presumably impossible shift to microfabrication:** Precursors are the electronic materials that address current leakage and interference during microfabrication. Among precursors, Hansol Chemical provides materials for the gap-fill process and double-patterning technology (DPT) process,

and demand is mounting in line with the microfabrication of semiconductors. With new DPT sales booked from 1Q17, we estimate 2017 precursor sales to grow 63% YoY. Gap-fill materials are used to block the electrical interference arising between cells during semiconductor microfabrication, and its main client is Taiwan's TSMC. Hansol Chemical is also in the evaluation stage or making preparations to provide Intel and Samsung Electronics with materials for the supermicro non-memory chip process. It dominates the precursors market together with the US' Air Liquide, and is scaling up its market share. As for DPT materials, it won orders to supply DIPAS to Samsung Electronics, and continues to take orders from another major domestic semiconductor manufacturer. As such, 2017 DPT sales are forecast to more than double YoY to W16.6bn.

**Appealing new materials business:** Hansol Chemical's subsidiary Tapex sells PVC wrap, industrial tape, secondary batteries and mobile-use tape and other electronic materials to maintain a steady OPM in the 10% range. The division covering business-use PVC wrap and packaging tape, which accounts for 47% of sales, should be a cash cow by maintaining a fat margin in the upper-10% range with its solid distribution network. The electronic materials division, which makes up half of Tapex's total sales, sells insulation tape for secondary batteries and adhesive film for mobile devices. We anticipate profitability to edge up backed by the release of a new film this year. Tapex is slated to list on the Kospi in July. Subsidiary Hansol CNP makes mobile device-use exterior coatings (paint). Its 2017 sales should reach W72bn, up 30% YoY, thanks to growth of exterior coatings sold to Samsung Electronics' mobile division, and sales gaining traction among new deliveries of automotive interior materials. It is gaining more attention for its appeal as a comprehensive materials manufacturer supplying a broad-ranging downstream market that covers TV, mobile and industrials.

**1Q17 sales to grow 35% YoY, OP 26% YoY:** The 1Q17 sales should reach W135.5bn, up 35% YoY, and OP W25bn, up 26% YoY. Top-line growth is noteworthy in the first quarter of booking earnings from subsidiary Tapex for the first time, which should account for 21% of company-wide sales as of 2017. Tapex features an OPM of around 10% and despite rapidly growing sales, company-wide OPM should slip slightly YoY to 18.5%. However, the QD materials sales that plummeted in 4Q16 should normalize, and it has improved specs for a material used in QD sheets, which should fade pricing pressure. Samsung Electronics should begin full-bore shipments of its new QLED TV (third-generation QD TV) model released in January, which should lift 2017 QD materials sales by 28% YoY. Among the semiconductor precursors, DPT sales to Samsung Electronics should be reflected from 1Q17 and contribute to sales growth of 39% YoY of electronic materials segment to W109.1bn in 2017.

**Figure 26. 12MF PE band**



Source: Quantiwise, Korea Investment & Securities

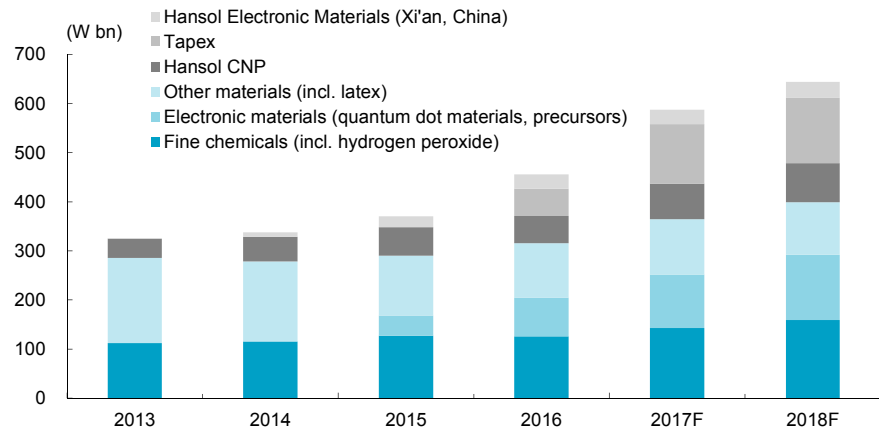
Table 6. Quarterly earnings

(W bn, %)

	1Q16	2Q16	3Q16	4Q16	1Q17F	2Q17F	3Q17F	4Q17F	2015	2016	2017F	2018F
<b>Sales</b>	<b>100.0</b>	<b>107.7</b>	<b>130.2</b>	<b>122.4</b>	<b>135.5</b>	<b>146.1</b>	<b>153.0</b>	<b>153.0</b>	<b>368.0</b>	<b>460.4</b>	<b>587.6</b>	<b>643.8</b>
Hansol Chemical (separate)	77.5	79.6	81.1	77.6	84.5	90.6	95.4	94.4	290.2	315.8	364.8	399.2
Others	22.5	28.1	49.1	44.8	51.0	55.5	57.6	58.6	77.9	144.6	222.8	244.6
<b>GP</b>	<b>31.5</b>	<b>32.2</b>	<b>42.2</b>	<b>32.9</b>	<b>40.8</b>	<b>42.7</b>	<b>52.0</b>	<b>42.8</b>	<b>91.9</b>	<b>138.8</b>	<b>178.4</b>	<b>201.6</b>
<b>GPM (%)</b>	<b>31.5</b>	<b>29.9</b>	<b>32.4</b>	<b>26.9</b>	<b>30.1</b>	<b>29.3</b>	<b>34.0</b>	<b>28.0</b>	<b>25.0</b>	<b>30.1</b>	<b>30.4</b>	<b>31.3</b>
<b>OP</b>	<b>19.8</b>	<b>21.3</b>	<b>26.1</b>	<b>15.0</b>	<b>25.0</b>	<b>27.4</b>	<b>32.4</b>	<b>19.6</b>	<b>49.0</b>	<b>82.1</b>	<b>104.4</b>	<b>117.2</b>
Hansol Chemical (separate)	15.4	17.0	19.7	10.2	18.5	21.2	24.1	13.4	42.1	62.4	77.2	85.9
Others	4.4	4.2	6.4	4.8	6.5	6.2	8.3	6.2	6.9	19.8	27.2	31.3
<b>OPM (%)</b>	<b>19.8</b>	<b>19.7</b>	<b>20.0</b>	<b>12.2</b>	<b>18.5</b>	<b>18.8</b>	<b>21.2</b>	<b>12.8</b>	<b>13.3</b>	<b>17.8</b>	<b>17.8</b>	<b>18.2</b>
<b>EBT</b>	<b>25.7</b>	<b>17.4</b>	<b>22.8</b>	<b>11.5</b>	<b>25.1</b>	<b>25.6</b>	<b>28.6</b>	<b>20.9</b>	<b>42.6</b>	<b>77.4</b>	<b>100.2</b>	<b>113.4</b>
<b>EBT margin (%)</b>	<b>25.7</b>	<b>16.2</b>	<b>17.5</b>	<b>9.4</b>	<b>18.5</b>	<b>17.5</b>	<b>18.7</b>	<b>13.7</b>	<b>11.6</b>	<b>16.8</b>	<b>17.0</b>	<b>17.6</b>
<b>NP</b>	<b>21.1</b>	<b>10.8</b>	<b>19.1</b>	<b>7.9</b>	<b>20.3</b>	<b>20.1</b>	<b>23.1</b>	<b>16.0</b>	<b>34.3</b>	<b>58.9</b>	<b>79.6</b>	<b>88.6</b>
<b>NPM (%)</b>	<b>21.1</b>	<b>10.0</b>	<b>14.7</b>	<b>6.5</b>	<b>15.0</b>	<b>13.7</b>	<b>15.1</b>	<b>10.5</b>	<b>9.3</b>	<b>12.8</b>	<b>13.5</b>	<b>13.8</b>

Source: Korea Investment &amp; Securities

Figure 27. Electronic materials and Tapex sales growing rapidly



Source: Company data, Korea Investment &amp; Securities

Figure 28. Limited domestic hydrogen peroxide capacity requires product mix improvements

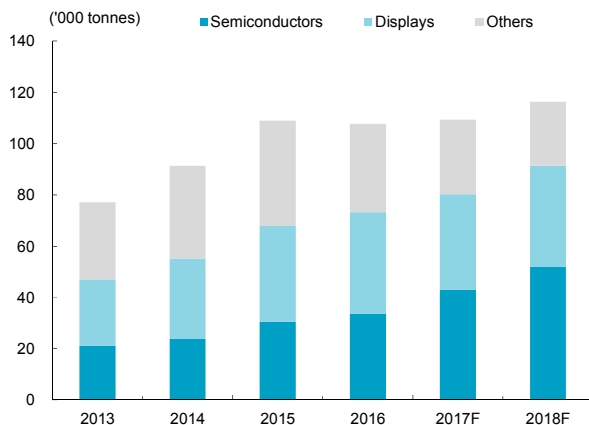
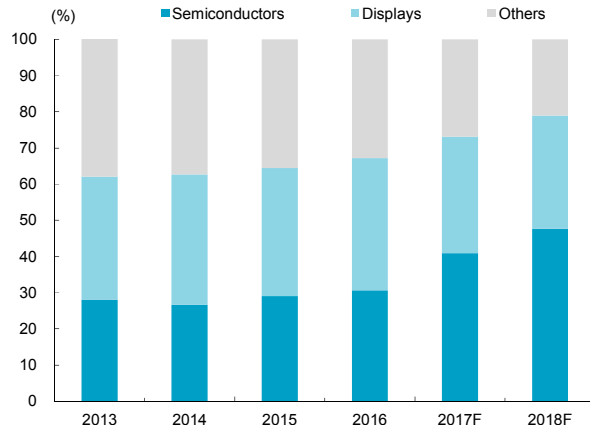
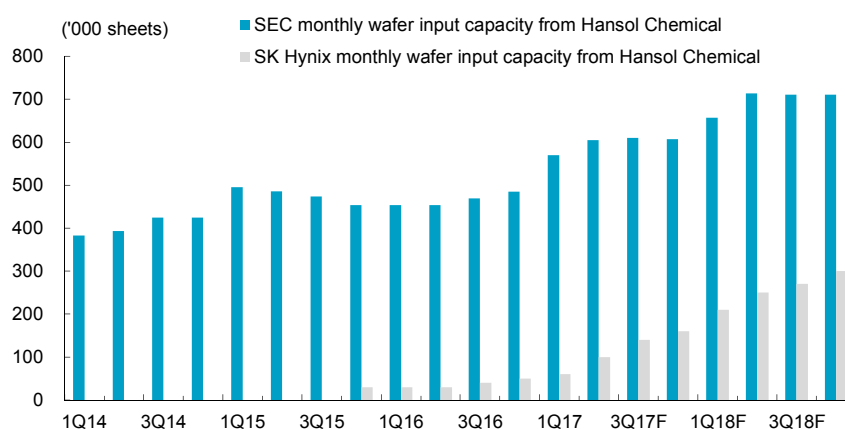
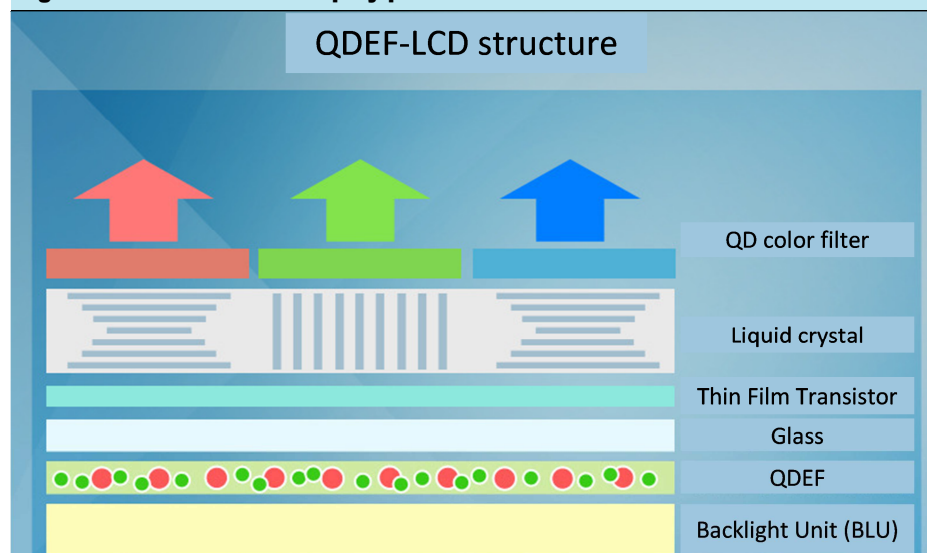
Note: Only considering domestic capacity of hydrogen peroxide  
Source: Company data, Korea Investment & Securities

Figure 29. Sales weighting of semiconductor-use hydrogen peroxide to rise

Note: Only considering domestic capacity of hydrogen peroxide  
Source: Company data, Korea Investment & Securities

**Figure 30. Clients' wafer input capacity from Hansol Chemical**

Note: Samsung Electronics' Xi'an plant capacity was excluded to analyze the domestic supply/demand dynamics  
Source: Gartner, Korea Investment & Securities

**Figure 31. Quantum dot display panel structure**

Source: Samsung Display, Korea Investment & Securities

**Table 7. Samsung Electronics' US models equipped with QD display**

Technology	Models	Models featuring QD display	Inches (models)	Price
QLED TV	4	4 (QLED)	75-inch (3) 65-inch (4) 55-inch (3)	USD2,799-9,999
4K SUHD TV	5	5	88-inch (1) 70-inch range(3) 60-inch range (5) 50-inch range (4) Below 50-inch (1)	USD19,999 USD4,999-7,999 USD1,499-2,999 USD1,499-2,199 USD1,099
4K UHD TV	18	0	105-inch (1) 70-90-inch (7) 60-inch range (14) 50-inch range (15) 40-inch range (17)	USD149,999 USD2,299-8,999 USD1,299-2,699 ~ USD1,999 ~ USD1,199
Full HD TV	15	0	55-75-inch (7) 40-50-inch (12) Below 40-inch (6)	USD849-2,099 USD429-949 ~ USD399
HD TV	2	0	24, 28, 32-inch	~ USD219

Note: Models applying QLED TV technology are specified as QLED technology and not QD technology; The calculation of the number of models by inch allows double counting  
Source: SEC, Korea Investment & Securities

### Company overview

Hansol Chemical is a subsidiary of Hansol Group. As a precision chemicals company listed in 1989, it mainly produces hydrogen peroxide used in pulp and paper, textiles and semiconductors and latex used in paper. Backed by a large market share, it produces and sells polymer coagulant, sodium hydrosulfite and benzoyl peroxide (BPO) and is a comprehensive materials manufacturer that has successfully entered the electronics materials market.

**Balance sheet**

FY-ending Dec. (W bn)	2015A	2016A	2017F	2018F	2019F
Current assets	111	157	207	227	255
Cash & cash equivalents	8	27	34	37	39
Accounts & other receivables	62	76	103	113	135
Inventory	29	47	60	65	69
Non-current assets	410	543	595	639	670
Investment assets	50	49	63	69	72
Tangible assets	331	398	411	438	458
Intangible assets	18	78	99	109	114
Total assets	521	700	802	866	925
Current liabilities	113	221	262	245	206
Accounts & other payables	60	73	88	90	88
ST debt & bonds	21	20	20	21	24
Current portion of LT debt	25	114	134	114	84
Non-current liabilities	161	138	137	146	167
Debentures	90	0	0	0	0
LT debt & financial liabilities	62	116	109	115	135
Total liabilities	274	359	399	391	373
Controlling interest	242	282	341	408	480
Capital stock	56	56	56	56	56
Capital surplus	31	31	31	31	31
Other reserves	(2)	(2)	(2)	(2)	(2)
Retained earnings	148	195	259	332	410
Minority interest	5	59	63	67	72
Shareholders' equity	247	341	403	475	552

**Cash flow**

FY-ending Dec. (W bn)	2015A	2016A	2017F	2018F	2019F
C/F from operations	47	92	96	113	98
Net profit	34	59	80	89	93
Depreciation	19	23	30	31	36
Amortization	3	4	7	8	8
Net incr. in W/C	(17)	(4)	(18)	(13)	(38)
Others	8	10	(3)	(2)	(1)
C/F from investing	(62)	(142)	(86)	(81)	(74)
Capex	(59)	(33)	(43)	(58)	(56)
Decr. in fixed assets	0	0	0	0	0
Incr. in investment	(1)	(108)	(12)	(4)	(3)
Net incr. in intangible assets	(2)	(0)	(29)	(18)	(14)
Others	0	(1)	(2)	(1)	(1)
C/F from financing	10	63	(3)	(28)	(23)
Incr. in equity	0	47	0	0	0
Incr. in debt	16	27	13	(13)	(7)
Dividends	(7)	(10)	(11)	(11)	(11)
Others	1	(1)	(5)	(4)	(5)
C/F from others	0	8	0	0	0
Increase in cash	(4)	21	7	3	2

Note: K-IFRS (consolidated)

**Income statement**

FY-ending Dec. (W bn)	2015A	2016A	2017F	2018F	2019F
Sales	368	460	588	644	676
COGS	276	322	409	442	472
Gross profit	92	139	178	202	204
SG&A expenses	43	57	74	84	83
Operating profit	49	82	104	117	121
Financial income	1	3	4	4	5
Interest income	0	0	0	0	1
Financial expenses	12	16	17	17	18
Interest expenses	7	10	10	10	11
Other non-operating profit	(1)	3	1	1	4
Gains (Losses) in associates, subsidiaries and JV	5	4	8	8	7
Earnings before tax	43	77	100	113	119
Income taxes	8	18	21	24	25
Net profit	34	59	80	89	93
Net profit of controlling interest	34	56	75	84	88
Other comprehensive profit	1	(6)	(6)	(6)	(6)
Total comprehensive profit	36	53	73	83	87
Total comprehensive profit of controlling interest	36	50	70	79	83
EBITDA	71	109	142	157	165

**Key financial data**

FY-ending Dec.	2015A	2016A	2017F	2018F	2019F
Per-share data (KRW)					
EPS	3,093	5,314	6,797	7,620	7,973
BPS	21,608	25,179	30,358	36,345	42,679
DPS	800	1,000	1,000	1,000	1,000
Growth (%)					
Sales growth	9.5	25.1	27.6	9.6	5.0
OP growth	73.8	67.6	27.1	12.3	2.9
NP growth	59.4	63.5	35.0	12.1	4.6
EPS growth	60.1	71.8	27.9	12.1	4.6
EBITDA growth	49.9	52.9	29.9	10.5	5.6
Profitability (%)					
OP margin	13.3	17.8	17.8	18.2	17.8
NP margin	9.3	12.1	12.8	13.1	13.1
EBITDA margin	19.4	23.7	24.1	24.3	24.4
ROA	6.9	9.7	10.6	10.7	10.4
ROE	15.0	21.3	24.2	22.6	19.9
Dividend yield	1.3	1.2	1.2	1.2	1.2
Dividend payout ratio	26.0	19.9	14.7	13.1	12.5
Stability					
Net debt (W bn)	186	220	224	208	199
Debt/equity ratio (%)	80.3	73.3	65.2	52.7	44.2
Valuation (x)					
PE	20.1	15.7	11.9	10.6	10.1
PB	2.9	3.3	2.7	2.2	1.9
EV/EBITDA	12.5	11.2	8.4	7.5	7.1

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- Hold: Expected to underperform or outperform the market index by less than 15%p
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77.4%	21.7%	0.9%

Note: % of companies under coverage with this rating

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Prepared by: Jay Yoo, Jeehoon Park



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