

1. News Summary (3 page)

2018년 7월 17일

News	
WTI comment	수급부담 완화에 급락...WTI 4.2%↓
Headline	여수산단에 수조원 투자... LG화학, NCC 제3공장
News 1.	김종갑 한전 사장, '심야 산업용 전기요금 조정' 강조
News 2.	中, 한국산 합성고무 반덤핑 예비판정
News 3.	-
News 4.	-

Conclusion	
	화학 최대 호황 국면이기에 배터리 사업부에 대한 투자도 병행되어야 함
	영업 적자 지속으로 배당 수익이 감소하는 국면에서 가격 인상 불가피
	중국으로의 NBR 매출 비중이 높진 않아서 타격은 제한적일 전망
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2. Prices Summary (4~7 page)

Daily	Unit	Price	1D	1W	1M	3M	12M
Refinery			%	%	%	%	%
WTI	\$/bbl	68.1	(4.2)	(7.8)	4.6	2.8	47.9
Dubai	\$/bbl	73.0	1.8	(2.3)	(1.8)	7.0	53.1
Gasoline	\$/bbl	83.0	2.5	(1.1)	(2.5)	2.7	34.1
Diesel	\$/bbl	85.0	1.9	(2.6)	(3.6)	1.6	40.2
Complex margin	\$/bbl	6.3	0.2	0.0	(0.2)	(1.3)	(1.9)
1M lagging	\$/bbl	5.8	2.8	(1.4)	0.3	(8.7)	(3.2)
Petrochemical			%	%	%	%	%
Naphtha	\$/t	651	0.6	(3.0)	(0.3)	7.6	55.2
Butadiene	\$/t	1,650	0.0	2.5	(1.8)	24.1	71.0
HDPE	\$/t	1,340	0.0	0.0	(1.5)	(0.4)	24.1
MEG	\$/t	905	0.8	1.2	(1.8)	(13.0)	6.5
PX	\$/t	985	(0.1)	(0.4)	1.4	5.3	27.2
SM	\$/t	1,347	(2.4)	0.7	(5.2)	0.4	16.2
Commodity			%	%	%	%	%
Natural Gas	\$/mmbtu	2.76	0.3	(2.4)	(6.5)	(3.0)	(5.0)
Natural rubber	\$/t	1,310	1.6	0.0	(3.0)	(3.0)	(12.1)
Cotton	C/lbs	88.9	(0.0)	2.0	1.8	6.8	29.6

*참고: 정제마진의 변동률은 %가 아닌 \$/bbl임

Weekly	Update	Unit	Price	1W	1M	3M	12M
Petrochemical				%	%	%	%
Ethylene	07/16	\$/t	1,290	0.0	2.4	1.2	44.5
Propylene	07/16	\$/t	970	0.5	(4.4)	(0.8)	28.5
Benzene	07/16	\$/t	830	1.2	(0.3)	(0.3)	13.3
Toluene	07/16	\$/t	795	0.0	(2.5)	7.4	26.2
Xylene	07/16	\$/t	823	0.9	(0.6)	8.2	33.7
PP	07/16	\$/t	1,253	(0.8)	(3.1)	0.4	19.6
PVC	07/16	\$/t	935	0.0	0.3	(2.6)	5.6
ABS	07/16	\$/t	1,930	(1.5)	(6.3)	(3.0)	7.2
SBR	07/16	\$/t	1,750	(1.1)	(7.9)	7.4	20.7
SM	07/16	\$/t	1,403	2.6	(6.0)	2.7	16.6
BPA	07/16	\$/t	1,798	3.6	0.6	(6.1)	17.5
Caustic	07/16	\$/t	410	(13.7)	(23.9)	(34.5)	(10.4)
2-EH	07/16	\$/t	1,090	(0.9)	(2.7)	(5.6)	16.9
Caprolactam	07/16	\$/t	2,145	0.2	(0.2)	(3.4)	33.2
Solar				%	%	%	%
Polysilicon	07/11	\$/kg	11.1	(0.3)	(11.8)	(27.8)	(19.7)
Module	07/11	\$/W	0.26	(1.5)	(7.7)	(13.0)	(20.4)

3. Global Peers Summary (8~9 page)

	Unit	Price	1D	1W	1M	3M	12M
E&P			%	%	%	%	%
ExxonMobil	USD	82.5	(1.0)	(0.5)	2.3	5.0	1.5
Shell	EUR	2,594	(2.0)	(2.7)	2.9	9.8	26.5
Petrochina	CNY	7.49	(1.4)	(1.6)	(3.4)	(0.8)	(5.1)
Gazprom	RUB	147.0	0.1	(0.7)	6.7	3.9	17.6
Petrobras	BRL	17.9	(1.3)	(0.3)	19.4	(13.3)	37.0
Refinery							
Phillips66	USD	111.3	(0.4)	(1.1)	(2.6)	4.2	35.4
Valero	USD	106.3	(1.0)	(2.7)	(7.7)	0.8	56.2
JX	JPY	767.0	0.0	(1.0)	0.4	13.6	56.9
Neste Oil	EUR	65.9	(1.6)	(0.4)	(0.8)	21.3	78.6

	Unit	Price	1D	1W	1M	3M	12M
Petrochemical			%	%	%	%	%
BASF	EUR	81.7	(0.3)	(1.2)	(7.5)	(3.3)	(2.2)
DowDuPont	USD	65.7	(1.0)	(1.5)	(3.0)	(1.9)	(0.8)
SABIC	SAR	129.0	0.6	2.5	1.9	7.3	27.2
Formosa Pla.	TWD	108.5	(1.4)	(2.3)	2.4	0.9	19.9
Shin-Etsu	JPY	10,415	0.0	1.6	(0.1)	(4.9)	2.4
Renewable							
Wacker	EUR	117.0	1.7	2.1	0.7	(19.5)	18.1
First Solar	USD	54.01	(0.1)	(1.5)	5.8	(23.0)	25.8
GCL-Poly	HKD	0.68	0.0	(1.4)	(10.5)	(32.0)	(20.9)
Tesla Motors	USD	310.1	(2.8)	(2.6)	(13.4)	6.5	(5.4)

4. Coverage Summary

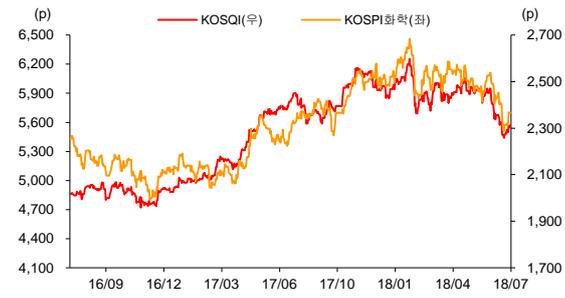
	07/16	1D	1W	1M	3M	6M	12M
KOSPI	2,302	(0.4)	0.7	(4.2)	(6.2)	(7.8)	(4.7)
KOSPI화학	5,698	(0.1)	2.1	(5.0)	(7.2)	(8.3)	3.6
LG화학	328,000	(2.1)	1.7	(12.2)	(11.0)	(23.0)	3.0
롯데케미칼	344,500	0.1	1.3	(5.7)	(16.1)	(12.7)	(3.8)
한화케미칼	20,600	(1.7)	(1.9)	(15.6)	(28.5)	(36.7)	(35.4)
금호석유화학	107,500	(5.7)	(2.7)	2.9	12.0	3.9	46.9
KCC	324,500	0.5	0.5	(5.1)	(9.7)	(20.3)	(22.2)
OCI	98,700	0.4	4.9	(9.9)	(39.1)	(44.7)	17.4
SKC	42,200	(3.4)	(2.8)	2.6	11.2	(7.2)	12.7
SK이노베이션	198,500	3.4	2.6	(7.5)	0.0	(1.2)	18.2
S-Oil	116,000	5.9	10.0	4.0	(0.9)	2.2	12.6
GS	52,500	1.4	2.1	(9.5)	(12.2)	(19.0)	(28.1)
SK가스	87,400	(2.3)	(2.9)	(9.0)	(9.0)	(8.3)	(26.2)
포스코대우	20,400	(1.4)	0.2	(11.9)	(9.9)	(5.1)	(10.5)
LG상사	22,550	(1.1)	0.7	(14.7)	(15.1)	(27.4)	(23.9)
한국전력	31,200	0.0	0.3	(10.9)	(9.7)	(14.4)	(25.6)
한국가스공사	59,500	(2.9)	3.3	(7.0)	22.7	24.1	20.4

투자의견	TP	%	P/E	P/B
			* 추정치는 12M fwd 기준임	
			* 모든 coverage 업체의 실적은 연결기준임	
매수	400,000	22.0	12.96	1.46
매수	400,000	16.1	10.70	0.97
매수	30,000	45.6	9.25	0.50
매수	150,000	39.5	10.02	1.39
매수	400,000	23.3	28.13	0.50
매수	140,000	41.8	7.51	0.71
매수	50,000	18.5	11.51	1.00
매수	230,000	15.9	11.67	1.00
매수	140,000	20.7	13.24	1.94
매수	80,000	52.4	4.86	0.59
매수	130,000	48.7	8.26	0.59
매수	25,000	22.5	10.70	0.80
매수	38,000	68.5	8.35	0.64
매수	45,000	44.2	7.55	0.25
매수	75,000	26.1	9.23	0.77

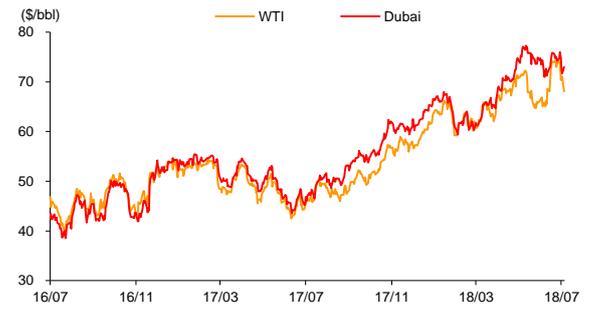
• 작성자(손지우)는 본 조사항목에 기재된 내용들이 본인의 의견을 정확하게 반영하고 있으며, 외부의 부당한 압력이나 간섭없이 신의성실하게 작성되었음을 확인합니다.
 • 본 보고서에 언급된 종목의 경우 당사 조사분석담당자는 본인의 담당종목을 보유하고 있지 않습니다.
 • 본 보고서는 기관투자자 또는 제 3자에게 사전 제공된 사실이 없습니다.
 • 당사는 본 보고서의 발간시점에 해당종목을 1% 이상 보유하고 있지 않습니다.

Key Chart

KOSPI/KOSPI화학



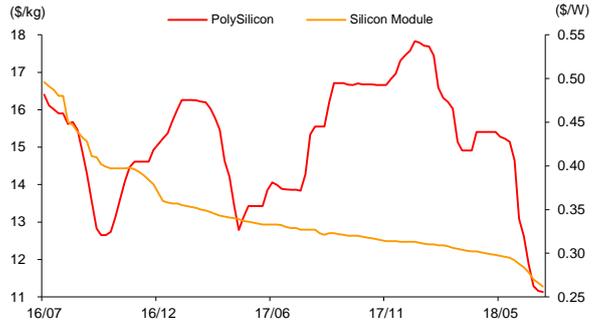
WTI/Dubai



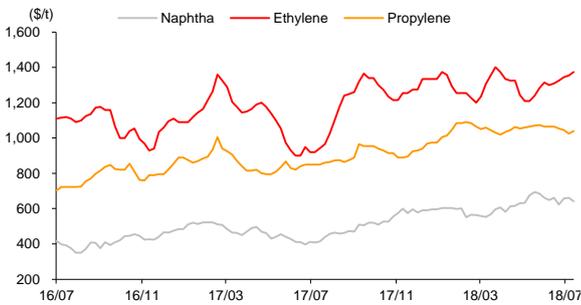
Complex & 1M lagging margin



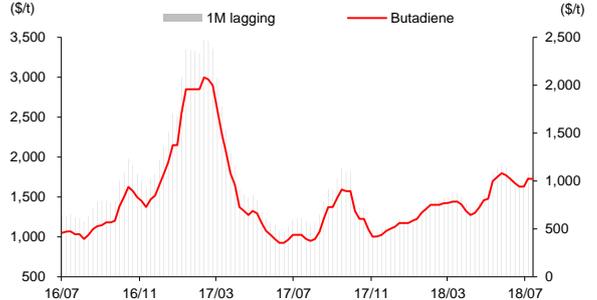
Polysilicon & Module prices



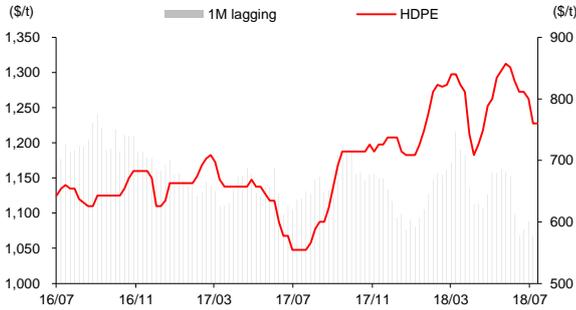
Naphtha/Ethylene/Propylene prices



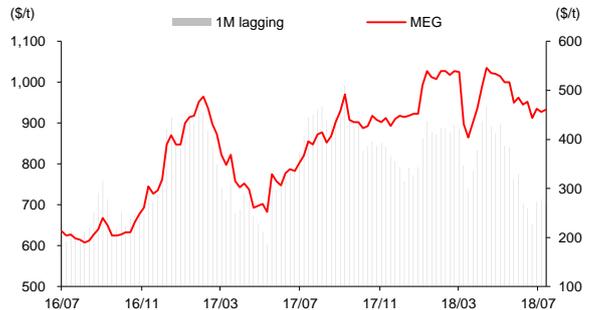
Butadiene price & 1M lagging naphtha spread



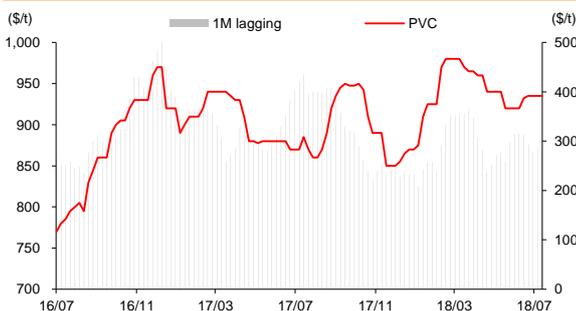
HDPE price & 1M lagging naphtha spread



MEG price & 1M lagging naphtha spread



PVC price & 1M lagging naphtha spread



PX price & 1M lagging naphtha spread



자료: Bloomberg, Cischem, Petronet, Platts, Pvinfosights, SK증권
참고: 상기 데이터는 일괄적으로 과거 2년치 적용

News Comment

Headline	(출처: 한국경제)
제목	여수산단에 수조원 투자... LG화학, NCC 제3공장
결론	화학 최대 호황 국면이기에 배터리 사업부에 대한 투자도 병행되어야 함
세부	<ol style="list-style-type: none"> 1) LG화학은 여수국가산단 내 제3공장 신설을 위한 투자 계획 결정 예정 2) 새로 짓는 공장에선 NCC, PP, PE 등 각종 제품을 생산하게 될 것 3) 210만t의 에틸렌을 생산하는 LG화학은 롯데를 10만t 차이로 앞선 1위 4) 투자 규모는 정확하게 밝혀지지 않았지만 수조원대 투자가 이뤄질 전망 5) 화학 최대 호황 국면이기에 배터리 사업부에 대한 투자도 병행되어야 함

WTI Comment	(출처: 연합뉴스)
제목	수급부담 완화에 급락...WTI 4.2%↓
상승	요인
하락	미국의 이란 제재 복원과 관련한 원유 수급부담 우려 일부 완화
요인	므누신, "이란 원유 수입 줄이는 것 관련해 제한적 제제면제 검토"

Issue 1	(출처: 데일리한국)
제목	김종갑 한전 사장, '심야 산업용 전기요금 조정' 강조
결론	영업 적자 지속으로 배당 수익이 감소하는 국면에서 가격 인상 불가피
세부	<ol style="list-style-type: none"> 1) 김종갑 사장, "심야 산업용 전기요금이 원가를 제대로 반영치 않고 있음" 2) 김종갑 사장, "어떤 형태로든지 이러한 왜곡된 소비행태는 바뀌어야 함" 3) 김 사장은 심야 산업용 요금을 올리고 낮 시간 요금 내리는 조정 추진중 4) 한전, "적자 폭 메우기 위해 심야 산업용 요금 올린다는 말은 어불성설" 5) 영업 적자 지속으로 배당 수익이 감소하는 국면에서 가격 인상 불가피

Issue 2	(출처: 매일경제)
제목	中, 한국산 합성고무 반덤핑 예비판정
결론	중국으로의 NBR 매출 비중이 높진 않아서 타격은 제한적일 전망
세부	<ol style="list-style-type: none"> 1) 中 상무부는 한국·일본에서 수입된 NBR에 대해 반덤핑 예비판정을 내림 2) 中 상무부, "한국·일본산 NBR 덤핑이 존재하며 중국에 실질적 손해 끼침" 3) 한국에 부과된 보증금은 금호석유가 덤핑 마진의 12%, LG화학은 15% 4) 나머지 한국 업체들은 덤핑 마진의 37.3%, 일본 업체들은 18.1~56.4%임 5) 중국으로의 NBR 매출 비중이 높진 않아서 타격은 제한적일 전망

Issue 3
제목
결론
세부
1)
2)
3)
4)
5)

Issue 4
제목
결론
세부
1)
2)
3)
4)
5)

Issue 5
제목
결론
세부
1)
2)
3)
4)
5)

Issue 6
제목
결론
세부
1)
2)
3)
4)
5)

Commodity Price Data

Daily Price		Today	1D	1W	1M	3M	6M	12M	YTD	2016avg.	2017avg.	2018acc.	
F/X	USD/EUR	0.854	0.856	0.851	0.862	0.808	0.816	0.872	0.833	0.904	0.887	0.829	
	Change, %		(0.2)	0.3	(0.9)	5.7	4.7	(2.1)	2.5	(5.5)	(3.7)	3.0	
	USD/JPY	112.3	112.4	110.9	110.7	107.1	110.5	112.5	112.6	108.8	112.1	109.0	
	Change, %		(0.1)	1.3	1.5	4.8	1.7	(0.2)	(0.3)	3.2	0.1	3.1	
	USD/KRW	1,129.1	1,123.4	1,112.1	1,097.8	1,073.9	1,062.7	1,133.4	1,066.7	1,160.5	1,130.9	1,079.7	
	Change, %		0.5	1.5	2.8	5.1	6.3	(0.4)	5.9	(2.7)	(0.2)	4.6	
	<hr/>												
	Agriculture	Corn	341.8	330.3	345.8	361.3	382.5	348.3	365.3	350.8	358.5	359.4	372.0
Change, %			3.5	(1.2)	(5.4)	(10.7)	(1.9)	(6.4)	(2.6)	(4.7)	(4.9)	(8.1)	
Soybean		829.5	814.0	851.8	905.5	1,042.0	968.0	985.3	951.8	987.5	975.9	987.3	
Change, %			1.9	(2.6)	(8.4)	(20.4)	(14.3)	(15.8)	(12.8)	(16.0)	(15.0)	(16.0)	
Wheat		488.5	481.5	507.8	499.5	462.3	416.5	494.8	427.0	436.4	436.0	477.4	
Change, %			1.5	(3.8)	(2.2)	5.7	17.3	(1.3)	14.4	11.9	12.0	2.3	
Rice		12.0	11.8	12.2	12.4	13.1	12.1	11.4	11.7	10.3	11.1	12.2	
Change, %			1.9	(0.9)	(2.5)	(7.7)	(0.8)	5.5	3.1	16.5	8.9	(1.3)	
Oats		231.5	258.0	258.8	233.5	230.5	250.0	298.0	241.0	196.3	252.3	246.2	
Change, %			(10.3)	(10.5)	(0.9)	0.4	(7.4)	(22.3)	(3.9)	17.9	(8.2)	(6.0)	
MYR/mt		Palm Oil	2,143.0	2,140.0	2,200.0	2,319.0	2,362.0	2,504.0	2,620.0	2,444.0	2,653.8	2,787.3	2,410.5
		Change, %		0.1	(2.6)	(7.6)	(9.3)	(14.4)	(18.2)	(12.3)	(19.2)	(23.1)	(11.1)
	Cocoa	2,410.0	2,517.0	2,443.0	2,552.0	2,702.0	1,932.0	1,876.0	1,892.0	2,854.0	2,005.2	2,398.6	
	Change, %		(4.3)	(1.4)	(5.6)	(10.8)	24.7	28.5	27.4	(15.6)	20.2	0.5	
	Cotton	88.9	88.9	87.2	90.7	83.3	81.4	67.2	78.6	65.6	73.5	83.8	
	Change, %		(0.0)	2.0	(2.0)	6.8	9.1	32.3	13.0	35.5	20.9	6.0	
	Sugar	11.1	11.0	11.4	12.0	12.0	13.6	14.3	15.2	18.2	15.8	12.6	
	Change, %		1.6	(2.3)	(7.3)	(7.0)	(18.0)	(22.1)	(26.5)	(38.6)	(29.6)	(11.4)	
Coffee	107.5	107.1	112.2	115.2	114.3	120.5	131.7	126.2	136.1	133.0	118.3		
Change, %		0.4	(4.2)	(6.7)	(6.0)	(10.8)	(18.4)	(14.9)	(21.0)	(19.2)	(9.1)		
<hr/>													
Energy	WTI	68.1	71.0	73.9	65.1	66.2	63.7	46.5	60.4	43.4	51.0	66.0	
	Change, %		(4.2)	(7.8)	4.6	2.8	6.8	46.2	12.6	56.9	33.5	3.1	
	Brent	71.8	75.3	78.1	73.4	71.4	69.2	48.9	66.9	45.1	54.9	71.6	
	Change, %		(4.6)	(8.0)	(2.2)	0.6	3.9	46.9	7.4	59.4	31.0	0.4	
	Natural Gas	2.8	2.8	2.8	3.0	2.8	3.1	3.0	3.0	2.6	3.0	2.8	
	Change, %		0.3	(2.4)	(8.7)	0.3	(11.8)	(7.4)	(6.6)	8.1	(8.7)	(2.8)	
	Ethanol	1.4	1.4	1.4	1.4	1.5	1.4	1.5	1.3	1.5	1.5	1.4	
	Change, %		0.3	(2.0)	(0.8)	(4.6)	3.2	(8.6)	6.4	(7.2)	(6.1)	(2.2)	
	RBOB Gasoline	200.2	210.7	214.9	202.3	204.0	183.8	156.1	179.9	140.0	162.9	199.7	
	Change, %		(5.0)	(6.8)	(1.0)	(1.8)	8.9	28.3	11.3	43.0	22.9	0.2	
Coal	118.3	117.7	116.1	115.0	93.0	106.5	84.0	100.8	65.5	88.2	104.4		
Change, %		0.5	1.9	2.8	27.2	11.1	40.9	17.3	80.6	34.1	13.2		
<hr/>													
Metal	Gold	1,241.0	1,241.5	1,257.7	1,279.6	1,346.0	1,338.4	1,228.7	1,302.6	1,248.5	1,258.6	1,312.2	
	Change, %		(0.0)	(1.3)	(3.0)	(7.8)	(7.3)	1.0	(4.7)	(0.6)	(1.4)	(5.4)	
	Silver	15.8	15.8	16.1	16.6	16.7	17.2	16.0	16.9	17.1	17.1	16.6	
	Change, %		(0.2)	(2.0)	(4.7)	(5.3)	(8.2)	(1.3)	(6.9)	(7.7)	(7.5)	(4.8)	
	Copper	6,192.0	6,237.0	6,390.0	7,020.0	6,910.5	7,078.0	5,926.0	7,247.0	4,872.0	6,199.4	6,890.5	
	Change, %		(0.7)	(3.1)	(11.8)	(10.4)	(12.5)	4.5	(14.6)	27.1	(0.1)	(10.1)	
	Nickel	930.5	953.4	964.3	1,030.2	927.1	802.6	612.6	809.1	646.4	680.2	917.9	
	Change, %		(2.4)	(3.5)	(9.7)	0.4	15.9	51.9	15.0	44.0	36.8	1.4	
	Zinc	2,474.0	2,578.0	2,705.0	3,080.0	3,136.5	3,404.5	2,786.0	3,319.0	2,097.5	2,888.5	3,195.0	
	Change, %		(4.0)	(8.5)	(19.7)	(21.1)	(27.3)	(11.2)	(25.5)	18.0	(14.4)	(22.6)	
	Lead	2,156.3	2,184.3	2,336.5	2,391.0	2,375.5	2,553.0	2,296.0	2,482.8	1,868.3	2,315.7	2,436.8	
	Change, %		(1.3)	(7.7)	(9.8)	(9.2)	(15.5)	(6.1)	(13.2)	15.4	(6.9)	(11.5)	
	Aluminum	13,865.0	13,950.0	14,020.0	14,350.0	14,515.0	14,790.0	14,235.0	15,020.0	12,373.5	14,556.6	14,345.9	
	Change, %		(0.6)	(1.1)	(3.4)	(4.5)	(6.3)	(2.6)	(7.7)	12.1	(4.8)	(3.4)	
	Cobalt	67,750.0	70,250.0	73,000.0	79,750.0	91,250.0	76,860.0	59,130.0	75,205.0	25,480.1	55,906.9	83,642.4	
	Change, %		(3.6)	(7.2)	(15.0)	(25.8)	(11.9)	14.6	(9.9)	165.9	21.2	(19.0)	
	HR Coil	913.0	917.0	912.0	904.0	855.0	675.0	620.0	662.0	519.3	620.1	823.7	
	Change, %		(0.4)	0.1	1.0	6.8	35.3	47.3	37.9	75.8	47.2	10.8	
Scrap	395.0	395.0	393.0	403.0	385.0	385.0	340.0	367.0	275.7	344.7	389.3		
Change, %		0.0	0.5	(2.0)	2.6	2.6	16.2	7.6	43.3	14.6	1.5		

자료: Bloomberg

참고) NYMEX, ICE, LME 중 대표지수를 사용

Refining Price Data

Daily Price		07/16	1D	1W	1M	3M	6M	12M	YTD	2015avg.	2016avg.	2017acc.	
Crude Oil	WTI	68.1	71.0	73.9	65.1	66.2	64.3	46.0	53.7	43.4	50.9	66.0	
	Change, %		(4.2)	(7.8)	4.6	2.8	5.8	47.9	26.7	57.0	33.7	3.1	
	Dubai	73.0	71.7	74.7	74.3	68.2	67.0	47.7	53.8	41.3	53.1	68.6	
	Change, %		1.8	(2.3)	(1.8)	7.0	8.8	53.1	35.5	76.6	37.4	6.4	
Product	Gasoline(휘발유)	83.0	81.0	83.9	85.1	80.8	79.2	61.9	69.8	56.3	68.0	81.2	
	Change, %		2.5	(1.1)	(2.5)	2.7	4.7	34.1	18.8	47.5	22.0	2.2	
	Kerosene(등유)	86.6	85.3	89.5	87.9	85.6	81.7	59.3	66.4	52.9	65.2	84.1	
	Change, %		1.6	(3.2)	(1.5)	1.2	6.1	46.0	30.4	63.8	32.8	3.0	
	Diesel(경유)	85.0	83.4	87.2	88.2	83.6	80.9	60.6	65.5	52.1	65.6	83.1	
	Change, %		1.9	(2.6)	(3.6)	1.6	5.0	40.2	29.7	63.0	29.5	2.3	
	Bunker-C	70.2	69.1	71.8	68.8	61.2	59.2	46.2	52.1	35.5	49.7	62.6	
	Change, %		1.5	(2.2)	2.1	14.7	18.6	52.0	34.8	97.6	41.4	12.1	
	Naphtha	71.5	70.5	73.2	71.8	66.5	66.8	45.3	53.5	42.6	53.7	67.6	
	Change, %		1.4	(2.3)	(0.5)	7.5	7.0	57.9	33.8	67.9	33.1	5.7	
	Dubai Spread	Gasoline(휘발유)	10.0	9.3	9.2	10.8	12.6	12.2	14.2	16.0	14.9	14.9	12.6
		Change		0.7	0.8	(0.8)	(2.6)	(2.2)	(4.2)	(6.0)	(4.9)	(4.9)	(2.6)
Kerosene(등유)		13.7	13.6	14.8	13.6	17.5	14.6	11.7	12.6	11.6	12.1	15.5	
Change			0.1	(1.1)	0.1	(3.8)	(0.9)	2.0	1.1	2.1	1.5	(1.8)	
Diesel(경유)		12.0	11.7	12.5	13.9	15.4	13.9	12.9	11.7	10.8	12.5	14.5	
Change			0.3	(0.5)	(1.8)	(3.4)	(1.9)	(0.9)	0.3	1.2	(0.5)	(2.5)	
Bunker-C		(2.8)	(2.5)	(2.9)	(5.5)	(7.0)	(7.9)	(1.5)	(1.8)	(5.8)	(3.4)	(5.9)	
Change			(0.2)	0.1	2.8	4.3	5.1	(1.3)	(1.0)	3.0	0.7	3.2	
Naphtha		(1.5)	(1.2)	(1.5)	(2.5)	(1.6)	(0.2)	(2.4)	(0.4)	1.3	0.6	(1.0)	
Change			(0.3)	0.1	1.0	0.2	(1.2)	0.9	(1.1)	(2.7)	(2.1)	(0.5)	
Refining Margin	Simple(단순)	2.3	2.3	2.3	1.5	2.0	1.0	4.0	3.8	1.9	3.2	2.1	
	Change		(0.0)	(0.0)	0.8	0.3	1.3	(1.7)	(1.5)	0.4	(0.8)	0.2	
	Complex(복합)	6.3	6.1	6.3	6.5	7.6	6.7	8.2	8.3	7.0	8.0	7.4	
	Change		0.2	0.0	(0.2)	(1.3)	(0.4)	(1.9)	(1.9)	(0.6)	(1.7)	(1.1)	
Complex(lagging)		5.8	3.0	7.2	5.5	14.5	12.8	9.0	18.0	8.5	8.9	9.4	
	Change		2.8	(1.4)	0.3	(8.7)	(7.0)	(3.2)	(12.2)	(2.7)	(3.1)	(3.6)	

자료 : Petronet, SK증권

참고 1) Crude Oil 가격은 현물(spot) 기준으로 선물(future) 가격과 다를 수 있음

참고 2) Gasoline은 95RON, 경유는 L/P 0.5%, Bunker-C는 380cst/4.0% 기준임

Petrochemical Price Data

Daily Price			07/16	07/13	07/12	07/11	07/10	07/09	07/06	07/05	07/04	07/03	
Spot Price	Naphtha	CFR Japan	651.4	647.3	655.3	669.9	680.4	671.3	665.0	665.5	669.0	664.6	
	Ethylene	CFR SE Asia	1,280.0	1,280.0	1,280.0	1,270.0	1,270.0	1,270.0	1,270.0	1,270.0	1,270.0	1,270.0	
	Propylene	FOB Korea	1,050.0	1,035.0	1,035.0	1,035.0	1,040.0	1,040.0	1,060.0	1,060.0	1,060.0	1,060.0	
	Butadiene	FOB Korea	1,650.0	1,650.0	1,650.0	1,650.0	1,610.0	1,610.0	1,610.0	1,610.0	1,600.0	1,600.0	
	HDPE	CFR FE Asia	1,340.0	1,340.0	1,340.0	1,340.0	1,340.0	1,340.0	1,340.0	1,340.0	1,340.0	1,340.0	
	LDPE	CFR FE Asia	1,170.0	1,170.0	1,170.0	1,170.0	1,170.0	1,170.0	1,170.0	1,170.0	1,170.0	1,170.0	
	LLDPE	CFR FE Asia	1,110.0	1,110.0	1,110.0	1,115.0	1,115.0	1,120.0	1,120.0	1,135.0	1,140.0	1,140.0	
	MEG	CFR China	905.0	898.0	898.0	900.0	891.0	894.0	893.0	893.0	895.0	902.0	896.0
	PP	CFR FE Asia	1,230.0	1,230.0	1,230.0	1,230.0	1,230.0	1,235.0	1,240.0	1,240.0	1,240.0	1,240.0	1,240.0
	PX	CFR China	985.3	986.0	989.0	991.0	995.3	989.0	988.5	988.5	984.8	987.8	987.8
	PTA	CFR China	844.0	842.0	848.0	852.0	852.0	852.0	850.0	850.0	850.0	845.0	845.0
	Benzene	FOB Korea	833.7	831.3	831.0	834.7	834.7	831.7	832.0	832.0	832.3	828.7	820.7
	Toluene	FOB Korea	752.0	752.0	747.0	747.0	752.0	751.0	747.0	740.0	744.0	745.0	745.0
	Xylene	FOB Korea	823.0	816.0	814.0	823.0	831.0	831.0	833.0	834.0	840.0	837.0	837.0
	SM	FOB Korea	1,346.5	1,379.0	1,374.0	1,364.0	1,353.0	1,337.0	1,349.0	1,346.0	1,323.0	1,315.0	1,315.0

Weekly Price			Last Week	1W	1M	3M	6M	12M	YTD	2016avg.	2017avg.	2018acc.
Spot Price	Naphtha	CFR Japan	642.5	662.0	661.5	613.0	568.0	414.0	484.5	399.5	493.5	616.5
	<i>Change, %</i>			(2.9)	(2.9)	4.8	13.1	55.2	32.6	60.8	30.2	4.2
	Ethylene	CFR SE Asia	1,290.0	1,290.0	1,260.0	1,275.0	1,250.0	892.5	990.0	1,040.9	1,090.9	1,237.5
	<i>Change, %</i>			0.0	2.4	1.2	3.2	44.5	30.3	23.9	18.2	4.2
	Propylene	CFR SE Asia	970.0	965.0	1,015.0	977.5	980.0	755.0	815.0	705.7	823.6	1,053.8
	<i>Change, %</i>			0.5	(4.4)	(0.8)	(1.0)	28.5	19.0	37.5	17.8	(8.0)
	Butadiene	CFR SE Asia	1,675.0	1,680.0	1,625.0	1,250.0	1,390.0	975.0	2,100.0	1,116.8	1,481.1	1,441.4
	<i>Change, %</i>			(0.3)	3.1	34.0	20.5	71.8	(20.2)	50.0	13.1	16.2
	Benzene	CFR SE Asia	830.0	820.0	832.5	832.5	867.5	732.5	822.5	646.7	838.8	868.0
	<i>Change, %</i>			1.2	(0.3)	(0.3)	(4.3)	13.3	0.9	28.3	(1.1)	(4.4)
	Toluene	CFR SE Asia	795.0	795.0	815.0	740.0	720.0	630.0	690.0	630.5	689.5	768.0
	<i>Change, %</i>			0.0	(2.5)	7.4	10.4	26.2	15.2	26.1	15.3	3.5
	Xylene	CFR SE Asia	822.5	815.0	827.5	760.0	762.5	615.0	675.0	627.7	668.8	782.1
	<i>Change, %</i>			0.9	(0.6)	8.2	7.9	33.7	21.9	31.0	23.0	5.2

Spread			Last Week	1W	1M	3M	6M	12M	YTD	2016avg.	2017avg.	2018acc.
Ethylene	-Naphtha		647.5	628.0	598.5	662.0	682.0	478.5	505.5	641.4	597.4	621.0
	<i>Change, %</i>			3.1	8.2	(2.2)	(5.1)	35.3	28.1	1.0	8.4	4.3
Propylene	-Naphtha		327.5	303.0	353.5	364.5	412.0	341.0	330.5	306.2	330.1	437.4
	<i>Change, %</i>			8.1	(7.4)	(10.2)	(20.5)	(4.0)	(0.9)	7.0	(0.8)	(25.1)
Butadiene	-Naphtha		1,032.5	1,018.0	963.5	637.0	822.0	561.0	1,615.5	717.3	987.6	824.9
	<i>Change, %</i>			1.4	7.2	62.1	25.6	84.0	(36.1)	43.9	4.5	25.2
Benzene	-Naphtha		187.5	158.0	171.0	219.5	299.5	318.5	338.0	247.2	345.3	251.6
	<i>Change, %</i>			18.7	9.6	(14.6)	(37.4)	(41.1)	(44.5)	(24.1)	(45.7)	(25.5)
Toluene	-Naphtha		152.5	133.0	153.5	127.0	152.0	216.0	205.5	231.0	196.0	151.6
	<i>Change, %</i>			14.7	(0.7)	20.1	0.3	(29.4)	(25.8)	(34.0)	(22.2)	0.6
Xylene	-Naphtha		180.0	153.0	166.0	147.0	194.5	201.0	190.5	228.2	175.3	165.6
	<i>Change, %</i>			17.6	8.4	22.4	(7.5)	(10.4)	(5.5)	(21.1)	2.7	8.7

자료 : Cischem, Platts, Bloomberg, SK증권

참고 : Spread는 Polymer와 Naphtha의 가격차이임

Weekly Price			Last Week	1W	1M	3M	6M	12M	YTD	2016avg.	2017avg.	2018acc.
Spot Price	HDPE	CFR SE Asia	1,227.5	1,227.5	1,272.5	1,197.5	1,282.5	1,047.5	1,142.5	1,134.6	1,142.5	1,257.1
	Change, %			0.0	(3.5)	2.5	(4.3)	17.2	7.4	8.2	7.4	(2.4)
	MEG	CFR SE Asia	932.5	927.5	952.5	1,035.0	865.0	855.0	847.5	660.8	850.6	977.2
	Change, %			0.5	(2.1)	(9.9)	7.8	9.1	10.0	41.1	9.6	(4.6)
	PVC	CFR SE Asia	935.0	935.0	932.5	960.0	970.0	885.0	920.0	823.4	899.9	942.2
	Change, %			0.0	0.3	(2.6)	(3.6)	5.6	1.6	13.6	3.9	(0.8)
	PP	CFR SE Asia	1,252.5	1,262.5	1,292.5	1,247.5	1,297.5	1,047.5	1,032.5	978.4	1,099.6	1,261.4
	Change, %			(0.8)	(3.1)	0.4	(3.5)	19.6	21.3	28.0	13.9	(0.7)
	2-EH	CFR Korea	1,090.0	1,100.0	1,120.0	1,155.0	1,130.0	932.5	865.0	772.4	970.0	1,117.1
	Change, %			(0.9)	(2.7)	(5.6)	(3.5)	16.9	26.0	41.1	12.4	(2.4)
	ABS	CFR SE Asia	1,930.0	1,960.0	2,060.0	1,990.0	2,020.0	1,800.0	1,635.0	1,347.1	1,844.7	2,027.1
	Change, %			(1.5)	(6.3)	(3.0)	(4.5)	7.2	18.0	43.3	4.6	(4.8)
	SBR	CFR SE Asia	1,750.0	1,770.0	1,900.0	1,630.0	1,750.0	1,450.0	2,000.0	1,483.0	1,980.5	1,753.6
	Change, %			(1.1)	(7.9)	7.4	0.0	20.7	(12.5)	18.0	(11.6)	(0.2)
	SM	CFR SE Asia	1,402.5	1,367.5	1,492.5	1,365.0	1,337.5	1,202.5	1,205.0	1,064.6	1,253.8	1,400.5
	Change, %			2.6	(6.0)	2.7	4.9	16.6	16.4	31.7	11.9	0.1
	Caustic	FOB NEA	410.0	475.0	539.0	626.0	601.0	457.5	422.5	316.6	491.2	568.4
	Change, %			(13.7)	(23.9)	(34.5)	(31.8)	(10.4)	(3.0)	29.5	(16.5)	(27.9)
	PX	CFR SE Asia	995.0	995.0	980.0	947.5	940.0	785.0	855.0	790.4	844.4	966.4
	Change, %			0.0	1.5	5.0	5.9	26.8	16.4	25.9	17.8	3.0
PO	CFR China	1,797.5	1,735.0	1,787.5	1,915.0	1,875.0	1,530.0	1,562.5	1,396.8	1,601.2	1,874.7	
Change, %			3.6	0.6	(6.1)	(4.1)	17.5	15.0	28.7	12.3	(4.1)	
Caprolactam	CFR SE Asia	2,145.0	2,140.0	2,150.0	2,220.0	2,180.0	1,610.0	1,850.0	1,344.9	1,936.4	2,121.1	
Change, %			0.2	(0.2)	(3.4)	(1.6)	33.2	15.9	59.5	10.8	1.1	
PTA	CFR SE Asia	855.0	865.0	857.5	792.5	790.0	665.0	642.5	613.7	667.8	806.1	
Change, %			(1.2)	(0.3)	7.9	8.2	28.6	33.1	39.3	28.0	6.1	
Spread	HDPE		585.0	565.5	611.0	584.5	714.5	633.5	658.0	735.1	649.0	640.6
	Change, %			3.4	(4.3)	0.1	(18.1)	(7.7)	(11.1)	(20.4)	(9.9)	(8.7)
	MEG		290.0	265.5	291.0	422.0	297.0	441.0	363.0	261.3	357.1	360.8
	Change, %			9.2	(0.3)	(31.3)	(2.4)	(34.2)	(20.1)	11.0	(18.8)	(19.6)
	PVC		292.5	273.0	271.0	347.0	402.0	471.0	435.5	423.9	406.4	325.8
	Change, %			7.1	7.9	(15.7)	(27.2)	(37.9)	(32.8)	(31.0)	(28.0)	(10.2)
	PP		610.0	600.5	631.0	634.5	729.5	633.5	548.0	578.9	606.1	644.9
	Change, %			1.6	(3.3)	(3.9)	(16.4)	(3.7)	11.3	5.4	0.6	(5.4)
	2-EH		447.5	438.0	458.5	542.0	562.0	518.5	380.5	372.9	476.5	500.7
	Change, %			2.2	(2.4)	(17.4)	(20.4)	(13.7)	17.6	20.0	(6.1)	(10.6)
	ABS		1,287.5	1,298.0	1,398.5	1,377.0	1,452.0	1,386.0	1,150.5	947.6	1,351.2	1,410.7
	Change, %			(0.8)	(7.9)	(6.5)	(11.3)	(7.1)	11.9	35.9	(4.7)	(8.7)
	SBR	BD spread	75.0	90.0	275.0	380.0	360.0	475.0	(100.0)	366.2	499.4	312.1
	Change, %			(16.7)	(72.7)	(80.3)	(79.2)	(84.2)	(175.0)	(79.5)	(85.0)	(76.0)
	SM		760.0	705.5	831.0	752.0	769.5	788.5	720.5	665.1	760.3	784.1
	Change, %			7.7	(8.5)	1.1	(1.2)	(3.6)	5.5	14.3	(0.0)	(3.1)
	Caustic											
	Change, %											
	PX		352.5	333.0	318.5	334.5	372.0	371.0	370.5	390.9	351.0	349.9
	Change, %			5.9	10.7	5.4	(5.2)	(5.0)	(4.9)	(9.8)	0.4	0.7
PO	propylene spread	827.5	770.0	772.5	937.5	895.0	775.0	747.5	691.1	777.6	820.9	
Change, %			7.5	7.1	(11.7)	(7.5)	6.8	10.7	19.7	6.4	0.8	
Caprolactam	benzene spread	1,315.0	1,320.0	1,317.5	1,387.5	1,312.5	877.5	1,027.5	698.2	1,097.6	1,253.0	
Change, %			(0.4)	(0.2)	(5.2)	0.2	49.9	28.0	88.3	19.8	4.9	
PTA	px spread	158.5	168.5	171.5	129.3	132.0	115.5	44.0	60.4	76.7	129.6	
Change, %			(5.9)	(7.6)	22.6	20.1	37.2	260.2	162.3	106.7	22.3	

자료 : Ciscchem, Platts, SK증권

참고 : Spread는 Naphtha spread로 일괄적용

Global peers

	Currency	07/16	1D	1W	1M	3M	6M	12M	YTD	MKT CAP (mil USD)	PER		PBR		EV/EBITDA	
											18E	19E	18E	19E	18E	19E
Petrochemical																
DowDuPont	USD	65.7	(1.0)	(1.5)	(3.0)	(1.9)	(12.3)	(0.8)	(7.7)	168,245	17.7	14.9	1.8	1.7	10.2	9.2
Eastman	USD	98.6	(0.9)	(2.2)	(9.5)	(8.1)	1.9	15.5	6.4	13,550	11.6	10.7	2.5	2.2	8.7	8.1
BASF	EUR	81.7	(0.3)	(1.2)	(7.5)	(3.3)	(12.5)	(2.2)	(11.0)	101,214	14.6	13.6	2.4	2.2	7.8	7.4
Akzo Nobel	EUR	74.3	0.5	(0.1)	(2.6)	(5.5)	(1.5)	(5.2)	1.8	22,073	17.0	15.8	3.0	2.8	9.3	8.8
Arkema	EUR	101.9	(0.2)	(0.7)	(1.6)	(5.3)	1.0	2.0	0.3	9,270	13.2	12.2	1.7	1.6	6.3	6.0
Lanxess	EUR	67.7	0.0	(0.7)	(5.0)	9.7	(6.3)	(2.2)	2.1	7,282	15.5	13.1	2.1	1.9	9.3	8.2
Sumitomo Chemical	JPY	616	0.0	(1.3)	(4.3)	(0.8)	(28.5)	(6.1)	(24.0)	11,911	10.1	10.5	1.3	1.2	7.4	8.0
Mitsubishi Chemical	JPY	931	0.0	(0.4)	(4.0)	(10.3)	(27.8)	(5.7)	(24.7)	16,544	9.2	8.7	1.3	1.2	6.3	6.1
Shin-Etsu Chemical	JPY	10,415	0.0	1.6	(0.1)	(4.9)	(15.1)	2.4	(9.0)	43,948	18.5	16.6	1.9	1.8	8.1	7.4
Asahi Kasei	JPY	1,427	0.0	1.3	(1.3)	(1.5)	(4.1)	14.7	(1.8)	18,109	14.4	13.6	1.5	1.4	7.4	7.0
JSR	JPY	1,942	0.0	0.7	1.1	(17.9)	(13.4)	(4.3)	(12.4)	4,455	14.5	13.4	1.2	1.1	7.7	7.2
Nitto Denko	JPY	7,999	0.0	(1.2)	(8.1)	(5.3)	(22.4)	(18.6)	(20.1)	15,450	15.7	14.6	2.1	1.9	7.3	7.0
SABIC	SAR	129.0	0.6	2.5	1.9	7.3	21.5	27.2	27.2	80,773	14.2	13.7	1.7	1.7	7.3	7.1
Yansab	SAR	77.0	2.0	0.0	5.5	5.5	20.1	42.0	30.5	8,861	13.7	13.9	2.2	1.9	9.0	8.9
Formosa Plastics	TWD	108.5	(1.4)	(2.3)	2.4	0.9	6.4	19.9	9.9	21,114	14.4	13.9	1.8	1.8	18.9	19.2
Formosa Fiber	TWD	114.5	(0.9)	(0.9)	1.8	4.6	5.5	25.3	11.2	20,511	13.7	13.4	1.7	1.7	11.6	11.5
Nan Ya Plastics	TWD	84.5	(0.6)	(3.4)	(0.1)	0.8	3.7	9.3	8.5	20,648	14.8	15.3	1.7	1.7	16.2	16.4
Sinopec Shanghai	CNY	5.61	0.5	2.2	(3.8)	(4.3)	(18.2)	(14.1)	(11.4)	9,462	12.0	12.6	2.2	2.0	6.8	7.3
Sinopec Yizheng(Fibe	CNY	1.88	0.5	0.0	(7.4)	(8.7)	(37.1)	(41.4)	(29.6)	5,394	50.4	66.3	5.3	5.0	13.9	10.3
Reliance	INR	1,076	(2.1)	7.9	6.1	14.8	16.6	40.3	18.3	93,404	14.4	12.9	1.7	1.5	9.4	8.7
Industries Qatar	QAR	119.4	4.7	6.1	12.7	6.6	8.9	19.5	23.1	16,144	14.5	13.9	1.6	1.5	46.4	27.2
PTT Chemical	THB	76.5	0.3	4.1	(8.4)	(20.9)	(18.2)	10.5	(10.0)	11,766	10.7	10.4	1.4	1.3	5.5	5.4
Petronas	MYR	8.9	2.9	4.2	6.4	5.0	8.3	29.5	15.2	15,624	16.1	15.5	2.0	1.9	9.2	8.9
LG화학	KRW	328,000	(2.1)	1.7	(12.2)	(10.1)	(24.0)	3.0	(19.0)	27,313	13.8	12.8	1.8	1.6	6.5	6.1
롯데케미칼	KRW	344,500	0.1	1.3	(5.7)	(15.6)	(12.8)	(3.8)	(6.4)	11,632	5.5	5.2	0.9	0.8	3.6	3.3
한화케미칼	KRW	20,600	(1.7)	(1.9)	(15.6)	(28.0)	(40.0)	(35.4)	(34.8)	5,050	5.7	5.5	0.8	0.7	6.7	6.5
금호석유	KRW	107,500	(5.7)	(2.7)	2.9	15.2	6.4	46.9	8.0	2,969	14.1	11.9	1.6	1.5	9.3	8.4
SKC	KRW	42,200	(3.4)	(2.8)	2.6	13.3	(6.1)	12.7	(10.2)	1,643	9.9	8.7	1.1	1.0	8.8	7.9
국도화학	KRW	56,600	(1.4)	(0.4)	(11.6)	(7.1)	(13.9)	6.2	(10.3)	359	#N/A	N/A	#N/A	N/A	#N/A	N/A
효성	KRW	6,200	(1.9)	1.8	(20.3)	(29.1)	(27.8)	4.4	(18.2)	4,595	8.2	7.3	1.1	1.0	7.2	6.8
Average			(0.4)	0.4	(3.0)	(3.5)	(8.1)	6.4	(3.3)							
Refinery																
Valero	USD	106.3	(1.0)	(2.7)	(7.7)	0.8	10.6	56.2	15.7	40,608	14.1	13.4	2.0	2.0	6.9	6.9
Conoco Phillips	USD	70.6	(2.0)	(0.6)	8.0	7.4	20.0	62.4	28.6	66,136	34.0	25.9	2.2	2.2	7.2	6.7
Formosa Petrochemic	TWD	119.0	(1.7)	1.3	(1.7)	0.0	(0.8)	15.0	3.0	37,040	18.2	18.7	3.2	3.2	11.7	12.1
Andeavor	USD	135.1	(0.3)	(0.4)	(0.7)	18.6	13.4	38.4	18.1	17,904	12.9	11.4	1.8	1.7	7.3	7.1
Marathon Petroleum	USD	71.4	(0.4)	(0.6)	(2.9)	(7.9)	0.9	32.7	8.2	32,812	15.0	12.8	2.6	2.7	7.7	7.5
Devon Energy	USD	44.2	(1.1)	(2.4)	9.8	31.5	2.2	39.7	6.8	22,192	17.5	14.0	2.7	2.3	8.4	7.4
Hollyfrontier	USD	68.9	0.3	(1.6)	(4.7)	20.5	31.9	155.6	34.5	9,094	16.8	15.2	1.8	1.8	8.0	8.0
Phillips 66	USD	111.3	(0.4)	(1.1)	(2.6)	4.2	7.6	35.4	10.1	51,561	15.6	14.5	2.3	2.2	9.0	8.8
Murphy Oil	USD	31.7	(3.9)	(6.7)	(3.2)	10.6	(6.9)	24.7	2.1	5,548	162.4	113.2	1.2	1.1	4.9	4.5
JX Holdings	JPY	767.0	0.0	(1.0)	0.4	13.6	(1.5)	56.9	5.5	22,130	8.8	8.0	0.9	0.9	7.0	6.6
Idemitsu	JPY	4,720.0	0.0	23.9	24.9	23.7	6.7	73.0	4.3	8,360	7.9	7.5	1.0	0.9	6.8	6.8
Nesteoil	EUR	65.9	(1.6)	(0.4)	(0.8)	21.3	18.3	78.6	23.6	16,473	16.7	16.7	2.9	2.7	10.2	10.3
Ashland	USD	79.9	(1.6)	0.2	2.1	13.5	10.1	21.7	12.2	4,550	21.6	18.7	1.3	1.3	10.2	9.6
Fuchs Petrolub	EUR	43.1	0.3	0.3	(5.5)	(1.2)	(2.5)	(14.1)	(2.5)	7,127	22.1	20.9	4.1	3.7	13.0	12.3
SK이노베이션	KRW	198,500	3.4	2.6	(7.5)	(2.0)	0.5	18.2	(2.9)	17,975	7.9	7.7	0.9	0.9	4.9	4.8
S-Oil	KRW	116,000	5.9	10.0	4.0	(1.3)	2.7	12.6	(0.9)	12,400	9.3	8.1	1.8	1.6	7.6	6.6
GS	KRW	52,500	1.4	2.1	(9.5)	(12.4)	(21.4)	(28.1)	(15.6)	5,467	6.0	5.5	0.7	0.6	6.9	6.3
Average			(0.2)	1.3	0.1	8.3	5.4	39.9	8.9							

* Bloomberg 기준 / valuation multiple 또한 Bloomberg consensus 기준임

* 국내업체의 multiple은 Dataguidepro 기준임

Global peers

	Currency	07/16	1D	1W	1M	3M	6M	12M	YTD	MKT CAP (mil USD)	PER		PBR		EV/EBITDA	
											18E	19E	18E	19E	18E	19E
E&P/Shale																
Exxon Mobil	USD	82	(1.0)	(0.5)	2.3	5.0	(5.2)	1.5	(1.4)	349,249	16.5	15.2	1.8	1.7	7.6	7.1
BP	GBP	558	(2.3)	(4.6)	(1.3)	12.3	7.6	25.3	6.7	147,382	13.5	12.5	1.4	1.4	5.2	5.0
Shell	EUR	2,594	(2.0)	(2.7)	2.9	9.8	2.0	26.5	4.6	290,167	12.2	10.9	1.4	1.4	5.7	5.4
Chevron	USD	123	(0.9)	(2.4)	(0.9)	1.9	(6.8)	17.8	(1.8)	235,010	15.1	14.5	1.6	1.5	6.3	6.0
Total	EUR	53	(1.0)	(2.2)	0.8	8.5	9.7	21.8	14.6	164,740	11.7	10.9	1.3	1.2	5.5	5.2
Sinopec	CNY	6	(0.2)	(1.2)	(2.5)	(5.7)	(11.0)	1.8	3.3	113,598	10.1	9.6	1.0	1.0	3.8	3.7
Petrochina	CNY	7	(1.4)	(1.6)	(3.4)	(0.8)	(14.0)	(5.1)	(7.4)	196,998	23.8	20.2	1.1	1.1	5.3	5.3
CNOOC	CNY	9	(0.4)	(1.1)	(8.7)	(21.1)	(26.4)	(16.4)	(12.9)	73,949	9.1	9.1	1.2	1.2	3.9	3.9
Gazprom	RUB	147	0.1	(0.7)	6.7	3.9	1.2	17.6	12.6	55,844	3.2	3.3	0.3	0.3	2.6	2.6
Rosneft	RUB	407	0.1	(0.2)	6.3	27.7	28.3	28.1	39.7	69,269	7.7	6.6	0.9	0.9	4.6	4.4
Anadarko	USD	73	(2.3)	(3.1)	6.4	14.8	24.4	62.8	35.8	37,519	24.1	19.9	4.0	3.4	6.9	6.1
Petrobras	BRL	18	(1.3)	(0.3)	19.4	(13.3)	1.3	37.0	11.1	65,256	6.8	5.9	0.7	0.6	4.3	4.1
Lukoil	USD	4,301	(0.4)	(3.4)	6.1	10.5	11.4	47.1	29.0	58,315	5.5	5.7	0.8	0.7	N/A	N/A
Kinder	USD	18	(0.6)	(1.7)	6.1	13.5	(8.2)	(8.9)	(1.5)	47,497	20.6	18.4	1.1	1.2	10.7	10.5
Equinor ASA	NOK	214	(1.8)	(2.7)	(0.9)	7.9	15.8	51.9	22.3	88,225	13.8	12.8	2.0	1.8	3.4	3.3
BHP	AUD	33	(0.8)	(2.3)	(1.5)	10.3	4.5	31.6	11.8	123,731	14.6	16.3	2.1	2.1	6.0	6.3
PTT E&P	THB	135	(0.4)	0.7	0.7	14.4	20.0	59.3	35.0	16,102	13.2	12.4	1.4	1.3	4.0	3.8
Petronas gas	MYR	18	0.9	6.9	4.9	2.0	0.0	(2.3)	5.0	9,011	19.2	19.0	2.8	2.7	10.6	10.4
Chesapeake	USD	5	(5.6)	(9.1)	5.6	57.6	18.4	0.6	23.7	4,468	5.9	6.4	376.9	5.6	6.4	6.1
Noble Energy	USD	35	(3.2)	(5.3)	3.0	8.9	10.1	23.4	19.6	16,888	30.0	21.5	1.6	1.5	7.7	6.5
Average		0	(1.2)	(1.9)	2.6	8.4	4.1	21.1	12.5							
PV																
WACKER	EUR	117.0	1.7	2.1	0.7	(19.5)	(32.4)	18.1	(27.9)	7,140	17.0	15.1	1.8	1.7	5.9	5.7
GCL-Poly	HKD	0.7	0.0	(1.4)	(10.5)	(32.0)	(51.8)	(20.9)	(51.4)	1,591	6.2	5.4	0.4	0.4	6.3	5.8
SunPower	USD	7.8	(0.8)	(2.3)	2.1	(3.6)	(9.7)	(23.1)	(7.7)	1,096	#N/A	#N/A	#N/A	#N/A	20.5	11.9
Canadian Solar	USD	12.9	(1.9)	(1.7)	7.5	(19.9)	(21.6)	(23.6)	(23.8)	753	8.6	8.6	0.7	0.7	7.8	8.4
JA Solar	USD	7.5	0.3	7.3	8.1	6.8	0.8	19.3	0.4	356	#N/A	#N/A	#N/A	#N/A	4.9	7.1
Yingli	USD	0.5	9.8	83.7	(71.9)	(74.7)	(76.9)	(81.1)	(73.4)	8	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
First Solar	USD	54.0	(0.1)	(1.5)	5.8	(23.0)	(24.2)	25.8	(20.0)	5,658	31.6	17.5	1.0	1.0	9.6	5.3
한화큐셀	USD	5.8	2.1	0.7	(8.1)	(20.1)	(19.1)	(20.1)	(18.1)	479	10.3	21.3	#N/A	#N/A	7.8	8.0
OCI	KRW	98,700	0.4	4.9	(9.9)	(38.7)	(42.1)	17.4	(27.4)	2,087	0.0	9.9	0.0	0.7	0.0	4.5
웅진에너지	KRW	3,565	0.8	1.1	(32.7)	(46.0)	(57.4)	(56.7)	(56.6)	94	N/A	0.0	0.7	0.0	4.5	0.0
신성솔라에너지	KRW	1,350	(0.7)	2.7	(18.9)	(18.4)	(35.7)	(35.1)	(29.5)	207	N/A	0.7	0.0	4.5	0.0	2.6
Average			1.1	8.7	(11.6)	(26.3)	(33.7)	(16.4)	(30.5)							
Gas Company																
Towngas China	HKD	8.0	1.1	2.6	10.4	14.1	31.0	41.7	27.2	2,818	15.7	14.0	1.3	1.2	12.9	11.7
Kulun	HKD	6.9	0.1	0.3	(2.7)	6.5	(12.5)	(7.4)	(15.4)	7,086	9.9	8.5	1.1	1.0	5.7	5.1
Beijing Enterprise	HKD	38.0	0.4	(1.9)	(10.3)	(5.4)	(18.3)	(11.0)	(18.1)	6,110	6.6	6.0	0.7	0.6	11.8	11.2
ENN Energy	HKD	84.2	2.7	5.2	10.4	20.6	54.8	57.0	50.9	11,635	18.8	15.8	3.8	3.3	10.9	9.6
China Resources Gas	HKD	36.3	3.6	7.7	19.0	28.3	48.6	17.7	27.9	10,272	19.0	17.0	3.2	2.8	10.3	9.4
China Gas Holdings	HKD	35.0	2.8	5.7	8.7	25.9	58.9	78.5	61.8	22,124	22.6	19.0	5.2	4.4	16.9	14.3
Shenzen Gas	HKD	15.0	(1.6)	2.0	(13.2)	(10.5)	(3.9)	10.2	0.5	4,020	9.1	7.9	1.2	1.1	5.8	5.0
Shann Xi	CNY	7.3	1.3	3.0	3.0	4.9	(12.4)	(15.1)	(13.7)	1,212	16.7	14.6	1.4	1.3	#N/A	#N/A
Suntien	HKD	2.3	3.1	0.9	(5.7)	(5.7)	10.0	39.8	12.1	1,098	6.1	5.4	0.8	0.7	8.4	7.2
China Oil & Gas	HKD	0.6	0.0	(4.8)	(9.1)	0.0	(25.9)	3.4	(29.4)	446	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Average			1.4	2.1	1.1	7.9	13.0	21.5	10.4							
EV																
LG화학	KRW	328,000	(2.1)	1.7	(12.2)	(10.1)	(24.0)	3.0	(19.0)	20,525	12.4	11.2	1.4	1.3	5.8	5.2
삼성SDI	KRW	229,000	(3.4)	(1.5)	(2.8)	19.0	5.8	26.5	12.0	13,959	21.5	15.5	1.3	1.2	14.7	11.5
Panasonic	JPY	1427.5	0.0	1.7	(8.8)	(8.4)	(16.8)	(6.5)	(13.5)	31,143	13.0	11.4	1.8	1.6	4.7	4.4
GS Yuasa	JPY	498.0	0.0	0.6	(1.6)	(14.0)	(15.0)	(1.2)	(11.2)	1,832	14.5	13.4	1.1	1.0	6.8	6.3
NEC	JPY	2939.0	0.0	(1.5)	(6.0)	(0.4)	(5.7)	(1.0)	(3.3)	6,808	22.3	12.5	0.8	0.8	7.0	5.4
BYD Auto	CNY	44.0	(4.4)	(5.5)	(8.8)	(20.0)	(32.2)	(13.1)	(32.4)	17,215	26.0	19.6	2.1	1.9	11.8	10.1
Tesla Motors	USD	310.1	(2.8)	(2.6)	(13.4)	6.5	(8.8)	(5.4)	(0.4)	52,653	#N/A	#N/A	133.4	10.4	9.6	61.3
Kandi Technologies	USD	4.3	0.6	(2.3)	(15.0)	(15.8)	(38.0)	(3.4)	(37.5)	217	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Average			(1.5)	(1.2)	(8.6)	(5.4)	(16.8)	(0.1)	(13.2)							

* Bloomberg 기준 / valuation multiple 또한 Bloomberg consensus 기준임