

1. News Summary (3 page)

2018년 11월 6일

News	
WTI comment	대이란 제재 복원에도 약보함...WTI 0.1%↓
Headline	트럼프 "원유제재 좀 천천히 가길 원해...유가폭등 원하지 않아"
News 1.	러시아는 중국이 Arctic LNG-2 프로젝트에 참여하기를 원하고 있음
News 2.	-
News 3.	-
News 4.	-

Conclusion	
	중간선거에 돌입하며 더 이상 유가 부양의 필요성이 낮아진 트럼프 중국, 러시아가 PNG뿐만 아니라 LNG에 대해서도 협력적 관계 구축할 것
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	-
	-

2. Prices Summary (4~7 page)

Daily	Unit	Price	1D	1W	1M	3M	12M
Refinery			%	%	%	%	%
WTI	\$/bbl	63.1	(0.1)	(5.9)	(15.1)	(8.6)	10.0
Dubai	\$/bbl	71.2	(0.7)	(6.3)	(14.4)	(1.3)	17.5
Gasoline	\$/bbl	75.4	(1.0)	(6.8)	(19.2)	(9.6)	(0.4)
Diesel	\$/bbl	87.5	(1.7)	(6.6)	(11.3)	1.5	21.9
Complex margin	\$/bbl	7.4	(0.4)	(0.2)	0.4	(0.4)	(0.4)
1M lagging	\$/bbl	(4.7)	(1.3)	(8.2)	(18.0)	(9.5)	(19.1)
Petrochemical			%	%	%	%	%
Naphtha	\$/t	584	(1.4)	(8.4)	(20.4)	(12.0)	0.7
Butadiene	\$/t	1,045	0.0	0.0	(16.4)	(38.5)	10.6
HDPE	\$/t	1,230	0.0	(1.6)	(3.9)	(5.7)	(0.8)
MEG	\$/t	790	(0.6)	(1.3)	(11.2)	(15.1)	(12.2)
PX	\$/t	1,166	(0.1)	(4.6)	(10.5)	5.9	34.9
SM	\$/t	1,106	0.0	(4.2)	(19.9)	(23.2)	(5.3)
Commodity			%	%	%	%	%
Natural Gas	\$/mmbtu	3.57	8.6	11.5	8.5	18.8	12.1
Natural rubber	\$/t	1,220	(2.4)	(2.4)	(6.9)	(6.9)	(15.9)
Cotton	C/lbs	78.9	0.1	2.2	1.2	(11.1)	14.6

*참고: 정제마진의 변동률은 %가 아닌 \$/bbl임

Weekly	Update	Unit	Price	1W	1M	3M	12M
Petrochemical				%	%	%	%
Ethylene	11/05	\$/t	805	(9.6)	(24.4)	(35.2)	(28.8)
Propylene	11/05	\$/t	965	(4.9)	(12.1)	(5.4)	24.5
Benzene	11/05	\$/t	733	(6.4)	(16.0)	(16.0)	(10.4)
Toluene	11/05	\$/t	850	(0.6)	0.0	4.9	20.6
Xylene	11/05	\$/t	890	0.0	0.6	7.9	34.3
PP	11/05	\$/t	1,243	(0.8)	(0.4)	1.6	10.2
PVC	11/05	\$/t	850	0.0	(1.2)	(10.1)	(4.5)
ABS	11/05	\$/t	1,710	(0.6)	(6.6)	(12.1)	(9.5)
SBR	11/05	\$/t	1,520	(1.6)	(8.4)	(13.6)	(3.2)
SM	11/05	\$/t	1,148	(6.9)	(18.5)	(21.7)	(4.0)
BPA	11/05	\$/t	1,765	(4.9)	(8.7)	(0.7)	(5.7)
Caustic	11/05	\$/t	375	(4.1)	(13.6)	1.6	(42.4)
2-EH	11/05	\$/t	1,160	(0.9)	0.0	5.0	16.0
Caprolactam	11/05	\$/t	2,080	0.5	(5.5)	(3.5)	(4.1)
Solar				%	%	%	%
Polysilicon	10/31	\$/kg	9.75	(2.6)	(7.3)	(10.6)	(41.5)
Module	10/31	\$/W	0.22	(0.9)	(5.5)	(12.2)	(29.3)

3. Global Peers Summary (8~9 page)

	Unit	Price	1D	1W	1M	3M	12M
E&P			%	%	%	%	%
ExxonMobil	USD	82.0	(0.4)	6.0	(4.3)	1.8	(1.9)
Shell	EUR	2,435	1.4	0.3	(6.3)	(4.3)	0.0
Petrochina	CNY	8.00	(0.2)	0.7	(9.6)	8.9	(0.4)
Gazprom	RUB	154.0	0.0	0.8	(9.8)	7.9	22.1
Petrobras	BRL	28.0	3.1	6.6	17.5	33.4	66.2
Refinery							
Phillips66	USD	101.0	1.5	2.0	(15.1)	(17.4)	7.4
Valero	USD	91.0	(0.7)	4.3	(22.2)	(21.0)	12.7
JX	JPY	744.0	(2.8)	(0.6)	(13.5)	(8.4)	22.6
Neste Oil	EUR	73.0	2.2	0.7	(0.6)	3.1	49.7

	Unit	Price	1D	1W	1M	3M	12M
Petrochemical			%	%	%	%	%
BASF	EUR	70.0	(0.6)	5.2	(6.8)	(13.6)	(28.1)
DowDuPont	USD	58.0	(0.2)	10.7	(8.8)	(13.8)	(19.0)
SABIC	SAR	125.0	(0.5)	(1.4)	(0.3)	(2.2)	25.7
Formosa Pla.	TWD	103.0	2.0	4.3	(7.2)	(7.6)	11.4
Shin-Etsu	JPY	9,856	(1.4)	8.0	(0.7)	(11.6)	(18.6)
Renewable							
Wacker	EUR	95.8	5.2	22.8	(9.7)	(22.9)	(32.0)
First Solar	USD	43.90	2.2	19.0	(6.5)	(16.9)	(26.6)
GCL-Poly	HKD	0.60	18.8	25.3	9.6	(13.6)	(57.5)
Tesla Motors	USD	341.4	(1.4)	2.0	30.3	(1.9)	11.5

4. Coverage Summary

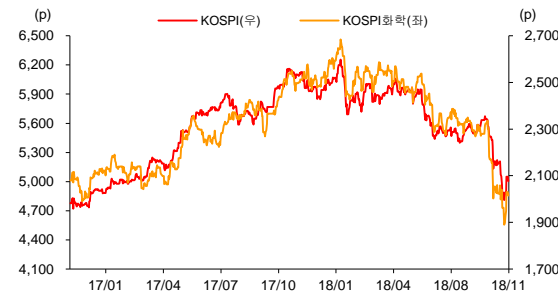
	11/05	1D	1W	1M	3M	6M	12M
KOSPI	2,077	(0.9)	4.1	(8.4)	(9.7)	(15.6)	(18.8)
KOSPI화학	4,854	(0.8)	6.6	(7.2)	(15.4)	(19.5)	(20.6)
LG화학	356,000	(0.6)	6.1	9.9	(7.0)	4.4	(14.0)
롯데케미칼	284,500	(0.4)	11.4	8.4	(18.1)	(26.1)	(24.6)
한화케미칼	18,300	1.7	19.6	(3.4)	(14.3)	(34.9)	(43.3)
금호석유화학	95,900	2.5	19.7	14.9	(7.3)	(11.6)	26.2
KCC	261,000	(1.9)	2.6	(17.9)	(24.5)	(33.2)	(33.3)
OCI	104,000	9.9	28.1	(7.1)	2.0	(31.1)	(16.1)
SKC	33,750	(2.6)	4.7	(19.7)	(23.1)	(15.6)	(16.4)
SK이노베이션	205,000	(1.0)	(0.7)	(8.5)	8.2	3.8	(1.9)
S-Oil	118,500	(1.7)	(0.8)	(13.2)	0.9	9.7	(6.7)
GS	48,600	(1.1)	1.9	(12.4)	(9.0)	(19.7)	(25.9)
SK가스	74,100	(2.1)	1.5	(12.4)	(12.6)	(20.2)	(21.3)
포스코대우	18,100	(1.4)	4.0	(15.8)	(2.7)	(17.0)	(6.2)
LG상사	16,350	0.3	6.5	(22.3)	(30.7)	(39.7)	(44.8)
한국전력	27,100	1.9	0.0	(0.2)	(11.0)	(27.4)	(30.8)
한국가스공사	53,200	0.2	4.3	(14.7)	(1.7)	(4.1)	27.3

투자의견	TP	%	P/E	P/B
			* 추정치는 12M fwd 기준임	
			* 모든 coverage 업체의 실적은 연결기준임	
매수	400,000	12.4	15.62	1.62
매수	360,000	26.5	9.26	12.43
매수	27,000	47.5	8.90	0.45
매수	140,000	46.0	10.98	1.26
매수	400,000	53.3	14.68	0.43
매수	140,000	34.6	12.26	0.71
매수	50,000	48.1	9.34	0.79
매수	240,000	17.1	14.64	1.08
매수	150,000	26.6	14.86	1.95
매수	80,000	64.6	4.62	0.55
매수	120,000	61.9	6.08	0.49
매수	25,000	38.1	10.38	0.67
매수	30,000	83.5	5.90	0.48
매수	40,000	47.6	7.07	0.22
매수	75,000	41.0	9.58	0.70

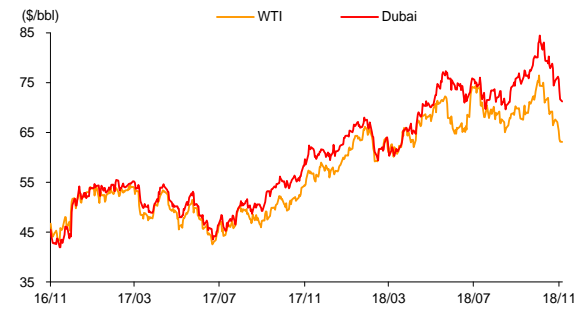
• 작성자(손지우)는 본 조사분석자료에 게재된 내용들이 본인의 의견을 정확하게 반영하고 있으며, 외부의 부당한 압력이나 간섭없이 신의성실하게 작성되었음을 확인합니다.
• 본 보고서에 언급된 종목의 경우 당사 조사분석담당자는 본인의 담당종목을 보유하고 있지 않습니다.
• 본 보고서는 기관투자자 또는 제 3자에게 사전 제공된 사실이 없습니다.
• 당사는 본 보고서의 발간시점에 해당종목을 1% 이상 보유하고 있지 않습니다.

Key Chart

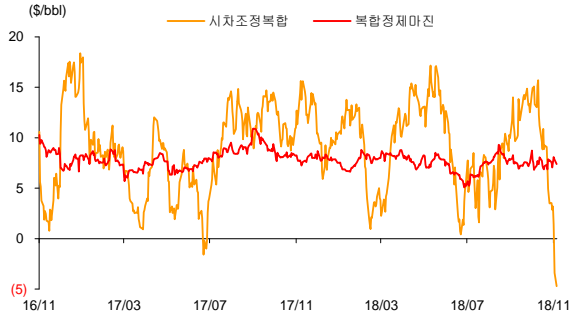
KOSPI/KOSPI화학



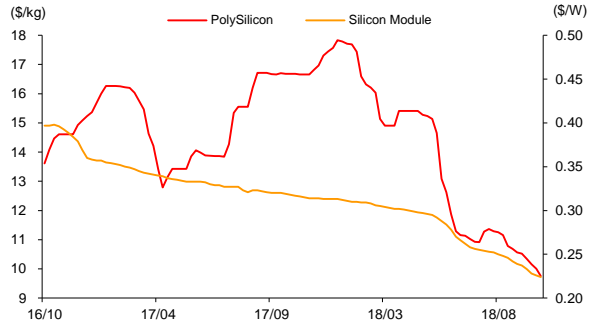
WTI/Dubai



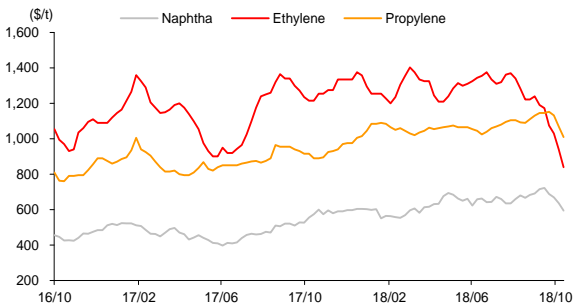
Complex & 1M lagging margin



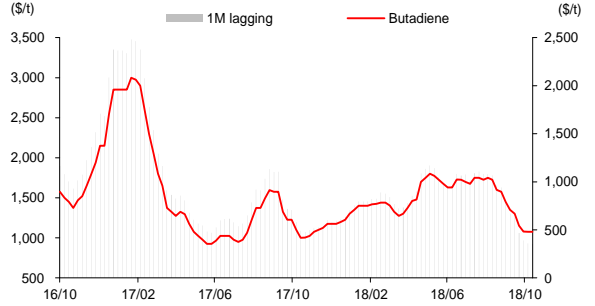
Polysilicon & Module prices



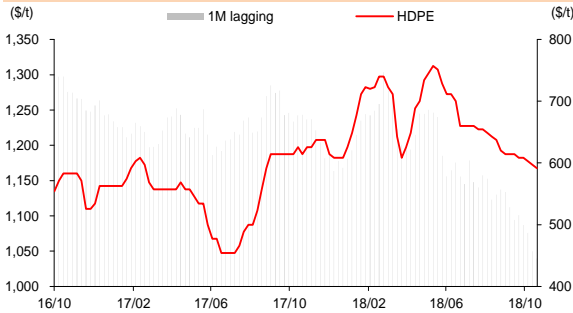
Naphtha/Ethylene/Propylene prices



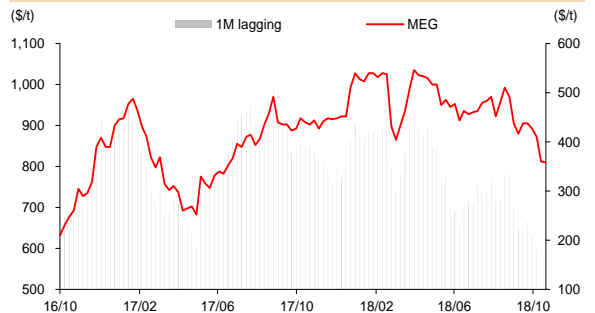
Butadiene price & 1M lagging naphtha spread



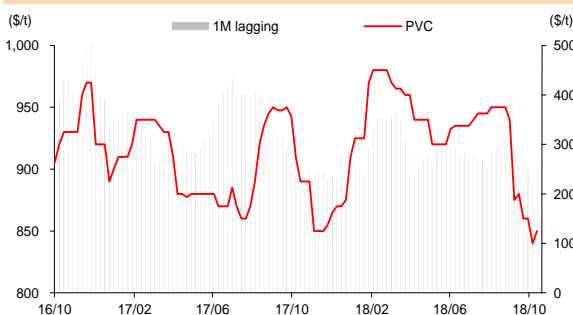
HDPE price & 1M lagging naphtha spread



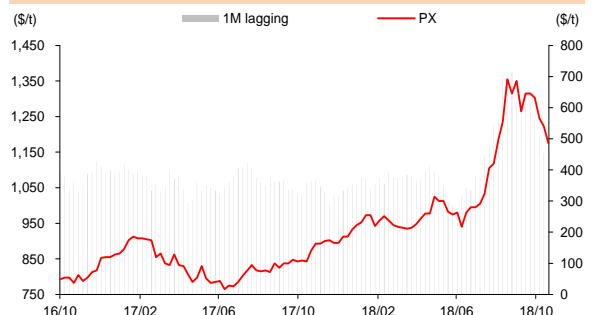
MEG price & 1M lagging naphtha spread



PVC price & 1M lagging naphtha spread



PX price & 1M lagging naphtha spread



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

News Comment

Headline	(출처: 연합뉴스)
제목	트럼프 "원유제재 좀 천천히 가길 원해...유가폭등 원하지 않아"
결론	중간선거에 돌입하며 더 이상 유가 부양의 필요성이 낮아진 트럼프
세부	<ol style="list-style-type: none">1) 트럼프는 이란산 원유 금수 조치에서 일부 국가에 예외를 인정함2) 한국, 중국, 인도, 터키, 이탈리아, 그리스, 일본, 대만을 예외국 지정3) 이에 대해 트럼프는 유가 폭등 충격파를 최소화하기 위한 차원이라 밝힘4) 하루아침에 '원유수입 제로(0)화'를 하기보다는 단계적 접근법 채택5) 중간선거에 돌입하며 더 이상 유가 부양의 필요성이 낮아진 트럼프

Issue 1	(출처: TASS)
제목	러시아는 중국이 Arctic LNG-2 프로젝트에 참여하기를 원하고 있음
결론	중국, 러시아가 PNG뿐만 아니라 LNG에 대해서도 협력적 관계 구축할 것
세부	<ol style="list-style-type: none">1) 러시아 장관, "가스산업은 러시아와 중국의 중요한 에너지 협력 영역임"2) 러시아에서 동중국으로 유입되는 파이프라인이 내년 말 가동될 예정임3) Saudi Aramco는 Arctic LNG-2 프로젝트 지분의 30%를 사들인 바 있음4) 러시아 측은 중국도 Arctic LNG-2 프로젝트에 참여하기를 바라고 있음5) 중국, 러시아가 PNG뿐만 아니라 LNG에 대해서도 협력적 관계 구축할 것

Issue 3
제목
결론
세부
<ol style="list-style-type: none">1)2)3)4)5)

Issue 5
제목
결론
세부
<ol style="list-style-type: none">1)2)3)4)5)

WTI Comment	(출처: 연합뉴스)
제목	대이란 제재 복원에도 약보함...WTI 0.1%↓
상승	미국의 대이란 원유제재 복원
요인	
하락	미국이 한국을 포함해 8개국에 대해 한시적 예외를 인정
요인	글로벌 원유수요가 약화할 수 있다는 전망

Issue 2
제목
결론
세부
<ol style="list-style-type: none">1)2)3)4)5)

Issue 4
제목
결론
세부
<ol style="list-style-type: none">1)2)3)4)5)

Issue 6
제목
결론
세부
<ol style="list-style-type: none">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	0.900	0.900	0.900	0.900	0.900	0.800	0.900	0.800	0.900	0.900	0.800	
	Change, %		(0.2)	(0.3)	1.0	1.4	4.9	1.8	5.2	(3.0)	(1.1)	4.1	
	USD/JPY	113.2	113.2	112.4	113.7	111.3	109.1	114.1	112.6	108.8	112.1	110.0	
	Change, %		0.0	0.7	(0.5)	1.7	3.7	(0.8)	0.5	4.1	0.9	2.9	
	USD/KRW	1,123.4	1,122.0	1,141.2	1,130.5	1,127.7	1,077.2	1,113.8	1,066.7	1,160.5	1,130.9	1,096.0	
	Change, %		0.1	(1.6)	(0.6)	(0.4)	4.3	0.9	5.3	(3.2)	(0.7)	2.5	
	<hr/>												
	Agriculture	Corn	374.0	371.3	366.8	368.3	369.8	398.8	348.3	350.8	358.5	359.4	367.8
Change, %			0.7	2.0	1.6	1.1	(6.2)	7.4	6.6	4.3	4.1	1.7	
Soybean		873.0	875.3	839.0	869.0	886.3	1,027.3	977.0	951.8	987.5	975.9	939.4	
Change, %			(0.3)	4.1	0.5	(1.5)	(15.0)	(10.6)	(8.3)	(11.6)	(10.5)	(7.1)	
Wheat		507.3	508.8	507.3	521.0	556.3	527.5	425.8	427.0	436.4	436.0	492.5	
Change, %			(0.3)	0.0	(2.6)	(8.8)	(3.8)	19.1	18.8	16.2	16.3	3.0	
Rice		10.8	10.7	10.5	10.8	11.5	12.7	11.3	11.7	10.3	11.1	11.7	
Change, %			0.5	2.7	(0.6)	(6.4)	(15.2)	(4.7)	(7.9)	4.0	(2.8)	(8.1)	
Oats		292.8	284.3	286.5	287.0	249.8	223.8	263.0	241.0	196.3	252.3	251.2	
Change, %			3.0	2.2	2.0	17.2	30.8	11.3	21.5	49.2	16.0	16.5	
MYR/mt		Palm Oil	1,950.0	1,985.0	2,075.0	2,139.0	2,170.0	2,319.0	2,784.0	2,444.0	2,653.8	2,787.3	2,314.7
		Change, %		(1.8)	(6.0)	(8.8)	(10.1)	(15.9)	(30.0)	(20.2)	(26.5)	(30.0)	(15.8)
		Cocoa	2,312.0	2,267.0	2,195.0	2,024.0	2,046.0	2,799.0	2,061.0	1,892.0	2,854.0	2,005.2	2,326.7
		Change, %		2.0	5.3	14.2	13.0	(17.4)	12.2	22.2	(19.0)	15.3	(0.6)
	Cotton	78.9	78.8	77.2	76.5	88.7	86.4	68.7	78.6	65.6	73.5	83.1	
	Change, %		0.1	2.2	3.1	(11.1)	(8.7)	14.8	0.3	20.2	7.3	(5.1)	
	Sugar	13.2	13.4	13.5	12.6	10.9	11.5	14.4	15.2	18.2	15.8	12.2	
	Change, %		(2.2)	(2.6)	4.1	21.2	14.2	(8.6)	(13.3)	(27.6)	(16.9)	7.8	
Coffee	117.1	120.1	114.3	109.0	107.8	120.5	124.0	126.2	136.1	133.0	114.1		
Change, %		(2.5)	2.5	7.5	8.7	(2.8)	(5.5)	(7.2)	(13.9)	(11.9)	2.6		
<hr/>													
Energy	WTI	63.1	63.1	67.0	74.3	68.5	69.7	55.6	60.4	43.4	51.0	67.1	
	Change, %		(0.1)	(5.9)	(15.1)	(7.9)	(9.5)	13.4	4.4	45.4	23.8	(6.0)	
	Brent	72.8	72.8	77.3	84.2	73.2	74.9	62.1	66.9	45.1	54.9	73.5	
	Change, %		(0.1)	(5.9)	(13.5)	(0.6)	(2.8)	17.3	8.8	61.5	32.7	(1.0)	
	Natural Gas	3.6	3.3	3.2	3.1	2.9	2.7	3.0	3.0	2.6	3.0	2.9	
	Change, %		8.6	12.0	13.5	25.0	31.6	19.5	20.8	39.8	18.0	23.3	
	Ethanol	1.3	1.3	1.3	1.3	1.4	1.5	1.4	1.3	1.5	1.5	1.4	
	Change, %		0.0	2.3	(1.4)	(9.0)	(13.1)	(8.3)	(1.4)	(14.0)	(13.0)	(6.7)	
	RBOB Gasoline	169.2	170.8	182.5	208.6	206.6	211.4	179.3	179.9	140.0	162.9	200.0	
	Change, %		(1.0)	(7.3)	(18.9)	(18.1)	(20.0)	(5.7)	(6.0)	20.9	3.9	(15.4)	
Coal	103.9	103.4	108.0	113.7	117.5	100.6	99.0	100.8	65.5	88.2	108.0		
Change, %		0.5	(3.8)	(8.6)	(11.5)	3.3	4.9	3.1	58.7	17.8	(3.8)		
<hr/>													
Metal	Gold	1,231.5	1,233.0	1,229.4	1,203.0	1,213.7	1,315.4	1,269.7	1,302.6	1,248.5	1,258.6	1,275.0	
	Change, %		(0.1)	0.2	2.4	1.5	(6.4)	(3.0)	(5.5)	(1.4)	(2.2)	(3.4)	
	Silver	14.6	14.7	14.5	14.6	15.4	16.5	16.8	16.9	17.1	17.1	15.9	
	Change, %		(0.7)	1.3	0.0	(5.0)	(11.5)	(13.0)	(13.6)	(14.4)	(14.2)	(8.0)	
	Copper	6,191.0	6,283.0	6,160.0	6,173.0	6,206.0	6,826.0	6,895.0	7,247.0	4,872.0	6,199.4	6,619.9	
	Change, %		(1.5)	0.5	0.3	(0.2)	(9.3)	(10.2)	(14.6)	27.1	(0.1)	(6.5)	
	Nickel	855.5	870.4	856.9	940.2	926.2	934.1	820.1	809.1	646.4	680.2	918.2	
	Change, %		(1.7)	(0.2)	(9.0)	(7.6)	(8.4)	4.3	5.7	32.4	25.8	(6.8)	
	Zinc	2,520.0	2,552.5	2,622.0	2,635.0	2,631.0	3,055.0	3,219.0	3,319.0	2,097.5	2,888.5	2,957.4	
	Change, %		(1.3)	(3.9)	(4.4)	(4.2)	(17.5)	(21.7)	(24.1)	20.1	(12.8)	(14.8)	
	Lead	1,916.0	1,978.3	1,952.8	1,981.3	2,109.3	2,317.5	2,462.3	2,482.8	1,868.3	2,315.7	2,293.5	
	Change, %		(3.1)	(1.9)	(3.3)	(9.2)	(17.3)	(22.2)	(22.8)	2.6	(17.3)	(16.5)	
	Aluminum	13,870.0	13,895.0	14,150.0	14,310.0	14,325.0	14,510.0	16,045.0	15,020.0	12,373.5	14,556.6	14,356.0	
	Change, %		(0.2)	(2.0)	(3.1)	(3.2)	(4.4)	(13.6)	(7.7)	12.1	(4.7)	(3.4)	
	Cobalt	52,500.0	58,085.0	59,619.0	56,750.0	64,284.0	88,500.0	60,860.0	75,205.0	25,480.1	55,906.9	76,072.0	
	Change, %		(9.6)	(11.9)	(7.5)	(18.3)	(40.7)	(13.7)	(30.2)	106.0	(6.1)	(31.0)	
	HR Coil	824.0	827.0	834.0	828.0	894.0	862.0	612.0	662.0	519.3	620.1	838.7	
	Change, %		(0.4)	(1.2)	(0.5)	(7.8)	(4.4)	34.6	24.5	58.7	32.9	(1.8)	
Scrap	403.0	399.0	405.0	396.0	392.0	378.0	330.0	367.0	275.7	344.7	389.6		
Change, %		1.0	(0.5)	1.8	2.8	6.6	22.1	9.8	46.2	16.9	3.4		

자료: Bloomberg

참고) NYMEX, ICE, LME 중 대표지수를 사용

Refining Price Data

Daily Price		11/05	1D	1W	1M	3M	6M	12M	YTD	2015avg.	2016avg.	2017acc.
Crude Oil	WTI	63.1	63.1	67.0	74.3	69.0	70.7	57.4	53.7	43.4	50.9	67.2
	<i>Change, %</i>		(0.1)	(5.9)	(15.1)	(8.6)	(10.8)	10.0	17.5	45.5	24.0	(6.1)
	Dubai	71.2	71.7	76.0	83.2	72.1	72.5	60.6	53.8	41.3	53.1	71.1
	<i>Change, %</i>		(0.7)	(6.3)	(14.4)	(1.3)	(1.7)	17.5	32.3	72.4	34.1	0.1
Crude Oil Product	Gasoline(휘발유)	75.4	76.2	80.9	93.4	83.4	83.9	75.8	69.8	56.3	68.0	83.0
	<i>Change, %</i>		(1.0)	(6.8)	(19.2)	(9.6)	(10.1)	(0.4)	8.0	34.1	10.9	(9.2)
	Kerosene(등유)	87.4	89.0	93.3	97.5	87.0	88.3	73.4	66.4	52.9	65.2	86.4
	<i>Change, %</i>		(1.8)	(6.4)	(10.4)	0.4	(1.1)	19.0	31.5	65.2	33.9	1.1
	Diesel(경유)	87.5	89.0	93.7	98.6	86.2	87.8	71.8	65.5	52.1	65.6	85.9
	<i>Change, %</i>		(1.7)	(6.6)	(11.3)	1.5	(0.3)	21.9	33.5	67.8	33.3	1.8
	Bunker-C	74.4	74.3	76.4	78.5	69.8	64.9	57.3	52.1	35.5	49.7	66.0
	<i>Change, %</i>		0.2	(2.6)	(5.2)	6.5	14.6	29.8	42.9	109.4	49.8	12.6
	Naphtha	63.2	64.1	69.1	79.4	72.7	72.1	64.2	53.5	42.6	53.7	69.6
	<i>Change, %</i>		(1.3)	(8.5)	(20.4)	(13.0)	(12.3)	(1.5)	18.3	48.4	17.6	(9.2)
Dubai Spread	Gasoline(휘발유)	4.2	4.6	4.9	10.2	11.3	11.5	15.2	16.0	14.9	14.9	11.9
	<i>Change</i>		(0.3)	(0.7)	(6.0)	(7.1)	(7.2)	(11.0)	(11.8)	(10.7)	(10.7)	(7.7)
	Kerosene(등유)	16.2	17.3	17.3	14.3	14.9	15.8	12.8	12.6	11.6	12.1	15.3
	<i>Change</i>		(1.2)	(1.2)	1.8	1.3	0.3	3.3	3.5	4.6	4.0	0.9
	Diesel(경유)	16.3	17.3	17.6	15.4	14.1	15.3	11.2	11.7	10.8	12.5	14.8
	<i>Change</i>		(1.1)	(1.4)	0.8	2.2	1.0	5.1	4.6	5.5	3.7	1.4
	Bunker-C	3.2	2.6	0.4	(4.7)	(2.3)	(7.6)	(3.3)	(1.8)	(5.8)	(3.4)	(5.1)
	<i>Change</i>		0.6	2.8	7.9	5.5	10.7	6.5	4.9	9.0	6.6	8.2
	Naphtha	(8.0)	(7.6)	(6.9)	(3.8)	0.5	(0.4)	3.6	(0.4)	1.3	0.6	(1.5)
	<i>Change</i>		(0.4)	(1.1)	(4.2)	(8.5)	(7.6)	(11.6)	(7.6)	(9.3)	(8.6)	(6.5)
Refining Margin	Simple(단순)	5.4	5.5	4.5	1.9	3.4	1.3	3.0	3.8	1.9	3.2	2.4
	<i>Change</i>		(0.1)	0.8	3.4	1.9	4.0	2.4	1.5	3.4	2.2	3.0
	Complex(복합)	7.4	7.8	7.5	7.0	7.8	7.1	7.7	8.3	7.0	8.0	7.5
	<i>Change</i>		(0.4)	(0.2)	0.4	(0.4)	0.3	(0.4)	(0.9)	0.4	(0.6)	(0.1)
Complex(lagging)	(4.7)	(3.4)	3.5	13.3	4.8	14.8	14.4	18.0	8.5	8.9	9.2	
<i>Change</i>		(1.3)	(8.2)	(18.0)	(9.5)	(19.5)	(19.1)	(22.7)	(13.2)	(13.6)	(13.9)	

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			11/05	11/02	11/01	10/31	10/30	10/29	10/26	10/25	10/24	10/23
Spot Price	Naphtha	CFR Japan	584.3	592.5	606.0	639.5	641.3	637.8	631.0	638.9	633.1	652.8
	Ethylene	CFR SE Asia	835.0	835.0	835.0	845.0	845.0	910.0	910.0	950.0	980.0	980.0
	Propylene	FOB Korea	1,020.0	1,020.0	1,040.0	1,055.0	1,055.0	1,070.0	1,090.0	1,120.0	1,120.0	1,120.0
	Butadiene	FOB Korea	1,045.0	1,045.0	1,045.0	1,045.0	1,045.0	1,045.0	1,045.0	1,060.0	1,060.0	1,060.0
	HDPE	CFR FE Asia	1,230.0	1,230.0	1,230.0	1,230.0	1,240.0	1,250.0	1,250.0	1,260.0	1,260.0	1,260.0
	LDPE	CFR FE Asia	1,060.0	1,080.0	1,090.0	1,090.0	1,090.0	1,100.0	1,100.0	1,100.0	1,110.0	1,110.0
	LLDPE	CFR FE Asia	1,060.0	1,070.0	1,080.0	1,080.0	1,080.0	1,090.0	1,090.0	1,090.0	1,100.0	1,100.0
	MEG	CFR China	790.0	795.0	773.0	810.0	812.0	800.0	798.0	807.0	826.0	849.0
	PP	CFR FE Asia	1,200.0	1,200.0	1,200.0	1,210.0	1,210.0	1,220.0	1,220.0	1,230.0	1,235.0	1,235.0
	PX	CFR China	1,165.7	1,166.7	1,187.3	1,213.5	1,216.5	1,221.3	1,214.0	1,217.3	1,230.3	1,237.3
	PTA	CFR China	920.0	920.0	920.0	931.0	955.0	960.0	960.0	960.0	972.0	975.0
	Benzene	FOB Korea	716.0	723.0	740.0	754.7	753.7	760.7	765.7	764.0	774.7	801.7
	Toluene	FOB Korea	784.0	799.0	809.0	823.0	830.0	845.0	845.0	838.0	838.0	840.0
	Xylene	FOB Korea	865.0	874.0	880.0	897.0	902.0	903.0	898.0	899.0	904.0	919.0
	SM	FOB Korea	1,106.0	1,106.0	1,101.0	1,141.5	1,154.5	1,155.0	1,170.0	1,177.0	1,184.0	1,202.0

Weekly Price			Last Week	1W	1M	3M	6M	12M	YTD	2016avg.	2017avg.	2018acc.
Spot Price	Naphtha	CFR Japan	594.0	637.0	722.5	659.0	662.0	574.0	484.5	399.5	493.5	634.4
	<i>Change, %</i>			(6.8)	(17.8)	(9.9)	(10.3)	3.5	22.6	48.7	20.4	(6.4)
	Ethylene	CFR SE Asia	805.0	890.0	1,065.0	1,242.5	1,290.0	1,130.0	990.0	1,040.9	1,090.9	1,197.2
	<i>Change, %</i>			(9.6)	(24.4)	(35.2)	(37.6)	(28.8)	(18.7)	(22.7)	(26.2)	(32.8)
	Propylene	CFR SE Asia	965.0	1,015.0	1,097.5	1,020.0	965.0	775.0	815.0	705.7	823.6	1,070.5
	<i>Change, %</i>			(4.9)	(12.1)	(5.4)	0.0	24.5	18.4	36.8	17.2	(9.9)
	Butadiene	CFR SE Asia	1,025.0	1,025.0	1,250.0	1,700.0	1,680.0	950.0	2,100.0	1,116.8	1,481.1	1,438.4
	<i>Change, %</i>			0.0	(18.0)	(39.7)	(39.0)	7.9	(51.2)	(8.2)	(30.8)	(28.7)
	Benzene	CFR SE Asia	732.5	782.5	872.5	872.5	820.0	817.5	822.5	646.7	838.8	860.2
	<i>Change, %</i>			(6.4)	(16.0)	(16.0)	(10.7)	(10.4)	(10.9)	13.3	(12.7)	(14.8)
	Toluene	CFR SE Asia	850.0	855.0	850.0	810.0	795.0	705.0	690.0	630.5	689.5	791.6
	<i>Change, %</i>			(0.6)	0.0	4.9	6.9	20.6	23.2	34.8	23.3	7.4
Xylene	CFR SE Asia	890.0	890.0	885.0	825.0	815.0	662.5	675.0	627.7	668.8	812.7	
<i>Change, %</i>			0.0	0.6	7.9	9.2	34.3	31.9	41.8	33.1	9.5	

Spread	Ethylene	-Naphtha	211.0	253.0	342.5	583.5	628.0	556.0	505.5	641.4	597.4	562.8
	<i>Change, %</i>			(16.6)	(38.4)	(63.8)	(66.4)	(62.1)	(58.3)	(67.1)	(64.7)	(62.5)
	Propylene	-Naphtha	371.0	378.0	375.0	361.0	303.0	201.0	330.5	306.2	330.1	436.1
	<i>Change, %</i>			(1.9)	(1.1)	2.8	22.4	84.6	12.3	21.2	12.4	(14.9)
	Butadiene	-Naphtha	431.0	388.0	527.5	1,041.0	1,018.0	376.0	1,615.5	717.3	987.6	804.0
	<i>Change, %</i>			11.1	(18.3)	(58.6)	(57.7)	14.6	(73.3)	(39.9)	(56.4)	(46.4)
	Benzene	-Naphtha	138.5	145.5	150.0	213.5	158.0	243.5	338.0	247.2	345.3	225.9
	<i>Change, %</i>			(4.8)	(7.7)	(35.1)	(12.3)	(43.1)	(59.0)	(44.0)	(59.9)	(38.7)
Toluene	-Naphtha	256.0	218.0	127.5	151.0	133.0	131.0	205.5	231.0	196.0	157.2	
<i>Change, %</i>			17.4	100.8	69.5	92.5	95.4	24.6	10.8	30.6	62.8	
Xylene	-Naphtha	296.0	253.0	162.5	166.0	153.0	88.5	190.5	228.2	175.3	178.3	
<i>Change, %</i>			17.0	82.2	78.3	93.5	234.5	55.4	29.7	68.8	66.0	

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	1,167.5	1,172.5	1,182.5	1,222.5	1,227.5	1,187.5	1,142.5	1,134.6	1,142.5	1,235.7
	Change, %			(0.4)	(1.3)	(4.5)	(4.9)	(1.7)	2.2	2.9	2.2	(5.5)
	MEG	CFR SE Asia	810.0	812.5	905.0	960.0	927.5	902.5	847.5	660.8	850.6	954.7
	Change, %			(0.3)	(10.5)	(15.6)	(12.7)	(10.2)	(4.4)	22.6	(4.8)	(15.2)
	PVC	CFR SE Asia	850.0	850.0	860.0	945.0	935.0	890.0	920.0	823.4	899.9	929.8
	Change, %			0.0	(1.2)	(10.1)	(9.1)	(4.5)	(7.6)	3.2	(5.5)	(8.6)
	PP	CFR SE Asia	1,242.5	1,252.5	1,247.5	1,222.5	1,262.5	1,127.5	1,032.5	978.4	1,099.6	1,254.1
	Change, %			(0.8)	(0.4)	1.6	(1.6)	10.2	20.3	27.0	13.0	(0.9)
	2-EH	CFR Korea	1,160.0	1,170.0	1,160.0	1,105.0	1,100.0	1,000.0	865.0	772.4	970.0	1,124.1
	Change, %			(0.9)	0.0	5.0	5.5	16.0	34.1	50.2	19.6	3.2
	ABS	CFR SE Asia	1,710.0	1,720.0	1,830.0	1,945.0	1,960.0	1,890.0	1,635.0	1,347.1	1,844.7	1,967.0
	Change, %			(0.6)	(6.6)	(12.1)	(12.8)	(9.5)	4.6	26.9	(7.3)	(13.1)
	SBR	CFR SE Asia	1,520.0	1,545.0	1,660.0	1,760.0	1,770.0	1,570.0	2,000.0	1,483.0	1,980.5	1,742.6
	Change, %			(1.6)	(8.4)	(13.6)	(14.1)	(3.2)	(24.0)	2.5	(23.3)	(12.8)
	SM	CFR SE Asia	1,147.5	1,232.5	1,407.5	1,465.0	1,367.5	1,195.0	1,205.0	1,064.6	1,253.8	1,397.3
	Change, %			(6.9)	(18.5)	(21.7)	(16.1)	(4.0)	(4.8)	7.8	(8.5)	(17.9)
	Caustic	FOB NEA	375.0	391.0	434.0	369.0	475.0	651.0	422.5	316.6	491.2	510.0
	Change, %			(4.1)	(13.6)	1.6	(21.1)	(42.4)	(11.2)	18.5	(23.7)	(26.5)
	PX	CFR SE Asia	1,175.0	1,222.5	1,315.0	1,105.0	995.0	872.5	855.0	790.4	844.4	1,059.1
	Change, %			(3.9)	(10.6)	6.3	18.1	34.7	37.4	48.7	39.1	10.9
PO	CFR China	1,765.0	1,855.0	1,932.5	1,777.5	1,735.0	1,872.5	1,562.5	1,396.8	1,601.2	1,873.6	
Change, %			(4.9)	(8.7)	(0.7)	1.7	(5.7)	13.0	26.4	10.2	(5.8)	
Caprolactam	CFR SE Asia	2,080.0	2,070.0	2,200.0	2,155.0	2,140.0	2,170.0	1,850.0	1,344.9	1,936.4	2,132.4	
Change, %			0.5	(5.5)	(3.5)	(2.8)	(4.1)	12.4	54.7	7.4	(2.5)	
PTA	CFR SE Asia	930.0	975.0	1,030.0	882.5	865.0	670.0	642.5	613.7	667.8	871.0	
Change, %			(4.6)	(9.7)	5.4	7.5	38.8	44.7	51.5	39.3	6.8	
Spread	HDPE		573.5	535.5	460.0	563.5	565.5	613.5	658.0	735.1	649.0	601.4
	Change, %			7.1	24.7	1.8	1.4	(6.5)	(12.8)	(22.0)	(11.6)	(4.6)
	MEG		216.0	175.5	182.5	301.0	265.5	328.5	363.0	261.3	357.1	320.3
	Change, %			23.1	18.4	(28.2)	(18.6)	(34.2)	(40.5)	(17.3)	(39.5)	(32.6)
	PVC		256.0	213.0	137.5	286.0	273.0	316.0	435.5	423.9	406.4	295.5
	Change, %			20.2	86.2	(10.5)	(6.2)	(19.0)	(41.2)	(39.6)	(37.0)	(13.4)
	PP		648.5	615.5	525.0	563.5	600.5	553.5	548.0	578.9	606.1	619.7
	Change, %			5.4	23.5	15.1	8.0	17.2	18.3	12.0	7.0	4.6
	2-EH		566.0	533.0	437.5	446.0	438.0	426.0	380.5	372.9	476.5	489.7
	Change, %			6.2	29.4	26.9	29.2	32.9	48.8	51.8	18.8	15.6
	ABS		1,116.0	1,083.0	1,107.5	1,286.0	1,298.0	1,316.0	1,150.5	947.6	1,351.2	1,332.7
	Change, %			3.0	0.8	(13.2)	(14.0)	(15.2)	(3.0)	17.8	(17.4)	(16.3)
	SBR	BD spread	495.0	520.0	410.0	60.0	90.0	620.0	(100.0)	366.2	499.4	304.2
	Change, %			(4.8)	20.7	725.0	450.0	(20.2)	(595.0)	35.2	(0.9)	62.7
	SM		553.5	595.5	685.0	806.0	705.5	621.0	720.5	665.1	760.3	762.9
	Change, %			(7.1)	(19.2)	(31.3)	(21.5)	(10.9)	(23.2)	(16.8)	(27.2)	(27.4)
	Caustic											
	Change, %											
	PX		581.0	585.5	592.5	446.0	333.0	298.5	370.5	390.9	351.0	424.7
	Change, %			(0.8)	(1.9)	30.3	74.5	94.6	56.8	48.6	65.5	36.8
PO	propylene spread	800.0	840.0	835.0	757.5	770.0	1,097.5	747.5	691.1	777.6	803.1	
Change, %			(4.8)	(4.2)	5.6	3.9	(27.1)	7.0	15.7	2.9	(0.4)	
Caprolactam	benzene spread	1,347.5	1,287.5	1,327.5	1,282.5	1,320.0	1,352.5	1,027.5	698.2	1,097.6	1,272.2	
Change, %			4.7	1.5	5.1	2.1	(0.4)	31.1	93.0	22.8	5.9	
PTA	px spread	107.5	119.3	109.5	109.0	168.5	59.3	44.0	60.4	76.7	129.7	
Change, %			(9.9)	(1.8)	(1.4)	(36.2)	81.4	144.3	77.9	40.2	(17.1)	

자료 : Ciscchem, Platts, SK증권

참고 : Spread는 Naphtha spread로 일괄적용

Global peers

	Currency	11/05	1D	1W	1M	3M	6M	12M	YTD	MKT CAP (mil USD)	PER		PBR		EV/EBITDA	
											18E	19E	18E	19E	18E	19E
Petrochemical																
DowDuPont	USD	58.0	(0.2)	10.7	(8.8)	(13.8)	(10.6)	(19.0)	(19.1)	168,245	17.7	14.9	1.8	1.7	10.2	9.2
Eastman	USD	82.0	(0.6)	7.4	(9.9)	(19.6)	(21.7)	(10.2)	(11.5)	13,550	11.6	10.7	2.5	2.2	8.7	8.1
BASF	EUR	70.0	(0.6)	5.2	(6.8)	(13.6)	(19.8)	(28.1)	(24.2)	101,214	14.6	13.6	2.4	2.2	7.8	7.4
Akzo Nobel	EUR	75.0	(0.9)	2.5	(6.7)	(7.1)	(1.2)	(4.3)	2.2	22,073	17.0	15.8	3.0	2.8	9.3	8.8
Arkema	EUR	96.0	0.0	6.1	(10.2)	(12.0)	(9.6)	(12.6)	(5.8)	9,270	13.2	12.2	1.7	1.6	6.3	6.0
Lanxess	EUR	57.0	(1.0)	6.5	(10.6)	(15.7)	(14.1)	(19.2)	(14.3)	7,282	15.5	13.1	2.1	1.9	9.3	8.2
Sumitomo Chemical	JPY	593	(1.5)	8.8	(7.3)	(8.5)	(6.5)	(27.7)	(26.8)	11,911	10.1	10.5	1.3	1.2	7.4	8.0
Mitsubishi Chemical	JPY	911	(2.1)	6.9	(14.5)	(8.1)	(12.8)	(24.3)	(26.3)	16,544	9.2	8.7	1.3	1.2	6.3	6.1
Shin-Etsu Chemical	JPY	9,856	(1.4)	8.0	(0.7)	(11.6)	(12.3)	(18.6)	(13.9)	43,948	18.5	16.6	1.9	1.8	8.1	7.4
Asahi Kasei	JPY	1,247	(4.3)	(5.2)	(27.0)	(20.3)	(17.5)	(10.9)	(14.2)	18,109	14.4	13.6	1.5	1.4	7.4	7.0
JSR	JPY	1,766	(0.7)	6.8	(14.5)	(16.1)	(15.1)	(20.2)	(20.4)	4,455	14.5	13.4	1.2	1.1	7.7	7.2
Nitto Denko	JPY	6,454	3.6	(5.8)	(25.4)	(24.4)	(25.4)	(42.9)	(35.5)	15,450	15.7	14.6	2.1	1.9	7.3	7.0
SABIC	SAR	125.0	(0.5)	(1.4)	(0.3)	(2.2)	10.3	25.7	23.6	80,773	14.2	13.7	1.7	1.7	7.3	7.1
Yansab	SAR	69.0	(0.3)	0.1	(1.7)	(6.9)	(2.4)	24.1	16.6	8,861	13.7	13.9	2.2	1.9	9.0	8.9
Formosa Plastics	TWD	103.0	2.0	4.3	(7.2)	(7.6)	(1.9)	11.4	4.4	21,114	14.4	13.9	1.8	1.8	18.9	19.2
Formosa Fiber	TWD	112.0	2.3	2.8	(7.5)	(5.9)	2.3	20.5	8.3	20,511	13.7	13.4	1.7	1.7	11.6	11.5
Nan Ya Plastics	TWD	78.0	0.1	2.9	(5.0)	(6.9)	(4.6)	4.0	0.1	20,648	14.8	15.3	1.7	1.7	16.2	16.4
Sinopec Shanghai	CNY	5.00	(0.2)	(0.4)	(9.4)	1.3	(8.0)	(17.3)	(16.1)	9,462	12.0	12.6	2.2	2.0	6.8	7.3
Sinopec Yizheng(Fibe	CNY	2.00	2.1	3.7	(4.8)	5.3	(1.5)	(35.1)	(25.8)	5,394	50.4	66.3	5.3	5.0	13.9	10.3
Reliance	INR	1,090	1.4	0.2	4.0	(7.4)	14.3	15.3	19.8	93,404	14.4	12.9	1.7	1.5	9.4	8.7
Industries Qatar	QAR	142.0	0.0	1.4	9.7	13.7	27.9	47.9	46.4	16,144	14.5	13.9	1.6	1.5	46.4	27.2
PTT Chemical	THB	77.0	(0.6)	2.3	(4.3)	(8.6)	(19.5)	(1.9)	(9.1)	11,766	10.7	10.4	1.4	1.3	5.5	5.4
Petronas	MYR	10.0	2.3	4.2	3.3	7.4	14.8	33.1	26.0	15,624	16.1	15.5	2.0	1.9	9.2	8.9
LG화학	KRW	356,000	(0.6)	6.1	9.9	(9.0)	4.4	(14.0)	(12.1)	27,313	13.8	12.8	1.8	1.6	6.5	6.1
롯데케미칼	KRW	284,500	(0.4)	11.4	8.4	(14.0)	(26.1)	(24.6)	(22.7)	11,632	5.5	5.2	0.9	0.8	3.6	3.3
한화케미칼	KRW	18,300	1.7	19.6	(3.4)	(15.9)	(34.9)	(43.3)	(42.1)	5,050	5.7	5.5	0.8	0.7	6.7	6.5
금호석유	KRW	95,900	2.5	19.7	14.9	(13.2)	(11.6)	26.2	(3.6)	2,969	14.1	11.9	1.6	1.5	9.3	8.4
SKC	KRW	33,750	(2.6)	4.7	(19.7)	(22.3)	(15.6)	(16.4)	(28.2)	1,643	9.9	8.7	1.1	1.0	8.8	7.9
국도화학	KRW	46,450	(0.6)	7.0	(10.7)	(20.9)	(32.7)	(23.5)	(26.4)	359	#N/A	N/A	#N/A	N/A	#N/A	N/A
효성	KRW	4,600	0.9	14.7	(22.3)	(26.8)	(41.4)	(41.9)	(39.3)	4,595	8.2	7.3	1.1	1.0	7.2	6.8
Average			0.0	5.4	(6.3)	(10.3)	(9.8)	(8.3)	(9.7)							
Refinery																
Valero	USD	91.0	(0.7)	4.3	(22.2)	(21.0)	(19.6)	12.7	(0.8)	40,608	14.1	13.4	2.0	2.0	6.9	6.9
Conoco Phillips	USD	69.0	1.8	2.5	(11.9)	(3.2)	3.2	30.3	25.8	66,136	34.0	25.9	2.2	2.2	7.2	6.7
Formosa Petrochemical	TWD	122.0	0.8	2.5	(8.3)	0.4	3.0	14.1	5.2	37,040	18.2	18.7	3.2	3.2	11.7	12.1
Andeavor	USD	154.0	0.0	0.0	0.0	4.3	9.8	39.3	34.2	17,904	12.9	11.4	1.8	1.7	7.3	7.1
Marathon Petroleum	USD	70.0	0.4	3.8	(17.5)	(11.8)	(9.3)	12.2	5.7	32,812	15.0	12.8	2.6	2.7	7.7	7.5
Devon Energy	USD	33.0	2.5	6.8	(17.3)	(23.1)	(12.6)	(15.7)	(20.0)	22,192	17.5	14.0	2.7	2.3	8.4	7.4
Hollyfrontier	USD	65.0	(2.0)	4.9	(5.8)	(3.6)	(1.3)	62.4	27.3	9,094	16.8	15.2	1.8	1.8	8.0	8.0
Phillips 66	USD	101.0	1.5	2.0	(15.1)	(17.4)	(13.1)	7.4	(0.6)	51,561	15.6	14.5	2.3	2.2	9.0	8.8
Murphy Oil	USD	31.0	0.9	0.4	(9.8)	(7.3)	5.1	11.1	(1.3)	5,548	162.4	113.2	1.2	1.1	4.9	4.5
JX Holdings	JPY	744.0	(2.8)	(0.6)	(13.5)	(8.4)	6.3	22.6	2.4	22,130	8.8	8.0	0.9	0.9	7.0	6.6
Idemitsu	JPY	5,030.0	(1.8)	0.2	(20.3)	0.2	23.0	46.9	11.2	8,360	7.9	7.5	1.0	0.9	6.8	6.8
Nesteoil	EUR	73.0	2.2	0.7	(0.6)	3.1	10.3	49.7	37.0	16,473	16.7	16.7	2.9	2.7	10.2	10.3
Ashland	USD	77.0	1.0	6.8	(7.0)	(9.3)	5.3	12.2	8.2	4,550	21.6	18.7	1.3	1.3	10.2	9.6
Fuchs Petrolub	EUR	41.0	(3.8)	0.3	(13.7)	(16.9)	(7.7)	(16.0)	(7.7)	7,127	22.1	20.9	4.1	3.7	13.0	12.3
SK이노베이션	KRW	205,000	(1.0)	(0.7)	(8.5)	8.5	3.8	(1.9)	0.2	17,975	7.9	7.7	0.9	0.9	4.9	4.8
S-Oil	KRW	118,500	(1.7)	(0.8)	(13.2)	2.6	9.7	(6.7)	1.3	12,400	9.3	8.1	1.8	1.6	7.6	6.6
GS	KRW	48,600	(1.1)	1.9	(12.4)	(8.3)	(19.7)	(25.9)	(21.9)	5,467	6.0	5.5	0.7	0.6	6.9	6.3
Average			(0.2)	2.1	(11.6)	(6.5)	(0.2)	15.0	6.2							

* Bloomberg 기준 / valuation multiple 또한 Bloomberg consensus 기준임

* 국내업체의 multiple은 Dataguidepro 기준임

Global peers

	Currency	11/05	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	(0.4)	6.0	(4.3)	1.8	6.2	(1.9)	(2.4)	345,648	17.0	14.0	2.0	2.0	8.0	7.0
BP	GBP	542	1.7	1.3	(7.9)	(3.3)	(2.9)	4.9	3.7	141,543	12.0	11.0	1.0	1.0	5.0	4.0
Shell	EUR	2,435	1.4	0.3	(6.3)	(4.3)	(5.5)	0.0	(1.8)	264,724	12.0	10.0	1.0	1.0	6.0	5.0
Chevron	USD	119	3.7	9.2	(5.1)	(4.1)	(5.2)	3.4	(5.0)	227,907	14.0	12.0	1.0	1.0	6.0	5.0
Total	EUR	51	2.3	0.8	(6.8)	(6.2)	(1.7)	6.0	11.6	157,150	11.0	9.0	1.0	1.0	5.0	5.0
Sinopec	CNY	6	0.0	1.4	(11.2)	(4.0)	(9.8)	2.8	3.1	108,899	10.0	9.0	1.0	1.0	4.0	4.0
Petrochina	CNY	8	(0.2)	0.7	(9.6)	8.9	7.7	(0.4)	2.5	209,444	24.0	20.0	1.0	1.0	5.0	5.0
CNOOC	CNY	10	2.7	5.6	(11.9)	12.3	(1.9)	(12.2)	(4.3)	77,087	9.0	8.0	1.0	1.0	4.0	3.0
Gazprom	RUB	154	0.0	0.8	(9.8)	7.9	6.9	22.1	17.8	54,987	3.0	3.0	0.0	0.0	2.0	2.0
Rosneft	RUB	460	0.0	0.2	(8.6)	11.8	18.8	44.6	57.7	73,605	7.0	6.0	1.0	1.0	4.0	4.0
Anadarko	USD	55	2.8	(2.1)	(20.9)	(19.9)	(17.9)	10.5	2.0	27,579	19.0	12.0	2.0	2.0	6.0	5.0
Petrobras	BRL	28	3.1	6.6	17.5	33.4	26.4	66.2	74.9	103,735	9.0	7.0	1.0	1.0	5.0	4.0
Lukoil	USD	4,980	0.0	2.2	(0.1)	10.7	21.2	57.2	49.3	64,677	5.0	6.0	1.0	1.0	N/A	N/A
Kinder	USD	17	2.4	4.9	(4.4)	(2.0)	7.1	(2.7)	(4.5)	47,497	21.0	17.0	1.0	1.0	10.0	10.0
Equinor ASA	NOK	215	1.9	0.0	(5.7)	(0.2)	4.5	30.2	22.9	85,954	12.0	11.0	2.0	2.0	3.0	3.0
BHP	AUD	33	(1.2)	4.6	(6.7)	(0.8)	5.1	19.6	12.0	121,365	13.0	14.0	2.0	2.0	6.0	6.0
PTT E&P	THB	138	(2.1)	1.1	(8.3)	(1.8)	0.4	55.1	38.0	16,622	13.0	11.0	1.0	1.0	4.0	4.0
Petronas gas	MYR	19	0.9	2.9	(1.0)	(2.5)	4.7	5.1	6.4	8,814	19.0	19.0	3.0	3.0	11.0	11.0
Chesapeake	USD	4	8.6	1.9	(15.4)	(15.0)	24.3	1.3	(4.3)	3,463	5.0	5.0	#N/A	#N/A	5.0	6.0
Noble Energy	USD	27	2.2	11.1	(15.0)	(18.1)	(17.7)	(4.8)	(7.6)	12,921	26.0	18.0	1.0	1.0	7.0	6.0
Average		0	1.5	3.0	(7.1)	0.2	3.5	15.4	13.6							
PV																
WACKER	EUR	95.8	5.2	22.8	(9.7)	(22.9)	(37.8)	(32.0)	(40.9)	5,692	14.0	14.0	1.0	1.0	5.0	5.0
GCL-Poly	HKD	0.6	18.8	25.3	9.6	(13.6)	(40.0)	(57.5)	(59.3)	1,334	12.0	8.0	0.0	0.0	8.0	7.0
SunPower	USD	6.4	4.4	7.1	(6.9)	(12.9)	(21.5)	(26.4)	(24.6)	897	#N/A	#N/A	#N/A	#N/A	20.0	11.0
Canadian Solar	USD	14.2	(3.0)	7.8	(0.4)	3.2	(7.6)	(24.6)	(16.0)	830	10.0	10.0	1.0	1.0	7.0	7.0
JA Solar	USD	7.5	0.0	0.0	0.0	7.0	(2.0)	0.4		356	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Yingli	USD	0.2	0.0	5.0	(16.1)	(44.0)	(88.4)	(90.7)	(87.6)	4	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
First Solar	USD	43.9	2.2	19.0	(6.5)	(16.9)	(33.8)	(26.6)	(34.9)	4,605	30.0	15.0	1.0	1.0	7.0	3.0
한화큐셀	USD	9.7	(0.1)	0.2	19.2	17.2	38.5	18.2	38.1	807	17.0	36.0	#N/A	#N/A	9.0	10.0
OCI	KRW	104,000	9.9	28.1	(7.1)	3.5	(31.1)	(16.1)	(23.5)	2,210	0.0	16.2	0.0	0.7	0.0	5.6
웅진에너지	KRW	2,055	(3.7)	10.8	(2.8)	(36.2)	(67.9)	(73.8)	(75.0)	54	N/A	0.0	0.7	0.0	5.6	0.0
신성솔라에너지	KRW	1,155	(0.9)	22.0	(9.1)	(15.1)	(32.7)	(34.6)	(39.7)	178	N/A	0.7	0.0	5.6	0.0	0.0
Average			3.0	13.4	(2.7)	(12.5)	(28.7)	(33.3)	(33.0)							
Gas Company																
Towngas China	HKD	5.6	(4.1)	(0.4)	(6.6)	(27.2)	(20.6)	(14.9)	(11.5)	1,995	11.0	10.0	1.0	1.0	11.0	10.0
Kulun	HKD	9.0	(2.6)	1.0	(0.4)	29.3	33.9	26.3	11.1	9,319	11.0	10.0	1.0	1.0	6.0	5.0
Beijing Enterprise	HKD	42.7	(1.4)	2.8	0.6	15.4	10.5	(6.8)	(8.1)	6,874	7.0	7.0	1.0	1.0	14.0	12.0
ENN Energy	HKD	67.0	(0.7)	1.6	8.1	(14.2)	(6.8)	15.7	20.1	9,622	15.0	13.0	3.0	3.0	10.0	8.0
China Resources Gas	HKD	29.4	(3.8)	(0.7)	(4.1)	(18.8)	5.2	4.4	3.5	8,336	14.0	13.0	3.0	2.0	8.0	7.0
China Gas Holdings	HKD	24.8	(1.8)	(0.6)	13.0	(19.6)	(11.3)	6.2	14.8	16,062	16.0	13.0	4.0	3.0	13.0	11.0
Shenzen Gas	HKD	15.5	(0.8)	7.7	(0.1)	10.9	(10.6)	3.6	3.9	4,172	9.0	8.0	1.0	1.0	5.0	5.0
Shann Xi	CNY	7.8	3.9	6.6	0.0	2.5	3.6	(5.0)	(7.9)	1,248	19.0	16.0	1.0	1.0	#N/A	#N/A
Suntien	HKD	2.2	1.4	11.3	10.2	(7.7)	(17.6)	(1.4)	4.3	1,025	6.0	5.0	1.0	1.0	8.0	7.0
China Oil & Gas	HKD	0.5	(1.8)	(1.8)	(5.3)	(14.3)	(8.5)	0.0	(36.5)	403	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Average			(1.2)	2.8	1.5	(4.4)	(2.2)	2.8	(0.6)							
EV																
LG화학	KRW	356,000	(0.6)	6.1	9.9	(9.0)	4.4	(14.0)	(12.1)	22,395	15.0	14.0	2.0	1.0	7.0	6.0
삼성SDI	KRW	236,000	0.6	3.1	(0.4)	2.2	30.7	7.3	15.4	14,462	21.0	14.0	1.0	1.0	12.0	9.0
Panasonic	JPY	1178.5	(0.2)	(3.1)	(11.7)	(19.8)	(26.6)	(31.2)	(28.6)	25,545	11.0	10.0	1.0	1.0	4.0	4.0
GS Yuasa	JPY	2408.0	(0.6)	6.7	(9.9)	(9.6)	(17.7)	(15.4)	(14.2)	1,760	14.0	13.0	1.0	1.0	7.0	6.0
NEC	JPY	3355.0	1.5	7.2	6.5	11.3	12.2	10.7	10.4	7,722	25.0	14.0	1.0	1.0	9.0	7.0
BYD Auto	CNY	48.3	0.5	1.8	(1.7)	25.9	(2.0)	(24.9)	(25.8)	18,667	33.0	24.0	2.0	2.0	13.0	11.0
Tesla Motors	USD	341.4	(1.4)	2.0	30.3	(1.9)	16.1	11.5	9.7	58,630	#N/A	#N/A	60.0	10.0	10.0	32.0
Kandi Technologies	USD	5.4	7.2	14.8	(8.1)	30.5	4.9	(22.5)	(21.3)	275	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Average			0.9	4.8	1.9	3.7	2.8	(9.8)	(8.3)							

* Bloomberg 기준 / valuation multiple 또한 Bloomberg consensus 기준임