

1. News Summary (3 page)

2019년 8월 22일

News	
WTI comment	국제유가, 혼조세...WTI 1.2%↓
Headline	Shell, Moerdijk 스템 크래커 재가동 이슈 발생
News 1.	태국 Bangchak, 하이드로크래커 재가동 및 확장 계획 80% 완료
News 2.	-
News 3.	-
News 4.	-

Conclusion	
	에틸렌과 프로필렌 생산 촉소가 연장됨에 따라 가격 상승요인으로 작용 장기적으로 미국, 중국을 포함 증설로 인한 가격하방 압력은 지속될 전망
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2. Prices Summary (4~7 page)

Daily	Unit	Price	1D	1W	1M	3M	12M
Refinery			%	%	%	%	%
WTI	\$/bbl	55.7	(1.2)	0.8	0.1	(9.3)	(17.3)
Dubai	\$/bbl	60.1	1.4	0.7	(2.4)	(15.6)	(15.5)
Gasoline	\$/bbl	71.3	2.4	(0.3)	(3.6)	(9.2)	(15.0)
Diesel	\$/bbl	74.2	0.1	(2.4)	(3.6)	(11.1)	(14.5)
Complex margin	\$/bbl	5.8	(0.2)	(1.2)	(4.0)	1.6	(2.6)
1M lagging	\$/bbl	4.3	1.3	3.6	(7.1)	(0.0)	(4.7)
Petrochemical			%	%	%	%	%
Naphtha	\$/t	470	0.0	(1.9)	(7.2)	(17.4)	(27.0)
Butadiene	\$/t	1,115	0.0	0.0	1.4	16.1	(35.0)
HDPE	\$/t	960	0.0	0.0	(5.9)	(5.9)	(25.6)
MEG	\$/t	540	0.0	1.9	(1.1)	1.5	(42.1)
PX	\$/t	770	(0.5)	(1.9)	(6.8)	(7.9)	(36.1)
SM	\$/t	975	(0.1)	0.4	(3.7)	(4.7)	(30.9)
Commodity			%	%	%	%	%
Natural Gas	\$/mmbtu	2.17	(2.2)	1.3	(1.5)	(15.6)	(20.0)
Natural rubber	\$/t	1,290	(0.8)	(0.8)	(8.5)	(14.0)	(6.5)
Cotton	C/lbs	59.9	1.2	0.4	(6.3)	(10.3)	(27.4)

*참고: 정제마진의 변동률은 %가 아닌 \$/bbl임

Weekly	Update	Unit	Price	1W	1M	3M	12M
Utility				%	%	%	%
SMP	08/21	원/kwh	87	0.0	0.1	0.2	0.0
Petrochemical				%	%	%	%
Ethylene	08/19	\$/t	850	(0.3)	10.4	(5.8)	(33.3)
Propylene	08/19	\$/t	875	0.6	0.6	14.4	(16.5)
Benzene	08/19	\$/t	643	(0.8)	(7.6)	4.0	(27.8)
Toluene	08/19	\$/t	680	(0.4)	(2.9)	(0.7)	(17.1)
Xylene	08/19	\$/t	713	1.1	(0.7)	(1.0)	(15.7)
PP	08/19	\$/t	1,048	(0.5)	(1.9)	(9.5)	(15.0)
PVC	08/19	\$/t	860	0.0	(2.3)	2.4	(9.5)
ABS	08/19	\$/t	1,370	(2.1)	(6.8)	(9.3)	(30.1)
SBR	08/19	\$/t	1,290	0.0	(1.9)	(6.2)	(31.2)
SM	08/19	\$/t	1,000	0.0	(3.4)	(5.9)	(32.0)
BPA	08/19	\$/t	1,538	3.7	10.8	11.4	(17.8)
Caustic	08/19	\$/t	275	(5.2)	(11.6)	(19.6)	(34.7)
Solar				%	%	%	%
Polysilicon	08/21	\$/kg	7.83	(0.6)	(2.9)	(5.7)	(30.6)
Module	08/21	\$/W	0.21	(0.5)	(1.9)	(3.8)	(18.7)

3. Global Peers Summary (8~9 page)

	Unit	Price	1D	1W	1M	3M	12M
E&P			%	%	%	%	%
ExxonMobil	USD	69.7	1.0	3.1	(7.0)	(8.6)	(11.6)
Shell	EUR	2,324	1.6	(0.9)	(8.5)	(8.5)	(7.1)
Petrochina	CNY	6.17	(0.3)	0.5	(5.8)	(14.7)	(24.5)
Gazprom	RUB	231.2	(0.1)	1.8	7.0	11.3	61.4
Petrobras	BRL	25.5	6.0	2.1	(7.3)	(3.9)	43.6
Refinery							
Phillips66	USD	99.3	0.6	1.8	(2.6)	15.3	(14.8)
Valero	USD	78.4	0.5	3.2	(6.3)	(4.9)	(31.3)
JX	JPY	436.7	(1.6)	0.0	(14.6)	(19.6)	(42.0)
Neste Oil	EUR	29.6	0.3	(1.3)	(3.5)	(9.1)	(59.8)

	Unit	Price	1D	1W	1M	3M	12M
Petrochemical			%	%	%	%	%
BASF	EUR	59.0	2.2	3.2	(3.0)	(5.5)	(25.5)
DowDuPont	USD	67.8	1.0	3.0	(5.3)	0.1	(1.6)
SABIC	SAR	102.4	(1.0)	(1.5)	(9.1)	(9.2)	(16.7)
Formosa Pla.	TWD	92.9	(0.2)	(0.7)	(8.0)	(16.3)	(14.8)
Shin-Etsu	JPY	10,505	(0.3)	(2.1)	5.2	13.6	0.3
Renewable							
Wacker	EUR	68.3	2.9	5.3	4.5	(5.8)	(44.4)
First Solar	USD	63.87	1.3	8.3	(4.0)	8.4	20.7
GCL-Poly	HKD	0.33	4.8	1.6	(27.0)	(32.3)	(37.5)
Tesla Motors	USD	220.8	(2.2)	0.6	(14.5)	7.7	(31.4)

4. Coverage Summary

	08/21	1D	1W	1M	3M	6M	12M
KOSPI	1,965	0.2	1.4	(6.1)	(4.6)	(10.9)	(12.6)
KOSPI화학	4,320	0.3	1.5	(9.1)	(8.4)	(17.7)	(22.6)
LG화학	328,000	1.2	1.4	(8.1)	0.3	(15.9)	(10.4)
롯데케미칼	228,000	(0.4)	0.7	(7.5)	(14.1)	(29.1)	(32.5)
한화케미칼	17,600	2.9	1.7	(14.6)	(17.4)	(19.3)	(14.6)
금호석유화학	72,500	0.3	(1.1)	(17.1)	(22.5)	(19.4)	(27.1)
KCC	221,500	0.9	1.8	(13.0)	(15.9)	(29.7)	(33.5)
OCI	69,900	2.5	2.9	(22.7)	(18.9)	(30.1)	(39.0)
SKC	42,450	1.3	3.8	(1.3)	36.7	7.2	(8.5)
SK이노베이션	164,000	0.9	3.8	(5.5)	(3.2)	(12.8)	(18.0)
S-Oil	92,300	0.7	4.3	0.1	12.4	(14.1)	(26.5)
GS	47,450	1.5	0.9	(9.4)	(4.2)	(11.8)	(12.5)
SK가스	75,200	0.7	3.2	(3.6)	(3.3)	(7.8)	(12.3)
포스코인터내셔널	18,050	1.7	3.4	(0.8)	7.1	(6.7)	(0.8)
LG상사	16,950	0.3	4.0	(8.4)	1.5	(3.7)	(26.6)
한국전력	25,750	0.2	2.6	(1.0)	2.2	(22.0)	(17.6)
한국가스공사	38,600	0.8	0.0	(11.9)	(6.5)	(28.4)	(30.1)

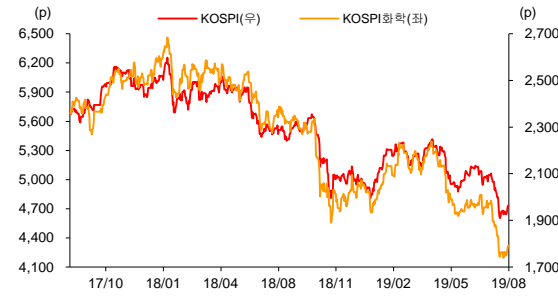
투자의견	TP	%	P/E	P/B
			* 추정치는 12M fwd 기준임(2020E)	
			* 모든 coverage 업체의 실적은 연결기준임	
매수	400,000	22.0	13.17	1.51
매수	310,000	36.0	8.44	0.63
매수	25,000	42.0	7.29	0.45
매수	130,000	79.3	7.24	0.80
매수	350,000	58.0	27.12	0.39
매수	120,000	71.7	6.06	0.47
매수	45,000	6.0	13.43	1.01
매수	190,000	15.9	14.47	0.92
매수	100,000	8.3	13.61	1.43
매수	60,000	26.4	6.29	0.52
매수	100,000	33.0	10.77	0.47
매수	23,000	27.4	10.49	0.70
매수	23,000	35.7	8.47	0.47
매수	32,000	24.3	7.84	0.21
매수	55,000	42.5	7.32	0.47

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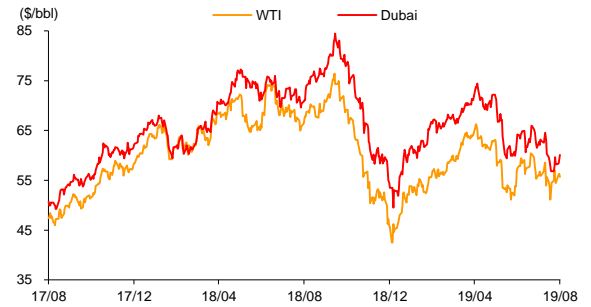


Key Chart

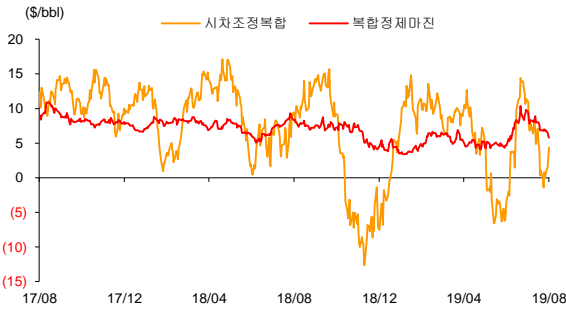
KOSPI/KOSPI화학



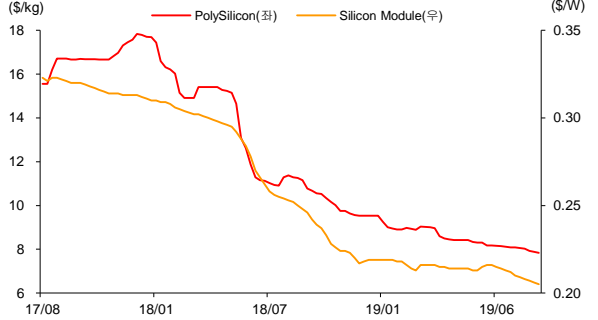
WTI/Dubai



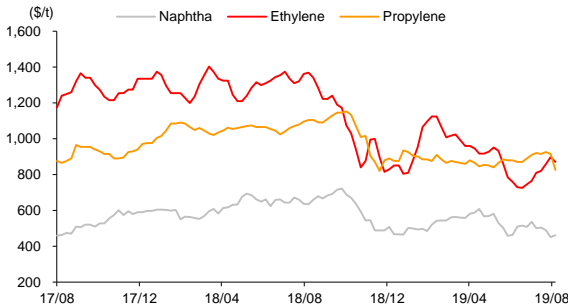
Complex & 1M lagging margin



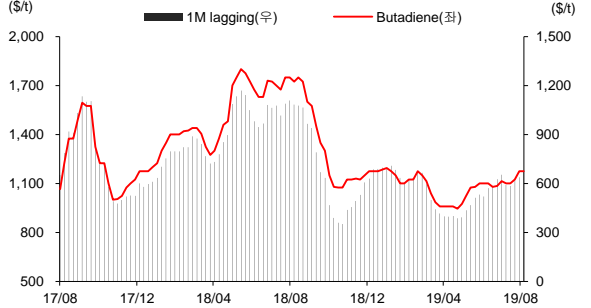
Polysilicon & Module prices



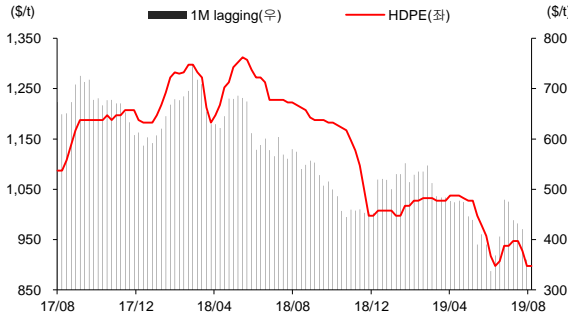
Naphtha/Ethylene/Propylene prices



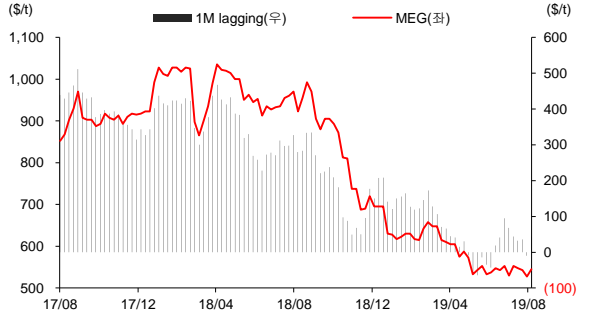
Butadiene price & 1M lagging naphtha spread



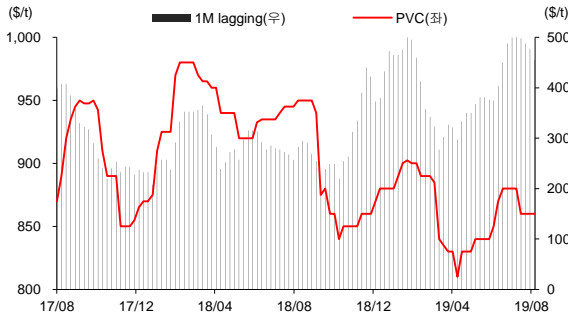
HDPE price & 1M lagging naphtha spread



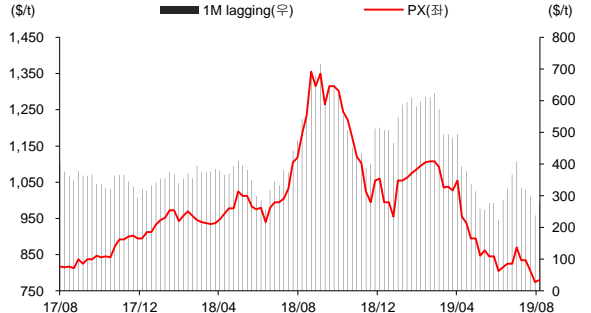
MEG price & 1M lagging naphtha spread



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: Platts)
제목 Shell, Moerdijk 스팀 크래커 재가동 이슈 발생	
결론 에틸렌과 프로필렌 생산 축소가 연장됨에 따라 가격 상승요인으로 작용	
세부	
1) Shell Chemical이 Moerdijk 스팀크래커 재가동에 차질을 겪고 있음	
2) 스팀크래커는 정기 유지보수 기간을 가진 후 재가동 절차에 진입	
3) 지난 TA로 인해 에틸렌과 프로필렌 생산이 축소되었음	
4) Moerdijk 유지보수는 지난 4월 파업으로 연기, 5월에 시작되었음	
5) 에틸렌과 프로필렌 생산 축소가 연장됨에 따라 가격 상승요인으로 작용	

WTI Comment	(출처: 연합뉴스)
제목 국제유가, 혼조세...WTI 1.2%↓	
상승 미국 원유 재고, 예상치보다 더 큰 폭인 270만배럴 감소	
요인	
하락 미중 무역전쟁과 글로벌 경기 둔화에 대한 우려	
요인	

Issue 1	(출처: Platts)
제목 태국 Bangchak, 하이드로크래커 재가동 및 확장 계획 80% 완료	
결론 장기적으로 미국, 중국을 포함 증설로 인한 가격하방 압력은 지속될 전망	
세부	
1) 태국 Bangchak, 하이드로크래커 한달간의 TA를 마친 후 재가동 시작	
2) 2분기 평균 생산량은 112,670 b/d로 설비가동률이 94%에 달했음	
3) 지난 1분기 가동률은 92%, 18년도 4분기 가동률은 66.8% 수준	
4) 2020년까지 120,000 b/d 수준으로 Capacity를 향상시킬 계획	
5) 장기적으로 미국, 중국을 포함 증설로 인한 가격하방 압력은 지속될 전망	

Issue 2
제목
결론
세부
1)
2)
3)
4)
5)

Issue 3
제목
결론
세부
1)
2)
3)
4)
5)

Issue 4
제목
결론
세부
1)
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3)
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Issue 5
제목
결론
세부
1)
2)
3)
4)
5)

Issue 6
제목
결론
세부
1)
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Commodity Price Data

Daily Price		08/21	1D	1W	1M	3M	6M	12M	YTD	2017avg.	2018avg.	2019acc.
F/X	USD/EUR	0.902	0.901	0.898	0.891	0.896	0.882	0.864	0.872	0.887	0.848	0.887
	Change, %		0.1	0.5	1.2	0.7	2.3	4.4	3.4	1.8	6.4	1.7
	USD/JPY	106.6	106.2	105.9	107.7	110.5	110.7	110.3	109.7	112.1	110.4	109.4
	Change, %		0.4	0.7	(1.0)	(3.5)	(3.7)	(3.3)	(2.8)	(4.9)	(3.5)	(2.6)
USD/KRW		1,202.4	1,208.0	1,212.6	1,174.4	1,194.7	1,125.3	1,118.7	1,113.9	1,130.9	1,100.3	1,156.4
	Change, %		(0.5)	(0.8)	2.4	0.6	6.8	7.5	7.9	6.3	9.3	4.0
Agriculture	Corn	362.5	359.5	359.0	430.8	394.3	375.5	359.8	375.0	359.4	368.2	388.3
	Change, %		0.8	1.0	(15.8)	(8.1)	(3.5)	0.8	(3.3)	0.9	(1.5)	(6.6)
	Soybean	860.5	855.8	861.0	901.5	822.0	911.0	874.5	882.5	975.9	931.9	883.1
	Change, %		0.6	(0.1)	(4.5)	4.7	(5.5)	(1.6)	(2.5)	(11.8)	(7.7)	(2.6)
	Wheat	462.5	460.0	473.8	502.5	478.8	486.5	527.3	503.3	436.0	495.4	486.6
	Change, %		0.5	(2.4)	(8.0)	(3.4)	(4.9)	(12.3)	(8.1)	6.1	(6.6)	(4.9)
	Rice	10.9	11.0	11.5	11.9	11.3	10.2	10.5	10.1	11.1	11.5	10.9
	Change, %		(0.6)	(5.1)	(8.7)	(3.5)	6.9	3.5	8.1	(1.4)	(5.5)	(0.2)
	Oats	271.5	272.8	276.8	271.8	308.5	270.0	257.0	275.3	252.3	256.2	283.2
	Change, %		(0.5)	(1.9)	(0.1)	(12.0)	0.6	5.6	(1.4)	7.6	6.0	(4.1)
MYR/mt	Palm Oil	2,163.0	2,129.0	2,174.0	1,905.0	2,008.0	2,145.0	2,205.0	2,004.0	2,787.3	2,250.9	2,039.5
	Change, %		1.6	(0.5)	13.5	7.7	0.8	(1.9)	7.9	(22.4)	(3.9)	6.1
	Cocoa	2,191.0	2,149.0	2,143.0	2,467.0	2,446.0	2,256.0	2,269.0	2,416.0	2,005.2	2,308.4	2,339.1
	Change, %		2.0	2.2	(11.2)	(10.4)	(2.9)	(3.4)	(9.3)	9.3	(5.1)	(6.3)
	Cotton	59.9	59.2	59.6	62.3	67.3	72.2	83.5	72.2	73.5	82.1	69.6
	Change, %		1.2	0.4	(3.8)	(11.1)	(17.1)	(28.3)	(17.1)	(18.6)	(27.1)	(14.0)
	Sugar	11.4	11.4	11.6	11.6	11.8	13.2	10.2	12.0	15.8	12.3	12.3
	Change, %		(0.4)	(1.9)	(1.7)	(3.6)	(14.0)	12.0	(5.3)	(28.0)	(7.1)	(7.8)
Coffee	92.9	91.5	94.5	105.9	92.9	96.1	98.0	101.9	133.0	112.7	97.9	
Change, %		1.5	(1.7)	(12.3)	(0.1)	(3.4)	(5.2)	(8.8)	(30.2)	(17.6)	(5.2)	
Energy	WTI	55.7	56.3	55.2	55.6	63.0	57.0	67.4	45.4	51.0	64.8	57.2
	Change, %		(1.2)	0.8	0.1	(11.6)	(2.2)	(17.3)	22.6	9.2	(14.1)	(2.6)
	Brent	60.3	60.0	59.5	62.5	72.2	67.1	72.6	53.8	54.9	71.6	65.3
	Change, %		0.4	1.4	(3.5)	(16.5)	(10.1)	(17.0)	12.1	9.9	(15.7)	(7.6)
	Natural Gas	2.2	2.2	2.1	2.3	2.6	2.7	3.0	2.9	3.0	3.1	2.6
	Change, %		(2.2)	1.3	(3.6)	(17.0)	(19.5)	(27.2)	(26.2)	(28.2)	(29.3)	(16.2)
	Ethanol	1.4	1.3	1.3	1.5	1.4	1.3	1.3	1.3	1.5	1.4	1.4
	Change, %		3.7	7.6	(8.3)	(3.0)	0.4	0.1	6.8	(9.8)	(1.7)	(2.4)
	RBOB Gasoline	169.4	168.1	167.6	184.1	201.9	161.4	201.8	132.4	162.9	191.7	177.5
	Change, %		0.8	1.1	(8.0)	(16.1)	4.9	(16.1)	28.0	4.0	(11.6)	(4.6)
Coal	65.5	66.0	66.9	74.1	83.9	95.2	117.6	102.1	88.2	107.1	84.5	
Change, %		(0.8)	(2.1)	(11.7)	(21.9)	(31.3)	(44.3)	(35.9)	(25.8)	(38.9)	(22.6)	
Metal	Gold	1,502.7	1,507.2	1,516.4	1,425.4	1,274.7	1,323.7	1,196.1	1,277.1	1,258.6	1,269.3	1,338.3
	Change, %		(0.3)	(0.9)	5.4	17.9	13.5	25.6	17.7	19.4	18.4	12.3
	Silver	17.1	17.2	17.2	16.2	14.5	15.8	14.8	15.5	17.1	15.7	15.5
	Change, %		(0.3)	(0.6)	5.6	18.5	8.3	15.8	10.5	0.3	9.0	10.8
	Copper	5,711.0	5,711.0	5,765.0	6,065.0	5,996.0	6,380.0	6,045.0	5,965.0	6,199.4	6,543.8	6,107.7
	Change, %		0.0	(0.9)	(5.8)	(4.8)	(10.5)	(5.5)	(4.3)	(7.9)	(12.7)	(6.5)
	Nickel	1,119.2	1,127.7	1,131.9	1,011.1	842.8	911.2	942.4	740.9	680.2	897.6	903.7
	Change, %		(0.8)	(1.1)	10.7	32.8	22.8	18.8	51.1	64.5	24.7	23.9
	Zinc	2,226.0	2,226.0	2,256.0	2,425.0	2,577.0	2,683.0	2,426.0	2,467.0	2,888.5	2,893.0	2,599.5
	Change, %		0.0	(1.3)	(8.2)	(13.6)	(17.0)	(8.2)	(9.8)	(22.9)	(23.1)	(14.4)
	Lead	2,063.5	2,063.5	2,046.8	2,050.0	1,800.0	2,061.8	2,003.0	2,016.0	2,315.7	2,244.6	1,972.8
	Change, %		0.0	0.8	0.7	14.6	0.1	3.0	2.4	(10.9)	(8.1)	4.6
	Aluminum	14,315.0	14,360.0	14,145.0	13,900.0	14,250.0	13,475.0	14,580.0	13,550.0	14,556.6	14,252.6	13,801.1
	Change, %		(0.3)	1.2	3.0	0.5	6.2	(1.8)	5.6	(1.7)	0.4	3.7
	Cobalt	32,119.0	32,119.0	30,012.0	27,596.0	34,500.0	31,000.0	63,806.0	55,000.0	55,906.9	72,883.1	32,362.2
	Change, %		0.0	7.0	16.4	(6.9)	3.6	(49.7)	(41.6)	(42.5)	(55.9)	(0.8)
	HR Coil	586.0	585.0	587.0	539.0	642.0	675.0	898.0	721.0	620.1	828.8	641.6
	Change, %		0.2	(0.2)	8.7	(8.7)	(13.2)	(34.7)	(18.7)	(5.5)	(29.3)	(8.7)
Scrap	286.0	290.0	297.0	288.0	320.0	377.0	380.0	379.0	344.7	390.2	328.4	
Change, %		(1.4)	(3.7)	(0.7)	(10.6)	(24.1)	(24.7)	(24.5)	(17.0)	(26.7)	(12.9)	

자료: Bloomberg

참고) NYMEX, ICE, LME 중 대표지수를 사용

Refining Price Data

Daily Price		08/21	1D	1W	1M	3M	6M	12M	YTD	2017avg.	2018avg.	2019acc.	
Crude Oil	WTI	55.7	56.3	55.2	55.6	61.4	56.9	67.4	46.5	50.9	64.7	57.3	
	Change, %		(1.2)	0.8	0.1	(9.3)	(2.2)	(17.3)	19.6	9.4	(14.0)	(2.8)	
	Dubai	60.1	59.2	59.7	61.6	71.2	66.4	71.1	51.9	53.1	69.3	64.6	
	Change, %		1.4	0.7	(2.4)	(15.6)	(9.5)	(15.5)	15.9	13.2	(13.3)	(7.0)	
Crude Oil Product	Gasoline(휘발유)	71.3	69.6	71.5	73.9	78.5	67.8	83.9	54.9	68.0	79.8	71.5	
	Change, %		2.4	(0.3)	(3.6)	(9.2)	5.1	(15.0)	29.7	4.8	(10.7)	(0.3)	
	Kerosene(등유)	75.1	74.5	75.7	77.2	82.5	79.4	86.0	64.5	65.2	84.7	77.8	
	Change, %		0.8	(0.8)	(2.8)	(9.0)	(5.4)	(12.7)	16.3	15.1	(11.3)	(3.6)	
	Diesel(경유)	74.2	74.1	76.0	77.0	83.4	79.9	86.8	61.6	65.6	84.0	77.8	
	Change, %		0.1	(2.4)	(3.6)	(11.1)	(7.1)	(14.5)	20.4	13.1	(11.6)	(4.6)	
	Bunker-C	51.7	51.1	51.7	66.9	65.5	65.3	67.6	50.3	49.7	65.1	62.7	
	Change, %		1.3	0.1	(22.6)	(21.0)	(20.7)	(23.5)	2.8	4.2	(20.6)	(17.5)	
	Naphtha	50.9	50.5	51.1	54.1	60.2	58.3	70.2	46.9	53.7	67.0	56.5	
	Change, %		0.6	(0.5)	(6.0)	(15.5)	(12.8)	(27.5)	8.5	(5.4)	(24.1)	(10.0)	
	Dubai Spread	Gasoline(휘발유)	11.2	10.4	11.8	12.4	7.2	1.4	12.8	3.1	14.9	10.5	6.9
		Change		0.8	(0.6)	(1.2)	4.0	9.8	(1.6)	8.1	(3.7)	0.7	4.3
Kerosene(등유)		15.0	15.3	16.1	15.7	11.3	13.0	14.8	12.7	12.1	15.3	13.2	
Change			(0.3)	(1.1)	(0.7)	3.7	2.0	0.1	2.3	2.8	(0.4)	1.8	
Diesel(경유)		14.1	14.9	16.3	15.4	12.2	13.5	15.7	9.8	12.5	14.6	13.1	
Change			(0.7)	(2.2)	(1.3)	1.9	0.6	(1.5)	4.4	1.6	(0.5)	1.0	
Bunker-C		(8.4)	(8.2)	(8.0)	5.3	(5.7)	(1.1)	(3.5)	(1.5)	(3.4)	(4.2)	(1.9)	
Change		(0.2)	(0.4)	(13.7)	(2.6)	(7.3)	(4.9)	(6.8)	(4.9)	(4.2)	(6.4)		
Naphtha	(9.2)	(8.7)	(8.6)	(7.4)	(11.1)	(8.1)	(1.0)	(5.0)	0.6	(2.3)	(8.2)		
Change		(0.5)	(0.7)	(1.8)	1.8	(1.2)	(8.3)	(4.3)	(9.9)	(6.9)	(1.1)		
Refining Margin	Simple(단순)	0.4	0.7	1.4	7.3	(0.0)	2.2	3.4	1.7	3.2	2.5	2.4	
	Change		(0.3)	(1.0)	(6.9)	0.5	(1.7)	(2.9)	(1.3)	(2.7)	(2.1)	(2.0)	
	Complex(복합)	5.8	6.0	7.0	9.8	4.2	4.5	8.4	3.8	8.0	7.2	5.6	
	Change		(0.2)	(1.2)	(4.0)	1.6	1.3	(2.6)	2.0	(2.2)	(1.4)	0.2	
Complex(lagging)	4.3	3.1	0.8	11.5	4.4	9.8	9.1	(2.6)	8.9	6.8	5.7		
Change		1.3	3.6	(7.1)	(0.0)	(5.4)	(4.7)	7.0	(4.6)	(2.5)	(1.4)		

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

Utility SMP Data

Daily Price		08/21	1D	1W	1M	3M	6M	12M	YTD	2017avg.	2018avg.	2019acc.
Electricity	SMP	87.4	87.6	84.5	77.9	75.4	109.7	86.1	99.0	81.5	94.5	94.1
	Change, %		(0.3)	0.0	0.1	0.2	(0.2)	0.0	(0.1)	0.1	(0.1)	(0.1)

자료 : EPSIS, SK증권

Petrochemical Price Data

Daily Price			08/21	08/20	08/19	08/16	08/15	08/14	08/13	08/12	08/09	08/08
Spot Price	Naphtha	CFR Japan	469.5	469.5	462.4	465.6	457.1	478.6	457.4	451.0	451.0	451.0
	Ethylene	CFR SE Asia	840.0	840.0	840.0	855.0	860.0	860.0	840.0	820.0	820.0	820.0
	Propylene	FOB Korea	925.0	925.0	925.0	915.0	915.0	915.0	915.0	915.0	915.0	915.0
	Butadiene	FOB Korea	1,115.0	1,115.0	1,115.0	1,115.0	1,115.0	1,115.0	1,115.0	1,115.0	1,115.0	1,115.0
	HDPE	CFR FE Asia	960.0	960.0	960.0	960.0	960.0	960.0	970.0	970.0	970.0	970.0
	LDPE	CFR FE Asia	960.0	970.0	970.0	970.0	970.0	970.0	970.0	985.0	985.0	985.0
	LLDPE	CFR FE Asia	875.0	875.0	875.0	875.0	875.0	875.0	875.0	885.0	885.0	885.0
	MEG	CFR China	540.0	540.0	540.0	540.0	531.0	530.0	528.0	522.0	522.0	522.0
	PP	CFR FE Asia	1,010.0	1,010.0	1,010.0	1,010.0	1,010.0	1,010.0	1,010.0	1,010.0	1,010.0	1,010.0
	PX	CFR China	769.8	773.9	773.7	770.7	777.0	784.7	774.7	770.5	770.5	770.5
	PTA	CFR China	675.0	680.0	685.0	685.0	685.0	685.0	685.0	688.0	688.0	688.0
	Benzene	FOB Korea	665.3	661.3	661.3	652.0	642.3	644.3	626.3	627.3	627.3	627.3
	Toluene	FOB Korea	667.0	663.0	663.0	651.0	646.0	636.0	634.0	639.0	639.0	639.0
	Xylene	FOB Korea	698.5	691.5	697.0	697.0	699.0	693.0	683.0	676.0	676.0	676.0
	SM	FOB Korea	975.0	976.0	976.0	976.0	977.0	971.0	967.0	964.0	964.0	964.0

Weekly Price			Last Week	1W	1M	3M	6M	12M	YTD	2017avg.	2018avg.	2019acc.
Spot Price	Naphtha	CFR Japan	461.5	450.5	501.0	580.0	520.0	634.5	489.9	493.5	614.2	521.0
		Change, %		2.4	(7.9)	(20.4)	(11.3)	(27.3)	(5.8)	(6.5)	(24.9)	(11.4)
	Ethylene	CFR SE Asia	850.0	852.5	770.0	902.5	1,050.0	1,275.0	808.1	1,090.9	1,145.9	858.2
		Change, %		(0.3)	10.4	(5.8)	(19.0)	(33.3)	5.2	(22.1)	(25.8)	(1.0)
	Propylene	CFR SE Asia	875.0	870.0	870.0	765.0	827.5	1,047.5	873.1	823.6	987.0	882.4
		Change, %		0.6	0.6	14.4	5.7	(16.5)	0.2	6.2	(11.3)	(0.8)
	Butadiene	CFR SE Asia	1,175.0	1,175.0	1,125.0	975.0	1,075.0	1,675.0	1,126.3	1,481.1	1,391.5	1,047.9
		Change, %		0.0	4.4	20.5	9.3	(29.9)	4.3	(20.7)	(15.6)	12.1
	Benzene	CFR SE Asia	642.5	647.5	695.0	617.5	590.0	890.0	548.8	838.8	827.8	616.3
		Change, %		(0.8)	(7.6)	4.0	8.9	(27.8)	17.1	(23.4)	(22.4)	4.3
	Toluene	CFR SE Asia	680.0	682.5	700.0	685.0	625.0	820.0	601.3	689.5	773.5	667.9
		Change, %		(0.4)	(2.9)	(0.7)	8.8	(17.1)	13.1	(1.4)	(12.1)	1.8
	Xylene	CFR SE Asia	712.5	705.0	717.5	720.0	685.0	845.0	678.8	668.8	802.5	700.1
		Change, %		1.1	(0.7)	(1.0)	4.0	(15.7)	5.0	6.5	(11.2)	1.8

Spread	Ethylene	-Naphtha	388.5	402.0	269.0	322.5	530.0	640.5	318.3	597.4	531.7	337.2
		Change, %		(3.4)	44.4	20.5	(26.7)	(39.3)	22.1	(35.0)	(26.9)	15.2
	Propylene	-Naphtha	413.5	419.5	369.0	185.0	307.5	413.0	383.3	330.1	372.8	361.3
		Change, %		(1.4)	12.1	123.5	34.5	0.1	7.9	25.3	10.9	14.4
	Butadiene	-Naphtha	713.5	724.5	624.0	395.0	555.0	1,040.5	636.4	987.6	777.3	526.9
		Change, %		(1.5)	14.3	80.6	28.6	(31.4)	12.1	(27.8)	(8.2)	35.4
	Benzene	-Naphtha	181.0	197.0	194.0	37.5	70.0	255.5	58.9	345.3	213.6	95.2
		Change, %		(8.1)	(6.7)	382.7	158.6	(29.2)	207.4	(47.6)	(15.3)	90.1
	Toluene	-Naphtha	218.5	232.0	199.0	105.0	105.0	185.5	111.4	196.0	159.3	146.9
		Change, %		(5.8)	9.8	108.1	108.1	17.8	96.2	11.5	37.2	48.7
	Xylene	-Naphtha	251.0	254.5	216.5	140.0	165.0	210.5	188.9	175.3	188.3	179.1
		Change, %		(1.4)	15.9	79.3	52.1	19.2	32.9	43.2	33.3	40.1

자료 : Ciscem, Platts, Bloomberg, SK증권

참고 : Spread는 Polymer와 Naphtha의 가격차이임

Weekly Price			Last Week	1W	1M	3M	6M	12M	YTD	2017avg.	2018avg.	2019acc.
Spot Price	HDPE	CFR SE Asia	897.5	897.5	947.5	1,027.5	1,027.5	1,217.5	1,002.5	1,142.5	1,211.4	989.3
	Change, %			0.0	(5.3)	(12.7)	(12.7)	(26.3)	(10.5)	(21.4)	(25.9)	(9.3)
	MEG	CFR SE Asia	545.0	527.5	552.5	532.5	617.5	922.5	624.4	850.6	918.4	589.3
	Change, %			3.3	(1.4)	2.3	(11.7)	(40.9)	(12.7)	(35.9)	(40.7)	(7.5)
	PVC	CFR SE Asia	860.0	860.0	880.0	840.0	900.0	950.0	887.5	899.9	920.1	863.6
	Change, %			0.0	(2.3)	2.4	(4.4)	(9.5)	(3.1)	(4.4)	(6.5)	(0.4)
	PP	CFR SE Asia	1,047.5	1,052.5	1,067.5	1,157.5	1,097.5	1,232.5	1,076.3	1,099.6	1,236.5	1,097.5
	Change, %			(0.5)	(1.9)	(9.5)	(4.6)	(15.0)	(2.7)	(4.7)	(15.3)	(4.6)
	2-EH	CFR Korea	940.0	940.0	950.0	1,030.0	1,045.0	1,130.0	1,040.0	970.0	1,117.0	1,015.6
	Change, %			0.0	(1.1)	(8.7)	(10.0)	(16.8)	(9.6)	(3.1)	(15.8)	(7.4)
	ABS	CFR SE Asia	1,370.0	1,400.0	1,470.0	1,510.0	1,530.0	1,960.0	1,495.0	1,844.7	1,902.0	1,500.7
	Change, %			(2.1)	(6.8)	(9.3)	(10.5)	(30.1)	(8.4)	(25.7)	(28.0)	(8.7)
	SBR	CFR SE Asia	1,290.0	1,290.0	1,315.0	1,375.0	1,395.0	1,875.0	1,481.3	1,980.5	1,701.4	1,394.3
	Change, %			0.0	(1.9)	(6.2)	(7.5)	(31.2)	(12.9)	(34.9)	(24.2)	(7.5)
	SM	CFR SE Asia	1,000.0	1,000.0	1,035.0	1,062.5	1,055.0	1,470.0	997.5	1,253.8	1,343.7	1,047.8
	Change, %			0.0	(3.4)	(5.9)	(5.2)	(32.0)	0.3	(20.2)	(25.6)	(4.6)
	Caustic	FOB NEA	275.0	290.0	311.0	342.0	299.0	421.0	288.0	491.2	483.2	330.3
	Change, %			(5.2)	(11.6)	(19.6)	(8.0)	(34.7)	(4.5)	(44.0)	(43.1)	(16.7)
	PX	CFR SE Asia	780.0	775.0	835.0	847.5	1,095.0	1,185.0	1,031.9	844.4	1,056.0	947.0
	Change, %			0.6	(6.6)	(8.0)	(28.8)	(34.2)	(24.4)	(7.6)	(26.1)	(17.6)
PO	CFR China	1,537.5	1,482.5	1,387.5	1,380.0	1,557.5	1,870.0	1,571.9	1,601.2	1,829.5	1,488.0	
Change, %			3.7	10.8	11.4	(1.3)	(17.8)	(2.2)	(4.0)	(16.0)	3.3	
Caprolactam	CFR SE Asia	1,460.0	1,460.0	1,460.0	1,665.0	1,630.0	2,155.0	1,663.8	1,936.4	2,092.4	1,609.9	
Change, %			0.0	0.0	(12.3)	(10.4)	(32.3)	(12.2)	(24.6)	(30.2)	(9.3)	
PTA	CFR SE Asia	690.0	695.0	755.0	815.0	860.0	972.5	817.5	667.8	869.4	804.7	
Change, %			(0.7)	(8.6)	(15.3)	(19.8)	(29.0)	(15.6)	3.3	(20.6)	(14.3)	
Spread	HDPE		436.0	447.0	446.5	447.5	507.5	583.0	512.6	649.0	597.2	468.2
	Change, %			(2.5)	(2.4)	(2.6)	(14.1)	(25.2)	(14.9)	(32.8)	(27.0)	(6.9)
	MEG		83.5	77.0	51.5	(47.5)	97.5	288.0	134.5	357.1	304.2	68.2
	Change, %			8.4	62.1	(275.8)	(14.4)	(71.0)	(37.9)	(76.6)	(72.6)	22.4
	PVC		398.5	409.5	379.0	260.0	380.0	315.5	397.6	406.4	305.9	342.6
	Change, %			(2.7)	5.1	53.3	4.9	26.3	0.2	(2.0)	30.3	16.3
	PP		586.0	602.0	566.5	577.5	577.5	598.0	586.4	606.1	622.3	576.5
	Change, %			(2.7)	3.4	1.5	1.5	(2.0)	(0.1)	(3.3)	(5.8)	1.7
	2-EH		478.5	489.5	449.0	450.0	525.0	495.5	550.1	476.5	502.8	494.5
	Change, %			(2.2)	6.6	6.3	(8.9)	(3.4)	(13.0)	0.4	(4.8)	(3.2)
	ABS		908.5	949.5	969.0	930.0	1,010.0	1,325.5	1,005.1	1,351.2	1,287.8	979.7
	Change, %			(4.3)	(6.2)	(2.3)	(10.0)	(31.5)	(9.6)	(32.8)	(29.5)	(7.3)
	SBR	BD spread	115.0	115.0	190.0	400.0	320.0	200.0	355.0	499.4	310.0	346.3
	Change, %			0.0	(39.5)	(71.3)	(64.1)	(42.5)	(67.6)	(77.0)	(62.9)	(66.8)
	SM		538.5	549.5	534.0	482.5	535.0	835.5	507.6	760.3	729.5	526.8
	Change, %			(2.0)	0.8	11.6	0.7	(35.5)	6.1	(29.2)	(26.2)	2.2
	Caustic											
	Change, %											
	PX		318.5	324.5	334.0	267.5	575.0	550.5	542.0	351.0	441.8	425.9
	Change, %			(1.8)	(4.6)	19.1	(44.6)	(42.1)	(41.2)	(9.2)	(27.9)	(25.2)
PO	propylene spre	662.5	612.5	517.5	615.0	730.0	822.5	698.8	777.6	842.5	605.7	
Change, %			8.2	28.0	7.7	(9.2)	(19.5)	(5.2)	(14.8)	(21.4)	9.4	
Caprolactam	benzene spreac	817.5	812.5	765.0	1,047.5	1,040.0	1,265.0	1,115.0	1,097.6	1,264.6	993.6	
Change, %			0.6	6.9	(22.0)	(21.4)	(35.4)	(26.7)	(25.5)	(35.4)	(17.7)	
PTA	px spread	144.0	152.5	170.5	221.8	93.5	143.0	95.2	76.7	130.2	141.8	
Change, %			(5.6)	(15.5)	(35.1)	54.0	0.7	51.3	87.7	10.6	1.5	

자료 : Cischem, Platts, SK증권

참고 : Spread는 Naphtha spread로 일괄적용

Global peers

	Currency	08/21	1D	1W	1M	3M	6M	12M	YTD	MKT CAP (mil USD)	PER		PBR		EV/EBITDA	
											19E	20E	19E	20E	19E	20E
Petrochemical																
DuPont	USD	67.8	1.0	3.0	(5.3)	0.1	(13.8)	(1.6)	(10.9)	50,514	18.4	15.9	1.2	1.2	11.7	10.9
Corteva	USD	1,271.0	1.1	7.9	11.6	-	-	-	-	22,899	25.9	19.5	0.9	0.9	12.2	10.0
Eastman	USD	65.6	0.6	3.0	(16.6)	(8.5)	(21.6)	(33.9)	(10.3)	8,987	8.5	7.6	1.5	1.4	7.3	6.9
BASF	EUR	59.0	2.2	3.2	(3.0)	(5.5)	(10.5)	(25.5)	(2.4)	60,127	14.9	12.9	1.4	1.4	8.9	7.8
Akzo Nobel	EUR	81.6	0.7	0.2	(1.1)	5.8	3.2	2.8	3.0	19,078	26.3	19.7	2.7	2.6	13.2	11.6
Arkema	EUR	78.8	3.4	5.8	(3.6)	(1.1)	(7.1)	(26.2)	5.1	6,706	9.5	8.9	1.1	1.0	5.6	5.3
Lanxess	EUR	52.5	2.9	1.5	(4.8)	6.1	8.1	(23.6)	30.5	5,095	13.0	11.9	1.6	1.5	6.3	6.0
Sumitomo Chemical	JPY	463	(1.1)	(0.6)	(4.9)	(5.9)	(17.3)	(24.7)	(13.1)	7,200	7.8	7.3	0.7	0.7	5.4	5.2
Mitsubishi Chemical	JPY	717	(1.6)	(1.5)	(3.6)	(0.6)	(13.9)	(24.7)	(13.9)	10,144	6.7	6.4	0.7	0.7	6.6	6.3
Shin-Etsu Chemical	JPY	10,505	(0.3)	(2.1)	5.2	13.6	10.0	0.3	23.1	42,198	14.0	13.1	1.6	1.5	6.2	5.8
Asahi Kasei	JPY	946	(0.7)	0.5	(16.0)	(19.1)	(21.2)	(40.0)	(16.3)	12,465	8.9	8.7	0.9	0.8	5.3	5.1
JSR	JPY	1,720	0.1	(1.3)	4.3	12.0	(6.4)	(19.3)	3.9	3,654	12.6	10.7	0.9	0.8	6.5	5.7
Nitto Denko	JPY	4,895	(0.4)	(1.3)	(5.8)	(0.8)	(17.6)	(41.1)	(11.7)	7,300	13.6	13.0	1.1	1.0	4.2	4.1
SABIC	SAR	102.4	(1.0)	(1.5)	(9.1)	(9.2)	(17.0)	(16.7)	(11.9)	81,909	21.2	19.0	1.8	1.7	8.8	8.4
Yansab	SAR	55.8	(1.1)	(0.9)	(3.8)	(11.4)	(19.4)	(22.9)	(11.4)	8,369	18.2	16.8	1.9	1.9	10.0	10.3
Formosa Plastics	TWD	92.9	(0.2)	(0.7)	(8.0)	(16.3)	(10.2)	(14.8)	(8.0)	18,876	13.1	12.0	1.6	1.5	16.9	15.6
Formosa Fiber	TWD	86.9	(0.2)	0.5	(9.9)	(19.2)	(17.6)	(27.0)	(17.2)	16,257	12.7	12.8	1.4	1.3	10.9	11.2
Nan Ya Plastics	TWD	67.9	0.4	1.5	(5.6)	(13.6)	(10.8)	(18.5)	(10.1)	17,188	15.1	14.2	1.4	1.4	15.8	15.3
Sinopec Shanghai	CNY	4.39	(1.3)	(1.1)	(9.9)	(12.9)	(16.1)	(15.4)	(12.0)	5,643	13.3	13.3	1.6	1.5	6.1	6.1
Sinopec Yizheng(Fiber)	CNY	2.24	(0.9)	2.8	(6.7)	(10.8)	16.7	14.3	22.4	4,870	41.5	28.7	5.7	4.6	10.5	9.4
Reliance	INR	1,271	(0.4)	(1.3)	1.8	(5.1)	1.9	1.9	13.4	112,804	16.7	13.7	1.8	1.6	10.9	9.0
Industries Qatar	QAR	10.3	(2.3)	3.0	(6.9)	(4.6)	(23.6)	(91.4)	(22.9)	17,026	18.7	16.1	1.8	1.7	128.7	102.1
PTT Chemical	THB	53.3	0.9	1.4	(13.8)	(15.1)	(25.0)	(34.9)	(25.3)	7,802	10.3	8.5	0.8	0.7	7.0	6.2
Petronas	MYR	7.2	(0.1)	(2.2)	(8.5)	(18.9)	(21.0)	(23.8)	(23.0)	13,701	15.5	13.8	1.8	1.7	8.4	7.5
LG화학	KRW	328,000	1.2	1.4	(9.3)	(0.5)	(15.4)	(9.9)	(5.5)	19,267	24.5	14.8	1.4	1.3	8.8	6.5
롯데케미칼	KRW	228,000	(0.4)	0.7	(7.7)	(12.8)	(31.1)	(31.2)	(17.7)	6,503	6.8	5.7	0.6	0.5	4.5	3.9
한화케미칼	KRW	17,600	2.9	1.7	(15.2)	(16.2)	(24.6)	(14.6)	(12.9)	2,365	7.9	5.8	0.5	0.4	8.4	7.4
금호석유	KRW	72,500	0.3	(1.1)	(16.8)	(21.0)	(24.2)	(27.9)	(17.0)	1,838	5.8	5.6	0.9	0.8	4.2	4.3
SKC	KRW	42,450	1.3	3.8	(2.6)	34.8	6.8	(8.4)	18.6	1,326	15.5	10.5	1.0	0.9	9.7	8.1
국도화학	KRW	44,400	0.9	(1.9)	(5.2)	(4.4)	(9.8)	(23.1)	(2.7)	215	-	-	-	-	-	-
효성	KRW	87,900	2.0	5.4	12.8	16.0	24.5	107.1	75.8	1,541	10.9	11.5	0.7	0.7	11.6	12.8
Average			0.3	1.0	(6.0)	(4.8)	(10.8)	(17.1)	(2.7)							
Refinery																
Valero	USD	78.4	0.5	3.2	(6.3)	(4.9)	(7.2)	(31.3)	4.6	32,489	14.6	8.0	1.5	1.4	7.5	5.3
Conoco Phillips	USD	52.6	(0.2)	1.6	(12.8)	(17.3)	(25.1)	(25.8)	(15.6)	58,427	12.6	12.4	1.8	1.7	4.5	4.5
Formosa Petrochem	TWD	97.9	0.1	(1.1)	(8.1)	(16.0)	(16.0)	(21.7)	(10.2)	29,767	19.6	15.7	2.7	2.6	12.2	10.2
Marathon Petroleum	USD	47.2	1.1	5.8	(14.5)	(11.4)	(27.0)	(40.2)	(20.0)	31,092	10.3	6.1	0.9	0.8	7.3	5.5
Devon Energy	USD	23.4	0.1	6.1	(11.2)	(24.9)	(21.7)	(44.1)	3.7	9,450	17.1	12.1	1.3	1.2	4.0	3.9
Hollyfrontier	USD	45.4	(0.9)	2.5	(6.5)	2.8	(17.9)	(36.3)	(11.2)	7,467	9.2	8.5	1.2	1.1	5.6	5.5
Phillips 66	USD	99.3	0.6	1.8	(2.6)	15.3	2.6	(14.8)	15.3	44,540	12.5	9.4	1.7	1.5	8.1	6.8
Murphy Oil	USD	19.6	(0.8)	6.9	(9.1)	(28.7)	(33.6)	(35.3)	(16.2)	3,182	19.1	15.3	0.6	0.6	5.0	4.1
JX Holdings	JPY	436.7	(1.6)	0.0	(14.6)	(19.6)	(21.0)	(42.0)	(24.3)	13,662	5.0	5.0	0.5	0.5	5.5	5.3
Idemitsu	JPY	2,818.0	(0.5)	3.8	(8.2)	(15.1)	(30.7)	(45.5)	(21.9)	7,993	6.2	5.5	0.6	0.6	6.2	5.7
Nesteoil	EUR	29.6	0.3	(1.3)	(3.5)	(9.1)	2.7	(59.8)	31.9	25,297	17.9	15.9	4.4	3.9	11.5	10.5
Ashland	USD	73.0	1.0	1.6	(4.1)	1.2	(6.5)	(14.6)	2.8	4,417	26.4	20.7	1.4	1.3	12.9	11.9
Fuchs Petrolub	EUR	31.6	1.5	1.7	(9.2)	(12.9)	(16.4)	(35.7)	(12.1)	4,809	19.9	18.2	2.8	2.6	11.4	10.5
SK이노베이션	KRW	164,000	0.9	3.8	(3.5)	(2.7)	(12.8)	(17.0)	(8.6)	12,618	13.3	8.7	0.8	0.8	7.5	5.9
S-Oil	KRW	92,300	0.7	4.3	2.0	9.8	(9.5)	(24.3)	(5.5)	8,647	21.4	9.0	1.6	1.4	11.9	7.6
GS	KRW	47,450	1.5	0.9	(10.0)	(5.3)	(11.5)	(12.9)	(8.0)	3,669	5.8	5.1	0.5	0.5	6.0	5.5
Average			0.3	2.6	(7.6)	(8.7)	(15.7)	(31.3)	(6.0)							

* Bloomberg 기준 / valuation multiple 또한 Bloomberg consensus 기준임

* 국내업체의 multiple은 Dataguidepro 기준임

Global peers

	Currency	08/21	1D	1W	1M	3M	6M	12M	YTD	MKT CAP (mil USD)	PER		PBR		EV/EBITDA	
											19E	20E	19E	20E	19E	20E
E&P/Shale																
Exxon Mobil	USD	70	1.0	3.1	(7.0)	(8.6)	(10.4)	(11.6)	2.2	294,993	21.6	14.8	1.5	1.6	8.4	6.7
BP	GBP	499	1.1	0.2	(3.6)	(10.9)	(7.4)	(9.6)	0.6	123,456	11.5	8.8	1.2	1.2	4.7	4.4
Shell	EUR	2,324	1.6	(0.9)	(8.5)	(8.5)	(3.6)	(7.1)	0.7	225,904	11.5	9.5	1.2	1.2	5.4	4.8
Chevron	USD	118	1.5	0.1	(5.7)	(2.9)	(1.1)	(0.1)	8.4	223,786	16.8	14.2	1.4	1.4	6.4	5.9
Total	EUR	44	1.6	1.7	(7.9)	(10.8)	(10.8)	(16.6)	(3.9)	131,427	10.0	8.6	1.0	1.0	4.7	4.4
Sinopec	CNY	5	(0.4)	1.2	(4.9)	(8.2)	(14.3)	(22.4)	(0.4)	83,374	9.6	9.1	0.8	0.8	4.4	4.2
Petrochina	CNY	6	(0.3)	0.5	(5.8)	(14.7)	(18.0)	(24.5)	(14.4)	151,913	18.8	16.8	0.9	0.9	5.0	4.9
CNOOC	CNY	10	2.2	3.4	(1.6)	8.4	13.3	(3.2)	19.0	66,037	8.5	8.1	1.1	1.0	3.4	3.3
Gazprom	RUB	231	(0.1)	1.8	7.0	11.3	50.6	61.4	50.6	83,219	3.5	3.7	0.4	0.3	3.7	3.7
Rosneft	RUB	410	0.6	2.6	(2.4)	(1.3)	3.5	(5.4)	(5.1)	66,126	6.4	5.0	0.9	0.8	4.0	3.7
Anadarko	USD	73	0.0	0.0	(0.8)	0.0	66.0	16.3	66.0	36,564	42.9	44.9	-	-	7.5	7.0
Petrobras	BRL	25	6.0	2.1	(7.3)	(3.9)	(7.1)	43.6	12.2	86,956	9.8	7.9	1.1	1.0	5.2	4.7
Lukoil	USD	5,278	(0.9)	3.4	1.5	(0.4)	(3.1)	18.2	5.6	60,182	6.1	5.8	0.9	0.8	3.6	3.5
Kinder	USD	20	1.2	3.0	(0.5)	0.2	6.3	13.5	32.6	46,159	20.6	19.1	1.4	1.4	10.9	10.4
Equinor ASA	NOK	153	2.8	3.4	(5.6)	(16.5)	(22.0)	(29.1)	(16.7)	57,115	10.3	8.6	1.2	1.2	2.7	2.4
BHP	AUD	35	(2.9)	(5.8)	(14.2)	(7.1)	(6.9)	8.3	3.0	114,538	10.8	12.5	2.5	2.3	5.0	5.6
PTT E&P	THB	122	0.4	(2.4)	(9.6)	(6.2)	(3.2)	(9.6)	7.5	15,738	11.1	10.9	1.2	1.1	3.3	3.2
Petronas gas	MYR	16	(2.3)	(1.1)	(6.7)	(4.2)	(13.1)	(16.7)	(17.6)	7,498	16.8	17.3	2.3	2.3	8.9	9.0
Chesapeake	USD	2	1.9	20.0	0.0	(31.9)	(37.7)	(64.5)	(22.9)	2,648	-	-	0.8	0.9	5.4	5.1
Noble Energy	USD	22	(0.1)	5.2	4.9	(8.4)	(6.9)	(22.7)	18.4	10,627	-	36.8	1.1	1.1	7.5	5.5
Average			0.7	2.1	(3.9)	(6.2)	(1.3)	(4.1)	7.3							
PV																
WACKER	EUR	68.3	2.9	5.3	4.5	(5.8)	(24.5)	(44.4)	(13.7)	3,955	21.6	15.8	1.1	1.1	5.6	5.2
GCL-Poly	HKD	0.3	4.8	1.6	(27.0)	(32.3)	(56.7)	(37.5)	(31.6)	822	-	8.4	0.3	0.2	8.3	7.3
SunPower	USD	13.6	(1.2)	9.7	23.5	65.5	108.8	96.1	173.0	1,934	-	411.2	-	-	26.0	14.9
Canadian Solar	USD	24.5	2.0	18.9	17.0	36.6	10.5	87.2	70.9	1,456	8.2	7.7	1.0	0.9	7.1	5.7
LONGI Green Energy	CNY	27.1	10.0	10.6	12.7	13.7	24.0	168.0	91.8	13,878	23.1	18.2	4.3	3.5	15.7	12.0
First Solar	USD	63.9	1.3	8.3	(4.0)	8.4	22.9	20.7	50.4	6,732	26.3	17.5	1.2	1.1	10.3	7.5
OCI	KRW	69,900	2.5	2.9	(23.2)	(20.0)	(32.5)	(38.7)	(34.7)	1,387	-	13.2	0.5	0.5	9.5	5.2
Average			3.2	8.2	0.5	9.4	7.5	35.9	43.7							
Gas Company																
Towngas China	HKD	5.5	(1.6)	0.0	(11.1)	(6.0)	(16.4)	(23.0)	(6.2)	1,995	10.3	9.6	0.9	0.8	10.4	9.4
Kulun	HKD	6.7	(0.3)	4.8	(7.9)	(9.8)	(23.3)	(4.1)	(18.8)	7,441	8.0	7.2	1.1	1.0	4.7	4.4
Beijing Enterprise	HKD	37.7	(0.3)	3.4	(3.8)	(3.0)	(16.7)	4.4	(9.2)	6,067	5.8	5.3	0.6	0.6	10.9	10.6
ENN Energy	HKD	80.6	(0.4)	(3.4)	3.7	19.5	(2.7)	9.3	16.0	11,551	16.8	14.8	3.2	2.8	10.2	8.9
China Resources Gas	HKD	39.1	(0.4)	(1.3)	2.8	9.1	14.0	6.3	26.1	11,088	17.1	15.3	3.1	2.7	9.2	8.2
China Gas Holdings	HKD	31.6	2.1	1.6	1.3	36.5	12.1	21.3	13.3	21,027	17.0	14.1	3.8	3.2	13.9	11.6
Shenzen Gas	HKD	14.8	(1.2)	6.8	(2.9)	1.4	(6.2)	4.2	(1.9)	4,068	9.3	8.3	1.1	1.0	8.2	7.9
Shaan Xi	CNY	7.2	0.1	1.4	(8.4)	(8.7)	(5.7)	(1.0)	(2.3)	1,137	18.5	15.7	1.4	1.3	-	-
Suntien	HKD	2.0	2.1	5.4	(8.4)	(3.9)	(7.5)	(12.5)	(3.0)	928	4.4	4.0	0.6	0.5	6.8	6.1
China Oil & Gas	HKD	0.3	(1.6)	0.0	(18.9)	(25.9)	(44.4)	(50.8)	(43.4)	223	-	-	-	-	-	-
Average			(0.1)	1.9	(5.4)	0.9	(9.7)	(4.6)	(2.9)							
EV																
LG화학	KRW	328,000	1.2	1.4	(9.3)	(0.5)	(15.4)	(9.9)	(5.5)	19,267	24.5	14.8	1.4	1.3	8.8	6.5
삼성SDI	KRW	249,500	(1.8)	(2.3)	3.1	18.8	2.5	15.0	13.9	14,276	22.3	15.5	1.4	1.3	12.2	9.5
Panasonic	JPY	823.0	0.6	0.1	(10.3)	(9.9)	(21.1)	(38.2)	(16.9)	18,965	9.8	9.2	1.0	0.9	5.1	4.9
GS Yuasa	JPY	1829.0	(1.7)	(4.2)	(10.8)	(6.0)	(20.6)	(26.5)	(18.6)	1,421	11.6	10.7	0.8	0.8	5.4	5.3
NEC	JPY	4645.0	(0.5)	0.8	6.4	18.6	25.4	57.9	42.3	11,366	16.8	14.1	1.3	1.2	7.5	7.2
CATL	CNY	75.8	0.5	3.1	4.6	8.1	(9.0)	9.0	2.7	23,550	37.6	30.9	4.4	3.9	17.5	14.1
GuoXuan	CNY	12.1	(1.2)	3.7	(6.0)	(8.8)	(21.4)	(5.3)	4.4	1,942	16.7	14.9	1.5	1.4	12.0	10.4
Wanxiang	CNY	5.3	(0.9)	0.9	(10.3)	(13.2)	(7.8)	(13.6)	4.3	2,082	20.5	19.1	-	-	-	-
BYD Auto	CNY	51.6	0.4	2.6	(4.3)	4.5	(0.6)	15.0	1.2	18,291	39.5	33.0	2.5	2.3	11.0	9.7
Tesla Motors	USD	220.8	(2.2)	0.6	(14.5)	7.7	(24.2)	(31.4)	(33.6)	39,557	-	60.9	5.9	5.3	24.2	15.8
Geely	CNY	11.0	(0.5)	2.8	(9.5)	(12.4)	(27.7)	(32.6)	(20.0)	12,830	9.7	7.8	1.7	1.5	5.6	4.9
NIO	CNY	3.1	(3.5)	5.2	(9.5)	(28.9)	(60.1)	-	(52.1)	3,211	-	-	27.1	-	-	-
Average			(0.8)	1.2	(5.9)	(1.8)	(15.0)	(5.5)	(6.5)							

* Bloomberg 기준 / valuation multiple 또한 Bloomberg consensus 기준임