SK Energy Daily

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SK 증권

1. News Summary (3 page)

2018년 8월 9일

News		Conclusion
WTI comment	미중 무역전쟁 격화에 급락…WTI 3.2%↓	
Headline	롯데케미칼, 파키스탄 석유화학단지 '눈독'	북미 뿐만 아니라 아시아 지역 NCC도 증설되어 다운사이클 심화 전망
News 1.	머스크, 테슬라 투자자 압박에 "상장폐지 검토"	상장폐지에 약 80조원이 소요될 것으로 보여 실현 가능성 낮다는 판단
News 2.	-	-
News 3.	-	-
News 4.	-	-

2. Prices Summary (4~7 page)

Daily	Unit	Price	1D	1W	1M	3M	12M
Refinery			%	%	%	%	%
WTI	$/bbl	66.9	(3.2)	(1.1)	(9.4)	(5.9)	35.1
Dubai	$/bbl	73.3	0.9	1.2	(1.9)	(0.9)	43.0
Gasoline	$/bbl	86.0	1.8	3.3	2.5	(0.2)	27.1
Diesel	$/bbl	87.7	0.8	2.7	0.6	(1.6)	37.6
Complex margin	$/bbl	8.1	0.3	0.6	1.8	0.8	(0.3)
1M lagging	$/bbl	7.2	1.7	3.2	0.0	(8.7)	(6.4)
Petrochemical			%	%	%	%	%
Naphtha	$/t	665	0.3	(0.7)	(0.0)	1.3	42.0
Butadiene	$/t	1,725	0.0	3.0	7.1	18.2	89.6
HDPE	$/t	1,310	0.0	0.4	(2.2)	(3.0)	17.0
MEG	$/t	940	0.0	0.9	5.3	(6.0)	8.0
PX	$/t	1,107	0.4	2.9	12.0	13.1	35.9
SM	$/t	1,434	0.1	3.0	6.3	6.5	27.6
Commodity			%	%	%	%	%
Natural Gas	$/mmbtu	2.95	1.8	6.9	5.4	7.0	2.6
Natural rubber	$/t	1,330	0.0	2.3	3.1	(5.0)	(10.7)
Cotton	C/lbs	87.4	(0.9)	(1.9)	2.5	1.8	21.7

*참고: 정제마진의 변동률은 %가 아닌 $/bbl임

Weekly	Update	Unit	Price	1W	1M	3M	12M
Petrochemical				%	%	%	%
Ethylene	08/06	$/t	1,243	0.8	(3.7)	5.1	20.6
Propylene	08/06	$/t	1,020	2.5	5.7	0.2	32.5
Benzene	08/06	$/t	873	2.9	6.4	4.5	16.3
Toluene	08/06	$/t	810	1.3	1.9	4.5	24.6
Xylene	08/06	$/t	825	0.3	1.2	6.8	30.4
PP	08/06	$/t	1,223	(0.8)	(3.2)	(1.6)	12.4
PVC	08/06	$/t	945	0.0	1.1	0.5	9.9
ABS	08/06	$/t	1,945	0.3	(0.8)	(3.2)	5.1
SBR	08/06	$/t	1,760	0.0	(0.6)	0.6	18.1
SM	08/06	$/t	1,465	5.0	7.1	4.3	27.4
BPA	08/06	$/t	1,778	(0.3)	2.4	(11.5)	15.2
Caustic	08/06	$/t	369	2.2	(22.3)	(38.3)	(21.1)
2-EH	08/06	$/t	1,105	0.9	0.5	(3.5)	15.1
Caprolactam	08/06	$/t	2,155	0.0	0.7	(0.7)	22.4
Solar				%	%	%	%
Polysilicon	08/08	$/kg	11.3	3.4	1.3	(26.2)	(27.5)
Module	08/08	$/W	0.25	(0.4)	(3.1)	(14.5)	(22.3)

3. Global Peers Summary (8~9 page)

	Unit	Price	1D	1W	1M	3M	12M
E&P			%	%	%	%	%
ExxonMobil	USD	80.7	(0.7)	0.4	(1.9)	3.4	1.0
Shell	EUR	2,607	0.5	1.5	(0.4)	2.2	17.8
Petrochina	CNY	8.06	1.5	6.3	8.2	2.8	(1.5)
Gazprom	RUB	144.1	1.0	1.4	(0.6)	(0.9)	20.4
Petrobras	BRL	20.1	(2.8)	0.6	12.3	(12.1)	49.3
Refinery							
Phillips66	USD	123.0	0.2	(0.0)	10.6	5.8	44.6
Valero	USD	115.9	(0.7)	(0.8)	7.5	2.4	71.0
JX	JPY	813.7	(3.1)	(1.3)	5.7	15.0	65.4
Neste Oil	EUR	74.0	(0.8)	4.1	12.6	12.8	112.6

	Unit	Price	1D	1W	1M	3M	12M
Petrochemical			%	%	%	%	%
BASF	EUR	80.4	(0.2)	(2.5)	(2.3)	(6.2)	(1.4)
DowDuPont	USD	67.7	(0.7)	(0.4)	2.6	5.3	6.7
SABIC	SAR	127.4	(0.5)	(1.1)	3.1	11.7	29.8
Formosa Pla.	TWD	112.0	0.9	(0.9)	2.3	6.2	20.2
Shin-Etsu	JPY	10,915	(1.0)	(3.1)	8.4	(1.6)	9.6
Renewable							
Wacker	EUR	128.9	3.5	4.0	12.9	(17.4)	22.8
First Solar	USD	54.46	1.6	2.0	(0.1)	(19.0)	13.8
GCL-Poly	HKD	0.60	(1.6)	(13.0)	(10.4)	(36.2)	(34.8)
Tesla Motors	USD	370.3	(2.4)	23.1	19.9	22.6	1.4

4. Coverage Summary

	08/08	1D	1W	1M	3M	6M	12M	투자의견	TP	%	P/E	P/B
KOSPI	2,301	0.1	(0.2)	0.7	(6.6)	(6.2)	(4.1)				* 추정치는 12M fwd 기준임	
KOSPI화학	5,674	(1.1)	(0.7)	1.7	(5.6)	(6.9)	(0.5)				* 모든 coverage 업체의 실적은 연결기준임	
LG화학	376,000	(1.8)	0.4	16.6	10.6	(3.2)	9.3	매수	400,000	6.4	14.86	1.68
롯데케미칼	352,500	1.4	4.1	3.7	(8.0)	(14.4)	(10.4)	매수	400,000	13.5	10.94	1.00
한화케미칼	20,900	(2.1)	(0.5)	(0.5)	(27.9)	(37.7)	(37.7)	매수	30,000	43.5	9.39	0.51
금호석유화학	103,000	(0.5)	(2.4)	(6.8)	(5.9)	3.0	36.1	매수	150,000	45.6	9.60	1.33
KCC	342,500	(0.9)	1.3	6.0	(8.2)	(13.2)	(16.8)	매수	400,000	16.8	29.69	0.53
OCI	102,000	0.0	(1.0)	8.4	(36.4)	(35.6)	7.3	매수	140,000	37.3	7.76	0.74
SKC	44,250	0.8	1.3	2.0	12.3	11.2	21.7	매수	50,000	13.0	12.07	1.05
SK이노베이션	188,500	(0.5)	(4.1)	(2.6)	(7.1)	(2.3)	6.8	매수	230,000	22.0	11.08	0.94
S-Oil	116,500	(0.9)	0.0	10.4	9.9	(2.5)	0.4	매수	140,000	20.2	13.30	1.95
GS	53,200	(0.4)	(0.6)	3.5	(13.9)	(20.1)	(28.5)	매수	80,000	50.4	4.93	0.60
SK가스	84,500	(0.4)	(2.2)	(6.1)	(6.3)	(15.2)	(27.8)	매수	130,000	53.8	7.98	0.57
포스코대우	18,700	0.5	(1.3)	(8.1)	(21.1)	(18.5)	(21.8)	매수	25,000	33.7	9.81	0.73
LG상사	23,400	(0.8)	(0.8)	4.5	(9.3)	(18.9)	(20.0)	매수	38,000	62.4	8.66	0.66
한국전력	30,350	(0.3)	(6.2)	(2.4)	(15.5)	(14.6)	(31.1)	매수	45,000	48.3	7.35	0.24
한국가스공사	55,500	2.6	(6.1)	(3.6)	(0.7)	16.4	11.1	매수	75,000	35.1	8.61	0.72

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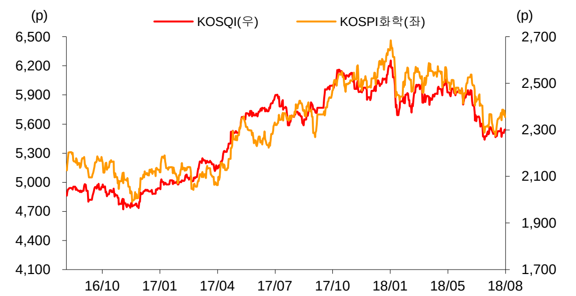
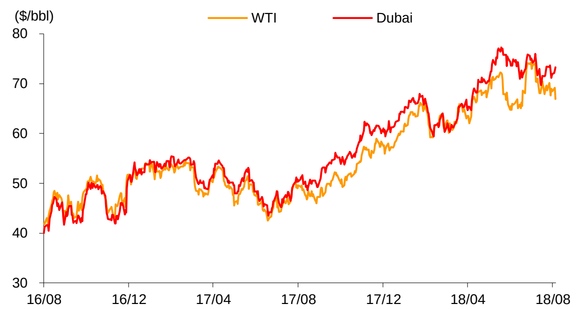
Key Chart

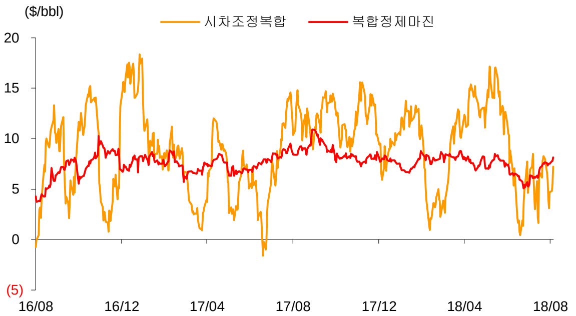
KOSPI/KOSPI화학



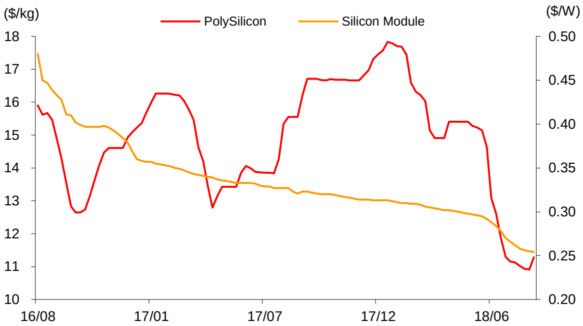
WTI/Dubai



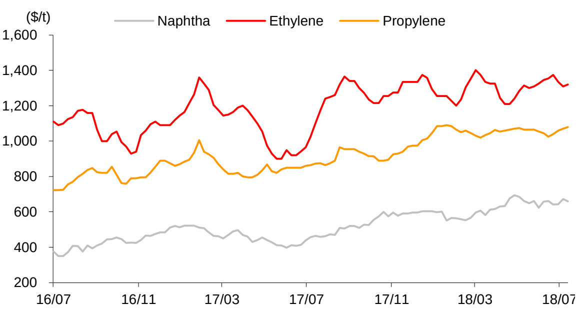
Complex & 1M lagging margin



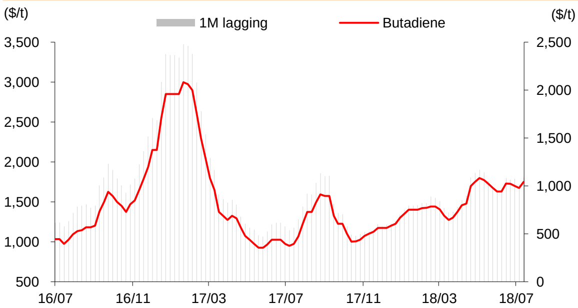
Polysilicon & Module prices



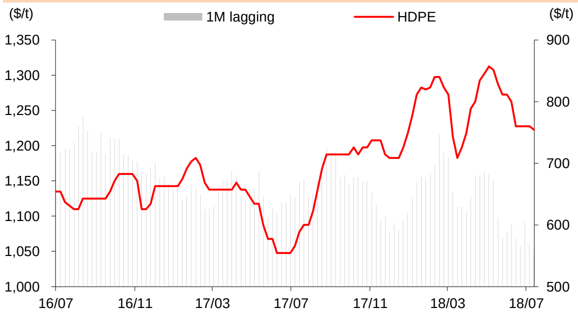
Naphtha/Ethylene/Propylene prices



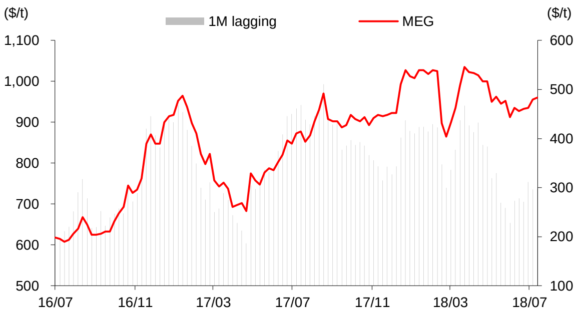
Butadiene price & 1M lagging naphtha spread



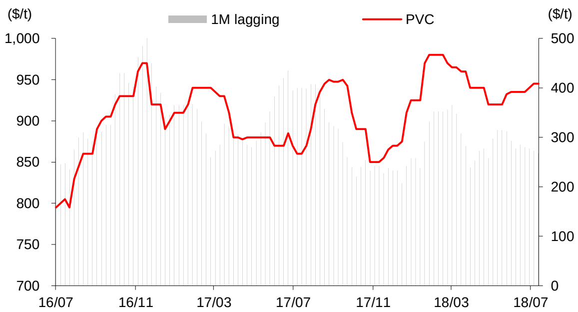
HDPE price & 1M lagging naphtha spread



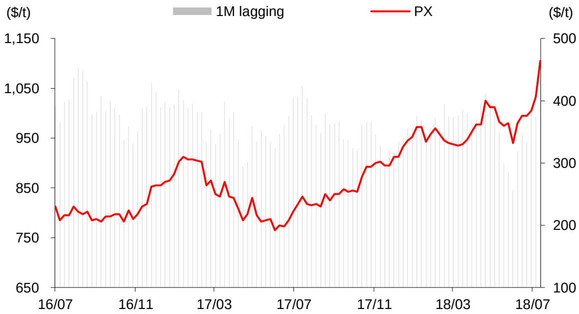
MEG price & 1M lagging naphtha spread



PVC price & 1M lagging naphtha spread



PX price & 1M lagging naphtha spread



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

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News Comment

Headline	(출처: 글로벌이코노믹)
제목	롯데케미칼, 파키스탄 석유화학단지 '눈독'
결론	북미 뿐만 아니라 아시아 지역 NCC도 증설되어 다운사이클 심화 전망
세부	
	1) 롯켐은 파키스탄 화학제조연합(PCMA)과 현지 석유화학단지 설립 논의
	2) PCMA는 NCC 등 석화단지 설립 위해 해외 투자자들 제안을 받는 중임
	3) 롯켐 외에도 UAE와 중국 석화업체들도 PCMA에 관심을 보이고 있음
	4) 이는 파키스탄의 화학물질 수입 비용을 최대 3억달러 줄일 것으로 기대
	5) 북미 뿐만 아니라 아시아 지역 NCC도 증설되어 다운사이클 심화 전망

WTI Comment	(출처: 연합뉴스)
제목	미중 무역전쟁 격화에 급락…WTI 3.2%↓
상승 요인	
하락 요인	전날 미국이 23일부터 중국산 제품에 $160억 관세 부과 밝힘 중국도 같은 규모의 미국산 제품에 대해 같은 비율 관세 부과 밝힘 글로벌 성장과 원유수요에 대한 우려가 크게 부각됨

Issue 1	(출처: 조선일보)
제목	머스크, 테슬라 투자자 압박에 "상장폐지 검토"
결론	상장폐지에 약 80조원이 소요될 것으로 보여 실현 가능성 낮다는 판단
세부	
	1) 머스크, "테슬라를 $420/주에 매입해 비공개 회사로 만드는 것 검토"
	2) 비상장 전환 이유는 상장 이후 계속된 외부 투자자들의 실적 압박 때문
	3) 머스크, "분기 실적 보고 때 받는 압박에 옳지 않은 결정 내릴 수도 있음"
	4) 머스크, "공매도로 회사를 공격하려는 세력도 있음"
	5) 상장폐지에 약 80조원이 소요될 것으로 보여 실현 가능성 낮다는 판단

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)
	2)
	3)
	4)
	5)

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

Issue 6	
제목	
결론	
세부	
	1)
	2)
	3)
	4)
	5)

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Commodity Price Data

Daily Price		Today	1D	1W	1M	3M	6M	12M	YTD	2016avg.	2017avg.	2018acc.
F/X	**USD/EUR**	0.861	0.862	0.858	0.852	0.843	0.817	0.851	0.833	0.904	0.887	0.832
	Change, %		(0.1)	0.4	1.2	2.2	5.5	1.2	3.4	(4.7)	(2.9)	3.5
	USD/JPY	111.0	111.4	111.7	110.5	109.1	108.7	110.3	112.6	108.8	112.1	109.2
	Change, %		(0.4)	(0.7)	0.5	1.7	2.1	0.6	(1.5)	2.0	(1.0)	1.6
	USD/KRW	1,120.0	1,123.7	1,120.9	1,115.9	1,076.6	1,087.9	1,125.2	1,066.7	1,160.5	1,130.9	1,084.4
	Change, %		(0.3)	(0.1)	0.4	4.0	2.9	(0.5)	5.0	(3.5)	(1.0)	3.3
Agriculture	**Corn**	371.3	370.8	365.0	351.8	395.5	365.8	369.8	350.8	358.5	359.4	371.0
	Change, %		0.1	1.7	5.5	(6.1)	1.5	0.4	5.8	3.6	3.3	0.1
	Soybean	893.8	889.3	886.8	874.0	1,011.3	987.8	963.0	951.8	987.5	975.9	975.3
	Change, %		0.5	0.8	2.3	(11.6)	(9.5)	(7.2)	(6.1)	(9.5)	(8.4)	(8.4)
	Wheat	570.0	568.3	558.3	512.8	517.8	456.3	457.0	427.0	436.4	436.0	483.9
	Change, %		0.3	2.1	11.2	10.1	24.9	24.7	33.5	30.6	30.7	17.8
	Rice	10.7	10.9	11.9	12.1	12.5	12.4	12.1	11.7	10.3	11.1	12.2
	Change, %		(2.4)	(10.3)	(12.1)	(15.0)	(14.4)	(12.3)	(8.8)	3.0	(3.7)	(12.4)
	Oats	263.8	255.3	239.0	254.3	229.0	269.5	273.5	241.0	196.3	252.3	245.6
	Change, %		3.3	10.4	3.7	15.2	(2.1)	(3.6)	9.4	34.4	4.6	7.4
MYR/mt	**Palm Oil**	2,220.0	2,195.0	2,150.0	2,255.0	2,359.0	2,501.0	2,624.0	2,444.0	2,653.8	2,787.3	2,384.4
	Change, %		1.1	3.3	(1.6)	(5.9)	(11.2)	(15.4)	(9.2)	(16.3)	(20.4)	(6.9)
	Cocoa	2,111.0	2,103.0	2,070.0	2,459.0	2,794.0	2,034.0	2,018.0	1,892.0	2,854.0	2,005.2	2,377.6
	Change, %		0.4	2.0	(14.2)	(24.4)	3.8	4.6	11.6	(26.0)	5.3	(11.2)
	Cotton	87.4	88.2	89.1	86.4	85.4	76.6	71.9	78.6	65.6	73.5	84.3
	Change, %		(0.9)	(1.9)	1.2	2.4	14.1	21.5	11.1	33.2	18.8	3.6
	Sugar	10.8	10.9	10.5	11.5	11.6	13.6	13.8	15.2	18.2	15.8	12.4
	Change, %		(0.6)	3.1	(6.1)	(6.5)	(20.4)	(21.6)	(28.7)	(40.4)	(31.7)	(12.8)
	Coffee	107.9	109.1	108.1	111.3	116.6	122.9	142.8	126.2	136.1	133.0	117.3
	Change, %		(1.1)	(0.2)	(3.1)	(7.5)	(12.2)	(24.4)	(14.5)	(20.7)	(18.9)	(8.1)
Energy	**WTI**	66.9	69.2	67.7	73.8	69.1	61.2	49.2	60.4	43.4	51.0	66.3
	Change, %		(3.2)	(1.1)	(9.3)	(3.1)	9.5	36.1	10.8	54.3	31.3	1.0
	Brent	72.3	74.7	72.4	77.1	74.9	64.8	52.1	66.9	45.1	54.9	71.8
	Change, %		(3.2)	(0.2)	(6.3)	(3.4)	11.5	38.6	8.1	60.3	31.8	0.7
	Natural Gas	2.9	2.9	2.8	2.9	2.7	2.7	2.8	3.0	2.6	3.0	2.8
	Change, %		1.8	6.9	3.2	7.9	9.3	4.5	(0.1)	15.5	(2.4)	4.1
	Ethanol	1.4	1.4	1.4	1.4	1.5	1.4	1.6	1.3	1.5	1.5	1.4
	Change, %		(2.3)	(3.9)	(3.5)	(5.8)	(1.8)	(12.9)	5.2	(8.3)	(7.2)	(3.3)
	RBOB Gasoline	202.0	210.4	204.5	210.9	211.1	176.5	162.1	179.9	140.0	162.9	200.7
	Change, %		(4.0)	(1.3)	(4.2)	(4.4)	14.4	24.6	12.2	44.3	24.0	0.6
	Coal	115.9	116.0	117.8	116.1	101.0	100.9	94.1	100.8	65.5	88.2	105.9
	Change, %		(0.1)	(1.6)	(0.2)	14.8	14.9	23.2	15.0	77.0	31.4	9.5
Metal	**Gold**	1,214.0	1,211.0	1,216.0	1,255.2	1,314.6	1,318.8	1,261.0	1,302.6	1,248.5	1,258.6	1,302.6
	Change, %		0.2	(0.2)	(3.3)	(7.7)	(7.9)	(3.7)	(6.8)	(2.8)	(3.5)	(6.8)
	Silver	15.4	15.4	15.4	16.0	16.5	16.4	16.5	16.9	17.1	17.1	16.5
	Change, %		0.3	0.3	(3.8)	(6.4)	(6.0)	(6.3)	(9.0)	(9.8)	(9.6)	(6.3)
	Copper	6,173.0	6,175.0	6,172.0	6,282.0	6,745.0	6,845.0	6,480.0	7,247.0	4,872.0	6,199.4	6,818.9
	Change, %		(0.0)	0.0	(1.7)	(8.5)	(9.8)	(4.7)	(14.8)	26.7	(0.4)	(9.5)
	Nickel	960.3	950.9	915.2	958.9	933.0	849.1	684.0	809.1	646.4	680.2	919.7
	Change, %		1.0	4.9	0.1	2.9	13.1	40.4	18.7	48.6	41.2	4.4
	Zinc	2,612.0	2,600.0	2,555.0	2,735.0	3,060.0	3,421.5	2,925.0	3,319.0	2,097.5	2,888.5	3,132.3
	Change, %		0.5	2.2	(4.5)	(14.6)	(23.7)	(10.7)	(21.3)	24.5	(9.6)	(16.6)
	Lead	2,123.0	2,139.8	2,118.5	2,332.3	2,285.8	2,536.5	2,365.0	2,482.8	1,868.3	2,315.7	2,404.8
	Change, %		(0.8)	0.2	(9.0)	(7.1)	(16.3)	(10.2)	(14.5)	13.6	(8.3)	(11.7)
	Aluminum	14,335.0	14,345.0	14,415.0	13,940.0	14,625.0	14,180.0	15,270.0	15,020.0	12,373.5	14,556.6	14,336.2
	Change, %		(0.1)	(0.6)	2.8	(2.0)	1.1	(6.1)	(4.6)	15.9	(1.5)	(0.0)
	Cobalt	61,500.0	55,151.5	67,000.0	73,000.0	88,500.0	81,298.0	57,150.0	75,205.0	25,480.1	55,906.9	81,908.2
	Change, %		11.5	(8.2)	(15.8)	(30.5)	(24.4)	7.6	(18.2)	141.4	10.0	(24.9)
	HR Coil	895.0	892.0	897.0	912.0	870.0	739.0	619.0	662.0	519.3	620.1	831.7
	Change, %		0.3	(0.2)	(1.9)	2.9	21.1	44.6	35.2	72.3	44.3	7.6
	Scrap	392.0	392.0	392.0	388.0	381.0	372.0	360.0	367.0	275.7	344.7	389.7
	Change, %		0.0	0.0	1.0	2.9	5.4	8.9	6.8	42.2	13.7	0.6

자료: Bloomberg

참고) NYMEX, ICE, LME 중 대표지수를 사용

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Refining Price Data

Daily Price		08/08	1D	1W	1M	3M	6M	12M	YTD	2015avg.	2016avg.	2017acc.
Crude Oil	**WTI**	66.9	69.2	67.7	73.9	71.1	61.8	49.6	53.7	43.4	50.9	66.3
	Change, %		(3.2)	(1.1)	(9.4)	(5.9)	8.3	35.1	24.6	54.4	31.5	1.0
	Dubai	73.3	72.7	72.4	74.7	73.9	64.1	51.2	53.8	41.3	53.1	69.0
	Change, %		0.9	1.2	(1.9)	(0.9)	14.4	43.0	36.1	77.4	38.0	6.3
Crude Oil Product	**Gasoline(휘발유)**	86.0	84.5	83.3	83.9	86.2	78.7	67.7	69.8	56.3	68.0	81.4
	Change, %		1.8	3.3	2.5	(0.2)	9.3	27.1	23.1	52.8	26.4	5.6
	Kerosene(등유)	88.1	87.7	86.6	89.5	89.5	81.7	63.4	66.4	52.9	65.2	84.3
	Change, %		0.5	1.7	(1.5)	(1.5)	7.8	38.9	32.6	66.6	35.1	4.5
	Diesel(경유)	87.7	87.0	85.4	87.2	89.1	79.4	63.8	65.5	52.1	65.6	83.3
	Change, %		0.8	2.7	0.6	(1.6)	10.5	37.6	33.9	68.3	33.7	5.3
	Bunker-C	70.9	69.8	71.3	71.8	66.7	58.0	48.3	52.1	35.5	49.7	63.4
	Change, %		1.6	(0.6)	(1.2)	6.3	22.4	46.8	36.2	99.6	42.8	11.8
	Naphtha	72.4	71.7	73.6	73.2	74.3	60.8	50.4	53.5	42.6	53.7	68.1
	Change, %		1.0	(1.6)	(1.0)	(2.5)	19.0	43.5	35.4	70.0	34.7	6.3
Dubai Spread	**Gasoline(휘발유)**	12.7	11.8	10.8	9.2	12.2	14.6	16.4	16.0	14.9	14.9	12.5
	Change		0.9	1.9	3.5	0.5	(1.9)	(3.7)	(3.3)	(2.3)	(2.2)	0.2
	Kerosene(등유)	14.8	15.0	14.2	14.8	15.6	17.7	12.2	12.6	11.6	12.1	15.4
	Change		(0.2)	0.6	0.0	(0.7)	(2.8)	2.6	2.2	3.3	2.7	(0.6)
	Diesel(경유)	14.4	14.4	13.0	12.5	15.2	15.3	12.5	11.7	10.8	12.5	14.3
	Change		0.1	1.5	1.9	(0.8)	(0.9)	1.9	2.7	3.6	1.9	0.1
	Bunker-C	(2.4)	(2.9)	(1.1)	(2.9)	(7.2)	(6.1)	(2.9)	(1.8)	(5.8)	(3.4)	(5.5)
	Change		0.5	(1.3)	0.5	4.9	3.7	0.5	(0.6)	3.4	1.1	3.2
	Naphtha	(0.9)	(1.0)	1.1	(1.5)	0.3	(3.2)	(0.8)	(0.4)	1.3	0.6	(0.9)
	Change		0.1	(2.0)	0.6	(1.2)	2.3	(0.1)	(0.5)	(2.2)	(1.5)	(0.0)
Refining Margin	**Simple(단순)**	3.5	3.2	3.6	2.3	1.5	2.6	3.5	3.8	1.9	3.2	2.2
	Change		0.3	(0.1)	1.2	2.0	0.9	(0.0)	(0.3)	1.6	0.4	1.3
	Complex(복합)	8.1	7.8	7.5	6.3	7.3	8.2	8.4	8.3	7.0	8.0	7.4
	Change		0.3	0.6	1.8	0.8	(0.1)	(0.3)	(0.1)	1.2	0.1	0.7
	Complex(lagging)	7.2	5.5	4.1	7.2	15.9	6.9	13.6	18.0	8.5	8.9	9.0
	Change		1.7	3.2	0.0	(8.7)	0.3	(6.4)	(10.7)	(1.3)	(1.7)	(1.8)

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

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Petrochemical Price Data

Daily Price			08/08	08/07	08/06	08/03	08/02	08/01	07/31	07/30	07/27	07/26
Spot Price	**Naphtha**	CFR Japan	664.8	662.5	664.0	664.0	659.5	669.3	673.3	673.8	672.8	669.0
	Ethylene	CFR SE Asia	1,260.0	1,255.0	1,235.0	1,235.0	1,235.0	1,235.0	1,235.0	1,235.0	1,245.0	1,245.0
	Propylene	FOB Korea	1,070.0	1,070.0	1,070.0	1,070.0	1,070.0	1,070.0	1,070.0	1,070.0	1,060.0	1,060.0
	Butadiene	FOB Korea	1,725.0	1,725.0	1,715.0	1,700.0	1,675.0	1,675.0	1,670.0	1,670.0	1,660.0	1,680.0
	HDPE	CFR FE Asia	1,310.0	1,310.0	1,310.0	1,305.0	1,305.0	1,305.0	1,305.0	1,310.0	1,310.0	1,310.0
	LDPE	CFR FE Asia	1,150.0	1,150.0	1,140.0	1,140.0	1,140.0	1,140.0	1,140.0	1,140.0	1,140.0	1,140.0
	LLDPE	CFR FE Asia	1,120.0	1,120.0	1,100.0	1,100.0	1,100.0	1,100.0	1,100.0	1,100.0	1,100.0	1,110.0
	MEG	CFR China	940.0	940.0	950.0	930.0	935.0	932.0	932.0	951.0	924.0	918.0
	PP	CFR FE Asia	1,220.0	1,220.0	1,200.0	1,200.0	1,200.0	1,200.0	1,200.0	1,205.0	1,205.0	1,215.0
	PX	CFR China	1,106.7	1,102.7	1,109.7	1,100.7	1,080.7	1,075.0	1,064.3	1,053.3	1,031.3	1,016.3
	PTA	CFR China	910.0	905.0	905.0	870.0	870.0	870.0	868.0	870.0	850.0	850.0
	Benzene	FOB Korea	874.0	868.3	877.0	876.0	869.7	873.7	877.3	865.7	857.7	843.7
	Toluene	FOB Korea	805.0	798.0	805.0	800.0	791.0	785.0	785.0	773.0	768.0	771.0
	Xylene	FOB Korea	895.0	895.0	899.0	883.0	869.0	866.0	872.5	869.5	859.5	853.5
	SM	FOB Korea	1,434.0	1,432.0	1,455.0	1,440.0	1,430.0	1,392.0	1,378.5	1,378.5	1,366.5	1,366.0

Weekly Price			Last Week	1W	1M	3M	6M	12M	YTD	2016avg.	2017avg.	2018acc.
Spot Price	**Naphtha**	CFR Japan	659.0	672.0	662.0	633.0	582.5	464.0	484.5	399.5	493.5	620.5
	Change, %			*(1.9)*	*(0.5)*	*4.1*	*13.1*	*42.0*	*36.0*	*65.0*	*33.5*	*6.2*
	Ethylene	CFR SE Asia	1,242.5	1,232.5	1,290.0	1,182.5	1,275.0	1,030.0	990.0	1,040.9	1,090.9	1,238.4
	Change, %			*0.8*	*(3.7)*	*5.1*	*(2.5)*	*20.6*	*25.5*	*19.4*	*13.9*	*0.3*
	Propylene	CFR SE Asia	1,020.0	995.0	965.0	1,017.5	957.5	770.0	815.0	705.7	823.6	1,055.4
	Change, %			*2.5*	*5.7*	*0.2*	*6.5*	*32.5*	*25.2*	*44.5*	*23.9*	*(3.4)*
	Butadiene	CFR SE Asia	1,700.0	1,625.0	1,680.0	1,430.0	1,225.0	925.0	2,100.0	1,116.8	1,481.1	1,462.4
	Change, %			*4.6*	*1.2*	*18.9*	*38.8*	*83.8*	*(19.0)*	*52.2*	*14.8*	*16.2*
	Benzene	CFR SE Asia	872.5	847.5	820.0	835.0	840.0	750.0	822.5	646.7	838.8	866.3
	Change, %			*2.9*	*6.4*	*4.5*	*3.9*	*16.3*	*6.1*	*34.9*	*4.0*	*0.7*
	Toluene	CFR SE Asia	810.0	800.0	795.0	775.0	735.0	650.0	690.0	630.5	689.5	771.1
	Change, %			*1.3*	*1.9*	*4.5*	*10.2*	*24.6*	*17.4*	*28.5*	*17.5*	*5.0*
	Xylene	CFR SE Asia	825.0	822.5	815.0	772.5	757.5	632.5	675.0	627.7	668.8	786.0
	Change, %			*0.3*	*1.2*	*6.8*	*8.9*	*30.4*	*22.2*	*31.4*	*23.4*	*5.0*
Spread	**Ethylene**	-Naphtha	583.5	560.5	628.0	549.5	692.5	566.0	505.5	641.4	597.4	617.9
	Change, %			*4.1*	*(7.1)*	*6.2*	*(15.7)*	*3.1*	*15.4*	*(9.0)*	*(2.3)*	*(5.6)*
	Propylene	-Naphtha	361.0	323.0	303.0	384.5	375.0	306.0	330.5	306.2	330.1	434.9
	Change, %			*11.8*	*19.1*	*(6.1)*	*(3.7)*	*18.0*	*9.2*	*17.9*	*9.4*	*(17.0)*
	Butadiene	-Naphtha	1,041.0	953.0	1,018.0	797.0	642.5	461.0	1,615.5	717.3	987.6	841.9
	Change, %			*9.2*	*2.3*	*30.6*	*62.0*	*125.8*	*(35.6)*	*45.1*	*5.4*	*23.6*
	Benzene	-Naphtha	213.5	175.5	158.0	202.0	257.5	286.0	338.0	247.2	345.3	245.8
	Change, %			*21.7*	*35.1*	*5.7*	*(17.1)*	*(25.3)*	*(36.8)*	*(13.6)*	*(38.2)*	*(13.1)*
	Toluene	-Naphtha	151.0	128.0	133.0	142.0	152.5	186.0	205.5	231.0	196.0	150.6
	Change, %			*18.0*	*13.5*	*6.3*	*(1.0)*	*(18.8)*	*(26.5)*	*(34.6)*	*(23.0)*	*0.2*
	Xylene	-Naphtha	166.0	150.5	153.0	139.5	175.0	168.5	190.5	228.2	175.3	165.5
	Change, %			*10.3*	*8.5*	*19.0*	*(5.1)*	*(1.5)*	*(12.9)*	*(27.3)*	*(5.3)*	*0.3*

자료 : Cischem, Platts, Bloomberg, SK증권
참고 : Spread는 Polymer와 Naphtha의 가격차이임

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Weekly Price			Last Week	1W	1M	3M	6M	12M	YTD	2016avg.	2017avg.	2018acc.
Spot Price	**HDPE**	CFR SE Asia	1,222.5	1,227.5	1,227.5	1,262.5	1,182.5	1,077.5	1,142.5	1,134.6	1,142.5	1,254.0
	Change, %			(0.4)	(0.4)	(3.2)	3.4	13.5	7.0	7.7	7.0	(2.5)
	MEG	CFR SE Asia	960.0	955.0	927.5	1,015.0	990.0	877.5	847.5	660.8	850.6	974.6
	Change, %			0.5	3.5	(5.4)	(3.0)	9.4	13.3	45.3	12.9	(1.5)
	PVC	CFR SE Asia	945.0	945.0	935.0	940.0	960.0	860.0	920.0	823.4	899.9	942.3
	Change, %			0.0	1.1	0.5	(1.6)	9.9	2.7	14.8	5.0	0.3
	PP	CFR SE Asia	1,222.5	1,232.5	1,262.5	1,242.5	1,217.5	1,087.5	1,032.5	978.4	1,099.6	1,258.6
	Change, %			(0.8)	(3.2)	(1.6)	0.4	12.4	18.4	24.9	11.2	(2.9)
	2-EH	CFR Korea	1,105.0	1,095.0	1,100.0	1,145.0	1,130.0	960.0	865.0	772.4	970.0	1,115.5
	Change, %			0.9	0.5	(3.5)	(2.2)	15.1	27.7	43.1	13.9	(0.9)
	ABS	CFR SE Asia	1,945.0	1,940.0	1,960.0	2,010.0	1,980.0	1,850.0	1,635.0	1,347.1	1,844.7	2,018.2
	Change, %			0.3	(0.8)	(3.2)	(1.8)	5.1	19.0	44.4	5.4	(3.6)
	SBR	CFR SE Asia	1,760.0	1,760.0	1,770.0	1,750.0	1,650.0	1,490.0	2,000.0	1,483.0	1,980.5	1,754.2
	Change, %			0.0	(0.6)	0.6	6.7	18.1	(12.0)	18.7	(11.1)	0.3
	SM	CFR SE Asia	1,465.0	1,395.0	1,367.5	1,405.0	1,360.0	1,150.0	1,205.0	1,064.6	1,253.8	1,402.3
	Change, %			5.0	7.1	4.3	7.7	27.4	21.6	37.6	16.8	4.5
	Caustic	FOB NEA	369.0	361.0	475.0	598.0	626.0	467.5	422.5	316.6	491.2	550.5
	Change, %			2.2	(22.3)	(38.3)	(41.1)	(21.1)	(12.7)	16.6	(24.9)	(33.0)
	PX	CFR SE Asia	1,105.0	1,032.5	995.0	977.5	937.5	832.5	855.0	790.4	844.4	974.3
	Change, %			7.0	11.1	13.0	17.9	32.7	29.2	39.8	30.9	13.4
	PO	CFR China	1,777.5	1,782.5	1,735.0	2,007.5	1,787.5	1,542.5	1,562.5	1,396.8	1,601.2	1,866.6
	Change, %			(0.3)	2.4	(11.5)	(0.6)	15.2	13.8	27.3	11.0	(4.8)
	Caprolactam	CFR SE Asia	2,155.0	2,155.0	2,140.0	2,170.0	2,220.0	1,760.0	1,850.0	1,344.9	1,936.4	2,124.4
	Change, %			0.0	0.7	(0.7)	(2.9)	22.4	16.5	60.2	11.3	1.4
	PTA	CFR SE Asia	882.5	862.5	865.0	820.0	777.5	657.5	642.5	613.7	667.8	811.9
	Change, %			2.3	2.0	7.6	13.5	34.2	37.4	43.8	32.1	8.7
Spread	**HDPE**		563.5	555.5	565.5	629.5	600.0	613.5	658.0	735.1	649.0	633.5
	Change, %			1.4	(0.4)	(10.5)	(6.1)	(8.1)	(14.4)	(23.3)	(13.2)	(11.1)
	MEG		301.0	283.0	265.5	382.0	407.5	413.5	363.0	261.3	357.1	354.1
	Change, %			6.4	13.4	(21.2)	(26.1)	(27.2)	(17.1)	15.2	(15.7)	(15.0)
	PVC		286.0	273.0	273.0	307.0	377.5	396.0	435.5	423.9	406.4	321.8
	Change, %			4.8	4.8	(6.8)	(24.2)	(27.8)	(34.3)	(32.5)	(29.6)	(11.1)
	PP		563.5	560.5	600.5	609.5	635.0	623.5	548.0	578.9	606.1	638.1
	Change, %			0.5	(6.2)	(7.5)	(11.3)	(9.6)	2.8	(2.7)	(7.0)	(11.7)
	2-EH		446.0	423.0	438.0	512.0	547.5	496.0	380.5	372.9	476.5	495.0
	Change, %			5.4	1.8	(12.9)	(18.5)	(10.1)	17.2	19.6	(6.4)	(9.9)
	ABS		1,286.0	1,268.0	1,298.0	1,377.0	1,397.5	1,386.0	1,150.5	947.6	1,351.2	1,397.7
	Change, %			1.4	(0.9)	(6.6)	(8.0)	(7.2)	11.8	35.7	(4.8)	(8.0)
	SBR	BD spread	60.0	135.0	90.0	320.0	425.0	565.0	(100.0)	366.2	499.4	291.8
	Change, %			(55.6)	(33.3)	(81.3)	(85.9)	(89.4)	(160.0)	(83.6)	(88.0)	(79.4)
	SM		806.0	723.0	705.5	772.0	777.5	686.0	720.5	665.1	760.3	781.8
	Change, %			11.5	14.2	4.4	3.7	17.5	11.9	21.2	6.0	3.1
	Caustic											
	Change, %											
	PX		446.0	360.5	333.0	344.5	355.0	368.5	370.5	390.9	351.0	353.8
	Change, %			23.7	33.9	29.5	25.6	21.0	20.4	14.1	27.1	26.1
	PO	propylene sprea	757.5	787.5	770.0	990.0	830.0	772.5	747.5	691.1	777.6	811.2
	Change, %			(3.8)	(1.6)	(23.5)	(8.7)	(1.9)	1.3	9.6	(2.6)	(6.6)
	Caprolactam	benzene spread	1,282.5	1,307.5	1,320.0	1,335.0	1,380.0	1,010.0	1,027.5	698.2	1,097.6	1,258.1
	Change, %			(1.9)	(2.8)	(3.9)	(7.1)	27.0	24.8	83.7	16.8	1.9
	PTA	px spread	109.0	139.8	168.5	135.8	121.3	74.8	44.0	60.4	76.7	129.9
	Change, %			(22.0)	(35.3)	(19.7)	(10.1)	45.8	147.7	80.4	42.1	(16.1)

자료 : Cischem, Platts, SK증권

참고 : Spread는 Naphtha spread로 일괄적용

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SK증권

Global peers

	Currency	08/08	1D	1W	1M	3M	6M	12M	YTD	MKT CAP (mil USD)	PER 18E	PER 19E	PBR 18E	PBR 19E	EV/EBITDA 18E	EV/EBITDA 19E
Petrochemical																
DowDuPont	USD	67.7	(0.7)	(0.4)	2.6	5.3	(0.8)	6.7	(5.0)	168,245	17.7	14.9	1.8	1.7	10.2	9.2
Eastman	USD	101.5	(0.3)	(0.4)	1.7	(3.9)	8.4	20.6	9.5	13,550	11.6	10.7	2.5	2.2	8.7	8.1
BASF	EUR	80.4	(0.2)	(2.5)	(2.3)	(6.2)	(6.2)	(1.4)	(12.4)	101,214	14.6	13.6	2.4	2.2	7.8	7.4
Akzo Nobel	EUR	80.7	0.4	1.0	8.5	6.4	5.4	4.5	10.5	22,073	17.0	15.8	3.0	2.8	9.3	8.8
Arkema	EUR	107.5	0.2	(1.7)	5.5	0.6	8.9	10.9	5.8	9,270	13.2	12.2	1.7	1.6	6.3	6.0
Lanxess	EUR	70.9	5.5	0.7	6.1	6.0	6.6	4.5	6.9	7,282	15.5	13.1	2.1	1.9	9.3	8.2
Sumitomo Chemical	JPY	640	0.2	(4.9)	3.9	0.3	(7.8)	0.9	(21.0)	11,911	10.1	10.5	1.3	1.2	7.4	8.0
Mitsubishi Chemical	JPY	994	(0.2)	(2.0)	8.2	(3.2)	(9.6)	4.7	(19.7)	16,544	9.2	8.7	1.3	1.2	6.3	6.1
Shin-Etsu Chemical	JPY	10,915	(1.0)	(3.1)	8.4	(1.6)	(7.5)	9.6	(4.7)	43,948	18.5	16.6	1.9	1.8	8.1	7.4
Asahi Kasei	JPY	1,581	(0.1)	4.8	12.8	4.9	18.3	22.7	8.8	18,109	14.4	13.6	1.5	1.4	7.4	7.0
JSR	JPY	2,156	0.7	(0.5)	15.3	3.7	(12.7)	13.5	(2.8)	4,455	14.5	13.4	1.2	1.1	7.7	7.2
Nitto Denko	JPY	8,675	2.0	(0.6)	7.7	2.4	(1.1)	(14.2)	(13.3)	15,450	15.7	14.6	2.1	1.9	7.3	7.0
SABIC	SAR	127.4	(0.5)	(1.1)	3.1	11.7	22.4	29.8	25.6	80,773	14.2	13.7	1.7	1.7	7.3	7.1
Yansab	SAR	73.5	(0.7)	(0.8)	(3.7)	2.4	15.7	33.5	24.6	8,861	13.7	13.9	2.2	1.9	9.0	8.9
Formosa Plastics	TWD	112.0	0.9	(0.9)	2.3	6.2	12.0	20.2	13.5	21,114	14.4	13.9	1.8	1.8	18.9	19.2
Formosa Fiber	TWD	121.0	0.8	0.8	7.1	9.0	11.5	30.2	17.5	20,511	13.7	13.4	1.7	1.7	11.6	11.5
Nan Ya Plastics	TWD	85.0	1.6	0.2	(2.4)	2.5	9.4	11.3	9.1	20,648	14.8	15.3	1.7	1.7	16.2	16.4
Sinopec Shanghai	CNY	5.40	0.7	0.9	(0.2)	(8.0)	(16.0)	(23.7)	(14.7)	9,462	12.0	12.6	2.2	2.0	6.8	7.3
Sinopec Yizheng(Fibe	CNY	1.96	2.1	2.1	5.9	(3.9)	(13.7)	(39.7)	(26.6)	5,394	50.4	66.3	5.3	5.0	13.9	10.3
Reliance	INR	1,218	2.8	2.1	24.6	25.9	34.6	52.0	33.8	93,404	14.4	12.9	1.7	1.5	9.4	8.7
Industries Qatar	QAR	127.0	(1.6)	1.6	12.4	14.5	22.9	33.8	30.9	16,144	14.5	13.9	1.6	1.5	46.4	27.2
PTT Chemical	THB	84.0	(0.3)	(0.6)	13.5	(10.6)	(6.9)	16.7	(1.2)	11,766	10.7	10.4	1.4	1.3	5.5	5.4
Petronas	MYR	9.0	(0.1)	0.3	7.1	7.4	13.6	28.8	17.4	15,624	16.1	15.5	2.0	1.9	9.2	8.9
LG화학	KRW	376,000	(1.8)	0.4	16.8	13.8	0.5	10.6	(7.2)	27,313	13.8	12.8	1.8	1.6	6.5	6.1
롯데케미칼	KRW	352,500	1.4	4.1	6.8	(8.7)	(11.7)	(8.8)	(4.2)	11,632	5.5	5.2	0.9	0.8	3.6	3.3
한화케미칼	KRW	20,900	(2.1)	(0.5)	(0.2)	(23.6)	(35.9)	(37.9)	(33.9)	5,050	5.7	5.5	0.8	0.7	6.7	6.5
금호석유	KRW	103,000	(0.5)	(2.4)	(7.2)	(2.4)	14.4	38.1	3.5	2,969	14.1	11.9	1.6	1.5	9.3	8.4
SKC	KRW	44,250	0.8	1.3	2.5	12.5	17.7	22.2	(5.9)	1,643	9.9	8.7	1.1	1.0	8.8	7.9
국도화학	KRW	58,800	(0.3)	(1.7)	3.3	(10.9)	(1.3)	3.7	(6.8)	359	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A
효성	KRW	6,350	0.2	1.8	3.8	(15.3)	(31.5)	(2.0)	(16.2)	4,595	8.2	7.3	1.1	1.0	7.2	6.8
Average			**0.3**	**(0.1)**	**5.8**	**1.2**	**2.0**	**10.1**	**0.7**							
Refinery																
Valero	USD	115.9	(0.7)	(0.8)	7.5	2.4	33.6	71.0	26.1	40,608	14.1	13.4	2.0	2.0	6.9	6.9
Conoco Phillips	USD	71.4	(2.1)	(0.6)	2.5	5.4	34.1	56.5	30.1	66,136	34.0	25.9	2.2	2.2	7.2	6.7
Formosa Petrochemic	TWD	121.0	1.7	0.4	4.3	(0.4)	4.8	15.2	4.8	37,040	18.2	18.7	3.2	3.2	11.7	12.1
Andeavor	USD	151.5	0.4	1.1	13.9	10.1	56.4	58.2	32.5	17,904	12.9	11.4	1.8	1.7	7.3	7.1
Marathon Petroleum	USD	81.7	0.5	1.2	16.4	8.5	30.1	50.1	23.8	32,812	15.0	12.8	2.6	2.7	7.7	7.5
Devon Energy	USD	42.7	(1.8)	(1.8)	(4.1)	9.4	22.1	32.8	3.1	22,192	17.5	14.0	2.7	2.3	8.4	7.4
Hollyfrontier	USD	69.4	0.4	(5.9)	1.2	3.5	56.5	134.3	35.5	9,094	16.8	15.2	1.8	1.8	8.0	8.0
Phillips 66	USD	123.0	0.2	(0.0)	10.6	5.8	33.0	44.6	21.6	51,561	15.6	14.5	2.3	2.2	9.0	8.8
Murphy Oil	USD	32.5	(2.6)	(0.5)	(1.7)	9.5	21.8	25.3	4.7	5,548	162.4	113.2	1.2	1.1	4.9	4.5
JX Holdings	JPY	813.7	(3.1)	(1.3)	5.7	15.0	17.9	65.4	11.9	22,130	8.8	8.0	0.9	0.9	7.0	6.6
Idemitsu	JPY	5,170.0	(0.6)	2.0	37.3	30.2	31.7	96.7	14.3	8,360	7.9	7.5	1.0	0.9	6.8	6.8
Nesteoil	EUR	74.0	(0.8)	4.1	12.6	12.8	29.6	112.6	38.7	16,473	16.7	16.7	2.9	2.7	10.2	10.3
Ashland	USD	85.9	0.2	2.5	9.2	17.2	21.9	37.9	20.6	4,550	21.6	18.7	1.3	1.3	10.2	9.6
Fuchs Petrolub	EUR	49.2	1.3	0.2	16.6	7.6	13.6	2.5	11.3	7,127	22.1	20.9	4.1	3.7	13.0	12.3
SK이노베이션	KRW	188,500	(0.5)	(4.1)	(2.3)	(5.8)	(0.3)	6.5	(7.8)	17,975	7.9	7.7	0.9	0.9	4.9	4.8
S-Oil	KRW	116,500	(0.9)	0.0	10.4	9.9	0.4	(0.4)	(0.4)	12,400	9.3	8.1	1.8	1.6	7.6	6.6
GS	KRW	53,200	(0.4)	(0.6)	3.5	(11.8)	(16.4)	(29.2)	(14.5)	5,467	6.0	5.5	0.7	0.6	6.9	6.3
Average			**(0.5)**	**(0.2)**	**8.4**	**7.6**	**23.0**	**45.9**	**15.1**							

* Bloomberg 기준 / valuation multiple 또한 Bloomberg consensus 기준임
* 국내업체의 multiple은 Dataguidepro 기준임

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Global peers

	Currency	08/08	1D	1W	1M	3M	6M	12M	YTD	MKT CAP (mil USD)	PER 18E	PER 19E	PBR 18E	PBR 19E	EV/EBITDA 18E	EV/EBITDA 19E
E&P/Shale																
Exxon Mobil	USD	81	(0.7)	0.4	(1.9)	3.4	6.1	1.0	(3.5)	341,796	17.3	15.0	1.8	1.7	7.8	7.0
BP	GBP	577	0.1	2.4	(0.4)	4.8	19.9	22.4	10.3	148,428	13.5	12.3	1.5	1.4	5.2	4.8
Shell	EUR	2,607	0.5	1.5	(0.4)	2.2	14.4	17.8	5.1	282,055	12.5	10.6	1.4	1.3	5.8	5.4
Chevron	USD	124	(1.0)	(1.2)	(0.2)	(2.1)	10.3	12.3	(1.0)	237,372	15.8	14.6	1.6	1.5	6.5	6.0
Total	EUR	56	(0.8)	0.0	4.1	7.1	23.1	26.4	20.5	171,555	12.1	10.9	1.4	1.3	5.9	5.4
Sinopec	CNY	7	(0.9)	1.2	7.3	(4.8)	0.1	11.6	9.8	118,697	10.4	10.0	1.1	1.0	3.9	3.9
Petrochina	CNY	8	1.5	6.3	8.2	2.8	(3.6)	(1.5)	(0.4)	207,065	25.1	20.8	1.2	1.2	5.6	5.4
CNOOC	CNY	10	7.6	10.9	12.0	(3.8)	(9.2)	(11.1)	(4.0)	74,397	9.3	9.0	1.3	1.2	4.0	3.9
Gazprom	RUB	144	1.0	1.4	(0.6)	(0.9)	5.0	20.4	10.4	52,377	3.2	3.2	0.2	0.3	2.6	2.5
Rosneft	RUB	429	0.3	3.0	6.3	9.1	31.3	36.2	47.2	69,807	8.1	6.7	1.0	0.9	4.7	4.4
Anadarko	USD	65	0.9	(6.4)	(11.6)	(2.8)	15.9	47.4	21.5	33,362	22.0	16.4	2.7	2.3	6.4	5.5
Petrobras	BRL	20	(2.8)	0.6	12.3	(12.1)	5.7	49.3	25.1	75,170	6.9	5.9	0.8	0.7	4.6	4.3
Lukoil	USD	4,499	(0.5)	0.1	1.9	7.6	22.1	51.3	34.9	58,978	5.6	5.9	0.8	0.7	N/A	N/A
Kinder	USD	18	(0.3)	2.2	(0.1)	11.5	6.7	(9.3)	(0.8)	47,497	22.3	18.2	1.2	1.2	10.6	10.4
Equinor ASA	NOK	218	(0.8)	1.4	0.7	4.9	23.8	45.2	24.5	88,522	13.6	12.5	2.0	1.8	3.5	3.3
BHP	AUD	34	1.0	(3.2)	2.4	6.7	15.2	30.0	14.8	127,659	14.7	16.3	2.3	2.2	6.3	6.6
PTT E&P	THB	142	(0.4)	(0.4)	9.2	8.4	25.1	63.2	42.0	16,965	13.6	12.6	1.4	1.3	4.4	4.0
Petronas gas	MYR	19	1.1	0.0	13.5	8.1	6.7	1.5	9.8	9,322	20.2	20.0	2.9	2.8	11.0	10.9
Chesapeake	USD	5	(0.9)	4.7	(11.9)	48.9	65.2	5.9	17.7	4,251	5.9	5.9	#N/A N/A	6.0	6.6	6.4
Noble Energy	USD	31	(1.4)	(12.4)	(12.6)	(8.0)	21.0	21.2	5.6	14,870	27.7	21.4	1.4	1.3	7.2	6.1
Average		**0**	**0.2**	**0.6**	**1.9**	**4.6**	**15.2**	**22.1**	**14.5**							
PV																
WACKER	EUR	128.9	3.5	4.0	12.9	(17.4)	(7.8)	22.8	(20.5)	7,795	18.4	16.7	2.0	1.9	6.8	6.6
GCL-Poly	HKD	0.6	(1.6)	(13.0)	(10.4)	(36.2)	(50.8)	(34.8)	(57.1)	1,403	5.2	4.6	0.4	0.4	6.4	5.8
SunPower	USD	7.4	0.3	(1.9)	(6.1)	(12.8)	8.8	(21.0)	(12.3)	1,042	#N/A N/A	#N/A N/A	7.3	7.9	16.0	10.0
Canadian Solar	USD	14.7	1.7	7.1	15.4	(6.4)	(2.8)	(15.5)	(12.7)	862	9.8	9.9	0.8	0.8	8.1	8.8
JA Solar	USD	7.5	0.0	0.0	8.9	4.2	(1.3)	19.3	0.4	356	#N/A N/A	#N/A N/A	1.8	2.0	4.9	7.1
Yingli	USD	0.4	35.5	7.7	92.7	(76.5)	(73.4)	(81.6)	(75.1)	8	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A
First Solar	USD	54.5	1.6	2.0	(0.1)	(19.0)	(10.3)	13.8	(19.3)	5,708	33.4	17.7	1.1	1.0	8.6	4.4
한화큐셀	USD	8.3	(0.4)	25.6	45.5	21.8	12.2	(2.6)	17.9	689	14.8	30.7	#N/A N/A	#N/A N/A	8.8	9.1
OCI	KRW	102,000	0.0	(1.0)	6.4	(31.3)	(33.6)	11.5	(25.0)	2,173	0.0	11.5	0.0	0.7	0.0	5.0
웅진에너지	KRW	3,250	3.2	(1.7)	(6.9)	(46.7)	(56.6)	(60.3)	(60.5)	86	N/A	0.0	0.7	0.0	5.0	0.0
신성솔라에너지	KRW	1,410	3.3	5.6	6.8	(17.1)	(23.0)	(37.5)	(26.4)	218	N/A	0.7	0.0	5.0	0.0	2.4
Average			**4.3**	**3.1**	**15.0**	**(21.6)**	**(21.7)**	**(16.9)**	**(26.4)**							
Gas Company																
Towngas China	HKD	7.9	1.9	0.3	5.0	13.5	29.4	42.7	26.1	2,835	15.2	13.6	1.3	1.2	12.8	11.6
Kulun	HKD	7.4	1.4	7.0	8.8	10.8	1.7	(3.4)	(9.3)	7,589	11.0	9.5	1.2	1.1	6.0	5.4
Beijing Enterprise	HKD	37.2	0.1	(1.7)	(2.4)	(5.0)	(14.1)	(9.2)	(19.8)	5,981	6.5	5.9	0.6	0.6	11.7	11.1
ENN Energy	HKD	79.3	4.6	(2.6)	1.0	11.4	36.7	47.1	42.2	10,965	18.0	15.1	3.7	3.1	10.6	9.2
China Resources Gas	HKD	36.7	4.7	(0.9)	11.1	29.5	43.7	24.4	29.3	10,384	18.9	16.8	3.3	2.8	10.3	9.3
China Gas Holdings	HKD	31.0	1.8	(3.0)	(4.0)	9.0	35.4	59.5	43.5	20,017	20.0	16.8	4.6	3.9	15.5	13.1
Shenzen Gas	HKD	14.1	0.7	(2.9)	(3.8)	(21.0)	(6.6)	(2.0)	(5.5)	3,778	8.5	7.4	1.1	1.0	5.5	4.8
Shann Xi	CNY	8.0	0.4	3.5	16.6	3.2	7.9	(10.0)	(5.8)	1,292	18.3	16.0	1.5	1.4	#N/A N/A	#N/A N/A
Suntien	HKD	2.3	0.0	(6.4)	8.9	(11.7)	28.7	35.5	12.6	1,103	6.2	5.5	0.8	0.7	8.4	7.3
China Oil & Gas	HKD	0.6	0.0	3.2	8.5	10.3	(9.9)	18.5	(24.7)	476	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A
Average			**1.6**	**(0.4)**	**5.0**	**5.0**	**15.3**	**20.3**	**8.9**							
EV																
LG화학	KRW	376,000	(1.8)	0.4	16.8	13.8	0.5	10.6	(7.2)	23,713	14.4	12.9	1.6	1.5	6.7	6.0
삼성SDI	KRW	225,500	(0.4)	(0.2)	(2.4)	22.6	28.9	27.0	10.3	13,853	21.5	15.2	1.3	1.2	13.5	10.6
Panasonic	JPY	1441.5	(0.6)	2.1	2.2	(9.7)	(10.3)	(4.2)	(12.6)	31,865	13.1	11.6	1.8	1.6	5.2	4.8
GS Yuasa	JPY	533.0	0.4	0.6	8.3	(9.5)	(8.4)	(5.2)	(5.0)	1,986	16.1	14.8	1.2	1.1	7.3	6.7
NEC	JPY	3045.0	0.5	(0.5)	1.5	0.7	(3.6)	0.2	0.2	7,147	23.9	13.1	0.9	0.8	7.2	5.4
BYD Auto	CNY	38.3	0.8	(8.8)	(16.8)	(26.2)	(35.7)	(22.2)	(41.1)	15,037	23.3	17.4	1.8	1.7	11.3	9.7
Tesla Motors	USD	370.3	(2.4)	23.1	19.9	22.6	17.5	1.4	18.9	63,177	#N/A N/A	126.4	11.5	10.5	60.8	22.6
Kandi Technologies	USD	4.1	0.0	9.3	(4.7)	(21.2)	(19.6)	2.5	(39.7)	209	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A
Average			**(0.5)**	**3.2**	**3.1**	**(0.9)**	**(3.8)**	**1.3**	**(9.5)**							

* Bloomberg 기준 / valuation multiple 또한 Bloomberg consensus 기준임