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SK 증권

1. News Summary (3 page)

2018년 4월 11일

News		Conclusion
WTI comment	'중동 위기' 3%대 급등…브렌트유 71달러 돌파	
Headline	가즈프롬, "유럽가는 우크라이나 노선이 10-15bcm/년으로 하락할 것"	러시아의 對중국 PNG 프로젝트 가속화 및 유럽으로 美 LNG 수출 늘 것
News 1.	EIA, "미국 천연가스 생산량은 올해 record breaking할 것"	美 가스 수출이 전년 대비 2배 이상 폭증해 아시아로의 유입 빨라질 것
News 2.	아람코, Jubail에 佛 Total社와 $50억 규모 석유화학단지 조성 예정	중동에서도 추가 capa 진입시 이번 화학 downturn은 깊어질 수 있음
News 3.	LG화학, 외화 표시 교환사채 6억弗 발행	확보한 자금은 중국, 폴란드 등의 설비 투자에 사용할 것
News 4.	-	-

2. Prices Summary (4~7 page)

Daily	Unit	Price	1D	1W	1M	3M	12M
Refinery			%	%	%	%	%
WTI	$/bbl	65.5	3.3	3.1	6.8	4.1	22.7
Dubai	$/bbl	66.5	2.8	2.1	7.8	1.5	22.4
Gasoline	$/bbl	80.3	2.3	1.6	6.5	3.7	16.0
Diesel	$/bbl	81.9	2.4	0.9	6.9	3.3	23.4
Complex margin	$/bbl	8.0	(0.2)	(0.2)	(0.3)	1.2	0.7
1M lagging	$/bbl	13.7	2.4	1.8	7.7	1.6	4.6
Petrochemical			%	%	%	%	%
Naphtha	$/t	594	2.8	(0.5)	5.5	(3.4)	20.5
Butadiene	$/t	1,275	(1.9)	(7.6)	(8.3)	8.1	(5.6)
HDPE	$/t	1,335	0.0	1.9	(0.4)	3.5	15.6
MEG	$/t	1,030	3.0	7.3	10.2	1.6	40.1
PX	$/t	933	0.8	(0.4)	(0.9)	(0.8)	10.3
SM	$/t	1,308	(0.2)	(0.5)	(0.2)	(1.7)	12.0
Commodity			%	%	%	%	%
Natural Gas	$/mmbtu	2.66	(1.4)	(1.5)	(5.4)	(2.5)	(6.7)
Natural rubber	$/t	1,360	1.5	0.7	(6.2)	(6.2)	(17.1)
Cotton	C/lbs	83.5	0.7	1.8	0.7	6.6	11.4

*참고: 정제마진의 변동률은 %가 아닌 $/bbl임

Weekly	Update	Unit	Price	1W	1M	3M	12M
Petrochemical				%	%	%	%
Ethylene	04/09	$/t	1,275	0.8	4.5	(4.1)	21.4
Propylene	04/09	$/t	958	1.3	(3.8)	3.0	26.0
Benzene	04/09	$/t	840	0.9	(4.8)	(6.4)	(2.6)
Toluene	04/09	$/t	735	1.4	2.1	0.0	8.9
Xylene	04/09	$/t	758	(0.7)	(1.0)	3.8	6.7
PP	04/09	$/t	1,218	(0.8)	(6.9)	2.5	12.0
PVC	04/09	$/t	960	(0.5)	(2.0)	9.7	3.2
ABS	04/09	$/t	1,980	1.0	(4.3)	(3.4)	17.2
SBR	04/09	$/t	1,650	(1.2)	(5.7)	0.0	(27.9)
SM	04/09	$/t	1,360	3.0	(2.7)	1.3	11.7
BPA	04/09	$/t	1,788	3.8	(8.9)	(16.0)	16.1
Caustic	04/09	$/t	626	(2.0)	6.1	1.8	37.3
2-EH	04/09	$/t	1,130	(5.0)	0.4	9.2	11.9
Caprolactam	04/09	$/t	2,220	0.9	3.3	9.9	0.0
Solar				%	%	%	%
Polysilicon	04/04	$/kg	15.4	3.4	1.8	(13.6)	8.4
Module	04/04	$/W	0.30	0.0	(1.0)	(3.5)	(11.4)

3. Global Peers Summary (8~9 page)

	Unit	Price	1D	1W	1M	3M	12M
E&P			%	%	%	%	%
ExxonMobil	USD	77.1	2.9	2.7	3.4	(10.5)	(7.3)
Shell	EUR	2,381	2.2	6.6	5.3	(6.9)	11.1
Petrochina	CNY	7.59	1.5	1.3	(5.5)	(13.3)	(5.7)
Gazprom	RUB	141.8	5.0	0.5	1.4	(1.1)	12.4
Petrobras	BRL	21.4	4.2	3.3	(4.4)	27.4	43.2
Refinery							
Phillips66	USD	100.3	2.6	4.2	4.5	(1.8)	28.4
Valero	USD	98.9	3.0	6.7	4.8	5.0	51.3
JX	JPY	655.4	1.8	4.8	1.5	(15.6)	20.8
Neste Oil	EUR	56.7	2.8	0.4	(4.8)	2.9	53.5

	Unit	Price	1D	1W	1M	3M	12M
Petrochemical			%	%	%	%	%
BASF	EUR	84.3	0.8	2.3	(0.9)	(9.5)	(9.2)
DowDuPont	USD	65.9	3.5	4.1	(8.8)	(11.2)	4.1
SABIC	SAR	118.2	0.1	3.0	9.2	16.2	16.1
Formosa Pla.	TWD	105.5	0.5	3.4	3.9	4.5	13.7
Shin-Etsu	JPY	10,815	2.2	(0.6)	(1.5)	(10.3)	14.0
Renewable							
Wacker	EUR	143.0	2.3	6.6	4.1	(14.7)	41.7
First Solar	USD	70.79	(0.1)	1.5	4.3	1.7	153.1
GCL-Poly	HKD	1.01	2.0	2.0	(17.9)	(29.9)	1.0
Tesla Motors	USD	304.7	5.2	13.9	(6.9)	(9.0)	(2.5)

4. Coverage Summary

	04/10	1D	1W	1M	3M	6M	12M	투자의견	TP	%	P/E	P/B
KOSPI	2,451	0.3	0.3	(0.4)	(2.0)	2.3	13.9				* 추정치는 12M fwd 기준임	
KOSPI화학	6,136	(0.1)	(1.5)	0.1	(1.8)	7.7	21.4				* 모든 coverage 업체의 실적은 연결기준임	
LG화학	368,000	(2.1)	(2.8)	(9.5)	(11.6)	(6.1)	29.3	매수	450,000	22.3	12.74	1.69
롯데케미칼	430,000	(1.9)	(0.9)	0.1	13.0	13.8	14.7	매수	480,000	11.6	12.41	1.21
한화케미칼	29,350	(0.7)	(0.5)	(6.2)	(13.0)	(9.6)	12.2	매수	39,000	32.9	10.45	0.75
금호석유화학	94,800	1.4	(3.6)	4.6	(11.4)	31.5	20.8	매수	150,000	58.2	9.23	1.42
KCC	362,000	2.5	5.7	1.7	(11.2)	(3.3)	4.6	매수	450,000	24.3	13.26	0.56
OCI	161,500	(1.2)	0.9	3.9	(13.4)	57.6	96.0	매수	180,000	11.5	12.04	1.08
SKC	35,600	(1.9)	(6.3)	(9.6)	(22.3)	(13.7)	19.1	매수	50,000	40.4	9.77	0.88
SK이노베이션	203,000	(2.2)	(3.8)	(0.7)	0.0	2.0	23.4	매수	230,000	13.3	12.39	1.02
S-Oil	115,000	(0.9)	(4.2)	(5.7)	(2.1)	(9.8)	19.7	매수	140,000	21.7	13.94	1.81
GS	61,100	0.7	(3.6)	(7.1)	(6.4)	(6.9)	6.4	매수	80,000	30.9	5.74	0.77
SK가스	95,500	(2.8)	(4.5)	0.4	2.7	1.3	(23.6)	매수	130,000	36.1	8.39	0.63
포스코대우	23,600	6.1	1.7	18.0	9.5	22.3	(1.7)	매수	25,000	5.9	12.54	1.00
LG상사	26,350	1.3	(2.4)	0.2	(14.4)	(3.5)	(15.3)	매수	38,000	44.2	8.59	0.78
한국전력	34,700	0.6	(0.7)	6.8	(7.2)	(11.0)	(23.0)	매수	45,000	29.7	7.64	0.27
한국가스공사	49,300	0.3	0.9	4.3	9.3	17.1	6.9	매수	60,000	21.7	8.59	0.65

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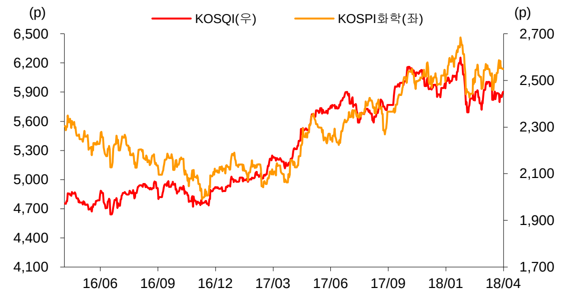
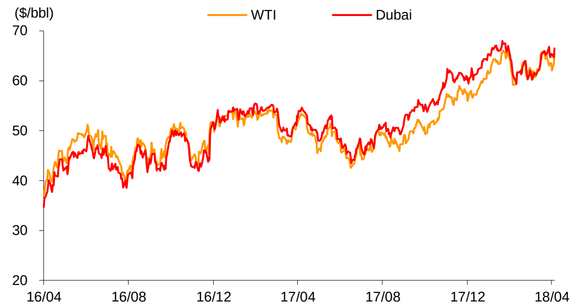
Key Chart

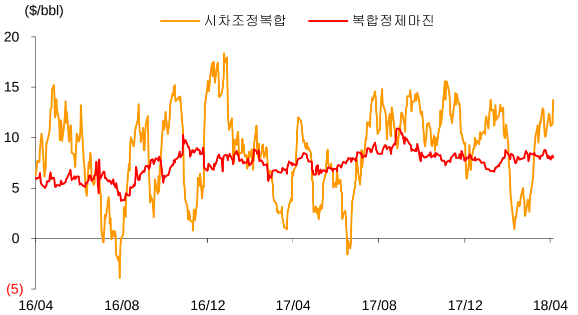
KOSPI/KOSPI화학



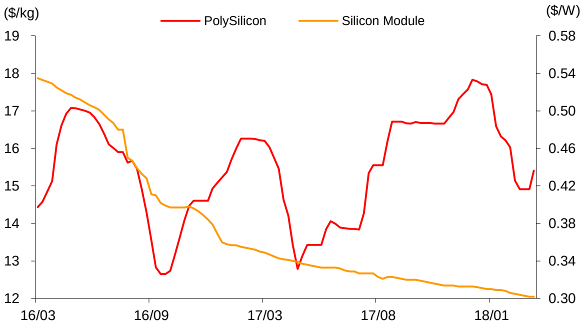
WTI/Dubai



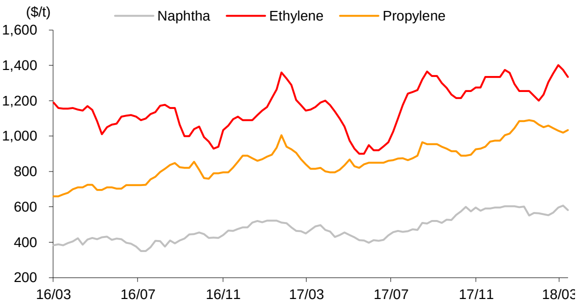
Complex & 1M lagging margin



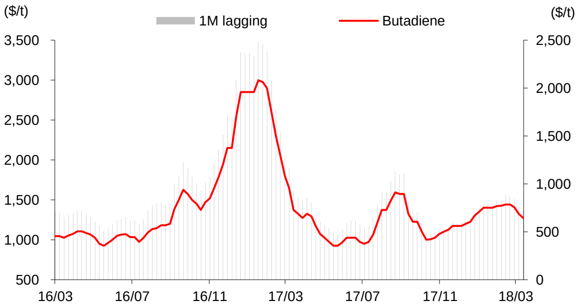
Polysilicon & Module prices



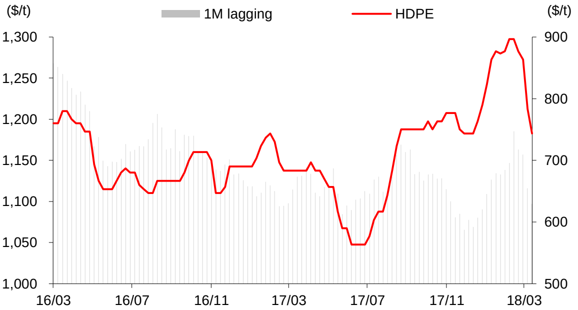
Naphtha/Ethylene/Propylene prices



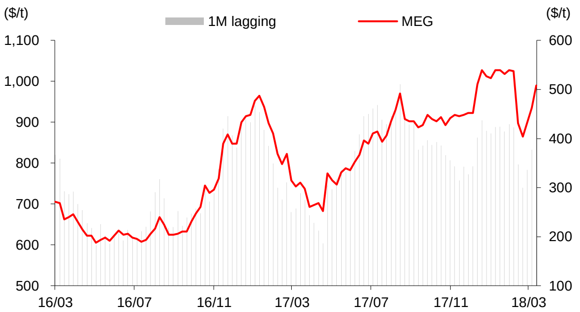
Butadiene price & 1M lagging naphtha spread



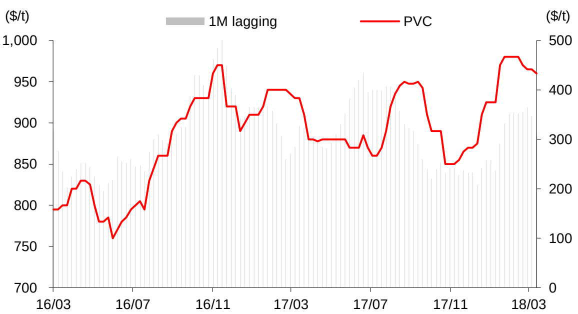
HDPE price & 1M lagging naphtha spread



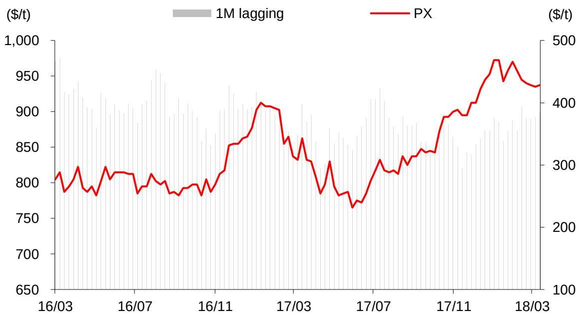
MEG price & 1M lagging naphtha spread



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: REUTERS)
제목	가즈프롬, "유럽가는 우크라이나 노선이 10-15bcm/년으로 하락할 것"
결론	러시아의 對중국 PNG 프로젝트 가속화 및 유럽으로 美 LNG 수출 늘 것
세부	
	1) 메르켈 총리, "우크라이나의 역할을 명확히 안하면 Nord Stream 2 불가"
	2) Nord Stream은 북해를 통과해 우크라이나를 경유할 필요성이 줄어듦
	3) 러시아와 유럽을 잇는 가스관 경유지로서 우크라이나 역할 보장 촉구
	4) 가즈프롬, "우크라이나는 러시아에 경제적 편의가 있음을 입증해야 함"
	5) 러시아의 對중국 PNG 프로젝트 가속화 및 유럽으로 美 LNG 수출 늘 것

WTI Comment	(출처: 연합뉴스)
제목	'중동 위기' 3%대 급등…브렌트유 71달러 돌파
상승 요인	시리아의 '화학무기 사태'와 맞물려 중동의 지정학적 위기감이 높아짐
하락 요인	

Issue 1	(출처: Platts)
제목	EIA, "미국 천연가스 생산량은 올해 record breaking할 것"
결론	美 가스 수출이 전년 대비 2배 이상 폭증해 아시아로의 유입 빨라질 것
세부	
	1) 4월 STEO에서 2Q18 생산량은 줄지만 2018년과 2019년 생산 증가 전망
	2) 수요는 2018년 5.7% 증가하고 2019년에는 0.9% 증가할 것으로 전망
	3) LNG 터미널이 점차 가동되며 2019년에는 4bcf/d 규모로 수출 확대 전망
	4) 천연가스 수출은 2017년 0.4bcf/d에서 2018년 2.2bcf/d로 증가 전망
	5) 美 가스 수출이 전년 대비 2배 이상 폭증해 아시아로의 유입 빨라질 것

Issue 2	(출처: Platts)
제목	아람코, Jubail에 佛 Total社와 $50억 규모 석유화학단지 조성 예정
결론	중동에서도 추가 capa 진입시 이번 화학 downturn은 깊어질 수 있음
세부	
	1) 새로 조성되는 단지는 40만b/d 규모의 SATORP 단지와 합쳐질 것
	2) 양사는 2018년 3분기 중으로 FEED를 시작할 계획
	3) Mixed-feed 크래커를 지어 150만톤/년 규모의 에틸렌을 생산할 계획
	4) 해당 크래커는 또한 270만톤/년 규모의 고부가제품 생산을 도울 것
	5) 중동에서도 추가 capa 진입시 이번 화학 downturn은 깊어질 수 있음

Issue 3	(출처: 한국경제)
제목	LG화학, 외화 표시 교환사채 6억弗 발행
결론	확보한 자금은 중국, 폴란드 등의 설비 투자에 사용할 것
세부	
	1) 채권금리 0%이며 오스트라이 빈 증권거래소에 상장할 예정
	2) LG화학은 2016년 말 LG생명과학과 합병을 진행한 바 있음
	3) LG생명과학 주주들의 주식매수청구권 행사로 취득한 자사주로 교환
	4) 투자자들은 내달 27일부터 주당 51만5200원에 주식으로 전환할 수 있음
	5) 확보한 자금은 중국, 폴란드 등의 설비 투자에 사용할 것

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**	0.809	0.812	0.815	0.813	0.837	0.847	0.944	0.833	0.904	0.887	0.814
	Change, %		*(0.3)*	*(0.7)*	*(0.4)*	*(3.3)*	*(4.4)*	*(14.2)*	*(2.8)*	*(10.5)*	*(8.7)*	*(0.5)*
	USD/JPY	107.2	106.8	106.6	106.8	111.4	112.5	110.9	112.6	108.8	112.1	108.1
	Change, %		*0.4*	*0.6*	*0.4*	*(3.8)*	*(4.7)*	*(3.4)*	*(4.8)*	*(1.4)*	*(4.4)*	*(0.9)*
	USD/KRW	1,066.5	1,067.1	1,054.7	1,069.8	1,071.8	1,135.6	1,142.4	1,066.7	1,160.5	1,130.9	1,071.4
	Change, %		*(0.1)*	*1.1*	*(0.3)*	*(0.5)*	*(6.1)*	*(6.6)*	*(0.0)*	*(8.1)*	*(5.7)*	*(0.5)*
Agriculture	**Corn**	389.3	390.8	388.5	383.0	349.0	349.3	367.0	350.8	358.5	359.4	368.4
	Change, %		*(0.4)*	*0.2*	*1.6*	*11.5*	*11.5*	*6.1*	*11.0*	*8.6*	*8.3*	*5.7*
	Soybean	1,050.0	1,047.0	1,038.0	1,029.3	947.0	966.0	941.8	951.8	987.5	975.9	1,009.4
	Change, %		*0.3*	*1.2*	*2.0*	*10.9*	*8.7*	*11.5*	*10.3*	*6.3*	*7.6*	*4.0*
	Wheat	492.0	490.8	457.5	489.0	434.3	435.3	428.8	427.0	436.4	436.0	454.9
	Change, %		*0.3*	*7.5*	*0.6*	*13.3*	*13.0*	*14.8*	*15.2*	*12.7*	*12.8*	*8.2*
	Rice	12.8	12.8	12.4	12.2	11.7	12.0	10.3	11.7	10.3	11.1	12.2
	Change, %		*(0.4)*	*3.1*	*5.1*	*9.2*	*6.3*	*24.5*	*9.4*	*23.5*	*15.5*	*4.8*
	Oats	236.5	237.3	232.5	259.5	251.0	249.5	216.5	241.0	196.3	252.3	252.9
	Change, %		*(0.3)*	*1.7*	*(8.9)*	*(5.8)*	*(5.2)*	*9.2*	*(1.9)*	*20.5*	*(6.3)*	*(6.5)*
MYR/mt	**Palm Oil**	2,403.0	2,436.0	2,410.0	2,398.0	2,568.0	2,710.0	2,832.0	2,444.0	2,653.8	2,787.3	2,475.8
	Change, %		*(1.4)*	*(0.3)*	*0.2*	*(6.4)*	*(11.3)*	*(15.1)*	*(1.7)*	*(9.5)*	*(13.8)*	*(2.9)*
	Cocoa	2,489.0	2,502.0	2,498.0	2,478.0	1,941.0	2,045.0	1,955.0	1,892.0	2,854.0	2,005.2	2,218.3
	Change, %		*(0.5)*	*(0.4)*	*0.4*	*28.2*	*21.7*	*27.3*	*31.6*	*(12.8)*	*24.1*	*12.2*
	Cotton	83.5	82.9	82.0	84.5	79.7	69.0	75.2	78.6	65.6	73.5	80.6
	Change, %		*0.7*	*1.8*	*(1.2)*	*4.9*	*21.1*	*11.2*	*6.2*	*27.4*	*13.6*	*3.6*
	Sugar	12.1	12.4	12.5	12.8	14.7	14.2	16.6	15.2	18.2	15.8	13.3
	Change, %		*(1.9)*	*(2.7)*	*(5.5)*	*(17.2)*	*(14.4)*	*(27.1)*	*(20.0)*	*(33.2)*	*(23.3)*	*(9.1)*
	Coffee	117.6	118.7	116.6	118.9	124.0	131.0	139.9	126.2	136.1	133.0	120.7
	Change, %		*(0.9)*	*0.9*	*(1.1)*	*(5.1)*	*(10.2)*	*(15.9)*	*(6.8)*	*(13.6)*	*(11.6)*	*(2.6)*
Energy	**WTI**	65.5	63.4	63.5	62.0	63.6	50.9	53.1	60.4	43.4	51.0	63.0
	Change, %		*3.3*	*3.1*	*5.6*	*3.1*	*28.7*	*23.4*	*8.4*	*51.0*	*28.5*	*3.9*
	Brent	71.0	68.7	68.1	65.5	69.2	56.6	56.0	66.9	45.1	54.9	67.4
	Change, %		*3.5*	*4.3*	*8.5*	*2.7*	*25.5*	*26.9*	*6.2*	*57.6*	*29.5*	*5.4*
	Natural Gas	2.7	2.7	2.7	2.7	2.9	2.9	3.2	3.0	2.6	3.0	2.8
	Change, %		*(1.4)*	*(1.5)*	*(2.8)*	*(8.6)*	*(8.1)*	*(18.0)*	*(10.1)*	*4.1*	*(12.1)*	*(6.0)*
	Ethanol	1.5	1.5	1.4	1.5	1.3	1.4	1.7	1.3	1.5	1.5	1.4
	Change, %		*0.4*	*4.3*	*(3.0)*	*10.6*	*3.2*	*(11.3)*	*11.0*	*(3.3)*	*(2.1)*	*2.8*
	RBOB Gasoline	204.1	198.4	197.4	190.4	183.3	159.2	175.8	179.9	140.0	162.9	187.7
	Change, %		*2.9*	*3.4*	*7.2*	*11.4*	*28.2*	*16.1*	*13.4*	*45.8*	*25.3*	*8.7*
	Coal	93.5	94.2	92.0	99.4	106.6	95.4	86.8	100.8	65.5	88.2	101.8
	Change, %		*(0.7)*	*1.6*	*(5.9)*	*(12.2)*	*(1.9)*	*7.8*	*(7.2)*	*42.8*	*6.0*	*(8.1)*
Metal	**Gold**	1,339.5	1,336.4	1,332.8	1,323.3	1,316.9	1,288.0	1,254.7	1,302.6	1,248.5	1,258.6	1,330.3
	Change, %		*0.2*	*0.5*	*1.2*	*1.7*	*4.0*	*6.8*	*2.8*	*7.3*	*6.4*	*0.7*
	Silver	16.6	16.5	16.4	16.6	17.0	17.1	18.0	16.9	17.1	17.1	16.7
	Change, %		*0.5*	*1.0*	*(0.1)*	*(2.3)*	*(3.2)*	*(7.6)*	*(2.2)*	*(3.1)*	*(2.9)*	*(0.8)*
	Copper	6,945.0	6,830.0	6,796.0	6,962.0	7,153.0	6,760.0	5,747.0	7,247.0	4,872.0	6,199.4	6,970.8
	Change, %		*1.7*	*2.2*	*(0.2)*	*(2.9)*	*2.7*	*20.8*	*(4.2)*	*42.5*	*12.0*	*(0.4)*
	Nickel	889.3	872.6	876.8	896.7	819.0	719.0	652.0	809.1	646.4	680.2	855.7
	Change, %		*1.9*	*1.4*	*(0.8)*	*8.6*	*23.7*	*36.4*	*9.9*	*37.6*	*30.7*	*3.9*
	Zinc	3,243.0	3,211.0	3,280.0	3,277.0	3,336.0	3,279.0	2,618.0	3,319.0	2,097.5	2,888.5	3,372.0
	Change, %		*1.0*	*(1.1)*	*(1.0)*	*(2.8)*	*(1.1)*	*23.9*	*(2.3)*	*54.6*	*12.3*	*(3.8)*
	Lead	2,394.3	2,388.5	2,397.8	2,376.8	2,552.5	2,544.8	2,259.8	2,482.8	1,868.3	2,315.7	2,503.2
	Change, %		*0.2*	*(0.1)*	*0.7*	*(6.2)*	*(5.9)*	*6.0*	*(3.6)*	*28.2*	*3.4*	*(4.4)*
	Aluminum	14,280.0	14,140.0	14,040.0	14,035.0	14,860.0	16,460.0	13,960.0	15,020.0	12,373.5	14,556.6	14,270.0
	Change, %		*1.0*	*1.7*	*1.7*	*(3.9)*	*(13.2)*	*2.3*	*(4.9)*	*15.4*	*(1.9)*	*0.1*
	Cobalt	91,250.0	91,250.0	93,050.0	84,020.0	75,098.0	59,292.0	55,250.0	75,205.0	25,480.1	55,906.9	83,003.3
	Change, %		*0.0*	*(1.9)*	*8.6*	*21.5*	*53.9*	*65.2*	*21.3*	*258.1*	*63.2*	*9.9*
	HR Coil	868.0	856.0	865.0	820.0	666.0	600.0	655.0	662.0	519.3	620.1	760.5
	Change, %		*1.4*	*0.3*	*5.9*	*30.3*	*44.7*	*32.5*	*31.1*	*67.1*	*40.0*	*14.1*
	Scrap	384.4	385.0	400.0	400.0	370.3	333.1	350.3	367.0	275.7	344.7	386.0
	Change, %		*(0.1)*	*(3.9)*	*(3.9)*	*3.8*	*15.4*	*9.7*	*4.7*	*39.5*	*11.5*	*(0.4)*

자료: Bloomberg

참고) NYMEX, ICE, LME 중 대표지수를 사용

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Refining Price Data

Daily Price		04/10	1D	1W	1M	3M	6M	12M	YTD	2015avg.	2016avg.	2017acc.
Crude Oil	**WTI**	65.5	63.4	63.5	61.4	63.0	50.9	53.4	53.7	43.4	50.9	63.0
	Change, %		*3.3*	*3.1*	*6.8*	*4.1*	*28.7*	*22.7*	*21.9*	*51.1*	*28.7*	*4.0*
	Dubai	66.5	64.7	65.2	61.7	65.5	54.1	54.3	53.8	41.3	53.1	64.1
	Change, %		*2.8*	*2.1*	*7.8*	*1.5*	*23.0*	*22.4*	*23.6*	*61.0*	*25.3*	*3.8*
Crude Oil	**Gasoline(휘발유)**	80.3	78.5	79.0	75.4	77.4	68.9	69.3	69.8	56.3	68.0	77.8
Product	*Change, %*		*2.3*	*1.6*	*6.5*	*3.7*	*16.5*	*16.0*	*15.0*	*42.8*	*18.1*	*3.2*
	Kerosene(등유)	83.2	81.2	82.1	77.6	79.4	66.1	65.8	66.4	52.9	65.2	80.1
	Change, %		*2.4*	*1.3*	*7.2*	*4.8*	*25.8*	*26.4*	*25.2*	*57.3*	*27.5*	*3.8*
	Diesel(경유)	81.9	80.0	81.2	76.6	79.3	67.0	66.4	65.5	52.1	65.6	79.0
	Change, %		*2.4*	*0.9*	*6.9*	*3.3*	*22.3*	*23.4*	*25.0*	*57.2*	*24.8*	*3.7*
	Bunker-C	60.1	59.4	57.8	57.1	58.5	50.2	49.5	52.1	35.5	49.7	57.8
	Change, %		*1.2*	*3.9*	*5.2*	*2.8*	*19.8*	*21.4*	*15.4*	*69.1*	*21.0*	*4.0*
	Naphtha	65.3	63.8	65.4	61.6	66.9	55.5	53.4	53.5	42.6	53.7	63.7
	Change, %		*2.3*	*(0.2)*	*6.0*	*(2.4)*	*17.5*	*22.3*	*22.1*	*53.3*	*21.5*	*2.5*
Dubai	**Gasoline(휘발유)**	13.8	13.8	13.9	13.7	11.9	14.9	14.9	16.0	14.9	14.9	13.7
Spread	*Change*		*0.0*	*(0.1)*	*0.1*	*1.9*	*(1.1)*	*(1.1)*	*(2.2)*	*(1.1)*	*(1.1)*	*0.1*
	Kerosene(등유)	16.7	16.5	17.0	15.9	13.9	12.0	11.5	12.6	11.6	12.1	16.0
	Change		*0.2*	*(0.3)*	*0.8*	*2.8*	*4.6*	*5.2*	*4.1*	*5.1*	*4.5*	*0.6*
	Diesel(경유)	15.4	15.3	16.0	14.9	13.7	12.9	12.0	11.7	10.8	12.5	14.8
	Change		*0.1*	*(0.6)*	*0.5*	*1.7*	*2.5*	*3.3*	*3.7*	*4.6*	*2.9*	*0.5*
	Bunker-C	(6.4)	(5.4)	(7.3)	(4.6)	(7.0)	(3.9)	(4.8)	(1.8)	(5.8)	(3.4)	(6.3)
	Change		*(1.1)*	*0.9*	*(1.8)*	*0.6*	*(2.5)*	*(1.6)*	*(4.7)*	*(0.6)*	*(3.0)*	*(0.1)*
	Naphtha	(1.2)	(0.9)	0.2	(0.1)	1.4	1.5	(0.9)	(0.4)	1.3	0.6	(0.4)
	Change		*(0.3)*	*(1.5)*	*(1.1)*	*(2.6)*	*(2.7)*	*(0.3)*	*(0.9)*	*(2.5)*	*(1.9)*	*(0.8)*
Refining	**Simple(단순)**	2.4	2.9	2.2	3.2	1.3	3.0	2.2	3.8	1.9	3.2	2.3
Margin	*Change*		*(0.5)*	*0.1*	*(0.8)*	*1.0*	*(0.7)*	*0.1*	*(1.5)*	*0.4*	*(0.8)*	*0.1*
	Complex(복합)	8.0	8.3	8.2	8.3	6.8	8.0	7.3	8.3	7.0	8.0	7.9
	Change		*(0.2)*	*(0.2)*	*(0.3)*	*1.2*	*(0.0)*	*0.7*	*(0.2)*	*1.1*	*0.0*	*0.2*
	Complex(lagging)	13.7	11.3	11.9	6.0	12.1	9.1	9.1	18.0	8.5	8.9	8.7
	Change		*2.4*	*1.8*	*7.7*	*1.6*	*4.6*	*4.6*	*(4.2)*	*5.3*	*4.8*	*5.0*

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			04/10	04/09	04/06	04/05	04/04	04/03	04/02	03/30	03/29	03/28
Spot Price	**Naphtha**	CFR Japan	593.8	577.5	582.8	595.0	590.8	596.8	609.8	606.3	606.3	602.5
	Ethylene	CFR SE Asia	1,260.0	1,260.0	1,260.0	1,275.0	1,280.0	1,285.0	1,285.0	1,285.0	1,285.0	1,285.0
	Propylene	FOB Korea	1,030.0	1,030.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,010.0
	Butadiene	FOB Korea	1,275.0	1,300.0	1,380.0	1,380.0	1,380.0	1,380.0	1,380.0	1,380.0	1,380.0	1,380.0
	HDPE	CFR FE Asia	1,335.0	1,335.0	1,310.0	1,310.0	1,310.0	1,310.0	1,310.0	1,320.0	1,320.0	1,320.0
	LDPE	CFR FE Asia	1,220.0	1,220.0	1,200.0	1,200.0	1,200.0	1,190.0	1,190.0	1,190.0	1,190.0	1,190.0
	LLDPE	CFR FE Asia	1,170.0	1,170.0	1,160.0	1,160.0	1,160.0	1,170.0	1,160.0	1,160.0	1,160.0	1,160.0
	MEG	CFR China	1,030.0	1,000.0	985.0	985.0	985.0	960.0	950.0	930.0	930.0	929.0
	PP	CFR FE Asia	1,200.0	1,195.0	1,210.0	1,210.0	1,210.0	1,190.0	1,185.0	1,185.0	1,185.0	1,185.0
	PX	CFR China	933.2	925.3	928.7	931.0	936.2	936.5	934.7	926.0	926.0	925.7
	PTA	CFR China	765.0	763.0	765.0	760.0	760.0	763.0	765.0	760.0	760.0	760.0
	Benzene	FOB Korea	829.0	824.7	832.7	835.0	834.3	836.7	841.0	826.0	826.0	827.0
	Toluene	FOB Korea	703.0	696.0	696.0	696.0	696.0	696.0	696.0	683.0	683.0	677.0
	Xylene	FOB Korea	743.0	745.0	746.0	746.0	744.0	744.0	744.0	737.0	737.0	736.5
	SM	FOB Korea	1,308.0	1,310.0	1,319.0	1,315.0	1,315.0	1,315.0	1,310.0	1,267.5	1,267.5	1,267.5

Weekly Price			Last Week	1W	1M	3M	6M	12M	YTD	2016avg.	2017avg.	2018acc.
Spot Price	**Naphtha**	CFR Japan	582.5	607.0	553.0	604.0	590.5	490.0	484.5	399.5	493.5	582.4
	Change, %			*(4.0)*	*5.3*	*(3.6)*	*(1.4)*	*18.9*	*20.2*	*45.8*	*18.0*	*0.0*
	Ethylene	CFR SE Asia	1,275.0	1,265.0	1,220.0	1,330.0	1,212.5	1,050.0	990.0	1,040.9	1,090.9	1,245.9
	Change, %			*0.8*	*4.5*	*(4.1)*	*5.2*	*21.4*	*28.8*	*22.5*	*16.9*	*2.3*
	Propylene	CFR SE Asia	957.5	945.0	995.0	930.0	850.0	760.0	815.0	705.7	823.6	1,051.1
	Change, %			*1.3*	*(3.8)*	*3.0*	*12.6*	*26.0*	*17.5*	*35.7*	*16.3*	*(8.9)*
	Butadiene	CFR SE Asia	1,225.0	1,275.0	1,390.0	1,150.0	1,075.0	1,325.0	2,100.0	1,116.8	1,481.1	1,307.5
	Change, %			*(3.9)*	*(11.9)*	*6.5*	*14.0*	*(7.5)*	*(41.7)*	*9.7*	*(17.3)*	*(6.3)*
	Benzene	CFR SE Asia	840.0	832.5	882.5	897.5	905.0	862.5	822.5	646.7	838.8	898.4
	Change, %			*0.9*	*(4.8)*	*(6.4)*	*(7.2)*	*(2.6)*	*2.1*	*29.9*	*0.1*	*(6.5)*
	Toluene	CFR SE Asia	735.0	725.0	720.0	735.0	720.0	675.0	690.0	630.5	689.5	742.5
	Change, %			*1.4*	*2.1*	*0.0*	*2.1*	*8.9*	*6.5*	*16.6*	*6.6*	*(1.0)*
	Xylene	CFR SE Asia	757.5	762.5	765.0	730.0	695.0	710.0	675.0	627.7	668.8	755.7
	Change, %			*(0.7)*	*(1.0)*	*3.8*	*9.0*	*6.7*	*12.2*	*20.7*	*13.3*	*0.2*
Spread	**Ethylene**	-Naphtha	692.5	658.0	667.0	726.0	622.0	560.0	505.5	641.4	597.4	663.5
	Change, %			*5.2*	*3.8*	*(4.6)*	*11.3*	*23.7*	*37.0*	*8.0*	*15.9*	*4.4*
	Propylene	-Naphtha	375.0	338.0	442.0	326.0	259.5	270.0	330.5	306.2	330.1	468.6
	Change, %			*10.9*	*(15.2)*	*15.0*	*44.5*	*38.9*	*13.5*	*22.5*	*13.6*	*(20.0)*
	Butadiene	-Naphtha	642.5	668.0	837.0	546.0	484.5	835.0	1,615.5	717.3	987.6	725.1
	Change, %			*(3.8)*	*(23.2)*	*17.7*	*32.6*	*(23.1)*	*(60.2)*	*(10.4)*	*(34.9)*	*(11.4)*
	Benzene	-Naphtha	257.5	225.5	329.5	293.5	314.5	372.5	338.0	247.2	345.3	316.0
	Change, %			*14.2*	*(21.9)*	*(12.3)*	*(18.1)*	*(30.9)*	*(23.8)*	*4.2*	*(25.4)*	*(18.5)*
	Toluene	-Naphtha	152.5	118.0	167.0	131.0	129.5	185.0	205.5	231.0	196.0	160.1
	Change, %			*29.2*	*(8.7)*	*16.4*	*17.8*	*(17.6)*	*(25.8)*	*(34.0)*	*(22.2)*	*(4.7)*
	Xylene	-Naphtha	175.0	155.5	212.0	126.0	104.5	220.0	190.5	228.2	175.3	173.3
	Change, %			*12.5*	*(17.5)*	*38.9*	*67.5*	*(20.5)*	*(8.1)*	*(23.3)*	*(0.2)*	*1.0*

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	1,182.5	1,212.5	1,297.5	1,182.5	1,207.5	1,137.5	1,142.5	1,134.6	1,142.5	1,250.2
	Change, %			(2.5)	(8.9)	0.0	(2.1)	4.0	3.5	4.2	3.5	(5.4)
	MEG	CFR SE Asia	990.0	935.0	897.5	992.5	915.0	752.5	847.5	660.8	850.6	982.3
	Change, %			5.9	10.3	(0.3)	8.2	31.6	16.8	49.8	16.4	0.8
	PVC	CFR SE Asia	960.0	965.0	980.0	875.0	855.0	930.0	920.0	823.4	899.9	950.7
	Change, %			(0.5)	(2.0)	9.7	12.3	3.2	4.3	16.6	6.7	1.0
	PP	CFR SE Asia	1,217.5	1,227.5	1,307.5	1,187.5	1,157.5	1,087.5	1,032.5	978.4	1,099.6	1,253.5
	Change, %			(0.8)	(6.9)	2.5	5.2	12.0	17.9	24.4	10.7	(2.9)
	2-EH	CFR Korea	1,130.0	1,190.0	1,125.0	1,035.0	1,020.0	1,010.0	865.0	772.4	970.0	1,097.1
	Change, %			(5.0)	0.4	9.2	10.8	11.9	30.6	46.3	16.5	3.0
	ABS	CFR SE Asia	1,980.0	1,960.0	2,070.0	2,050.0	2,030.0	1,690.0	1,635.0	1,347.1	1,844.7	2,032.1
	Change, %			1.0	(4.3)	(3.4)	(2.5)	17.2	21.1	47.0	7.3	(2.6)
	SBR	CFR SE Asia	1,650.0	1,670.0	1,750.0	1,650.0	1,650.0	2,290.0	2,000.0	1,483.0	1,980.5	1,717.1
	Change, %			(1.2)	(5.7)	0.0	0.0	(27.9)	(17.5)	11.3	(16.7)	(3.9)
	SM	CFR SE Asia	1,360.0	1,320.0	1,397.5	1,342.5	1,352.5	1,217.5	1,205.0	1,064.6	1,253.8	1,386.6
	Change, %			3.0	(2.7)	1.3	0.6	11.7	12.9	27.7	8.5	(1.9)
	Caustic	FOB NEA	626.0	639.0	590.0	615.0	699.5	456.0	422.5	316.6	491.2	590.6
	Change, %			(2.0)	6.1	1.8	(10.5)	37.3	48.2	97.7	27.4	6.0
	PX	CFR SE Asia	937.5	935.0	945.0	932.5	895.0	862.5	855.0	790.4	844.4	949.8
	Change, %			0.3	(0.8)	0.5	4.7	8.7	9.6	18.6	11.0	(1.3)
	PO	CFR China	1,787.5	1,722.5	1,962.5	2,127.5	1,765.0	1,540.0	1,562.5	1,396.8	1,601.2	1,901.8
	Change, %			3.8	(8.9)	(16.0)	1.3	16.1	14.4	28.0	11.6	(6.0)
	Caprolactam	CFR SE Asia	2,220.0	2,200.0	2,150.0	2,020.0	2,050.0	2,220.0	1,850.0	1,344.9	1,936.4	2,102.1
	Change, %			0.9	3.3	9.9	8.3	0.0	20.0	65.1	14.6	5.6
	PTA	CFR SE Asia	777.5	772.5	810.0	737.5	725.0	667.5	642.5	613.7	667.8	773.9
	Change, %			0.6	(4.0)	5.4	7.2	16.5	21.0	26.7	16.4	0.5
Spread	**HDPE**		600.0	605.5	744.5	578.5	617.0	647.5	658.0	735.1	649.0	667.8
	Change, %			(0.9)	(19.4)	3.7	(2.8)	(7.3)	(8.8)	(18.4)	(7.6)	(10.1)
	MEG		407.5	328.0	344.5	388.5	324.5	262.5	363.0	261.3	357.1	399.9
	Change, %			24.2	18.3	4.9	25.6	55.2	12.3	56.0	14.1	1.9
	PVC		377.5	358.0	427.0	271.0	264.5	440.0	435.5	423.9	406.4	368.3
	Change, %			5.4	(11.6)	39.3	42.7	(14.2)	(13.3)	(10.9)	(7.1)	2.5
	PP		635.0	620.5	754.5	583.5	567.0	597.5	548.0	578.9	606.1	671.0
	Change, %			2.3	(15.8)	8.8	12.0	6.3	15.9	9.7	4.8	(5.4)
	2-EH		547.5	583.0	572.0	431.0	429.5	520.0	380.5	372.9	476.5	514.7
	Change, %			(6.1)	(4.3)	27.0	27.5	5.3	43.9	46.8	14.9	6.4
	ABS		1,397.5	1,353.0	1,517.0	1,446.0	1,439.5	1,200.0	1,150.5	947.6	1,351.2	1,449.7
	Change, %			3.3	(7.9)	(3.4)	(2.9)	16.5	21.5	47.5	3.4	(3.6)
	SBR	BD spread	425.0	395.0	360.0	500.0	575.0	965.0	(100.0)	366.2	499.4	409.6
	Change, %			7.6	18.1	(15.0)	(26.1)	(56.0)	(525.0)	16.1	(14.9)	3.7
	SM		777.5	713.0	844.5	738.5	762.0	727.5	720.5	665.1	760.3	804.2
	Change, %			9.0	(7.9)	5.3	2.0	6.9	7.9	16.9	2.3	(3.3)
	Caustic											
	Change, %											
	PX		355.0	328.0	392.0	328.5	304.5	372.5	370.5	390.9	351.0	367.4
	Change, %			8.2	(9.4)	8.1	16.6	(4.7)	(4.2)	(9.2)	1.2	(3.4)
	PO	propylene sprea	830.0	777.5	967.5	1,197.5	915.0	780.0	747.5	691.1	777.6	850.7
	Change, %			6.8	(14.2)	(30.7)	(9.3)	6.4	11.0	20.1	6.7	(2.4)
	Caprolactam	benzene spreac	1,380.0	1,367.5	1,267.5	1,122.5	1,145.0	1,357.5	1,027.5	698.2	1,097.6	1,203.8
	Change, %			0.9	8.9	22.9	20.5	1.7	34.3	97.7	25.7	14.6
	PTA	px spread	121.3	118.0	148.5	84.8	98.5	63.8	44.0	60.4	76.7	109.1
	Change, %			2.8	(18.4)	43.1	23.1	90.2	175.6	100.7	58.1	11.2

자료 : Cischem, Platts, SK증권

참고 : Spread는 Naphtha spread로 일괄적용

SK Energy Daily

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SK증권

Global peers

	Currency	04/10	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	65.9	3.5	4.1	(8.8)	(11.2)	(7.9)	4.1	(7.5)	168,245	17.7	14.9	1.8	1.7	10.2	9.2
Eastman	USD	106.3	3.5	3.2	(2.8)	9.3	19.7	32.3	14.7	13,550	11.6	10.7	2.5	2.2	8.7	8.1
BASF	EUR	84.3	0.8	2.3	(0.9)	(9.5)	(6.3)	(9.2)	(8.1)	101,214	14.6	13.6	2.4	2.2	7.8	7.4
Akzo Nobel	EUR	79.1	1.3	2.9	(1.9)	6.4	0.8	(0.7)	8.3	22,073	17.0	15.8	3.0	2.8	9.3	8.8
Arkema	EUR	106.2	(0.3)	0.3	(2.4)	2.2	2.4	10.8	4.5	9,270	13.2	12.2	1.7	1.6	6.3	6.0
Lanxess	EUR	61.8	0.1	(0.3)	(10.4)	(10.4)	(6.6)	(3.9)	(6.8)	7,282	15.5	13.1	2.1	1.9	9.3	8.2
Sumitomo Chemical	JPY	625	3.3	2.8	1.3	(27.9)	(11.0)	1.5	(22.8)	11,911	10.1	10.5	1.3	1.2	7.4	8.0
Mitsubishi Chemical	JPY	1,021	2.9	0.8	(1.7)	(20.8)	(8.7)	20.3	(17.4)	16,544	9.2	8.7	1.3	1.2	6.3	6.1
Shin-Etsu Chemical	JPY	10,815	2.2	(0.6)	(1.5)	(10.3)	6.9	14.0	(5.5)	43,948	18.5	16.6	1.9	1.8	8.1	7.4
Asahi Kasei	JPY	1,426	1.6	1.7	5.0	(6.6)	1.8	35.2	(1.9)	18,109	14.4	13.6	1.5	1.4	7.4	7.0
JSR	JPY	2,391	1.5	0.9	(4.4)	3.6	13.7	26.5	7.8	4,455	14.5	13.4	1.2	1.1	7.7	7.2
Nitto Denko	JPY	8,259	2.5	4.7	(4.2)	(21.9)	(13.9)	(1.5)	(17.5)	15,450	15.7	14.6	2.1	1.9	7.3	7.0
SABIC	SAR	118.2	0.1	3.0	9.2	16.2	17.2	16.1	16.5	80,773	14.2	13.7	1.7	1.7	7.3	7.1
Yansab	SAR	72.3	(2.2)	2.4	5.9	19.6	26.8	18.6	22.6	8,861	13.7	13.9	2.2	1.9	9.0	8.9
Formosa Plastics	TWD	105.5	0.5	3.4	3.9	4.5	14.7	13.7	6.9	21,114	14.4	13.9	1.8	1.8	18.9	19.2
Formosa Fiber	TWD	112.5	0.4	4.7	6.6	4.2	22.4	18.7	9.2	20,511	13.7	13.4	1.7	1.7	11.6	11.5
Nan Ya Plastics	TWD	83.8	0.5	3.1	5.7	1.3	14.2	16.9	7.6	20,648	14.8	15.3	1.7	1.7	16.2	16.4
Sinopec Shanghai	CNY	5.87	1.2	1.2	(0.8)	(16.1)	(6.5)	(10.5)	(7.3)	9,462	12.0	12.6	2.2	2.0	6.8	7.3
Sinopec Yizheng(Fibe	CNY	2.01	0.5	(0.5)	(13.4)	(32.3)	(36.6)	(46.5)	(24.7)	5,394	50.4	66.3	5.3	5.0	13.9	10.3
Reliance	INR	917	0.1	1.9	0.4	(2.7)	8.8	32.8	0.8	93,404	14.4	12.9	1.7	1.5	9.4	8.7
Industries Qatar	QAR	114.5	2.2	6.0	21.8	10.1	19.0	3.2	18.1	16,144	14.5	13.9	1.6	1.5	46.4	27.2
PTT Chemical	THB	95.5	(2.1)	(0.3)	0.5	3.0	15.8	32.2	12.4	11,766	10.7	10.4	1.4	1.3	5.5	5.4
Petronas	MYR	8.5	(0.4)	2.4	5.9	4.2	15.1	9.3	9.7	15,624	16.1	15.5	2.0	1.9	9.2	8.9
LG화학	KRW	368,000	(2.1)	(2.8)	(9.5)	(11.6)	(6.4)	31.0	(9.1)	27,313	13.8	12.8	1.8	1.6	6.5	6.1
롯데케미칼	KRW	430,000	(1.9)	(0.9)	0.1	13.0	12.0	18.5	16.8	11,632	5.5	5.2	0.9	0.8	3.6	3.3
한화케미칼	KRW	29,350	(0.7)	(0.5)	(6.2)	(13.0)	(11.1)	14.6	(7.1)	5,050	5.7	5.5	0.8	0.7	6.7	6.5
금호석유	KRW	94,800	1.4	(3.6)	4.6	(11.4)	32.8	22.8	(4.7)	2,969	14.1	11.9	1.6	1.5	9.3	8.4
SKC	KRW	35,600	(1.9)	(6.3)	(9.6)	(22.3)	(12.5)	21.9	(24.3)	1,643	9.9	8.7	1.1	1.0	8.8	7.9
국도화학	KRW	60,700	(2.9)	0.7	2.5	(7.3)	9.2	24.0	(3.8)	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	8,940	(4.6)	(9.5)	(6.6)	4.0	36.5	12.5	17.9	4,595	8.2	7.3	1.1	1.0	7.2	6.8
Average			**0.4**	**0.9**	**(0.4)**	**(4.5)**	**5.4**	**12.6**	**0.2**							
Refinery																
Valero	USD	98.9	3.0	6.7	4.8	5.0	27.8	51.3	7.6	40,608	14.1	13.4	2.0	2.0	6.9	6.9
Conoco Phillips	USD	62.3	2.8	3.8	13.2	8.1	26.7	24.3	13.6	66,136	34.0	25.9	2.2	2.2	7.2	6.7
Formosa Petrochemic	TWD	117.5	(1.3)	1.3	3.5	(2.1)	9.3	6.3	1.7	37,040	18.2	18.7	3.2	3.2	11.7	12.1
Andeavor	USD	110.3	3.5	7.4	8.0	(5.3)	3.7	36.3	(3.5)	17,904	12.9	11.4	1.8	1.7	7.3	7.1
Marathon Petroleum	USD	73.7	2.8	1.5	5.0	6.0	31.0	47.0	11.7	32,812	15.0	12.8	2.6	2.7	7.7	7.5
Devon Energy	USD	33.6	6.8	7.1	2.7	(20.3)	(6.7)	(22.0)	(18.8)	22,192	17.5	14.0	2.7	2.3	8.4	7.4
Hollyfrontier	USD	54.0	2.0	8.6	16.0	5.2	49.1	97.8	5.3	9,094	16.8	15.2	1.8	1.8	8.0	8.0
Phillips 66	USD	100.3	2.6	4.2	4.5	(1.8)	7.3	28.4	(0.9)	51,561	15.6	14.5	2.3	2.2	9.0	8.8
Murphy Oil	USD	28.2	4.5	9.5	11.3	(16.3)	8.9	(0.7)	(9.3)	5,548	162.4	113.2	1.2	1.1	4.9	4.5
JX Holdings	JPY	655.4	1.8	4.8	1.5	(15.6)	16.1	20.8	(9.8)	22,130	8.8	8.0	0.9	0.9	7.0	6.6
Idemitsu	JPY	3,810.0	2.7	(0.7)	(6.0)	(15.3)	19.4	(3.2)	(15.8)	8,360	7.9	7.5	1.0	0.9	6.8	6.8
Nesteoil	EUR	56.7	2.8	0.4	(4.8)	2.9	44.7	53.5	6.2	16,473	16.7	16.7	2.9	2.7	10.2	10.3
Ashland	USD	69.6	0.7	1.3	(4.2)	(3.8)	5.2	12.6	(2.3)	4,550	21.6	18.7	1.3	1.3	10.2	9.6
Fuchs Petrolub	EUR	43.4	1.1	(1.4)	(9.3)	(2.1)	(12.9)	(6.5)	(2.0)	7,127	22.1	20.9	4.1	3.7	13.0	12.3
SK이노베이션	KRW	203,000	(2.2)	(3.8)	(0.7)	0.0	(0.7)	23.8	(0.7)	17,975	7.9	7.7	0.9	0.9	4.9	4.8
S-Oil	KRW	115,000	(0.9)	(4.2)	(5.7)	(2.1)	(10.9)	22.0	(1.7)	12,400	9.3	8.1	1.8	1.6	7.6	6.6
GS	KRW	61,100	0.7	(3.6)	(7.1)	(6.4)	(10.0)	7.0	(1.8)	5,467	6.0	5.5	0.7	0.6	6.9	6.3
Average			**2.0**	**2.5**	**1.9**	**(3.8)**	**12.2**	**23.5**	**(1.2)**							

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

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Global peers

	Currency	04/10	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	77	2.9	2.7	3.4	(10.5)	(6.3)	(7.3)	(7.9)	326,581	16.4	16.4	1.7	1.7	7.5	7.3
BP	GBP	505	2.4	5.4	5.6	(4.8)	3.1	7.6	(3.3)	142,595	15.7	15.0	1.4	1.4	5.6	5.4
Shell	EUR	2,381	2.2	6.6	5.3	(6.9)	3.7	11.1	(4.0)	282,974	14.1	13.1	1.4	1.4	6.1	5.9
Chevron	USD	119	2.5	3.5	1.4	(7.6)	0.0	8.6	(5.1)	227,118	19.2	18.8	1.5	1.5	6.7	6.5
Total	EUR	49	1.0	4.5	5.1	1.4	7.2	0.4	6.0	159,563	12.5	12.1	1.3	1.2	5.5	5.1
Sinopec	CNY	7	2.7	6.1	5.9	(5.3)	15.7	13.8	10.4	126,703	11.9	11.2	1.1	1.0	4.1	4.0
Petrochina	CNY	8	1.5	1.3	(5.5)	(13.3)	(5.1)	(5.7)	(6.2)	209,460	25.6	21.7	1.1	1.1	5.6	5.5
CNOOC	CNY	11	1.2	(0.8)	4.9	(5.0)	(0.3)	(12.0)	8.0	65,638	9.1	8.9	1.0	1.0	3.5	3.5
Gazprom	RUB	142	5.0	0.5	1.4	(1.1)	14.0	12.4	8.7	53,271	3.9	4.0	0.3	0.2	3.6	3.5
Rosneft	RUB	309	3.2	(1.4)	(1.4)	(2.8)	(3.2)	(5.6)	6.0	51,969	7.5	6.5	0.8	0.7	4.8	4.4
Anadarko	USD	62	3.3	4.4	6.5	11.6	27.7	(1.7)	15.2	31,852	38.9	37.6	2.6	2.5	6.3	5.8
Petrobras	BRL	21	4.2	3.3	(4.4)	27.4	32.2	43.2	32.9	86,709	10.9	8.6	0.9	0.8	5.5	5.1
Lukoil	USD	3,900	7.7	(1.3)	2.9	7.1	28.4	31.9	17.0	52,463	6.1	6.1	0.8	0.7	N/A	N/A
Kinder	USD	16	3.4	4.0	(4.4)	(17.3)	(17.6)	(28.2)	(13.6)	47,497	19.0	17.0	1.0	1.0	9.9	9.6
Statoil	NOK	197	2.8	6.7	10.4	6.8	23.0	31.6	12.4	84,173	16.5	16.0	2.0	1.9	3.8	3.6
BHP	AUD	29	0.8	0.6	2.0	(6.7)	9.0	12.2	(2.3)	114,781	14.9	15.9	1.9	1.9	5.9	6.1
PTT E&P	THB	115	0.0	0.4	1.3	7.5	26.0	16.8	15.0	14,632	13.0	12.4	1.2	1.1	3.7	3.5
Petronas gas	MYR	18	(0.5)	0.7	4.0	(4.7)	(2.6)	(8.0)	3.5	9,251	19.0	18.7	2.8	2.7	10.6	10.4
Chesapeake	USD	3	4.4	5.8	(0.3)	(22.8)	(21.0)	(50.4)	(22.0)	2,818	4.1	4.3	#N/A N/A	5.0	6.0	5.9
Noble Energy	USD	31	4.8	4.5	0.2	(0.6)	13.1	(11.8)	6.9	15,327	39.1	26.7	1.5	1.4	7.6	6.5
Average		**0**	**2.8**	**2.9**	**2.2**	**(2.4)**	**7.3**	**2.9**	**3.9**							
PV																
WACKER	EUR	143.0	2.3	6.6	4.1	(14.7)	22.6	41.7	(11.9)	9,200	20.8	17.6	2.1	2.0	7.2	6.9
GCL-Poly	HKD	1.0	2.0	2.0	(17.9)	(29.9)	(9.8)	1.0	(27.9)	2,392	6.4	5.7	0.6	0.5	6.2	5.7
SunPower	USD	8.3	1.8	9.9	15.9	(2.2)	20.3	17.7	(1.5)	1,169	#N/A N/A	259.4	4.8	4.3	13.6	9.2
Canadian Solar	USD	16.1	0.2	1.3	(0.9)	(5.2)	0.7	22.0	(4.8)	931	12.9	10.3	0.9	0.9	9.0	8.9
JA Solar	USD	7.1	2.0	1.7	(5.1)	(6.3)	(1.0)	4.1	(5.5)	335	13.3	11.1	1.5	1.5	3.9	3.6
Yingli	USD	1.7	0.6	0.6	(2.9)	(16.2)	(30.8)	(42.4)	(1.8)	30	#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	70.8	(0.1)	1.5	4.3	1.7	48.5	153.1	4.8	7,416	43.3	21.4	1.4	1.3	13.2	7.5
한화큐셀	USD	7.7	1.6	4.2	(4.4)	0.9	(4.8)	9.4	9.1	638	34.8	24.7	#N/A N/A	#N/A N/A	8.2	7.5
OCI	KRW	161,500	(1.2)	0.9	3.9	(13.4)	66.3	102.9	18.8	3,614	0.0	14.4	0.0	1.1	0.0	6.8
웅진에너지	KRW	6,280	(3.7)	(6.8)	(12.7)	(25.8)	(12.7)	22.7	(23.6)	175	N/A	0.0	1.1	0.0	6.8	0.0
신성솔라에너지	KRW	1,570	(1.3)	(6.5)	(12.5)	(22.9)	(7.9)	(16.3)	(18.0)	255	N/A	1.1	0.0	6.8	0.0	8.4
Average			**0.4**	**1.4**	**(2.6)**	**(12.2)**	**8.3**	**28.7**	**(5.7)**							
Gas Company																
Towngas China	HKD	7.1	0.8	3.0	15.0	16.3	29.4	54.0	13.5	2,515	14.1	12.6	1.2	1.1	12.2	11.1
Kulun	HKD	6.8	0.0	(1.2)	(5.5)	(14.3)	(8.4)	(15.1)	(17.1)	6,942	9.1	7.9	1.0	0.9	5.5	5.0
Beijing Enterprise	HKD	40.8	(1.0)	(3.2)	(7.0)	(9.2)	(7.9)	0.1	(12.1)	6,560	7.1	6.5	0.7	0.7	12.2	11.7
ENN Energy	HKD	69.9	(3.0)	(4.6)	13.9	35.6	22.1	50.2	25.3	9,651	15.1	13.0	3.0	2.5	9.1	8.1
China Resources Gas	HKD	28.2	(1.9)	2.9	7.6	14.0	3.9	0.7	(0.7)	7,976	15.1	13.7	2.5	2.2	8.5	7.8
China Gas Holdings	HKD	28.5	(1.7)	0.0	20.0	37.0	16.3	112.1	31.9	18,039	19.4	16.5	4.7	4.0	14.8	12.8
Shenzen Gas	HKD	17.1	0.9	0.9	9.9	7.0	7.7	35.2	14.7	4,421	11.3	9.7	1.4	1.3	7.6	6.6
Shann Xi	CNY	7.0	0.7	(1.8)	(6.3)	(21.6)	(17.2)	(27.1)	(16.9)	1,238	14.1	15.1	1.3	1.2	#N/A N/A	#N/A N/A
Suntien	HKD	2.3	(0.4)	6.9	18.3	14.2	12.6	42.9	12.6	1,103	6.3	5.5	0.7	0.7	7.8	6.8
China Oil & Gas	HKD	0.6	1.7	(4.8)	(10.4)	(26.8)	11.1	1.7	(29.4)	445	9.2	8.0	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A
Average			**(0.4)**	**(0.2)**	**5.6**	**5.2**	**7.0**	**25.5**	**2.2**							
EV																
LG화학	KRW	368,000	(2.1)	(2.8)	(9.5)	(11.6)	(6.4)	31.0	(9.1)	24,372	13.1	12.0	1.6	1.4	5.9	5.4
삼성SDI	KRW	186,000	(2.9)	(5.8)	(5.3)	(12.9)	(12.9)	35.3	(9.0)	11,999	15.6	11.2	1.1	1.0	11.8	9.4
Panasonic	JPY	1541.0	(0.0)	3.1	(5.7)	(11.4)	(6.1)	21.2	(6.6)	35,256	14.6	12.6	1.9	1.7	5.7	5.2
GS Yuasa	JPY	574.0	0.5	2.0	(0.2)	(1.2)	(2.2)	15.5	2.3	2,214	15.5	14.1	1.3	1.2	7.2	6.7
NEC	JPY	2942.0	0.6	0.2	(8.2)	(6.3)	(4.6)	9.8	(3.2)	7,147	20.5	13.5	0.8	0.8	6.7	5.7
BYD Auto	CNY	56.7	0.6	4.4	(13.6)	(13.7)	(19.8)	14.1	(12.9)	23,638	25.8	20.4	2.5	2.3	12.4	10.9
Tesla Motors	USD	304.7	5.2	13.9	(6.9)	(9.0)	(14.3)	(2.5)	(2.1)	51,470	#N/A N/A	138.1	10.9	9.9	45.9	17.6
Kandi Technologies	USD	5.2	5.1	7.3	(2.4)	(28.2)	(42.5)	21.2	(24.3)	278	#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			**0.9**	**2.8**	**(6.5)**	**(11.8)**	**(13.6)**	**18.2**	**(8.1)**							

* Bloomberg 기준 / valuation multiple 또한 Bloomberg consensus 기준임