SK Energy Daily

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SK 증권

2018년 3월 16일

1. News Summary (3 page)

News	
WTI comment	수요증가 전망에 강세…WTI 0.4%↑
Headline	PNG, 남북화해 분위기타고 '급부상'
News 1.	美 CNBC, "테슬라 부품 결함으로 재작업 모델3 출고 지연"
News 2.	-
News 3.	-
News 4.	-

Conclusion
경제적으로나 에너지 공급처 다변화 목적으로나 당위성 높은 사업임
완성차 업체가 아닌 Tesla의 mass market용 모델3 양산은 쉽지 않을 것
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2. Prices Summary (4~7 page)

Daily	Unit	Price	1D	1W	1M	3M	12M
Refinery			%	%	%	%	%
WTI	$/bbl	61.2	0.4	1.8	3.4	7.3	25.5
Dubai	$/bbl	61.5	0.4	1.1	2.7	2.0	21.3
Gasoline	$/bbl	75.4	0.8	0.5	2.3	1.3	19.4
Diesel	$/bbl	76.5	(0.6)	0.9	3.3	3.1	22.7
Complex margin	$/bbl	8.3	(0.2)	(0.2)	0.2	0.1	1.7
1M lagging	$/bbl	9.5	0.9	5.3	8.1	2.6	6.9
Petrochemical			%	%	%	%	%
Naphtha	$/t	570	0.7	1.3	1.3	(3.4)	22.5
Butadiene	$/t	1,430	0.0	2.9	5.5	30.0	(31.9)
HDPE	$/t	1,340	0.0	0.0	(0.7)	3.9	16.5
MEG	$/t	880	(4.0)	(5.9)	(13.3)	(3.7)	7.3
PX	$/t	932	(0.1)	(1.1)	(0.8)	5.8	10.7
SM	$/t	1,284	(3.2)	(2.1)	(9.3)	(0.7)	0.5
Commodity			%	%	%	%	%
Natural Gas	$/mmbtu	2.68	(1.7)	(2.6)	2.4	2.4	(5.7)
Natural rubber	$/t	1,460	0.7	0.7	2.8	2.1	(25.5)
Cotton	C/lbs	83.5	0.1	(1.9)	10.8	10.9	6.9

*참고: 정제마진의 변동률은 %가 아닌 $/bbl임

Weekly	Update	Unit	Price	1W	1M	3M	12M
Petrochemical				%	%	%	%
Ethylene	03/12	$/t	1,220	2.7	0.8	0.6	6.6
Propylene	03/12	$/t	995	1.0	(2.9)	17.1	8.7
Benzene	03/12	$/t	883	(2.5)	(3.0)	(2.5)	(2.8)
Toluene	03/12	$/t	720	(4.0)	(5.3)	0.0	1.4
Xylene	03/12	$/t	765	0.3	0.7	10.1	4.8
PP	03/12	$/t	1,308	0.0	2.3	13.0	16.0
PVC	03/12	$/t	980	0.0	1.0	14.6	4.3
ABS	03/12	$/t	2,070	(2.4)	0.5	2.0	10.1
SBR	03/12	$/t	1,750	0.0	(0.3)	6.1	(36.4)
SM	03/12	$/t	1,398	(3.8)	(1.8)	3.3	3.9
BPA	03/12	$/t	1,963	0.0	3.7	11.2	40.9
Caustic	03/12	$/t	590	0.0	7.5	(15.7)	34.4
2-EH	03/12	$/t	1,125	0.0	2.3	10.3	9.8
Caprolactam	03/12	$/t	2,150	0.9	3.9	4.9	(7.3)
Solar				%	%	%	%
Polysilicon	03/14	$/kg	14.9	(1.5)	(8.6)	(13.9)	(5.4)
Module	03/14	$/W	0.30	(0.3)	(1.6)	(2.9)	(11.9)

3. Global Peers Summary (8~9 page)

	Unit	Price	1D	1W	1M	3M	12M
E&P			%	%	%	%	%
ExxonMobil	USD	74.4	1.1	0.4	(2.3)	(10.4)	(9.2)
Shell	EUR	2,193	(0.8)	(3.2)	(2.8)	(9.7)	4.6
Petrochina	CNY	7.95	(0.5)	(1.0)	(0.9)	1.0	(0.5)
Gazprom	RUB	138.3	(0.4)	(0.2)	0.9	2.0	8.3
Petrobras	BRL	21.3	(4.8)	(1.8)	9.8	42.5	50.1
Refinery							
Phillips66	USD	94.5	0.3	(0.8)	1.8	(5.5)	17.9
Valero	USD	92.3	(0.4)	(1.1)	(0.7)	4.7	34.3
JX	JPY	630.2	(0.4)	(2.2)	(2.6)	(8.1)	15.0
Neste Oil	EUR	57.8	(0.7)	(4.3)	(0.3)	11.9	69.9

	Unit	Price	1D	1W	1M	3M	12M
Petrochemical			%	%	%	%	%
BASF	EUR	84.1	0.9	(1.1)	(2.9)	(10.3)	(6.3)
DowDuPont	USD	67.9	(1.6)	(3.8)	(5.5)	(3.0)	5.3
SABIC	SAR	110.2	0.2	1.9	4.7	9.2	15.5
Formosa Pla.	TWD	102.0	0.0	0.5	1.0	9.3	14.1
Shin-Etsu	JPY	11,270	(0.3)	4.1	1.0	(1.1)	16.8
Renewable							
Wacker	EUR	129.3	(1.2)	(4.2)	(8.5)	(18.7)	27.6
First Solar	USD	68.74	(1.1)	1.6	4.4	(0.3)	108.3
GCL-Poly	HKD	1.18	(1.7)	0.0	(3.3)	(5.6)	13.5
Tesla Motors	USD	325.6	(0.3)	(1.1)	(2.5)	(5.2)	27.3

4. Coverage Summary

	03/15	1D	1W	1M	3M	6M	12M	투자의견	TP	%	P/E	P/B
KOSPI	2,492	0.3	2.4	4.1	0.4	5.6	16.8				* 추정치는 12M fwd 기준임	
KOSPI화학	6,177	0.6	3.0	5.7	2.1	6.5	23.1				* 모든 coverage 업체의 실적은 연결기준임	
LG화학	419,000	1.8	8.3	15.0	6.3	2.8	52.9	매수	450,000	7.4	13.99	1.98
롯데케미칼	440,000	(0.6)	1.4	1.0	20.9	6.3	21.4	매수	410,000	(6.8)	12.01	1.32
한화케미칼	30,600	(1.3)	(1.4)	(4.8)	2.2	(18.5)	25.4	매수	39,000	27.5	11.68	0.79
금호석유화학	95,000	1.8	3.8	6.6	1.7	17.4	27.5	매수	150,000	57.9	11.59	1.52
KCC	352,000	0.3	(1.0)	(1.4)	(7.9)	(5.1)	(0.4)	매수	450,000	27.8	13.04	0.52
OCI	148,000	0.3	(5.1)	(6.0)	17.9	45.8	76.0	매수	180,000	21.6	13.91	1.04
SKC	40,300	0.1	2.9	11.0	(10.1)	(2.1)	34.6	매수	55,000	36.5	10.14	0.99
SK이노베이션	210,000	0.0	3.7	10.5	3.2	8.2	33.8	매수	230,000	9.5	11.12	1.06
S-Oil	120,500	(2.0)	(0.4)	5.2	(2.4)	(1.2)	28.9	매수	140,000	16.2	13.78	2.19
GS	63,800	(0.3)	(1.8)	2.1	3.4	(4.8)	16.8	매수	80,000	25.4	6.23	0.82
SK가스	97,800	2.0	5.2	8.4	4.0	(6.4)	(10.7)	매수	130,000	32.9	8.47	0.65
포스코대우	21,100	5.8	7.1	3.9	15.6	1.2	(10.4)	매수	25,000	18.5	9.62	0.85
LG상사	27,100	1.9	3.4	(1.5)	(2.5)	(5.2)	(11.1)	매수	38,000	40.2	9.13	0.78
한국전력	32,350	(1.1)	2.2	(3.4)	(17.1)	(20.8)	(24.5)	매수	50,000	54.6	6.95	0.25
한국가스공사	47,300	1.4	0.5	6.4	9.4	9.7	0.3	매수	60,000	26.8	8.93	0.70

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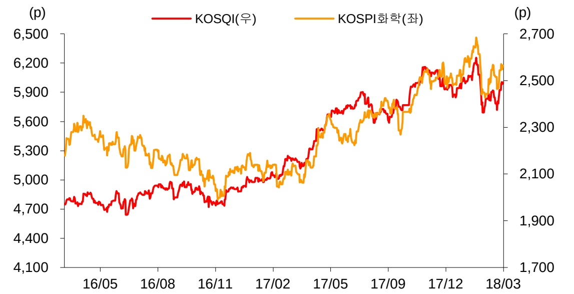
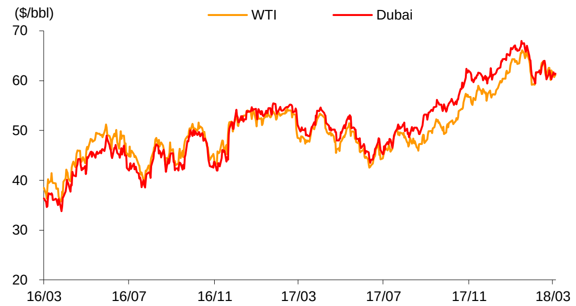
Key Chart

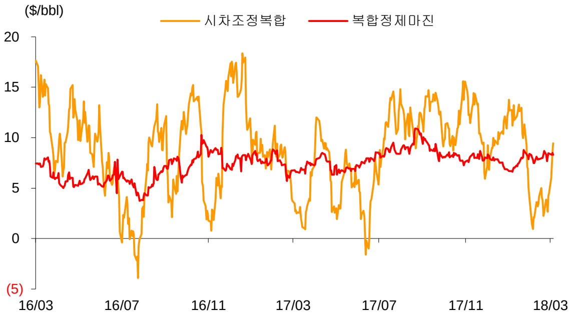
KOSPI/KOSPI화학



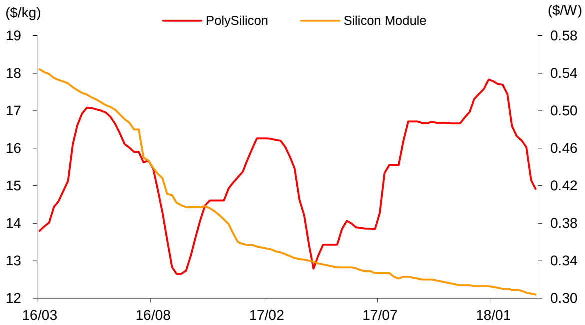
WTI/Dubai



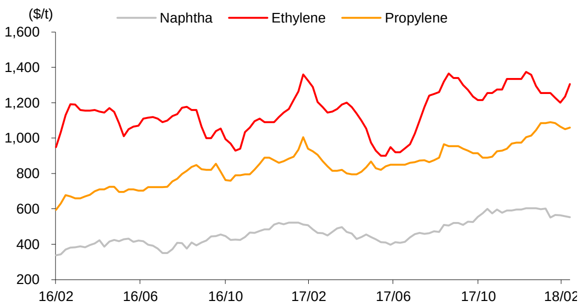
Complex & 1M lagging margin



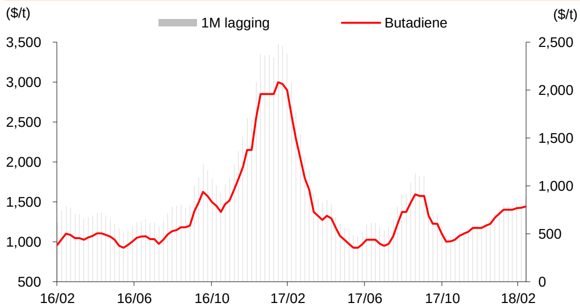
Polysilicon & Module prices



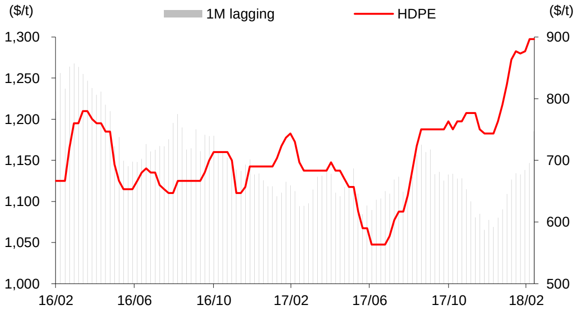
Naphtha/Ethylene/Propylene prices



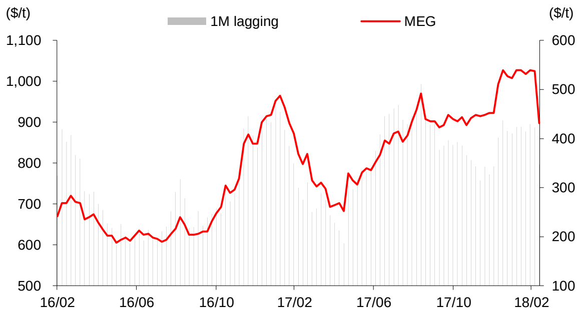
Butadiene price & 1M lagging naphtha spread



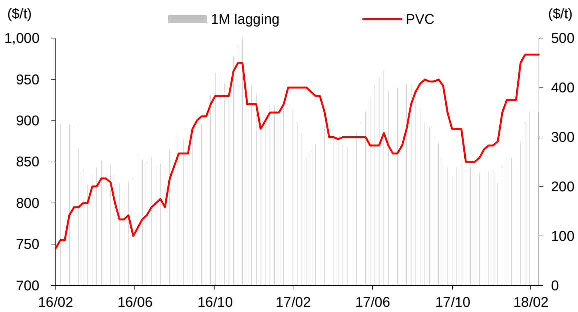
HDPE price & 1M lagging naphtha spread



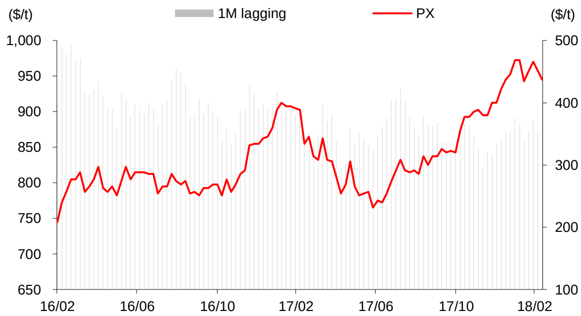
MEG price & 1M lagging naphtha spread



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: 투데이에너지)
제목	PNG, 남북화해 분위기타고 '급부상'
결론	경제적으로나 에너지 공급처 다변화 목적으로나 당위성 높은 사업임
세부	
	1) 남북화해 분위기가 무르익으며 다시 러시아 PNG사업에 대한 관심 커짐
	2) KOGAS, "러시아는 기존 LNG 장기계약 물량정도만 중시하는 것 같음"
	3) 러시아는 장기적 관점에서 판매자 우위를 지키는 게 유리하다는 판단
	4) 대부분의 비용을 우리나라가 부담할 가능성도 높음
	5) 경제적으로나 에너지 공급처 다변화 목적으로나 당위성 높은 사업임

WTI Comment	(출처: 연합뉴스)
제목	수요증가 전망에 강세…WTI 0.4%↑
상승 요인	IEA, "올해 원유 수요가 평균 9,930만b/d로 YoY 150만b 증가 전망"
하락 요인	

Issue 1	(출처: 이티뉴스)
제목	美 CNBC, "테슬라 부품 결함으로 재작업 모델3 출고 지연"
결론	완성차 업체가 아닌 Tesla의 mass market용 모델3 양산은 쉽지 않을 것
세부	
	1) CNBC, "프리몬트 공장에서 제작되거나 수령한 부품 40%가 결함"
	2) 부품에 대한 재검토와 재작업 때문에 모델3 생산이 지연된다고 밝힘
	3) 공장 직원도 결함 비율이 너무 높아 생산목표 달성 어렵다고 밝힘
	4) CNBC, "머스크 CEO가 제시하는 생산 목표가 점점 줄어들고 있음"
	5) 완성차 업체가 아닌 Tesla의 mass market용 모델3 양산은 쉽지 않을 것

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**	0.813	0.809	0.812	0.800	0.851	0.837	0.932	0.833	0.904	0.887	0.814
	Change, %		*0.5*	*0.1*	*1.6*	*(4.5)*	*(2.9)*	*(12.8)*	*(2.4)*	*(10.1)*	*(8.3)*	*(0.2)*
	USD/JPY	106.3	106.3	106.2	106.1	112.6	110.8	113.4	112.6	108.8	112.1	108.8
	Change, %		*0.0*	*0.1*	*0.2*	*(5.6)*	*(4.1)*	*(6.2)*	*(5.6)*	*(2.2)*	*(5.2)*	*(2.3)*
	USD/KRW	1,065.5	1,064.7	1,070.2	1,072.8	1,089.3	1,131.8	1,143.6	1,066.7	1,160.5	1,130.9	1,072.3
	Change, %		*0.1*	*(0.4)*	*(0.7)*	*(2.2)*	*(5.9)*	*(6.8)*	*(0.1)*	*(8.2)*	*(5.8)*	*(0.6)*
Agriculture	**Corn**	386.8	383.5	385.8	367.8	347.5	354.8	363.5	350.8	358.5	359.4	363.5
	Change, %		*0.8*	*0.3*	*5.2*	*11.3*	*9.0*	*6.4*	*10.3*	*7.9*	*7.6*	*6.4*
	Soybean	1,040.8	1,028.5	1,053.8	1,024.3	967.3	968.8	998.0	951.8	987.5	975.9	1,000.5
	Change, %		*1.2*	*(1.2)*	*1.6*	*7.6*	*7.4*	*4.3*	*9.4*	*5.4*	*6.6*	*4.0*
	Wheat	478.8	495.8	494.8	461.8	418.3	449.0	436.0	427.0	436.4	436.0	452.7
	Change, %		*(3.4)*	*(3.2)*	*3.7*	*14.5*	*6.6*	*9.8*	*12.1*	*9.7*	*9.8*	*5.7*
	Rice	12.4	12.1	12.3	12.0	11.7	12.8	9.7	11.7	10.3	11.1	12.1
	Change, %		*2.6*	*1.2*	*3.8*	*6.0*	*(3.1)*	*28.3*	*6.3*	*20.0*	*12.2*	*2.6*
	Oats	251.0	253.3	260.8	268.5	254.3	236.0	257.3	241.0	196.3	252.3	260.6
	Change, %		*(0.9)*	*(3.7)*	*(6.5)*	*(1.3)*	*6.4*	*(2.4)*	*4.1*	*27.9*	*(0.5)*	*(3.7)*
MYR/mt	**Palm Oil**	2,434.0	2,441.0	2,425.0	2,505.0	2,346.0	2,885.0	3,020.0	2,444.0	2,653.8	2,787.3	2,493.6
	Change, %		*(0.3)*	*0.4*	*(2.8)*	*3.8*	*(15.6)*	*(19.4)*	*(0.4)*	*(8.3)*	*(12.7)*	*(2.4)*
	Cocoa	2,536.0	2,575.0	2,506.0	2,137.0	1,877.0	2,009.0	2,048.0	1,892.0	2,854.0	2,005.2	2,109.8
	Change, %		*(1.5)*	*1.2*	*18.7*	*35.1*	*26.2*	*23.8*	*34.0*	*(11.1)*	*26.5*	*20.2*
	Cotton	83.5	83.4	85.1	75.4	75.9	70.1	78.1	78.6	65.6	73.5	80.2
	Change, %		*0.1*	*(1.9)*	*10.8*	*10.0*	*19.1*	*7.0*	*6.2*	*27.4*	*13.6*	*4.2*
	Sugar	12.7	12.8	12.9	13.6	13.7	14.6	18.2	15.2	18.2	15.8	13.6
	Change, %		*(0.2)*	*(1.2)*	*(6.5)*	*(6.7)*	*(12.4)*	*(30.1)*	*(16.0)*	*(29.8)*	*(19.5)*	*(6.7)*
	Coffee	117.7	120.0	119.0	121.8	117.0	140.0	139.2	126.2	136.1	133.0	121.8
	Change, %		*(1.9)*	*(1.1)*	*(3.4)*	*0.6*	*(16.0)*	*(15.5)*	*(6.8)*	*(13.5)*	*(11.5)*	*(3.4)*
Energy	**WTI**	61.2	61.0	60.1	61.3	57.3	49.9	48.9	60.4	43.4	51.0	62.6
	Change, %		*0.4*	*1.8*	*(0.2)*	*6.8*	*22.6*	*25.2*	*1.3*	*41.0*	*20.1*	*(2.3)*
	Brent	65.1	64.9	63.6	64.3	63.2	55.6	51.8	66.9	45.1	54.9	66.9
	Change, %		*0.2*	*2.3*	*1.1*	*2.9*	*17.0*	*25.6*	*(2.7)*	*44.3*	*18.6*	*(2.8)*
	Natural Gas	2.7	2.7	2.8	2.6	2.6	3.0	3.0	3.0	2.6	3.0	2.9
	Change, %		*(1.7)*	*(2.6)*	*4.0*	*2.8*	*(11.2)*	*(10.0)*	*(9.1)*	*5.2*	*(11.2)*	*(6.8)*
	Ethanol	1.5	1.5	1.5	1.5	1.3	1.5	1.5	1.3	1.5	1.5	1.4
	Change, %		*(0.9)*	*0.1*	*1.9*	*20.0*	*(2.0)*	*(1.4)*	*14.7*	*(0.0)*	*1.1*	*6.8*
	RBOB Gasoline	192.1	192.4	186.8	173.6	165.5	166.2	158.3	179.9	140.0	162.9	183.7
	Change, %		*(0.2)*	*2.9*	*10.7*	*16.1*	*15.6*	*21.3*	*6.8*	*37.3*	*18.0*	*4.6*
	Coal	97.9	97.7	100.0	104.2	100.0	99.2	81.7	100.8	65.5	88.2	104.0
	Change, %		*0.2*	*(2.1)*	*(6.0)*	*(2.2)*	*(1.4)*	*19.8*	*(2.9)*	*49.5*	*10.9*	*(5.9)*
Metal	**Gold**	1,316.3	1,324.7	1,322.0	1,353.7	1,255.5	1,320.2	1,219.7	1,302.6	1,248.5	1,258.6	1,329.8
	Change, %		*(0.6)*	*(0.4)*	*(2.8)*	*4.8*	*(0.3)*	*7.9*	*1.1*	*5.4*	*4.6*	*(1.0)*
	Silver	16.4	16.5	16.5	16.9	16.1	17.6	17.3	16.9	17.1	17.1	16.8
	Change, %		*(0.9)*	*(0.6)*	*(2.7)*	*2.1*	*(6.7)*	*(5.4)*	*(3.2)*	*(4.1)*	*(3.9)*	*(2.5)*
	Copper	6,920.0	6,988.5	6,833.0	7,182.0	6,886.0	6,507.0	5,864.0	7,247.0	4,872.0	6,199.4	7,045.1
	Change, %		*(1.0)*	*1.3*	*(3.6)*	*0.5*	*6.3*	*18.0*	*(4.5)*	*42.0*	*11.6*	*(1.8)*
	Nickel	884.5	894.1	858.8	900.9	739.1	710.6	671.5	809.1	646.4	680.2	853.9
	Change, %		*(1.1)*	*3.0*	*(1.8)*	*19.7*	*24.5*	*31.7*	*9.3*	*36.8*	*30.0*	*3.6*
	Zinc	3,235.0	3,226.5	3,230.0	3,570.0	3,205.0	3,031.0	2,808.0	3,319.0	2,097.5	2,888.5	3,414.7
	Change, %		*0.3*	*0.2*	*(9.4)*	*0.9*	*6.7*	*15.2*	*(2.5)*	*54.2*	*12.0*	*(5.3)*
	Lead	2,414.8	2,408.8	2,338.5	2,630.3	2,545.5	2,332.3	2,243.0	2,482.8	1,868.3	2,315.7	2,544.3
	Change, %		*0.2*	*3.3*	*(8.2)*	*(5.1)*	*3.5*	*7.7*	*(2.7)*	*29.2*	*4.3*	*(5.1)*
	Aluminum	13,795.0	13,765.0	14,035.0	14,215.0	14,165.0	16,225.0	13,540.0	15,020.0	12,373.5	14,556.6	14,405.2
	Change, %		*0.2*	*(1.7)*	*(3.0)*	*(2.6)*	*(15.0)*	*1.9*	*(8.2)*	*11.5*	*(5.2)*	*(4.2)*
	Cobalt	87,125.0	85,500.0	84,020.0	81,511.5	72,205.0	61,850.0	53,250.0	75,205.0	25,480.1	55,906.9	79,824.3
	Change, %		*1.9*	*3.7*	*6.9*	*20.7*	*40.9*	*63.6*	*15.9*	*241.9*	*55.8*	*9.1*
	HR Coil	817.0	817.0	820.0	745.0	640.0	624.0	625.0	662.0	519.3	620.1	731.4
	Change, %		*0.0*	*(0.4)*	*9.7*	*27.7*	*30.9*	*30.7*	*23.4*	*57.3*	*31.8*	*11.7*
	Scrap	427.0	425.0	385.0	380.0	360.0	360.0	335.0	367.0	275.7	344.7	381.6
	Change, %		*0.5*	*10.9*	*12.4*	*18.6*	*18.6*	*27.5*	*16.3*	*54.9*	*23.9*	*11.9*

자료: Bloomberg

참고) NYMEX, ICE, LME 중 대표지수를 사용

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Refining Price Data

Daily Price		03/15	1D	1W	1M	3M	6M	12M	YTD	2015avg.	2016avg.	2017acc.
Crude Oil	**WTI**	61.2	61.0	60.1	59.2	57.0	49.9	48.8	53.7	43.4	50.9	62.6
	Change, %		*0.4*	*1.8*	*3.4*	*7.3*	*22.6*	*25.5*	*13.9*	*41.1*	*20.2*	*(2.3)*
	Dubai	61.5	61.2	60.8	59.8	60.2	53.6	50.6	53.8	41.3	53.1	63.8
	Change, %		*0.4*	*1.1*	*2.7*	*2.0*	*14.7*	*21.3*	*14.2*	*48.8*	*15.7*	*(3.7)*
Crude Oil Product	**Gasoline(휘발유)**	75.4	74.8	75.0	73.7	74.4	70.9	63.1	69.8	56.3	68.0	77.3
	Change, %		*0.8*	*0.5*	*2.3*	*1.3*	*6.3*	*19.4*	*7.9*	*34.0*	*10.8*	*(2.5)*
	Kerosene(등유)	76.3	76.7	77.8	76.2	74.0	67.6	61.1	66.4	52.9	65.2	80.0
	Change, %		*(0.5)*	*(1.8)*	*0.1*	*3.1*	*12.9*	*24.9*	*14.9*	*44.3*	*17.0*	*(4.5)*
	Diesel(경유)	76.5	76.9	75.8	74.0	74.2	68.5	62.3	65.5	52.1	65.6	78.5
	Change, %		*(0.6)*	*0.9*	*3.3*	*3.1*	*11.6*	*22.7*	*16.7*	*46.7*	*16.5*	*(2.6)*
	Bunker-C	56.2	56.2	55.7	55.4	55.2	51.4	46.0	52.1	35.5	49.7	57.6
	Change, %		*0.0*	*1.0*	*1.5*	*1.8*	*9.4*	*22.3*	*8.0*	*58.3*	*13.2*	*(2.4)*
	Naphtha	62.1	61.4	61.3	58.4	64.2	54.2	50.5	53.5	42.6	53.7	63.3
	Change, %		*1.1*	*1.3*	*6.3*	*(3.3)*	*14.6*	*23.0*	*16.1*	*45.7*	*15.5*	*(1.9)*
Dubai Spread	**Gasoline(휘발유)**	13.9	13.6	14.2	13.9	14.1	17.3	12.5	16.0	14.9	14.9	13.5
	Change		*0.4*	*(0.3)*	*0.1*	*(0.2)*	*(3.4)*	*1.4*	*(2.1)*	*(1.0)*	*(1.0)*	*0.4*
	Kerosene(등유)	14.9	15.5	17.0	16.4	13.8	14.0	10.5	12.6	11.6	12.1	16.1
	Change		*(0.6)*	*(2.1)*	*(1.5)*	*1.1*	*0.9*	*4.4*	*2.3*	*3.3*	*2.7*	*(1.2)*
	Diesel(경유)	15.0	15.7	15.0	14.2	13.9	14.9	11.7	11.7	10.8	12.5	14.6
	Change		*(0.7)*	*0.0*	*0.8*	*1.1*	*0.1*	*3.3*	*3.3*	*4.2*	*2.5*	*0.4*
	Bunker-C	(5.2)	(5.0)	(5.1)	(4.4)	(5.0)	(2.2)	(4.7)	(1.8)	(5.8)	(3.4)	(6.3)
	Change		*(0.2)*	*(0.1)*	*(0.8)*	*(0.2)*	*(3.1)*	*(0.6)*	*(3.5)*	*0.6*	*(1.8)*	*1.0*
	Naphtha	0.6	0.2	0.5	(1.5)	4.0	0.6	(0.2)	(0.4)	1.3	0.6	(0.6)
	Change		*0.4*	*0.1*	*2.1*	*(3.4)*	*0.0*	*0.8*	*1.0*	*(0.7)*	*(0.0)*	*1.2*
Refining Margin	**Simple(단순)**	2.9	3.1	3.2	3.1	2.8	4.8	1.9	3.8	1.9	3.2	2.3
	Change		*(0.3)*	*(0.3)*	*(0.2)*	*0.0*	*(1.9)*	*0.9*	*(0.9)*	*0.9*	*(0.3)*	*0.6*
	Complex(복합)	8.3	8.5	8.5	8.1	8.2	9.9	6.6	8.3	7.0	8.0	7.7
	Change		*(0.2)*	*(0.2)*	*0.2*	*0.1*	*(1.6)*	*1.7*	*0.0*	*1.3*	*0.3*	*0.6*
	Complex(lagging)	9.5	8.6	4.2	1.4	6.8	13.1	2.5	18.0	8.5	8.9	7.8
	Change		*0.9*	*5.3*	*8.1*	*2.6*	*(3.7)*	*6.9*	*(8.5)*	*1.0*	*0.5*	*1.7*

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			03/15	03/14	03/13	03/12	03/09	03/08	03/07	03/06	03/05	03/02
Spot Price	**Naphtha**	CFR Japan	570.0	566.0	558.0	564.5	553.5	562.8	565.3	568.8	571.3	560.3
	Ethylene	CFR SE Asia	1,250.0	1,250.0	1,250.0	1,230.0	1,230.0	1,230.0	1,230.0	1,200.0	1,170.0	1,170.0
	Propylene	FOB Korea	1,010.0	1,010.0	1,015.0	1,015.0	1,025.0	1,030.0	1,030.0	1,030.0	1,025.0	1,025.0
	Butadiene	FOB Korea	1,430.0	1,430.0	1,430.0	1,390.0	1,390.0	1,390.0	1,390.0	1,390.0	1,390.0	1,390.0
	HDPE	CFR FE Asia	1,340.0	1,340.0	1,340.0	1,340.0	1,340.0	1,340.0	1,345.0	1,345.0	1,350.0	1,350.0
	LDPE	CFR FE Asia	1,225.0	1,225.0	1,225.0	1,225.0	1,230.0	1,230.0	1,230.0	1,240.0	1,240.0	1,240.0
	LLDPE	CFR FE Asia	1,205.0	1,205.0	1,205.0	1,205.0	1,210.0	1,210.0	1,210.0	1,210.0	1,210.0	1,210.0
	MEG	CFR China	880.0	917.0	910.0	895.0	895.0	935.0	951.0	983.0	983.0	995.0
	PP	CFR FE Asia	1,200.0	1,200.0	1,225.0	1,225.0	1,225.0	1,230.0	1,230.0	1,230.0	1,220.0	1,210.0
	PX	CFR China	932.0	932.5	935.5	935.3	934.3	942.0	944.3	955.3	952.3	949.0
	PTA	CFR China	775.0	775.0	780.0	785.0	785.0	793.0	793.0	795.0	790.0	790.0
	Benzene	FOB Korea	842.7	861.7	864.0	875.0	859.0	857.7	875.0	887.7	877.0	876.0
	Toluene	FOB Korea	677.0	677.0	682.0	686.0	685.0	685.0	695.0	703.0	703.0	709.0
	Xylene	FOB Korea	746.0	749.0	745.0	745.0	748.0	749.0	762.0	765.0	775.0	781.0
	SM	FOB Korea	1,284.0	1,326.0	1,326.0	1,326.0	1,326.0	1,311.0	1,336.0	1,371.0	1,374.0	1,394.0

Weekly Price			Last Week	1W	1M	3M	6M	12M	YTD	2016avg.	2017avg.	2018acc.
Spot Price	**Naphtha**	CFR Japan	553.0	558.0	550.5	590.5	600.0	464.0	484.5	399.5	493.5	580.1
	Change, %			*(0.9)*	*0.5*	*(6.4)*	*(7.8)*	*19.2*	*14.1*	*38.4*	*12.1*	*(4.7)*
	Ethylene	CFR SE Asia	1,220.0	1,187.5	1,210.0	1,212.5	1,180.0	1,145.0	990.0	1,040.9	1,090.9	1,238.8
	Change, %			*2.7*	*0.8*	*0.6*	*3.4*	*6.6*	*23.2*	*17.2*	*11.8*	*(1.5)*
	Propylene	CFR SE Asia	995.0	985.0	1,025.0	850.0	800.0	915.0	815.0	705.7	823.6	1,058.5
	Change, %			*1.0*	*(2.9)*	*17.1*	*24.4*	*8.7*	*22.1*	*41.0*	*20.8*	*(6.0)*
	Butadiene	CFR SE Asia	1,390.0	1,375.0	1,350.0	1,075.0	925.0	2,250.0	2,100.0	1,116.8	1,481.1	1,306.0
	Change, %			*1.1*	*3.0*	*29.3*	*50.3*	*(38.2)*	*(33.8)*	*24.5*	*(6.1)*	*6.4*
	Benzene	CFR SE Asia	882.5	905.0	910.0	905.0	865.0	907.5	822.5	646.7	838.8	918.3
	Change, %			*(2.5)*	*(3.0)*	*(2.5)*	*2.0*	*(2.8)*	*7.3*	*36.5*	*5.2*	*(3.9)*
	Toluene	CFR SE Asia	720.0	750.0	760.0	720.0	717.5	710.0	690.0	630.5	689.5	749.5
	Change, %			*(4.0)*	*(5.3)*	*0.0*	*0.3*	*1.4*	*4.3*	*14.2*	*4.4*	*(3.9)*
	Xylene	CFR SE Asia	765.0	762.5	760.0	695.0	672.5	730.0	675.0	627.7	668.8	753.5
	Change, %			*0.3*	*0.7*	*10.1*	*13.8*	*4.8*	*13.3*	*21.9*	*14.4*	*1.5*
Spread	**Ethylene**	-Naphtha	667.0	629.5	659.5	622.0	580.0	681.0	505.5	641.4	597.4	658.7
	Change, %			*6.0*	*1.1*	*7.2*	*15.0*	*(2.1)*	*31.9*	*4.0*	*11.6*	*1.3*
	Propylene	-Naphtha	442.0	427.0	474.5	259.5	200.0	451.0	330.5	306.2	330.1	478.5
	Change, %			*3.5*	*(6.8)*	*70.3*	*121.0*	*(2.0)*	*33.7*	*44.4*	*33.9*	*(7.6)*
	Butadiene	-Naphtha	837.0	817.0	799.5	484.5	325.0	1,786.0	1,615.5	717.3	987.6	726.0
	Change, %			*2.4*	*4.7*	*72.8*	*157.5*	*(53.1)*	*(48.2)*	*16.7*	*(15.2)*	*15.3*
	Benzene	-Naphtha	329.5	347.0	359.5	314.5	265.0	443.5	338.0	247.2	345.3	338.2
	Change, %			*(5.0)*	*(8.3)*	*4.8*	*24.3*	*(25.7)*	*(2.5)*	*33.3*	*(4.6)*	*(2.6)*
	Toluene	-Naphtha	167.0	192.0	209.5	129.5	117.5	246.0	205.5	231.0	196.0	169.5
	Change, %			*(13.0)*	*(20.3)*	*29.0*	*42.1*	*(32.1)*	*(18.7)*	*(27.7)*	*(14.8)*	*(1.4)*
	Xylene	-Naphtha	212.0	204.5	209.5	104.5	72.5	266.0	190.5	228.2	175.3	173.5
	Change, %			*3.7*	*1.2*	*102.9*	*192.4*	*(20.3)*	*11.3*	*(7.1)*	*20.9*	*22.2*

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	1,297.5	1,297.5	1,282.5	1,207.5	1,197.5	1,147.5	1,142.5	1,134.6	1,142.5	1,255.3
	Change, %			*0.0*	*1.2*	*7.5*	*8.4*	*13.1*	*13.6*	*14.4*	*13.6*	*3.4*
	MEG	CFR SE Asia	897.5	1,025.0	1,027.5	915.0	912.5	797.5	847.5	660.8	850.6	1,006.3
	Change, %			*(12.4)*	*(12.7)*	*(1.9)*	*(1.6)*	*12.5*	*5.9*	*35.8*	*5.5*	*(10.8)*
	PVC	CFR SE Asia	980.0	980.0	970.0	855.0	890.0	940.0	920.0	823.4	899.9	945.0
	Change, %			*0.0*	*1.0*	*14.6*	*10.1*	*4.3*	*6.5*	*19.0*	*8.9*	*3.7*
	PP	CFR SE Asia	1,307.5	1,307.5	1,277.5	1,157.5	1,147.5	1,127.5	1,032.5	978.4	1,099.6	1,253.4
	Change, %			*0.0*	*2.3*	*13.0*	*13.9*	*16.0*	*26.6*	*33.6*	*18.9*	*4.3*
	2-EH	CFR Korea	1,125.0	1,125.0	1,100.0	1,020.0	980.0	1,025.0	865.0	772.4	970.0	1,078.0
	Change, %			*0.0*	*2.3*	*10.3*	*14.8*	*9.8*	*30.1*	*45.7*	*16.0*	*4.4*
	ABS	CFR SE Asia	2,070.0	2,120.0	2,060.0	2,030.0	1,920.0	1,880.0	1,635.0	1,347.1	1,844.7	2,052.0
	Change, %			*(2.4)*	*0.5*	*2.0*	*7.8*	*10.1*	*26.6*	*53.7*	*12.2*	*0.9*
	SBR	CFR SE Asia	1,750.0	1,750.0	1,755.0	1,650.0	1,670.0	2,750.0	2,000.0	1,483.0	1,980.5	1,727.0
	Change, %			*0.0*	*(0.3)*	*6.1*	*4.8*	*(36.4)*	*(12.5)*	*18.0*	*(11.6)*	*1.3*
	SM	CFR SE Asia	1,397.5	1,452.5	1,422.5	1,352.5	1,262.5	1,345.0	1,205.0	1,064.6	1,253.8	1,410.8
	Change, %			*(3.8)*	*(1.8)*	*3.3*	*10.7*	*3.9*	*16.0*	*31.3*	*11.5*	*(0.9)*
	Caustic	FOB NEA	590.0	590.0	549.0	699.5	674.0	439.0	422.5	316.6	491.2	577.2
	Change, %			*0.0*	*7.5*	*(15.7)*	*(12.5)*	*34.4*	*39.6*	*86.4*	*20.1*	*2.2*
	PX	CFR SE Asia	945.0	957.5	942.5	895.0	892.5	855.0	855.0	790.4	844.4	954.8
	Change, %			*(1.3)*	*0.3*	*5.6*	*5.9*	*10.5*	*10.5*	*19.6*	*11.9*	*(1.0)*
	PO	CFR China	1,962.5	1,962.5	1,892.5	1,765.0	1,777.5	1,392.5	1,562.5	1,396.8	1,601.2	1,948.3
	Change, %			*0.0*	*3.7*	*11.2*	*10.4*	*40.9*	*25.6*	*40.5*	*22.6*	*0.7*
	Caprolactam	CFR SE Asia	2,150.0	2,130.0	2,070.0	2,050.0	2,090.0	2,320.0	1,850.0	1,344.9	1,936.4	2,063.0
	Change, %			*0.9*	*3.9*	*4.9*	*2.9*	*(7.3)*	*16.2*	*59.9*	*11.0*	*4.2*
	PTA	CFR SE Asia	810.0	790.0	782.5	725.0	700.0	667.5	642.5	613.7	667.8	771.0
	Change, %			*2.5*	*3.5*	*11.7*	*15.7*	*21.3*	*26.1*	*32.0*	*21.3*	*5.1*
Spread	**HDPE**		744.5	739.5	732.0	617.0	597.5	683.5	658.0	735.1	649.0	675.2
	Change, %			*0.7*	*1.7*	*20.7*	*24.6*	*8.9*	*13.1*	*1.3*	*14.7*	*10.3*
	MEG		344.5	467.0	477.0	324.5	312.5	333.5	363.0	261.3	357.1	426.2
	Change, %			*(26.2)*	*(27.8)*	*6.2*	*10.2*	*3.3*	*(5.1)*	*31.9*	*(3.5)*	*(19.2)*
	PVC		427.0	422.0	419.5	264.5	290.0	476.0	435.5	423.9	406.4	365.0
	Change, %			*1.2*	*1.8*	*61.4*	*47.2*	*(10.3)*	*(2.0)*	*0.7*	*5.1*	*17.0*
	PP		754.5	749.5	727.0	567.0	547.5	663.5	548.0	578.9	606.1	673.3
	Change, %			*0.7*	*3.8*	*33.1*	*37.8*	*13.7*	*37.7*	*30.3*	*24.5*	*12.1*
	2-EH		572.0	567.0	549.5	429.5	380.0	561.0	380.5	372.9	476.5	498.0
	Change, %			*0.9*	*4.1*	*33.2*	*50.5*	*2.0*	*50.3*	*53.4*	*20.0*	*14.9*
	ABS		1,517.0	1,562.0	1,509.5	1,439.5	1,320.0	1,416.0	1,150.5	947.6	1,351.2	1,472.0
	Change, %			*(2.9)*	*0.5*	*5.4*	*14.9*	*7.1*	*31.9*	*60.1*	*12.3*	*3.1*
	SBR	BD spread	360.0	375.0	405.0	575.0	745.0	500.0	(100.0)	366.2	499.4	421.0
	Change, %			*(4.0)*	*(11.1)*	*(37.4)*	*(51.7)*	*(28.0)*	*(460.0)*	*(1.7)*	*(27.9)*	*(14.5)*
	SM		844.5	894.5	872.0	762.0	662.5	881.0	720.5	665.1	760.3	830.7
	Change, %			*(5.6)*	*(3.2)*	*10.8*	*27.5*	*(4.1)*	*17.2*	*27.0*	*11.1*	*1.7*
	Caustic											
	Change, %											
	PX		392.0	399.5	392.0	304.5	292.5	391.0	370.5	390.9	351.0	374.7
	Change, %			*(1.9)*	*0.0*	*28.7*	*34.0*	*0.3*	*5.8*	*0.3*	*11.7*	*4.6*
	PO	propylene sprea	967.5	977.5	867.5	915.0	977.5	477.5	747.5	691.1	777.6	889.8
	Change, %			*(1.0)*	*11.5*	*5.7*	*(1.0)*	*102.6*	*29.4*	*40.0*	*24.4*	*8.7*
	Caprolactam	benzene spread	1,267.5	1,225.0	1,160.0	1,145.0	1,225.0	1,412.5	1,027.5	698.2	1,097.6	1,144.8
	Change, %			*3.5*	*9.3*	*10.7*	*3.5*	*(10.3)*	*23.4*	*81.5*	*15.5*	*10.7*
	PTA	px spread	148.5	119.8	122.8	98.5	75.3	69.0	44.0	60.4	76.7	102.7
	Change, %			*24.0*	*21.0*	*50.8*	*97.3*	*115.2*	*237.5*	*145.8*	*93.6*	*44.6*

자료 : Cischem, Platts, SK증권

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Global peers

	Currency	03/15	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	67.9	(1.6)	(3.8)	(5.5)	(3.0)	(2.8)	5.3	(4.7)	168,245	17.7	14.9	1.8	1.7	10.2	9.2
Eastman	USD	107.0	(0.5)	1.0	6.9	18.6	25.9	36.0	15.5	13,550	11.6	10.7	2.5	2.2	8.7	8.1
BASF	EUR	84.1	0.9	(1.1)	(2.9)	(10.3)	(2.5)	(6.3)	(8.3)	101,214	14.6	13.6	2.4	2.2	7.8	7.4
Akzo Nobel	EUR	80.6	0.4	(0.2)	3.1	8.4	3.4	6.3	10.4	22,073	17.0	15.8	3.0	2.8	9.3	8.8
Arkema	EUR	108.5	0.9	0.5	7.7	4.4	12.0	20.8	6.8	9,270	13.2	12.2	1.7	1.6	6.3	6.0
Lanxess	EUR	64.3	(4.4)	(6.8)	(5.2)	(0.6)	0.4	(2.5)	(3.0)	7,282	15.5	13.1	2.1	1.9	9.3	8.2
Sumitomo Chemical	JPY	619	(0.6)	1.8	(4.0)	(20.2)	(10.3)	(5.6)	(23.6)	11,911	10.1	10.5	1.3	1.2	7.4	8.0
Mitsubishi Chemical	JPY	1,047	(0.8)	1.9	(0.1)	(13.3)	(1.6)	20.4	(15.4)	16,544	9.2	8.7	1.3	1.2	6.3	6.1
Shin-Etsu Chemical	JPY	11,270	(0.3)	4.1	1.0	(1.1)	12.9	16.8	(1.6)	43,948	18.5	16.6	1.9	1.8	8.1	7.4
Asahi Kasei	JPY	1,412	0.4	7.7	8.5	(2.3)	2.6	29.7	(2.9)	18,109	14.4	13.6	1.5	1.4	7.4	7.0
JSR	JPY	2,488	(0.5)	(0.7)	7.9	12.8	17.2	29.4	12.2	4,455	14.5	13.4	1.2	1.1	7.7	7.2
Nitto Denko	JPY	8,620	0.2	0.2	5.6	(14.8)	(8.3)	(2.9)	(13.9)	15,450	15.7	14.6	2.1	1.9	7.3	7.0
SABIC	SAR	110.2	0.2	1.9	4.7	9.2	8.8	15.5	8.6	80,773	14.2	13.7	1.7	1.7	7.3	7.1
Yansab	SAR	70.5	(0.5)	3.2	8.6	21.7	23.6	25.7	19.4	8,861	13.7	13.9	2.2	1.9	9.0	8.9
Formosa Plastics	TWD	102.0	0.0	0.5	1.0	9.3	6.9	14.1	3.3	21,114	14.4	13.9	1.8	1.8	18.9	19.2
Formosa Fiber	TWD	107.0	(0.5)	1.4	1.4	12.2	14.2	15.9	3.9	20,511	13.7	13.4	1.7	1.7	11.6	11.5
Nan Ya Plastics	TWD	80.3	(0.2)	1.6	5.4	7.5	6.1	14.9	3.1	20,648	14.8	15.3	1.7	1.7	16.2	16.4
Sinopec Shanghai	CNY	5.98	(0.2)	1.2	3.3	(4.5)	(5.2)	(7.4)	(5.5)	9,462	12.0	12.6	2.2	2.0	6.8	7.3
Sinopec Yizheng(Fibe	CNY	2.30	(0.4)	(0.4)	1.3	(15.8)	(28.1)	(39.9)	(13.9)	5,394	50.4	66.3	5.3	5.0	13.9	10.3
Reliance	INR	912	(1.9)	0.0	(2.5)	(0.9)	8.3	39.7	0.2	93,404	14.4	12.9	1.7	1.5	9.4	8.7
Industries Qatar	QAR	104.9	(1.0)	11.6	(0.2)	10.4	17.9	(7.2)	8.1	16,144	14.5	13.9	1.6	1.5	46.4	27.2
PTT Chemical	THB	98.3	2.9	5.6	6.2	17.7	26.0	34.6	15.6	11,766	10.7	10.4	1.4	1.3	5.5	5.4
Petronas	MYR	8.2	0.6	2.4	0.6	9.4	11.2	12.0	5.8	15,624	16.1	15.5	2.0	1.9	9.2	8.9
LG화학	KRW	419,000	1.8	8.3	12.5	6.3	4.5	51.8	3.5	27,313	13.8	12.8	1.8	1.6	6.5	6.1
롯데케미칼	KRW	440,000	(0.6)	1.4	1.0	20.9	13.5	20.7	19.6	11,632	5.5	5.2	0.9	0.8	3.6	3.3
한화케미칼	KRW	30,600	(1.3)	(1.4)	(5.1)	2.2	(18.1)	27.0	(3.2)	5,050	5.7	5.5	0.8	0.7	6.7	6.5
금호석유	KRW	95,000	1.8	3.8	4.3	1.7	23.2	26.0	(4.5)	2,969	14.1	11.9	1.6	1.5	9.3	8.4
SKC	KRW	40,300	0.1	2.9	10.7	(10.1)	(2.3)	33.7	(14.3)	1,643	9.9	8.7	1.1	1.0	8.8	7.9
국도화학	KRW	61,600	1.1	4.1	12.0	(7.4)	19.4	27.9	(2.4)	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	9,420	(2.0)	4.2	4.0	17.8	33.6	19.8	24.3	4,595	8.2	7.3	1.1	1.0	7.2	6.8
Average			**(0.2)**	**1.9**	**3.1**	**2.9**	**7.1**	**15.7**	**1.4**							
Refinery																
Valero	USD	92.3	(0.4)	(1.1)	(0.7)	4.7	29.8	34.3	0.5	40,608	14.1	13.4	2.0	2.0	6.9	6.9
Conoco Phillips	USD	54.0	0.1	0.9	(0.9)	3.6	16.2	17.9	(1.6)	66,136	34.0	25.9	2.2	2.2	7.2	6.7
Formosa Petrochemic	TWD	117.0	(0.4)	2.2	4.9	4.5	10.4	11.4	1.3	37,040	18.2	18.7	3.2	3.2	11.7	12.1
Andeavor	USD	97.2	(2.2)	(3.2)	(1.8)	(12.8)	(5.1)	13.8	(15.0)	17,904	12.9	11.4	1.8	1.7	7.3	7.1
Marathon Petroleum	USD	68.6	(1.1)	(0.6)	1.2	4.4	29.6	33.1	4.0	32,812	15.0	12.8	2.6	2.7	7.7	7.5
Devon Energy	USD	31.7	(2.8)	(2.1)	(8.7)	(15.8)	(5.8)	(22.9)	(23.4)	22,192	17.5	14.0	2.7	2.3	8.4	7.4
Hollyfrontier	USD	45.6	(1.5)	0.7	(2.6)	(4.7)	40.8	61.0	(11.0)	9,094	16.8	15.2	1.8	1.8	8.0	8.0
Phillips 66	USD	94.5	0.3	(0.8)	1.8	(5.5)	7.7	17.9	(6.6)	51,561	15.6	14.5	2.3	2.2	9.0	8.8
Murphy Oil	USD	25.3	(1.7)	2.2	(6.8)	(9.6)	(0.7)	(6.9)	(18.6)	5,548	162.4	113.2	1.2	1.1	4.9	4.5
JX Holdings	JPY	630.2	(0.4)	(2.2)	(2.6)	(8.1)	14.9	15.0	(13.3)	22,130	8.8	8.0	0.9	0.9	7.0	6.6
Idemitsu	JPY	3,950.0	(3.7)	(4.0)	2.7	(8.9)	38.7	1.8	(12.7)	8,360	7.9	7.5	1.0	0.9	6.8	6.8
Nesteoil	EUR	57.8	(0.7)	(4.3)	(0.3)	11.9	60.7	69.9	8.4	16,473	16.7	16.7	2.9	2.7	10.2	10.3
Ashland	USD	72.2	1.5	0.2	(1.3)	2.4	12.8	19.4	1.4	4,550	21.6	18.7	1.3	1.3	10.2	9.6
Fuchs Petrolub	EUR	47.7	0.1	0.0	6.0	9.9	(1.8)	10.1	7.8	7,127	22.1	20.9	4.1	3.7	13.0	12.3
SK이노베이션	KRW	210,000	0.0	3.7	10.2	3.2	11.1	30.4	2.7	17,975	7.9	7.7	0.9	0.9	4.9	4.8
S-Oil	KRW	120,500	(2.0)	(0.4)	6.6	(2.4)	3.4	28.6	3.0	12,400	9.3	8.1	1.8	1.6	7.6	6.6
GS	KRW	63,800	(0.3)	(1.8)	1.4	3.4	(4.9)	16.4	2.6	5,467	6.0	5.5	0.7	0.6	6.9	6.3
Average			**(0.9)**	**(0.6)**	**0.5**	**(1.2)**	**15.2**	**20.7**	**(4.2)**							

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

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Global peers

	Currency	03/15	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	74	1.1	0.4	(2.3)	(10.4)	(7.1)	(9.2)	(11.0)	315,352	15.9	15.9	1.7	1.6	7.3	7.1
BP	GBP	465	(0.0)	(2.2)	(1.1)	(8.0)	3.6	1.8	(11.1)	129,212	14.2	13.5	1.3	1.3	5.1	4.9
Shell	EUR	2,193	(0.8)	(3.2)	(2.8)	(9.7)	4.3	4.6	(11.6)	256,933	12.9	11.9	1.3	1.3	5.7	5.4
Chevron	USD	116	0.4	2.0	2.7	(3.5)	0.8	6.2	(7.7)	220,787	18.6	18.4	1.5	1.5	6.6	6.4
Total	EUR	47	(0.3)	1.0	3.8	0.8	4.4	(0.2)	1.9	152,357	12.1	11.8	1.3	1.2	5.4	5.1
Sinopec	CNY	6	0.0	(0.5)	1.7	8.3	8.4	14.8	4.7	118,034	12.0	11.3	1.0	1.0	4.4	4.3
Petrochina	CNY	8	(0.5)	(1.0)	(0.9)	1.0	(0.4)	(0.5)	(1.7)	217,951	31.1	17.7	1.2	1.1	6.0	5.5
CNOOC	CNY	11	(1.5)	3.0	6.4	10.0	(0.6)	(13.1)	5.9	64,222	9.0	8.8	1.0	0.9	3.6	3.5
Gazprom	RUB	138	(0.4)	(0.2)	0.9	2.0	12.9	8.3	5.9	56,919	3.7	3.8	0.3	0.2	3.5	3.5
Rosneft	RUB	314	1.2	(0.3)	(3.1)	4.9	(1.7)	(0.2)	7.8	57,912	7.4	6.5	0.8	0.7	4.6	4.2
Anadarko	USD	58	(1.7)	1.5	(2.9)	21.9	33.0	(9.6)	8.0	30,836	41.0	37.7	2.4	2.3	6.3	5.7
Petrobras	BRL	21	(4.8)	(1.8)	9.8	42.5	41.7	50.1	32.4	88,495	10.3	8.4	0.9	0.8	5.4	5.0
Lukoil	USD	3,800	1.5	2.1	1.9	11.1	27.6	23.1	14.0	56,222	6.2	6.2	0.7	0.7	N/A	N/A
Kinder	USD	16	(0.7)	1.9	(5.8)	(9.0)	(15.8)	(24.7)	(9.7)	47,497	20.1	18.2	1.1	1.1	10.2	9.8
Statoil	NOK	178	(0.3)	(0.1)	2.0	5.0	16.3	20.0	1.5	76,746	15.5	14.7	1.8	1.7	3.5	3.3
BHP	AUD	29	0.8	0.1	(8.1)	4.2	9.9	19.2	(2.4)	114,793	15.6	16.5	2.0	1.9	6.1	6.2
PTT E&P	THB	116	0.4	3.1	3.1	22.8	30.7	30.7	16.0	14,769	13.3	12.6	1.2	1.1	3.8	3.6
Petronas gas	MYR	18	0.6	3.4	2.9	10.8	(3.1)	(8.9)	3.0	9,102	18.8	18.4	2.7	2.6	10.5	10.3
Chesapeake	USD	3	(0.3)	1.7	5.6	(14.0)	(24.5)	(44.6)	(23.7)	2,746	3.8	4.1	#N/A N/A	4.9	5.9	5.9
Noble Energy	USD	29	(1.2)	(4.4)	11.2	14.3	12.6	(14.8)	0.7	14,436	37.3	24.3	1.4	1.3	7.3	6.3
Average		**0**	**(0.3)**	**0.3**	**1.3**	**5.2**	**7.7**	**2.7**	**1.1**							
PV																
WACKER	EUR	129.3	(1.2)	(4.2)	(8.5)	(18.7)	15.5	27.6	(20.3)	8,318	18.4	15.7	2.0	1.9	6.5	6.2
GCL-Poly	HKD	1.2	(1.7)	0.0	(3.3)	(5.6)	15.7	13.5	(15.7)	2,798	6.5	5.7	0.7	0.6	6.4	5.9
SunPower	USD	7.0	(2.1)	(5.5)	(4.9)	(25.0)	(16.2)	(1.1)	(16.6)	984	#N/A N/A	#N/A N/A	7.8	9.7	12.4	8.1
Canadian Solar	USD	15.7	(1.3)	(4.4)	(0.8)	(9.3)	(8.9)	13.2	(6.6)	913	8.4	9.0	0.9	0.8	8.8	9.3
JA Solar	USD	7.3	(0.5)	(2.2)	(2.0)	(2.4)	(8.0)	45.2	(2.7)	345	13.7	11.5	1.6	1.6	4.0	3.6
Yingli	USD	1.7	0.6	5.5	6.2	(9.0)	(28.9)	(23.2)	1.8	31	#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	68.7	(1.1)	1.6	4.4	(0.3)	36.3	108.3	1.8	7,182	42.0	21.0	1.3	1.2	12.1	7.0
한화큐셀	USD	8.0	(0.5)	(2.4)	(0.4)	9.3	4.8	2.8	14.2	668	36.5	25.9	#N/A N/A	#N/A N/A	8.4	7.6
OCI	KRW	148,000	0.3	(5.1)	(5.7)	17.9	36.4	79.6	8.8	3,302	0.0	13.8	0.0	1.0	0.0	6.7
웅진에너지	KRW	7,250	(0.7)	3.1	(0.4)	(18.2)	(21.4)	49.9	(11.8)	201	N/A	0.0	1.0	0.0	6.7	0.0
신성솔라에너지	KRW	1,815	0.3	2.8	1.1	(13.4)	(16.7)	(4.7)	(5.2)	294	N/A	1.0	0.0	6.7	0.0	8.5
Average			**(0.7)**	**(1.0)**	**(1.3)**	**(6.8)**	**0.8**	**28.3**	**(4.8)**							
Gas Company																
Towngas China	HKD	6.4	0.3	2.9	1.3	2.9	23.2	38.3	2.4	2,270	13.2	11.9	1.1	1.1	11.4	10.5
Kulun	HKD	7.1	(1.7)	0.6	0.6	(1.4)	(4.8)	2.3	(13.0)	7,288	9.5	8.4	1.1	1.0	5.3	5.0
Beijing Enterprise	HKD	42.7	(0.6)	(0.1)	(2.1)	(0.2)	(0.1)	(0.1)	(8.0)	6,872	7.5	6.7	0.8	0.7	13.0	12.8
ENN Energy	HKD	62.2	0.8	2.2	(2.4)	15.4	21.0	40.6	11.6	8,602	13.8	11.8	2.7	2.3	8.5	7.4
China Resources Gas	HKD	25.8	(0.8)	(0.4)	(2.8)	(7.7)	(2.1)	(5.2)	(9.2)	7,303	13.6	12.2	2.4	2.1	8.0	7.4
China Gas Holdings	HKD	24.4	2.1	2.1	0.4	12.5	16.2	94.5	12.7	15,428	16.7	14.1	4.1	3.4	13.0	11.2
Shenzen Gas	HKD	15.7	1.0	0.6	0.6	14.8	9.2	37.1	5.2	4,058	10.8	10.0	1.3	1.2	7.8	7.8
Shann Xi	CNY	7.3	(0.5)	(1.3)	2.9	(12.9)	(14.2)	(23.0)	(13.0)	1,290	13.9	15.8	1.4	1.3	#N/A N/A	#N/A N/A
Suntien	HKD	2.0	2.1	2.6	5.9	1.5	3.6	33.6	(3.9)	943	5.9	5.1	0.6	0.6	8.2	7.1
China Oil & Gas	HKD	0.7	(2.8)	3.0	(4.2)	13.1	30.2	16.9	(18.8)	513	10.6	9.2	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A
Average			**(0.0)**	**1.2**	**0.0**	**3.8**	**8.2**	**23.5**	**(3.4)**							
EV																
LG화학	KRW	419,000	1.8	8.3	12.5	6.3	4.5	51.8	3.5	27,673	14.6	13.6	1.8	1.6	6.6	6.2
삼성SDI	KRW	214,500	3.9	17.9	18.8	2.6	0.0	58.3	4.9	13,800	16.4	12.3	1.2	1.1	13.8	11.1
Panasonic	JPY	1689.0	0.0	4.8	7.1	1.2	4.8	33.0	2.4	39,091	16.0	13.9	2.1	1.9	6.2	5.7
GS Yuasa	JPY	586.0	(0.5)	2.4	2.3	7.3	2.1	8.1	4.5	2,287	16.7	15.0	1.3	1.3	7.2	6.6
NEC	JPY	3240.0	(0.5)	1.6	3.5	3.3	9.5	11.7	6.6	7,962	21.9	15.3	0.9	0.9	7.0	6.2
BYD Auto	CNY	64.7	0.5	(0.3)	6.9	3.1	21.2	30.8	(0.5)	27,320	27.7	22.1	2.9	2.6	13.1	11.5
Tesla Motors	USD	325.6	(0.3)	(1.1)	(2.5)	(5.2)	(14.3)	27.3	4.6	55,000	#N/A N/A	138.0	12.0	10.8	46.5	18.4
Kandi Technologies	USD	5.2	0.0	(1.0)	(5.5)	(25.9)	10.8	27.2	(24.3)	247	#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			**0.6**	**4.1**	**5.4**	**(0.9)**	**4.8**	**31.0**	**0.2**							

* Bloomberg 기준 / valuation multiple 또한 Bloomberg consensus 기준임