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SK증권

1. News Summary (3 page)

2018년 8월 31일

News		Conclusion
WTI comment	이란산 원유 감소 전망에 상승	
Headline	러시아 가스의 중국 유입은 2019년 12월 시작될 것	올해 연말에도 중국은 LNG 숏티지 현상이 불거질 수 있다는 판단임
News 1.	가즈프롬의 TurkStream 파이프라인 거의 완공	러시아의 對 유럽 PNG 수출은 지속적으로 상승할 것으로 전망됨
News 2.	-	-
News 3.	-	-
News 4.	-	-

2. Prices Summary (4~7 page)

Daily	Unit	Price	1D	1W	1M	3M	12M
Refinery			%	%	%	%	%
WTI	$/bbl	70.3	1.1	3.6	0.2	4.8	48.7
Dubai	$/bbl	75.8	1.9	3.6	3.2	0.4	53.8
Gasoline	$/bbl	87.8	2.3	2.7	3.2	0.0	25.7
Diesel	$/bbl	91.9	1.7	3.6	6.3	2.5	43.1
Complex margin	$/bbl	7.9	0.1	(0.1)	0.3	0.7	(3.0)
1M lagging	$/bbl	10.3	1.6	0.6	3.7	(2.3)	0.5
Petrochemical			%	%	%	%	%
Naphtha	$/t	680	2.0	3.7	0.9	2.7	41.8
Butadiene	$/t	1,740	0.0	(0.6)	4.2	0.6	32.8
HDPE	$/t	1,290	0.0	0.0	(1.5)	(5.5)	10.3
MEG	$/t	952	1.3	1.7	0.1	5.8	4.8
PX	$/t	1,352	2.6	10.8	28.4	39.0	65.8
SM	$/t	1,412	0.0	0.3	2.4	(0.9)	5.5
Commodity			%	%	%	%	%
Natural Gas	$/mmbtu	2.87	0.4	(2.7)	1.8	(2.5)	(2.1)
Natural rubber	$/t	1,330	0.8	(1.5)	1.5	(5.0)	(13.1)
Cotton	C/lbs	82.4	(0.7)	0.8	(7.8)	(11.5)	15.3

*참고: 정제마진의 변동률은 %가 아닌 $/bbl임

Weekly	Update	Unit	Price	1W	1M	3M	12M
Petrochemical				%	%	%	%
Ethylene	08/27	$/t	1,255	(1.6)	1.8	6.8	5.9
Propylene	08/27	$/t	1,043	(0.5)	4.8	1.0	32.0
Benzene	08/27	$/t	888	(0.3)	4.7	3.8	11.6
Toluene	08/27	$/t	815	(0.6)	1.9	(1.2)	24.4
Xylene	08/27	$/t	860	1.8	4.6	3.0	37.1
PP	08/27	$/t	1,233	0.0	0.0	(5.0)	10.3
PVC	08/27	$/t	950	0.0	0.5	3.3	3.3
ABS	08/27	$/t	1,920	(2.0)	(1.0)	(7.7)	1.3
SBR	08/27	$/t	1,875	0.0	6.5	(0.8)	13.6
SM	08/27	$/t	1,440	(2.0)	3.2	0.0	15.9
BPA	08/27	$/t	1,905	1.9	6.9	9.6	(4.4)
Caustic	08/27	$/t	421	0.0	16.6	(24.8)	(10.6)
2-EH	08/27	$/t	1,130	0.0	3.2	(4.2)	14.1
Caprolactam	08/27	$/t	2,160	0.2	0.2	2.9	22.0
Solar				%	%	%	%
Polysilicon	08/29	$/kg	11.3	(0.3)	3.2	(23.1)	(30.5)
Module	08/29	$/W	0.25	(0.8)	(2.0)	(14.4)	(22.6)

3. Global Peers Summary (8~9 page)

	Unit	Price	1D	1W	1M	3M	12M
E&P			%	%	%	%	%
ExxonMobil	USD	80.5	(0.4)	1.8	(1.5)	(1.2)	5.8
Shell	EUR	2,547	0.4	0.4	(2.0)	(2.8)	19.8
Petrochina	CNY	8.15	(0.2)	1.1	7.4	4.4	0.2
Gazprom	RUB	146.0	(1.3)	3.2	5.1	1.9	23.5
Petrobras	BRL	18.8	(2.6)	4.7	(5.5)	(0.9)	39.8
Refinery							
Phillips66	USD	119.6	(0.7)	1.0	(2.1)	0.3	43.0
Valero	USD	119.1	(1.3)	0.8	1.5	(2.6)	74.0
JX	JPY	800.2	(0.0)	2.7	(2.0)	18.5	48.7
Neste Oil	EUR	75.0	(0.6)	1.7	6.5	9.8	103.9

	Unit	Price	1D	1W	1M	3M	12M
Petrochemical			%	%	%	%	%
BASF	EUR	80.4	(0.8)	1.7	(2.0)	(6.3)	(1.5)
DowDuPont	USD	70.2	(1.7)	3.1	3.2	8.4	8.2
SABIC	SAR	126.0	(1.1)	2.4	(2.6)	0.8	27.4
Formosa Pla.	TWD	112.0	(1.3)	(1.3)	0.4	3.2	19.1
Shin-Etsu	JPY	10,595	(0.7)	0.4	(5.3)	(1.7)	9.5
Renewable							
Wacker	EUR	126.3	(0.5)	3.8	3.7	(10.8)	18.7
First Solar	USD	52.16	(1.7)	1.1	1.1	(24.4)	8.5
GCL-Poly	HKD	0.52	(1.9)	(3.7)	(25.7)	(37.3)	(42.2)
Tesla Motors	USD	303.2	(0.6)	(5.3)	4.5	3.9	(14.2)

4. Coverage Summary

	08/30	1D	1W	1M	3M	6M	12M	투자의견	TP	%	P/E	P/B
KOSPI	2,307	(0.1)	1.1	0.5	(5.4)	(4.9)	(2.4)				* 추정치는 12M fwd 기준임	
KOSPI화학	5,624	(0.6)	1.4	(0.9)	(5.0)	(7.4)	(3.1)				* 모든 coverage 업체의 실적은 연결기준임	
LG화학	363,500	(2.8)	2.0	(3.1)	7.9	(5.1)	(1.4)	매수	400,000	10.0	14.36	1.62
롯데케미칼	316,500	(1.9)	1.8	(12.0)	(12.8)	(31.0)	(19.5)	매수	400,000	26.4	9.83	0.89
한화케미칼	20,900	(1.9)	7.2	(1.2)	(19.1)	(37.0)	(40.5)	매수	30,000	43.5	9.39	0.51
금호석유화학	100,500	0.5	0.0	(11.1)	(5.6)	10.9	27.1	매수	150,000	49.3	9.37	1.30
KCC	324,000	(3.7)	(3.1)	(4.4)	(7.6)	(10.6)	(18.1)	매수	400,000	23.5	28.09	0.50
OCI	115,500	0.0	6.5	16.9	(11.8)	(29.8)	20.7	매수	140,000	21.2	8.78	0.84
SKC	47,000	(0.7)	4.3	9.6	20.7	19.7	26.3	매수	50,000	6.4	12.82	1.11
SK이노베이션	192,000	(1.5)	(1.8)	(3.3)	(5.7)	(6.6)	4.6	매수	230,000	19.8	11.29	0.96
S-Oil	120,500	(1.2)	1.3	2.6	11.6	(2.4)	(2.0)	매수	140,000	16.2	13.75	2.01
GS	53,400	(2.6)	0.4	(0.7)	(7.6)	(19.2)	(22.7)	매수	80,000	49.8	4.95	0.60
SK가스	85,000	(0.8)	0.6	(1.3)	(14.7)	(9.8)	(25.1)	매수	130,000	52.9	8.03	0.57
포스코대우	17,900	(1.6)	(0.3)	(6.5)	(23.3)	(11.4)	(16.6)	매수	25,000	39.7	9.39	0.70
LG상사	21,600	(2.3)	(4.0)	(8.5)	(18.3)	(20.4)	(24.1)	매수	38,000	75.9	8.00	0.61
한국전력	30,550	(0.8)	(0.2)	(8.3)	(7.1)	(7.7)	(30.3)	매수	45,000	47.3	7.39	0.24
한국가스공사	52,800	(1.7)	(1.1)	(9.4)	(15.5)	15.0	16.6	매수	75,000	42.0	8.19	0.68

SK Energy Daily

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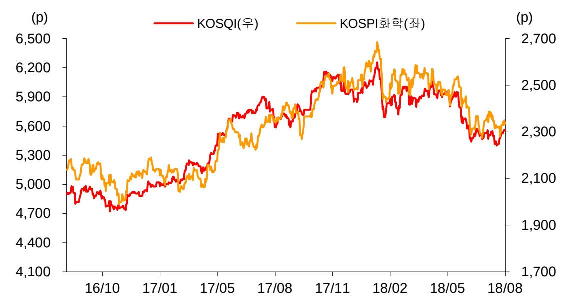
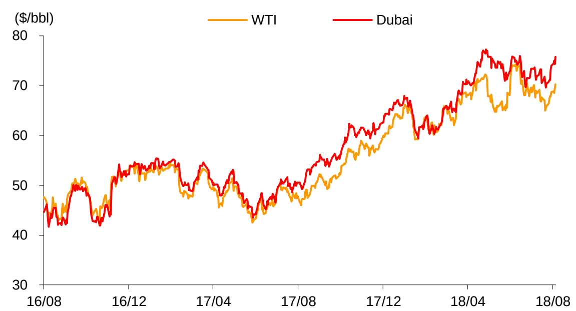
Key Chart

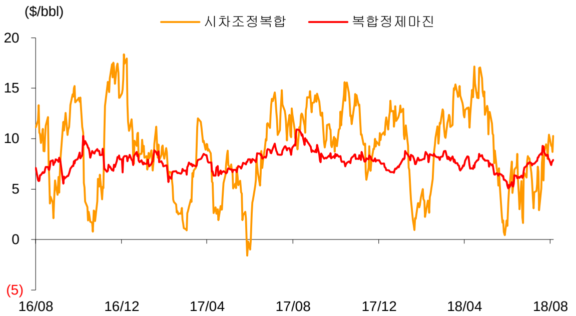
KOSPI/KOSPI화학



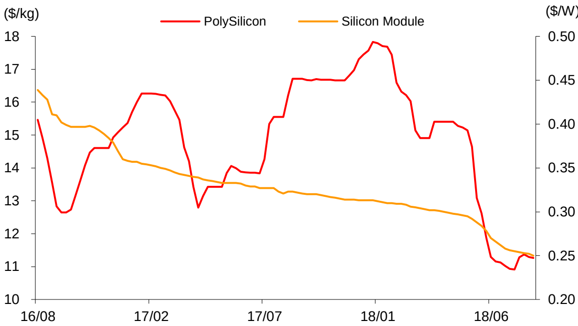
WTI/Dubai



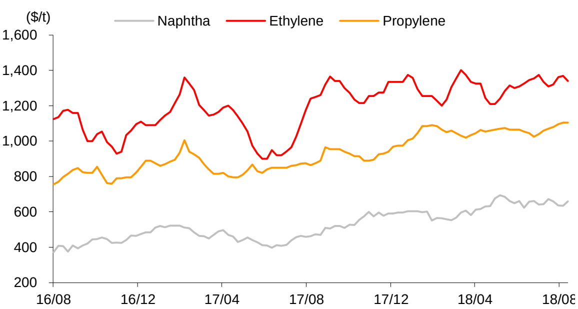
Complex & 1M lagging margin



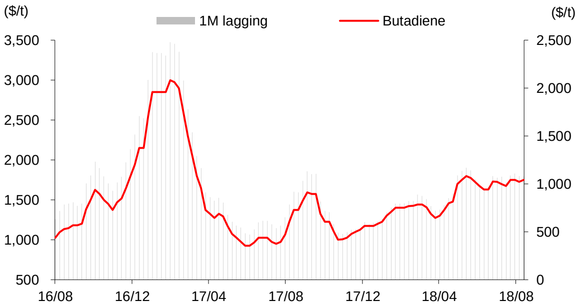
Polysilicon & Module prices



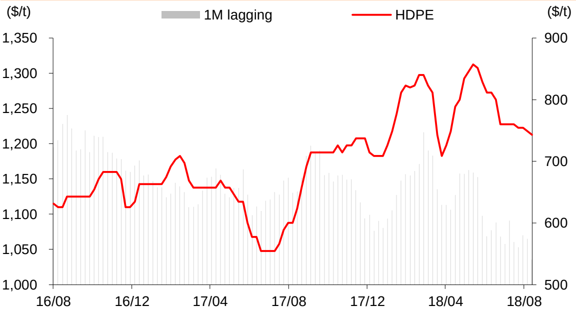
Naphtha/Ethylene/Propylene prices



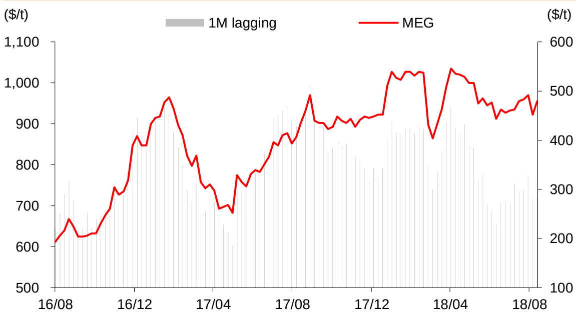
Butadiene price & 1M lagging naphtha spread



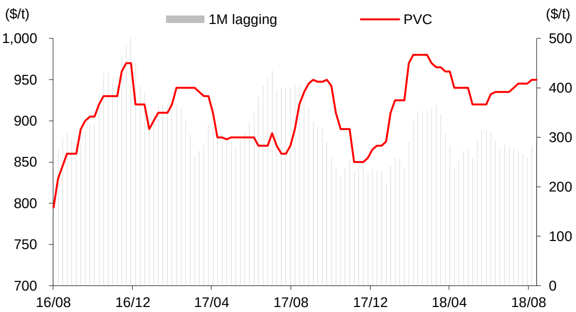
HDPE price & 1M lagging naphtha spread



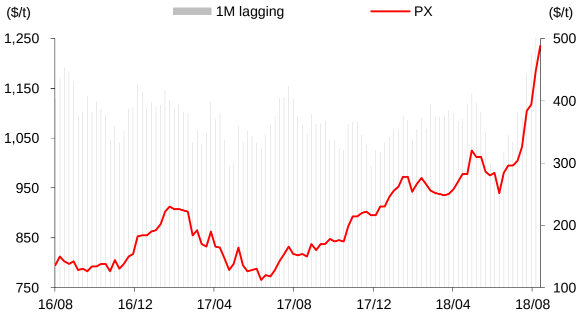
MEG price & 1M lagging naphtha spread



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: Urdu Point News)
제목	러시아 가스의 중국 유입은 2019년 12월 시작될 것
결론	올해 연말에도 중국은 LNG 숏티지 현상이 불거질 수 있다는 판단임
세부	
	1) Power of Siberia를 통한 러시아 가스의 중국 유입은 2019년 12월로 확정
	2) 가즈프롬 CEO, "2019년 12월 20일이면 중국으로 가스가 공급될 것임"
	3) 가즈프롬 CEO, "Power of Siberia 파이프라인 공사는 연말에 끝날 것임"
	4) 해당 파이프라인은 극동 러시아인 Irkutsk와 Yakutia의 가스를 나를 것임
	5) 올해 연말에도 중국은 LNG 숏티지 현상이 불거질 수 있다는 판단임

WTI Comment	(출처: 뉴스핌)
제목	이란산 원유 감소 전망에 상승
상승	미국의 대이란 제재로 원유 공급량이 감소할 것이라는 기대
요인	미국의 원유 재고 및 휘발유, 정제유 재고 감소
하락	
요인	

Issue 1	(출처: Hurriyet Daily News)
제목	가즈프롬의 TurkStream 파이프라인 거의 완공
결론	러시아의 對 유럽 PNG 수출은 지속적으로 상승할 것으로 전망됨
세부	
	1) 흑해를 거쳐 러시아 가스를 터키로 유입시키는 TurkStream이 거의 완공
	2) 가즈프롬 CEO, "1,500km(930 miles)에 달하며 80% 가량이 완공된 상태"
	3) 러시아는 YTD로 터키와 EU에 133bcm을 수출해 YoY 5.6% 증가시킴
	4) 가즈프롬은 Nord Stream 2 파이프라인도 내년 말에 완공할 예정임
	5) 러시아의 對 유럽 PNG 수출은 지속적으로 상승할 것으로 전망됨

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**	0.857	0.854	0.866	0.854	0.857	0.812	0.842	0.833	0.904	0.887	0.835
	Change, %		0.3	(1.1)	0.3	(0.0)	5.6	1.8	2.9	(5.2)	(3.3)	2.6
	USD/JPY	111.0	111.7	111.3	111.0	108.9	105.8	110.2	112.6	108.8	112.1	109.4
	Change, %		(0.6)	(0.3)	(0.1)	1.9	4.9	0.7	(1.5)	2.0	(1.0)	1.5
	USD/KRW	1,108.7	1,110.3	1,121.4	1,120.3	1,080.9	1,080.5	1,124.3	1,066.7	1,160.5	1,130.9	1,087.8
	Change, %		(0.1)	(1.1)	(1.0)	2.6	2.6	(1.4)	3.9	(4.5)	(2.0)	1.9
Agriculture	**Corn**	341.0	341.3	346.8	367.3	393.5	377.3	329.5	350.8	358.5	359.4	369.5
	Change, %		(0.1)	(1.7)	(7.1)	(13.3)	(9.6)	3.5	(2.8)	(4.9)	(5.1)	(7.7)
	Soybean	819.5	823.3	842.0	875.0	1,023.0	1,060.8	923.0	951.8	987.5	975.9	964.1
	Change, %		(0.5)	(2.7)	(6.3)	(19.9)	(22.7)	(11.2)	(13.9)	(17.0)	(16.0)	(15.0)
	Wheat	508.0	515.8	522.0	546.5	522.0	492.0	403.5	427.0	436.4	436.0	488.1
	Change, %		(1.5)	(2.7)	(7.0)	(2.7)	3.3	25.9	19.0	16.4	16.5	4.1
	Rice	10.7	10.8	10.8	12.0	11.7	12.3	12.4	11.7	10.3	11.1	12.0
	Change, %		(1.3)	(1.2)	(10.7)	(8.5)	(13.0)	(13.9)	(8.6)	3.2	(3.5)	(11.2)
	Oats	239.5	251.8	263.3	232.8	238.8	265.0	228.3	241.0	196.3	252.3	246.4
	Change, %		(4.9)	(9.0)	2.9	0.3	(9.6)	4.9	(0.6)	22.0	(5.1)	(2.8)
MYR/mt	**Palm Oil**	2,200.0	2,177.0	2,183.0	2,129.0	2,431.0	2,496.0	2,680.0	2,444.0	2,653.8	2,787.3	2,366.9
	Change, %		1.1	0.8	3.3	(9.5)	(11.9)	(17.9)	(10.0)	(17.1)	(21.1)	(7.1)
	Cocoa	2,262.0	2,336.0	2,349.0	2,239.0	2,529.0	2,320.0	1,949.0	1,892.0	2,854.0	2,005.2	2,362.8
	Change, %		(3.2)	(3.7)	1.0	(10.6)	(2.5)	16.1	19.6	(20.7)	12.8	(4.3)
	Cotton	82.4	83.0	81.7	90.0	92.5	82.7	71.5	78.6	65.6	73.5	84.2
	Change, %		(0.7)	0.8	(8.4)	(10.9)	(0.4)	15.3	4.8	25.7	12.1	(2.1)
	Sugar	10.6	10.4	10.1	10.8	12.6	13.4	13.9	15.2	18.2	15.8	12.2
	Change, %		1.9	4.4	(2.3)	(16.1)	(21.2)	(24.0)	(30.3)	(41.8)	(33.2)	(13.4)
	Coffee	99.0	98.7	97.2	111.4	120.3	120.4	127.0	126.2	136.1	133.0	115.9
	Change, %		0.3	1.8	(11.2)	(17.7)	(17.8)	(22.1)	(21.6)	(27.3)	(25.6)	(14.6)
Energy	**WTI**	70.3	69.5	67.8	70.1	68.2	61.3	46.0	60.4	43.4	51.0	66.4
	Change, %		1.1	3.6	0.2	3.0	14.7	52.9	16.3	61.9	37.8	5.8
	Brent	77.8	77.1	74.7	75.0	77.5	64.4	50.9	66.9	45.1	54.9	72.0
	Change, %		0.8	4.1	3.7	0.3	20.8	52.9	16.3	72.5	41.8	8.1
	Natural Gas	2.9	2.9	3.0	2.8	2.9	2.7	2.9	3.0	2.6	3.0	2.8
	Change, %		(0.7)	(3.0)	2.8	(0.4)	6.6	(2.2)	(2.7)	12.6	(4.9)	1.1
	Ethanol	1.2	1.3	1.3	1.5	1.5	1.5	1.5	1.3	1.5	1.5	1.4
	Change, %		(2.1)	(4.8)	(15.2)	(15.6)	(15.5)	(17.3)	(6.7)	(18.7)	(17.7)	(13.6)
	RBOB Gasoline	214.4	210.6	205.9	216.0	218.4	190.1	188.5	179.9	140.0	162.9	201.1
	Change, %		1.8	4.1	(0.8)	(1.9)	12.7	13.7	19.1	53.1	31.6	6.6
	Coal	117.5	117.7	117.2	115.6	108.7	102.9	97.4	100.8	65.5	88.2	106.9
	Change, %		(0.1)	0.3	1.7	8.1	14.2	20.6	16.6	79.5	33.2	9.9
Metal	**Gold**	1,200.0	1,206.7	1,185.6	1,221.4	1,301.4	1,322.8	1,308.6	1,302.6	1,248.5	1,258.6	1,293.0
	Change, %		(0.6)	1.2	(1.8)	(7.8)	(9.3)	(8.3)	(7.9)	(3.9)	(4.7)	(7.2)
	Silver	14.5	14.8	14.5	15.5	16.5	16.5	17.4	16.9	17.1	17.1	16.3
	Change, %		(1.4)	0.3	(6.1)	(11.9)	(11.9)	(16.6)	(14.2)	(15.0)	(14.8)	(10.9)
	Copper	6,066.0	6,086.0	5,986.5	6,250.0	6,840.0	6,898.0	6,769.0	7,247.0	4,872.0	6,199.4	6,749.5
	Change, %		(0.3)	1.3	(2.9)	(11.3)	(12.1)	(10.4)	(16.3)	24.5	(2.2)	(10.1)
	Nickel	938.4	944.7	925.6	946.9	1,013.4	879.9	738.3	809.1	646.4	680.2	921.6
	Change, %		(0.7)	1.4	(0.9)	(7.4)	6.6	27.1	16.0	45.2	38.0	1.8
	Zinc	2,467.5	2,512.0	2,468.5	2,557.0	3,130.0	3,355.0	3,095.0	3,319.0	2,097.5	2,888.5	3,072.2
	Change, %		(1.8)	(0.0)	(3.5)	(21.2)	(26.5)	(20.3)	(25.7)	17.6	(14.6)	(19.7)
	Lead	2,059.3	2,077.5	2,053.5	2,145.0	2,432.3	2,447.3	2,349.8	2,482.8	1,868.3	2,315.7	2,371.9
	Change, %		(0.9)	0.3	(4.0)	(15.3)	(15.9)	(12.4)	(17.1)	10.2	(11.1)	(13.2)
	Aluminum	14,890.0	14,895.0	14,605.0	14,345.0	14,635.0	14,300.0	16,225.0	15,020.0	12,373.5	14,556.6	14,358.6
	Change, %		(0.0)	2.0	3.8	1.7	4.1	(8.2)	(0.9)	20.3	2.3	3.7
	Cobalt	65,056.0	65,056.0	63,806.0	69,750.0	90,500.0	79,250.0	60,750.0	75,205.0	25,480.1	55,906.9	80,260.6
	Change, %		0.0	2.0	(6.7)	(28.1)	(17.9)	7.1	(13.5)	155.3	16.4	(18.9)
	HR Coil	861.0	863.0	901.0	889.0	890.0	836.0	632.0	662.0	519.3	620.1	837.5
	Change, %		(0.2)	(4.4)	(3.1)	(3.3)	3.0	36.2	30.1	65.8	38.9	2.8
	Scrap	376.0	376.0	376.0	393.0	400.0	389.0	372.0	367.0	275.7	344.7	388.8
	Change, %		0.0	0.0	(4.3)	(6.0)	(3.3)	1.1	2.5	36.4	9.1	(3.3)

자료: Bloomberg

참고) NYMEX, ICE, LME 중 대표지수를 사용

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Refining Price Data

Daily Price		08/30	1D	1W	1M	3M	6M	12M	YTD	2015avg.	2016avg.	2017acc.
Crude Oil	**WTI**	70.3	69.5	67.8	70.1	67.0	61.0	47.2	53.7	43.4	50.9	66.4
	Change, %		*1.1*	*3.6*	*0.2*	*4.8*	*15.2*	*48.7*	*30.8*	*62.0*	*38.0*	*5.8*
	Dubai	75.8	74.3	73.1	73.4	75.5	61.4	49.3	53.8	41.3	53.1	69.3
	Change, %		*1.9*	*3.6*	*3.2*	*0.4*	*23.3*	*53.8*	*40.7*	*83.4*	*42.7*	*9.4*
Crude Oil	**Gasoline(휘발유)**	87.8	85.8	85.4	85.0	87.7	76.3	69.8	69.8	56.3	68.0	81.8
Product	*Change, %*		*2.3*	*2.7*	*3.2*	*0.0*	*15.0*	*25.7*	*25.6*	*56.0*	*29.0*	*7.3*
	Kerosene(등유)	90.5	89.2	87.7	88.3	90.0	80.2	64.3	66.4	52.9	65.2	84.6
	Change, %		*1.4*	*3.2*	*2.5*	*0.5*	*12.9*	*40.7*	*36.2*	*71.1*	*38.7*	*7.0*
	Diesel(경유)	91.9	90.4	88.7	86.5	89.7	75.9	64.2	65.5	52.1	65.6	83.7
	Change, %		*1.7*	*3.6*	*6.3*	*2.5*	*21.1*	*43.1*	*40.3*	*76.4*	*40.1*	*9.8*
	Bunker-C	70.6	69.2	69.0	71.6	70.1	55.8	46.9	52.1	35.5	49.7	63.9
	Change, %		*2.0*	*2.3*	*(1.4)*	*0.7*	*26.4*	*50.4*	*35.5*	*98.6*	*42.1*	*10.4*
	Naphtha	74.1	72.6	71.4	73.8	74.1	61.6	50.7	53.5	42.6	53.7	68.4
	Change, %		*2.0*	*3.7*	*0.3*	*0.0*	*20.3*	*46.0*	*38.6*	*74.0*	*37.9*	*8.4*
Dubai	**Gasoline(휘발유)**	12.0	11.4	12.3	11.7	12.3	14.9	20.6	16.0	14.9	14.9	12.5
Spread	*Change*		*0.6*	*(0.3)*	*0.3*	*(0.3)*	*(2.9)*	*(8.6)*	*(4.0)*	*(3.0)*	*(2.9)*	*(0.5)*
	Kerosene(등유)	14.7	14.9	14.6	14.9	14.6	18.8	15.1	12.6	11.6	12.1	15.3
	Change		*(0.1)*	*0.2*	*(0.2)*	*0.2*	*(4.0)*	*(0.3)*	*2.1*	*3.2*	*2.6*	*(0.6)*
	Diesel(경유)	16.2	16.1	15.6	13.1	14.3	14.5	15.0	11.7	10.8	12.5	14.5
	Change		*0.1*	*0.6*	*3.0*	*1.9*	*1.7*	*1.2*	*4.5*	*5.4*	*3.7*	*1.7*
	Bunker-C	(5.2)	(5.1)	(4.2)	(1.8)	(5.4)	(5.6)	(2.3)	(1.8)	(5.8)	(3.4)	(5.4)
	Change		*(0.1)*	*(1.1)*	*(3.4)*	*0.2*	*0.4*	*(2.9)*	*(3.4)*	*0.6*	*(1.8)*	*0.2*
	Naphtha	(1.7)	(1.7)	(1.7)	0.5	(1.4)	0.2	1.5	(0.4)	1.3	0.6	(0.9)
	Change		*0.0*	*0.0*	*(2.1)*	*(0.3)*	*(1.8)*	*(3.2)*	*(1.3)*	*(3.0)*	*(2.3)*	*(0.8)*
Refining	**Simple(단순)**	2.4	2.4	2.9	3.4	1.9	3.0	5.4	3.8	1.9	3.2	2.3
Margin	*Change*		*0.0*	*(0.4)*	*(1.0)*	*0.5*	*(0.6)*	*(2.9)*	*(1.4)*	*0.5*	*(0.7)*	*0.2*
	Complex(복합)	7.9	7.8	8.0	7.6	7.2	8.4	10.9	8.3	7.0	8.0	7.5
	Change		*0.1*	*(0.1)*	*0.3*	*0.7*	*(0.5)*	*(3.0)*	*(0.4)*	*0.9*	*(0.1)*	*0.4*
	Complex(lagging)	10.3	8.7	9.7	6.6	12.6	2.2	9.8	18.0	8.5	8.9	8.9
	Change		*1.6*	*0.6*	*3.7*	*(2.3)*	*8.0*	*0.5*	*(7.7)*	*1.8*	*1.3*	*1.3*

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			08/30	08/29	08/28	08/27	08/24	08/23	08/22	08/21	08/20	08/17
Spot Price	**Naphtha**	CFR Japan	679.6	666.5	667.0	659.5	660.0	655.6	643.0	643.0	639.0	636.8
	Ethylene	CFR SE Asia	1,240.0	1,270.0	1,270.0	1,270.0	1,270.0	1,270.0	1,260.0	1,260.0	1,260.0	1,260.0
	Propylene	FOB Korea	1,090.0	1,090.0	1,090.0	1,095.0	1,095.0	1,100.0	1,100.0	1,100.0	1,100.0	1,100.0
	Butadiene	FOB Korea	1,740.0	1,740.0	1,740.0	1,750.0	1,750.0	1,750.0	1,715.0	1,715.0	1,715.0	1,715.0
	HDPE	CFR FE Asia	1,290.0	1,290.0	1,290.0	1,290.0	1,290.0	1,290.0	1,290.0	1,290.0	1,300.0	1,300.0
	LDPE	CFR FE Asia	1,120.0	1,120.0	1,120.0	1,120.0	1,120.0	1,130.0	1,130.0	1,130.0	1,140.0	1,140.0
	LLDPE	CFR FE Asia	1,100.0	1,100.0	1,100.0	1,100.0	1,100.0	1,100.0	1,100.0	1,100.0	1,120.0	1,120.0
	MEG	CFR China	952.0	940.0	940.0	935.0	939.0	936.0	933.0	933.0	925.0	908.0
	PP	CFR FE Asia	1,210.0	1,220.0	1,210.0	1,210.0	1,210.0	1,220.0	1,230.0	1,230.0	1,220.0	1,220.0
	PX	CFR China	1,352.0	1,317.7	1,303.3	1,250.7	1,226.7	1,220.0	1,204.7	1,204.7	1,198.7	1,179.0
	PTA	CFR China	1,050.0	1,050.0	1,050.0	990.0	990.0	985.0	985.0	985.0	970.0	960.0
	Benzene	FOB Korea	881.7	881.0	882.7	883.7	887.0	881.3	877.3	877.3	877.3	880.3
	Toluene	FOB Korea	814.5	804.5	804.5	795.5	793.5	788.5	787.0	787.0	783.0	777.0
	Xylene	FOB Korea	930.5	930.5	945.5	945.5	945.5	949.5	938.0	938.0	938.0	924.0
	SM	FOB Korea	1,412.0	1,412.0	1,405.0	1,392.0	1,396.0	1,408.0	1,410.0	1,410.0	1,413.0	1,415.5

Weekly Price			Last Week	1W	1M	3M	6M	12M	YTD	2016avg.	2017avg.	2018acc.
Spot Price	**Naphtha**	CFR Japan	659.0	634.5	672.0	684.5	631.0	474.0	484.5	399.5	493.5	622.5
	Change, %			*3.9*	*(1.9)*	*(3.7)*	*4.4*	*39.0*	*36.0*	*65.0*	*33.5*	*5.9*
	Ethylene	CFR SE Asia	1,255.0	1,275.0	1,232.5	1,175.0	1,215.0	1,185.0	990.0	1,040.9	1,090.9	1,241.0
	Change, %			*(1.6)*	*1.8*	*6.8*	*3.3*	*5.9*	*26.8*	*20.6*	*15.0*	*1.1*
	Propylene	CFR SE Asia	1,042.5	1,047.5	995.0	1,032.5	990.0	790.0	815.0	705.7	823.6	1,059.5
	Change, %			*(0.5)*	*4.8*	*1.0*	*5.3*	*32.0*	*27.9*	*47.7*	*26.6*	*(1.6)*
	Butadiene	CFR SE Asia	1,700.0	1,675.0	1,625.0	1,750.0	1,410.0	1,325.0	2,100.0	1,116.8	1,481.1	1,482.6
	Change, %			*1.5*	*4.6*	*(2.9)*	*20.6*	*28.3*	*(19.0)*	*52.2*	*14.8*	*14.7*
	Benzene	CFR SE Asia	887.5	890.0	847.5	855.0	840.0	795.0	822.5	646.7	838.8	867.9
	Change, %			*(0.3)*	*4.7*	*3.8*	*5.7*	*11.6*	*7.9*	*37.2*	*5.8*	*2.3*
	Toluene	CFR SE Asia	815.0	820.0	800.0	825.0	760.0	655.0	690.0	630.5	689.5	775.6
	Change, %			*(0.6)*	*1.9*	*(1.2)*	*7.2*	*24.4*	*18.1*	*29.3*	*18.2*	*5.1*
	Xylene	CFR SE Asia	860.0	845.0	822.5	835.0	770.0	627.5	675.0	627.7	668.8	791.5
	Change, %			*1.8*	*4.6*	*3.0*	*11.7*	*37.1*	*27.4*	*37.0*	*28.6*	*8.6*
Spread	**Ethylene**	-Naphtha	596.0	640.5	560.5	490.5	584.0	711.0	505.5	641.4	597.4	618.5
	Change, %			*(6.9)*	*6.3*	*21.5*	*2.1*	*(16.2)*	*17.9*	*(7.1)*	*(0.2)*	*(3.6)*
	Propylene	-Naphtha	383.5	413.0	323.0	348.0	359.0	316.0	330.5	306.2	330.1	437.0
	Change, %			*(7.1)*	*18.7*	*10.2*	*6.8*	*21.4*	*16.0*	*25.3*	*16.2*	*(12.2)*
	Butadiene	-Naphtha	1,041.0	1,040.5	953.0	1,065.5	779.0	851.0	1,615.5	717.3	987.6	860.2
	Change, %			*0.0*	*9.2*	*(2.3)*	*33.6*	*22.3*	*(35.6)*	*45.1*	*5.4*	*21.0*
	Benzene	-Naphtha	228.5	255.5	175.5	170.5	209.0	321.0	338.0	247.2	345.3	245.5
	Change, %			*(10.6)*	*30.2*	*34.0*	*9.3*	*(28.8)*	*(32.4)*	*(7.6)*	*(33.8)*	*(6.9)*
	Toluene	-Naphtha	156.0	185.5	128.0	140.5	129.0	181.0	205.5	231.0	196.0	153.1
	Change, %			*(15.9)*	*21.9*	*11.0*	*20.9*	*(13.8)*	*(24.1)*	*(32.5)*	*(20.4)*	*1.9*
	Xylene	-Naphtha	201.0	210.5	150.5	150.5	139.0	153.5	190.5	228.2	175.3	169.1
	Change, %			*(4.5)*	*33.6*	*33.6*	*44.6*	*30.9*	*5.5*	*(11.9)*	*14.6*	*18.9*

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	1,212.5	1,217.5	1,227.5	1,312.5	1,252.5	1,107.5	1,142.5	1,134.6	1,142.5	1,250.8
	Change, %			*(0.4)*	*(1.2)*	*(7.6)*	*(3.2)*	*9.5*	*6.1*	*6.9*	*6.1*	*(3.1)*
	MEG	CFR SE Asia	955.0	922.5	955.0	950.0	1,020.0	902.5	847.5	660.8	850.6	972.4
	Change, %			*3.5*	*0.0*	*0.5*	*(6.4)*	*5.8*	*12.7*	*44.5*	*12.3*	*(1.8)*
	PVC	CFR SE Asia	950.0	950.0	945.0	920.0	940.0	920.0	920.0	823.4	899.9	942.9
	Change, %			*0.0*	*0.5*	*3.3*	*1.1*	*3.3*	*3.3*	*15.4*	*5.6*	*0.8*
	PP	CFR SE Asia	1,232.5	1,232.5	1,232.5	1,297.5	1,242.5	1,117.5	1,032.5	978.4	1,099.6	1,256.3
	Change, %			*0.0*	*0.0*	*(5.0)*	*(0.8)*	*10.3*	*19.4*	*26.0*	*12.1*	*(1.9)*
	2-EH	CFR Korea	1,130.0	1,130.0	1,095.0	1,180.0	1,140.0	990.0	865.0	772.4	970.0	1,116.5
	Change, %			*0.0*	*3.2*	*(4.2)*	*(0.9)*	*14.1*	*30.6*	*46.3*	*16.5*	*1.2*
	ABS	CFR SE Asia	1,920.0	1,960.0	1,940.0	2,080.0	1,990.0	1,895.0	1,635.0	1,347.1	1,844.7	2,011.9
	Change, %			*(2.0)*	*(1.0)*	*(7.7)*	*(3.5)*	*1.3*	*17.4*	*42.5*	*4.1*	*(4.6)*
	SBR	CFR SE Asia	1,875.0	1,875.0	1,760.0	1,890.0	1,700.0	1,650.0	2,000.0	1,483.0	1,980.5	1,763.5
	Change, %			*0.0*	*6.5*	*(0.8)*	*10.3*	*13.6*	*(6.3)*	*26.4*	*(5.3)*	*6.3*
	SM	CFR SE Asia	1,440.0	1,470.0	1,395.0	1,440.0	1,355.0	1,242.5	1,205.0	1,064.6	1,253.8	1,407.5
	Change, %			*(2.0)*	*3.2*	*0.0*	*6.3*	*15.9*	*19.5*	*35.3*	*14.9*	*2.3*
	Caustic	FOB NEA	421.0	421.0	361.0	560.0	598.0	471.0	422.5	316.6	491.2	537.6
	Change, %			*0.0*	*16.6*	*(24.8)*	*(29.6)*	*(10.6)*	*(0.4)*	*33.0*	*(14.3)*	*(21.7)*
	PX	CFR SE Asia	1,235.0	1,185.0	1,032.5	1,012.5	977.5	817.5	855.0	790.4	844.4	992.4
	Change, %			*4.2*	*19.6*	*22.0*	*26.3*	*51.1*	*44.4*	*56.3*	*46.2*	*24.5*
	PO	CFR China	1,905.0	1,870.0	1,782.5	1,737.5	1,935.0	1,992.5	1,562.5	1,396.8	1,601.2	1,866.3
	Change, %			*1.9*	*6.9*	*9.6*	*(1.6)*	*(4.4)*	*21.9*	*36.4*	*19.0*	*2.1*
	Caprolactam	CFR SE Asia	2,160.0	2,155.0	2,155.0	2,100.0	2,170.0	1,770.0	1,850.0	1,344.9	1,936.4	2,127.2
	Change, %			*0.2*	*0.2*	*2.9*	*(0.5)*	*22.0*	*16.8*	*60.6*	*11.5*	*1.5*
	PTA	CFR SE Asia	990.0	972.5	862.5	850.0	802.5	657.5	642.5	613.7	667.8	825.1
	Change, %			*1.8*	*14.8*	*16.5*	*23.4*	*50.6*	*54.1*	*61.3*	*48.2*	*20.0*
Spread	**HDPE**		553.5	583.0	555.5	628.0	621.5	633.5	658.0	735.1	649.0	628.3
	Change, %			*(5.1)*	*(0.4)*	*(11.9)*	*(10.9)*	*(12.6)*	*(15.9)*	*(24.7)*	*(14.7)*	*(11.9)*
	MEG		296.0	288.0	283.0	265.5	389.0	428.5	363.0	261.3	357.1	349.9
	Change, %			*2.8*	*4.6*	*11.5*	*(23.9)*	*(30.9)*	*(18.5)*	*13.3*	*(17.1)*	*(15.4)*
	PVC		291.0	315.5	273.0	235.5	309.0	446.0	435.5	423.9	406.4	320.4
	Change, %			*(7.8)*	*6.6*	*23.6*	*(5.8)*	*(34.8)*	*(33.2)*	*(31.3)*	*(28.4)*	*(9.2)*
	PP		573.5	598.0	560.5	613.0	611.5	643.5	548.0	578.9	606.1	633.8
	Change, %			*(4.1)*	*2.3*	*(6.4)*	*(6.2)*	*(10.9)*	*4.7*	*(0.9)*	*(5.4)*	*(9.5)*
	2-EH		471.0	495.5	423.0	495.5	509.0	516.0	380.5	372.9	476.5	494.0
	Change, %			*(4.9)*	*11.3*	*(4.9)*	*(7.5)*	*(8.7)*	*23.8*	*26.3*	*(1.2)*	*(4.7)*
	ABS		1,261.0	1,325.5	1,268.0	1,395.5	1,359.0	1,421.0	1,150.5	947.6	1,351.2	1,389.4
	Change, %			*(4.9)*	*(0.6)*	*(9.6)*	*(7.2)*	*(11.3)*	*9.6*	*33.1*	*(6.7)*	*(9.2)*
	SBR	BD spread	175.0	200.0	135.0	140.0	290.0	325.0	(100.0)	366.2	499.4	280.9
	Change, %			*(12.5)*	*29.6*	*25.0*	*(39.7)*	*(46.2)*	*(275.0)*	*(52.2)*	*(65.0)*	*(37.7)*
	SM		781.0	835.5	723.0	755.5	724.0	768.5	720.5	665.1	760.3	785.0
	Change, %			*(6.5)*	*8.0*	*3.4*	*7.9*	*1.6*	*8.4*	*17.4*	*2.7*	*(0.5)*
	Caustic											
	Change, %											
	PX		576.0	550.5	360.5	328.0	346.5	343.5	370.5	390.9	351.0	369.9
	Change, %			*4.6*	*59.8*	*75.6*	*66.2*	*67.7*	*55.5*	*47.4*	*64.1*	*55.7*
	PO	propylene sprea	862.5	822.5	787.5	705.0	945.0	1,202.5	747.5	691.1	777.6	806.8
	Change, %			*4.9*	*9.5*	*22.3*	*(8.7)*	*(28.3)*	*15.4*	*24.8*	*10.9*	*6.9*
	Caprolactam	benzene spreac	1,272.5	1,265.0	1,307.5	1,245.0	1,330.0	975.0	1,027.5	698.2	1,097.6	1,259.3
	Change, %			*0.6*	*(2.7)*	*2.2*	*(4.3)*	*30.5*	*23.8*	*82.3*	*15.9*	*1.1*
	PTA	px spread	125.5	143.0	139.8	141.3	118.3	85.3	44.0	60.4	76.7	130.4
	Change, %			*(12.2)*	*(10.2)*	*(11.2)*	*6.1*	*47.2*	*185.2*	*107.7*	*63.6*	*(3.8)*

자료 : Cischem, Platts, SK증권

참고 : Spread는 Naphtha spread로 일괄적용

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Global peers

	Currency	08/30	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	70.2	(1.7)	3.1	3.2	8.4	2.6	8.2	(1.4)	168,245	17.7	14.9	1.8	1.7	10.2	9.2
Eastman	USD	97.7	(1.0)	(0.0)	(3.6)	(6.7)	(3.0)	13.9	5.5	13,550	11.6	10.7	2.5	2.2	8.7	8.1
BASF	EUR	80.4	(0.8)	1.7	(2.0)	(6.3)	(3.5)	(1.5)	(12.3)	101,214	14.6	13.6	2.4	2.2	7.8	7.4
Akzo Nobel	EUR	81.5	(0.4)	2.4	2.9	7.4	6.8	5.8	11.6	22,073	17.0	15.8	3.0	2.8	9.3	8.8
Arkema	EUR	108.3	0.1	1.6	1.5	3.2	4.1	16.3	6.6	9,270	13.2	12.2	1.7	1.6	6.3	6.0
Lanxess	EUR	68.5	(2.0)	(0.2)	(2.3)	0.0	4.9	8.2	3.3	7,282	15.5	13.1	2.1	1.9	9.3	8.2
Sumitomo Chemical	JPY	642	(0.6)	3.7	(0.3)	(0.9)	1.7	(2.7)	(20.7)	11,911	10.1	10.5	1.3	1.2	7.4	8.0
Mitsubishi Chemical	JPY	1,008	(1.0)	3.4	1.7	1.8	(4.8)	(1.6)	(18.5)	16,544	9.2	8.7	1.3	1.2	6.3	6.1
Shin-Etsu Chemical	JPY	10,595	(0.7)	0.4	(5.3)	(1.7)	(0.8)	9.5	(7.5)	43,948	18.5	16.6	1.9	1.8	8.1	7.4
Asahi Kasei	JPY	1,640	0.4	3.5	10.5	11.7	25.1	24.4	12.8	18,109	14.4	13.6	1.5	1.4	7.4	7.0
JSR	JPY	2,196	(0.5)	2.8	6.9	4.9	(11.7)	2.0	(1.0)	4,455	14.5	13.4	1.2	1.1	7.7	7.2
Nitto Denko	JPY	8,709	0.7	5.3	7.9	1.9	2.4	(9.4)	(13.0)	15,450	15.7	14.6	2.1	1.9	7.3	7.0
SABIC	SAR	126.0	(1.1)	2.4	(2.6)	0.8	20.4	27.4	24.2	80,773	14.2	13.7	1.7	1.7	7.3	7.1
Yansab	SAR	71.7	0.4	(1.0)	(3.1)	(1.4)	6.0	27.2	21.5	8,861	13.7	13.9	2.2	1.9	9.0	8.9
Formosa Plastics	TWD	112.0	(1.3)	(1.3)	0.4	3.2	11.4	19.1	13.5	21,114	14.4	13.9	1.8	1.8	18.9	19.2
Formosa Fiber	TWD	121.5	(0.4)	(1.2)	2.5	4.3	15.7	28.0	18.0	20,511	13.7	13.4	1.7	1.7	11.6	11.5
Nan Ya Plastics	TWD	84.5	(1.1)	0.0	0.4	(0.7)	7.9	10.9	8.5	20,648	14.8	15.3	1.7	1.7	16.2	16.4
Sinopec Shanghai	CNY	5.50	0.5	4.6	2.8	(2.8)	(5.5)	(15.1)	(13.1)	9,462	12.0	12.6	2.2	2.0	6.8	7.3
Sinopec Yizheng(Fibe	CNY	1.98	0.0	(0.5)	3.1	(4.3)	(13.5)	(38.1)	(25.8)	5,394	50.4	66.3	5.3	5.0	13.9	10.3
Reliance	INR	1,274	(1.5)	0.4	10.7	39.1	34.4	63.0	40.1	93,404	14.4	12.9	1.7	1.5	9.4	8.7
Industries Qatar	QAR	124.0	0.0	3.7	0.0	19.2	19.1	36.3	27.8	16,144	14.5	13.9	1.6	1.5	46.4	27.2
PTT Chemical	THB	83.3	0.0	2.5	2.1	(6.5)	(15.9)	8.8	(2.1)	11,766	10.7	10.4	1.4	1.3	5.5	5.4
Petronas	MYR	9.5	(1.1)	1.2	6.9	18.4	16.8	32.1	22.9	15,624	16.1	15.5	2.0	1.9	9.2	8.9
LG화학	KRW	363,500	(2.8)	2.0	(3.6)	10.0	(5.2)	(4.3)	(10.2)	27,313	13.8	12.8	1.8	1.6	6.5	6.1
롯데케미칼	KRW	316,500	(1.9)	1.8	(10.6)	(12.8)	(33.3)	(19.7)	(14.0)	11,632	5.5	5.2	0.9	0.8	3.6	3.3
한화케미칼	KRW	20,900	(1.9)	7.2	(0.7)	(20.2)	(35.1)	(40.3)	(33.9)	5,050	5.7	5.5	0.8	0.7	6.7	6.5
금호석유	KRW	100,500	0.5	0.0	(9.9)	(0.5)	12.3	26.3	1.0	2,969	14.1	11.9	1.6	1.5	9.3	8.4
SKC	KRW	47,000	(0.7)	4.3	6.7	21.8	21.9	27.7	0.0	1,643	9.9	8.7	1.1	1.0	8.8	7.9
국도화학	KRW	57,900	(0.7)	0.2	(0.3)	(10.0)	(6.9)	7.4	(8.2)	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	6,800	0.7	7.8	8.8	0.1	(26.2)	(8.1)	(10.3)	4,595	8.2	7.3	1.1	1.0	7.2	6.8
Average			**(0.7)**	**2.1**	**1.2**	**2.7**	**1.6**	**8.7**	**0.8**							
Refinery																
Valero	USD	119.1	(1.3)	0.8	1.5	(2.6)	29.1	74.0	29.5	40,608	14.1	13.4	2.0	2.0	6.9	6.9
Conoco Phillips	USD	73.6	0.0	2.1	1.8	8.1	36.1	69.5	34.0	66,136	34.0	25.9	2.2	2.2	7.2	6.7
Formosa Petrochemic	TWD	125.0	(2.3)	0.0	5.0	5.9	11.1	17.9	8.2	37,040	18.2	18.7	3.2	3.2	11.7	12.1
Andeavor	USD	153.8	(1.1)	1.0	2.0	5.4	67.2	52.8	34.5	17,904	12.9	11.4	1.8	1.7	7.3	7.1
Marathon Petroleum	USD	83.1	(0.7)	1.8	2.0	4.5	27.5	58.8	26.0	32,812	15.0	12.8	2.6	2.7	7.7	7.5
Devon Energy	USD	43.1	0.4	1.4	(4.3)	2.9	37.5	39.3	4.2	22,192	17.5	14.0	2.7	2.3	8.4	7.4
Hollyfrontier	USD	74.7	0.1	2.5	(0.3)	(3.8)	69.4	133.3	45.8	9,094	16.8	15.2	1.8	1.8	8.0	8.0
Phillips 66	USD	119.6	(0.7)	1.0	(2.1)	0.3	30.8	43.0	18.2	51,561	15.6	14.5	2.3	2.2	9.0	8.8
Murphy Oil	USD	31.5	0.8	2.8	(4.2)	2.0	19.5	39.3	1.5	5,548	162.4	113.2	1.2	1.1	4.9	4.5
JX Holdings	JPY	800.2	(0.0)	2.7	(2.0)	18.5	24.1	48.7	10.1	22,130	8.8	8.0	0.9	0.9	7.0	6.6
Idemitsu	JPY	5,710.0	1.4	6.3	14.0	59.5	42.6	111.2	26.2	8,360	7.9	7.5	1.0	0.9	6.8	6.8
Nesteoil	EUR	75.0	(0.6)	1.7	6.5	9.8	30.9	103.9	40.5	16,473	16.7	16.7	2.9	2.7	10.2	10.3
Ashland	USD	83.9	(0.9)	(1.9)	2.6	7.1	20.1	38.0	17.9	4,550	21.6	18.7	1.3	1.3	10.2	9.6
Fuchs Petrolub	EUR	51.2	1.0	2.9	14.5	12.5	11.7	9.1	15.7	7,127	22.1	20.9	4.1	3.7	13.0	12.3
SK이노베이션	KRW	192,000	(1.5)	(1.8)	(5.9)	(3.5)	(7.5)	3.2	(6.1)	17,975	7.9	7.7	0.9	0.9	4.9	4.8
S-Oil	KRW	120,500	(1.2)	1.3	3.0	13.7	(4.4)	(5.5)	3.0	12,400	9.3	8.1	1.8	1.6	7.6	6.6
GS	KRW	53,400	(2.6)	0.4	(0.2)	(7.3)	(18.1)	(23.6)	(14.1)	5,467	6.0	5.5	0.7	0.6	6.9	6.3
Average			**(0.6)**	**1.5**	**2.0**	**7.8**	**25.2**	**47.8**	**17.4**							

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

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Global peers

	Currency	08/30	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	(0.4)	1.8	(1.5)	(1.2)	6.6	5.8	(3.7)	340,864	17.2	14.6	1.8	1.7	7.8	6.8
BP	GBP	557	0.3	(0.2)	(1.6)	(3.0)	19.9	25.9	6.5	144,618	13.1	11.9	1.4	1.4	5.1	4.7
Shell	EUR	2,547	0.4	0.4	(2.0)	(2.8)	13.2	19.8	2.7	277,939	12.2	10.4	1.4	1.3	5.7	5.3
Chevron	USD	120	(0.3)	1.4	(6.3)	(4.3)	7.3	11.2	(4.3)	229,574	15.1	13.8	1.5	1.5	6.3	5.8
Total	EUR	55	(0.4)	0.9	(0.9)	5.3	20.1	26.4	18.7	169,840	11.9	10.8	1.4	1.3	5.8	5.3
Sinopec	CNY	7	(0.9)	3.5	3.0	(0.4)	7.4	12.2	10.9	120,428	10.4	10.0	1.1	1.0	4.0	3.9
Petrochina	CNY	8	(0.2)	1.1	7.4	4.4	2.4	0.2	0.7	209,007	24.8	20.6	1.2	1.2	5.4	5.3
CNOOC	CNY	11	(0.1)	1.4	12.0	2.1	(2.3)	(6.8)	(0.4)	78,722	9.7	9.0	1.3	1.2	3.8	3.7
Gazprom	RUB	146	(1.3)	3.2	5.1	1.9	5.3	23.5	11.9	50,665	3.1	3.2	0.2	0.2	2.5	2.5
Rosneft	RUB	437	(0.8)	1.6	7.5	14.7	36.8	42.3	49.9	67,899	8.2	6.7	1.0	0.9	4.7	4.4
Anadarko	USD	64	(0.8)	2.2	(12.6)	(8.6)	12.2	59.1	20.2	33,003	22.1	15.8	2.7	2.3	6.4	5.5
Petrobras	BRL	19	(2.6)	4.7	(5.5)	(0.9)	(12.6)	39.8	16.8	64,329	6.8	5.5	0.7	0.6	4.5	4.1
Lukoil	USD	4,702	1.4	5.7	6.6	10.7	25.4	61.9	41.0	58,859	5.7	5.8	0.8	0.7	N/A	N/A
Kinder	USD	18	(0.6)	(1.1)	0.2	7.4	10.4	(6.8)	(1.6)	47,497	22.6	18.1	1.2	1.2	10.6	10.4
Equinor ASA	NOK	218	(0.3)	1.3	2.6	3.4	24.8	50.4	24.5	87,289	13.3	12.3	2.0	1.8	3.4	3.2
BHP	AUD	34	(0.1)	4.0	(1.2)	4.9	14.0	25.3	14.2	124,610	13.9	15.4	2.3	2.3	6.2	6.5
PTT E&P	THB	143	(0.3)	1.8	3.3	7.5	23.9	62.4	42.5	17,261	13.7	12.6	1.4	1.3	4.4	4.1
Petronas gas	MYR	19	(0.5)	(0.5)	(2.2)	9.2	7.3	1.6	7.0	8,990	19.5	19.4	2.8	2.7	10.7	10.6
Chesapeake	USD	5	0.2	(3.6)	(3.4)	0.0	52.4	24.9	13.9	4,114	5.8	5.8	#N/A N/A	7.3	6.6	6.5
Noble Energy	USD	30	(1.3)	1.2	(17.4)	(18.1)	(1.8)	26.0	2.6	14,440	27.8	22.2	1.4	1.3	7.1	6.1
Average		**0**	**(0.4)**	**1.5**	**(0.3)**	**1.6**	**13.6**	**25.3**	**13.7**							
PV																
WACKER	EUR	126.3	(0.5)	3.8	3.7	(10.8)	(3.1)	18.7	(22.2)	7,675	18.0	16.1	1.9	1.9	6.7	6.4
GCL-Poly	HKD	0.5	(1.9)	(3.7)	(25.7)	(37.3)	(58.1)	(42.2)	(62.9)	1,216	4.9	4.2	0.3	0.3	6.7	6.1
SunPower	USD	6.7	(3.3)	0.4	(0.6)	(21.5)	(6.3)	(24.4)	(20.0)	950	#N/A N/A	#N/A N/A	96.3	962.9	16.6	10.4
Canadian Solar	USD	14.2	(4.2)	5.7	7.8	(16.0)	(10.5)	(9.2)	(15.9)	831	9.9	10.0	0.8	0.8	6.7	7.5
JA Solar	USD	7.5	0.0	0.0	0.0	3.9	0.7	14.2	0.4	356	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A
Yingli	USD	0.3	(5.8)	(8.1)	(28.8)	(83.3)	(82.7)	(89.2)	(83.1)	5	#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	52.2	(1.7)	1.1	1.1	(24.4)	(18.9)	8.5	(22.7)	5,466	32.0	16.9	1.0	0.9	7.8	4.1
한화큐셀	USD	8.4	0.4	1.1	33.1	16.5	1.7	14.8	19.7	699	15.0	31.1	#N/A N/A	#N/A N/A	8.8	9.1
OCI	KRW	115,500	0.0	6.5	14.9	(11.8)	(29.6)	22.1	(15.1)	2,475	0.0	12.9	0.0	0.8	0.0	5.6
웅진에너지	KRW	3,000	(1.5)	0.0	(5.5)	(41.7)	(58.2)	(64.4)	(63.5)	80	N/A	0.0	0.8	0.0	5.6	0.0
신성솔라에너지	KRW	1,385	(0.7)	(1.1)	5.3	(19.9)	(23.7)	(33.4)	(27.7)	215	N/A	0.8	0.0	5.6	0.0	2.5
Average			**(1.7)**	**0.5**	**0.5**	**(22.4)**	**(26.2)**	**(16.8)**	**(28.5)**							
Gas Company																
Towngas China	HKD	7.2	(1.1)	1.3	(6.9)	(7.1)	13.2	39.0	14.6	2,578	14.0	12.4	1.2	1.1	12.6	11.4
Kulun	HKD	8.4	4.4	16.1	23.9	21.0	15.8	16.6	2.7	8,597	11.5	10.0	1.4	1.3	5.8	5.3
Beijing Enterprise	HKD	36.3	(1.8)	0.7	(6.2)	(14.0)	(14.8)	(12.7)	(21.9)	5,828	6.3	5.7	0.6	0.6	11.7	11.2
ENN Energy	HKD	72.5	(0.9)	0.9	(10.5)	(4.2)	19.2	45.4	30.0	10,394	16.3	13.8	3.4	2.9	10.2	8.9
China Resources Gas	HKD	36.2	0.8	2.0	(1.1)	26.8	36.7	33.9	27.5	10,243	17.8	15.8	3.1	2.7	9.8	8.8
China Gas Holdings	HKD	25.4	(1.4)	(0.6)	(21.5)	(19.1)	4.7	33.5	17.6	16,433	16.2	13.8	3.8	3.2	13.1	11.1
Shenzen Gas	HKD	14.6	(2.0)	2.2	(2.4)	(16.6)	(7.7)	1.2	(1.7)	3,930	9.1	7.6	1.1	1.0	7.4	6.7
Shann Xi	CNY	7.2	(0.8)	(1.1)	(5.8)	(9.3)	(2.6)	(17.5)	(15.2)	1,163	16.5	14.6	1.4	1.3	#N/A N/A	#N/A N/A
Suntien	HKD	2.3	(1.7)	6.4	(7.5)	(10.3)	26.5	39.3	13.0	1,108	6.1	5.4	0.8	0.7	8.2	7.1
China Oil & Gas	HKD	0.6	0.0	(1.6)	0.0	0.0	(12.9)	15.1	(28.2)	454	#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			**(0.4)**	**2.6**	**(3.8)**	**(3.3)**	**7.8**	**19.4**	**3.9**							
EV																
LG화학	KRW	363,500	(2.8)	2.0	(3.6)	10.0	(5.2)	(4.3)	(10.2)	23,054	13.9	12.5	1.6	1.4	6.7	6.0
삼성SDI	KRW	235,500	0.0	7.3	3.3	14.3	38.1	22.3	15.2	14,549	22.3	15.9	1.4	1.3	13.7	10.9
Panasonic	JPY	1346.5	(1.2)	0.1	(6.0)	(9.9)	(16.9)	(7.7)	(18.4)	29,693	12.2	10.8	1.7	1.5	4.9	4.5
GS Yuasa	JPY	539.0	0.9	7.2	2.7	5.9	(4.9)	(0.7)	(3.9)	2,004	16.2	15.0	1.2	1.1	7.2	6.7
NEC	JPY	3040.0	0.2	2.3	(0.5)	1.2	(4.4)	4.5	0.0	7,118	23.0	12.6	0.9	0.8	7.6	5.6
BYD Auto	CNY	45.0	(2.8)	1.5	5.9	(10.7)	(28.4)	(7.0)	(30.8)	17,526	30.0	22.5	2.1	2.0	12.8	11.0
Tesla Motors	USD	303.2	(0.6)	(5.3)	4.5	3.9	(9.5)	(14.2)	(2.6)	51,715	#N/A N/A	95.3	9.1	8.7	39.3	17.9
Kandi Technologies	USD	4.2	2.5	2.5	3.1	(24.5)	(19.4)	7.8	(39.0)	214	#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)**	**2.2**	**1.2**	**(1.2)**	**(6.3)**	**0.1**	**(11.2)**							

* Bloomberg 기준 / valuation multiple 또한 Bloomberg consensus 기준임