SK Energy Daily

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SK 증권

1. News Summary (3 page)

2017년 12월 7일

News		Conclusion
WTI comment	美휘발유 재고 증가에 급락…WTI 2.9%↓	
Headline	中, 미국과 천연가스 부문 1494억달러 투자협약	중국의 PNG 수입 프로젝트가 지연되며 LNG 수입량 일시 증가 전망
News 1.	삼성重 '적자 커밍아웃'… 1년 만에 유상증자도	후판가 인상분을 선가에 반영시키지 못한 영향으로 적자 기록하게 됨
News 2.	-	-
News 3.	-	-
News 4.	-	-

2. Prices Summary (4~7 page)

Daily	Unit	Price	1D	1W	1M	3M	12M
Refinery			%	%	%	%	%
WTI	$/bbl	56.0	(2.9)	(2.3)	(2.4)	13.8	12.4
Dubai	$/bbl	60.7	0.8	(0.4)	0.2	16.5	20.6
Gasoline	$/bbl	74.9	0.5	(1.4)	(1.1)	5.5	16.3
Diesel	$/bbl	73.9	1.2	(0.5)	2.9	8.9	21.2
Complex margin	$/bbl	7.7	0.0	(0.4)	(0.0)	(2.8)	0.3
1M lagging	$/bbl	9.5	0.2	(2.6)	(4.9)	(2.8)	(5.5)
Petrochemical			%	%	%	%	%
Naphtha	$/t	586	1.1	(1.2)	(0.4)	16.9	24.5
Butadiene	$/t	1,010	0.0	0.0	6.9	(25.7)	(39.5)
HDPE	$/t	1,290	(1.1)	(0.8)	4.0	8.4	15.2
MEG	$/t	920	(0.6)	0.9	1.1	(4.1)	14.7
PX	$/t	888	0.3	0.6	1.3	7.7	10.8
SM	$/t	1,318	1.5	1.2	10.8	(5.1)	12.9
Commodity			%	%	%	%	%
Natural Gas	$/mmbtu	2.92	0.3	(8.1)	(10.7)	(11.9)	(19.3)
Natural rubber	$/t	1,420	(1.4)	2.2	0.0	(16.5)	(18.4)
Cotton	C/lbs	75.2	0.3	(0.5)	9.5	(0.1)	4.2

*참고: 정제마진의 변동률은 %가 아닌 $/bbl임

Weekly	Update	Unit	Price	1W	1M	3M	12M
Petrochemical				%	%	%	%
Ethylene	12/04	$/t	1,200	0.4	6.2	0.8	23.1
Propylene	12/04	$/t	845	1.2	9.0	5.6	23.4
Benzene	12/04	$/t	893	1.7	9.2	9.2	15.9
Toluene	12/04	$/t	715	0.0	1.4	8.3	7.1
Xylene	12/04	$/t	695	0.0	4.9	9.4	6.1
PP	12/04	$/t	1,148	0.0	1.8	1.8	13.6
PVC	12/04	$/t	850	0.0	(4.5)	(9.1)	(12.4)
ABS	12/04	$/t	2,000	2.0	5.8	(0.5)	26.2
SBR	12/04	$/t	1,640	1.9	4.5	(3.0)	(10.9)
SM	12/04	$/t	1,328	1.7	11.1	(2.0)	12.5
BPA	12/04	$/t	1,733	3.3	(7.5)	(13.0)	6.1
Caustic	12/04	$/t	705	0.7	8.3	49.7	76.3
2-EH	12/04	$/t	1,030	1.0	3.0	4.0	22.6
Caprolactam	12/04	$/t	2,020	0.0	(6.9)	16.1	36.5
Solar				%	%	%	%
Polysilicon	12/06	$/kg	17.0	0.9	1.9	1.6	16.2
Module	12/06	$/W	0.31	0.0	(0.6)	(2.8)	(18.2)

3. Global Peers Summary (8~9 page)

	Unit	Price	1D	1W	1M	3M	12M
E&P			%	%	%	%	%
ExxonMobil	USD	82.3	(0.7)	0.0	(1.8)	4.4	(6.0)
Shell	EUR	2,366	(0.1)	0.0	(3.7)	10.9	15.3
Petrochina	CNY	8.09	(1.6)	(1.8)	(3.5)	(0.6)	6.4
Gazprom	RUB	134.0	0.3	0.3	6.4	14.4	(11.6)
Petrobras	BRL	15.5	1.4	1.2	(11.0)	3.3	(3.9)
Refinery							
Phillips66	USD	97.6	(0.7)	2.8	3.3	17.1	14.9
Valero	USD	85.0	(0.9)	2.0	4.3	24.8	31.3
JX	JPY	644.5	(0.9)	3.9	5.6	20.9	34.0
Neste Oil	EUR	52.0	0.0	2.7	6.1	42.9	35.4

	Unit	Price	1D	1W	1M	3M	12M
Petrochemical			%	%	%	%	%
BASF	EUR	93.8	0.2	0.1	(3.6)	12.5	12.9
DowDuPont	USD	71.1	(0.6)	(1.0)	1.2	9.6	26.4
SABIC	SAR	101.1	(0.2)	0.5	0.6	1.8	4.4
Formosa Pla.	TWD	93.0	(0.6)	(0.6)	1.3	(2.5)	3.0
Shin-Etsu	JPY	11,380	(1.5)	(4.7)	(7.6)	17.4	32.2
Renewable							
Wacker	EUR	136.0	0.0	(1.0)	(3.4)	22.4	53.8
First Solar	USD	63.24	3.3	5.4	2.9	33.6	97.3
GCL-Poly	HKD	1.19	(4.0)	(8.5)	(15.6)	36.8	16.7
Tesla Motors	USD	313.3	3.1	1.9	3.5	(9.1)	68.6

4. Coverage Summary

	12/06	1D	1W	1M	3M	6M	12M	투자의견	TP	%	P/E	P/B
KOSPI	2,474	(1.4)	(1.5)	(2.9)	5.5	4.5	26.0				* 추정치는 12M fwd 기준임	
KOSPI화학	6,153	(0.9)	0.4	0.7	7.1	11.0	26.9				* 모든 coverage 업체의 실적은 연결기준임	
LG화학	408,500	(1.3)	(3.3)	(0.1)	10.4	40.1	75.3	매수	400,000	(2.1)	12.94	2.13
롯데케미칼	363,500	(1.1)	3.3	(1.9)	(10.5)	3.9	8.8	매수	410,000	12.8	5.71	1.25
한화케미칼	30,350	(1.1)	2.0	(4.1)	(15.0)	2.9	29.1	매수	39,000	28.5	5.12	0.84
금호석유화학	88,000	(2.9)	(2.5)	16.4	11.8	14.4	18.1	매수	100,000	13.6	14.92	1.63
KCC	396,000	0.5	4.2	(2.2)	4.2	(1.4)	7.5	매수	450,000	13.6	21.98	0.58
OCI	120,500	(2.8)	(2.0)	(5.1)	17.0	38.0	63.7	매수	120,000	(0.4)	15.30	0.92
SKC	40,800	(3.5)	(3.4)	(0.2)	7.1	31.4	35.5	매수	45,000	10.3	11.27	1.11
SK이노베이션	208,000	(0.2)	0.2	(1.9)	11.2	28.4	36.8	매수	210,000	1.0	8.39	1.11
S-Oil	122,000	(1.2)	1.2	(4.3)	(0.4)	23.1	41.0	매수	140,000	14.8	13.20	2.30
GS	60,400	0.3	(1.3)	(8.2)	(8.5)	(17.5)	10.4	매수	80,000	32.5	5.73	0.89
SK가스	98,100	(0.6)	2.1	4.7	(9.6)	(17.6)	(10.8)	매수	130,000	32.5	7.41	0.73
포스코대우	18,550	(1.3)	0.0	(6.3)	(11.5)	(21.6)	(29.3)	매수	25,000	34.8	10.39	0.81
LG상사	27,850	(1.2)	2.2	(5.9)	(1.8)	(14.3)	(10.5)	매수	38,000	36.4	10.14	0.90
한국전력	38,450	(0.9)	1.5	(0.6)	(7.9)	(10.6)	(11.0)	매수	55,000	43.0	7.37	0.31
한국가스공사	43,600	(2.2)	(0.5)	5.3	(1.2)	(14.2)	(4.1)	매수	60,000	37.6	8.90	0.56

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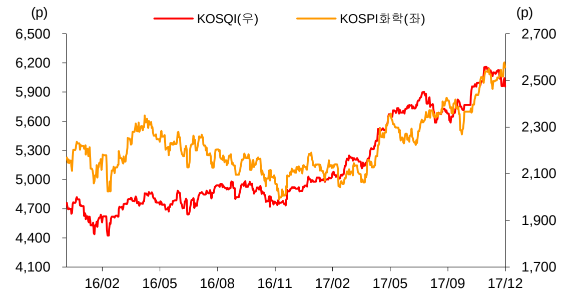
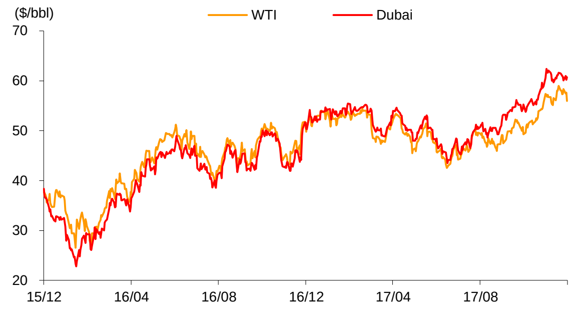
Key Chart

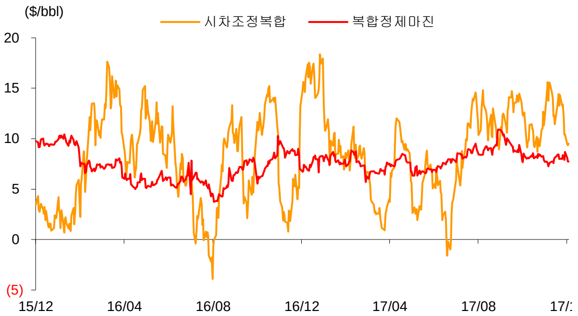
KOSPI/KOSPI화학



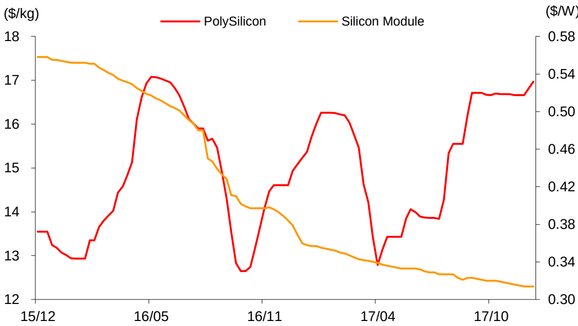
WTI/Dubai



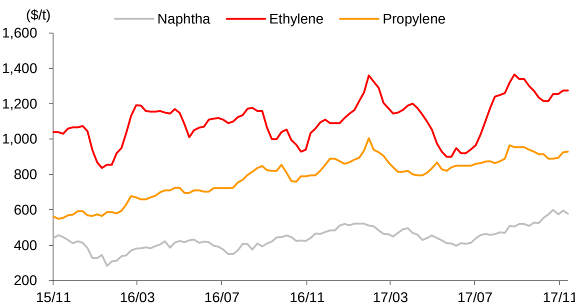
Complex & 1M lagging margin



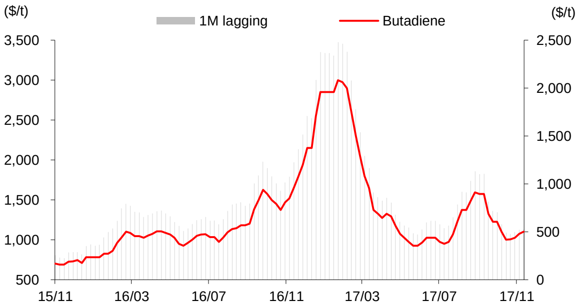
Polysilicon & Module prices



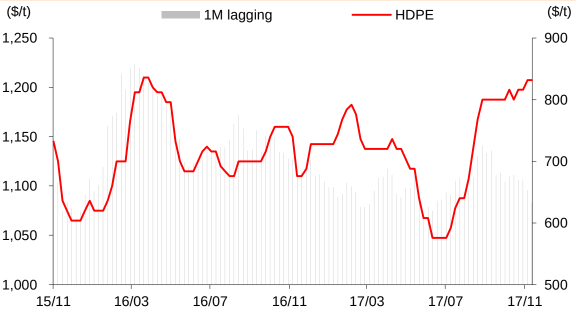
Naphtha/Ethylene/Propylene prices



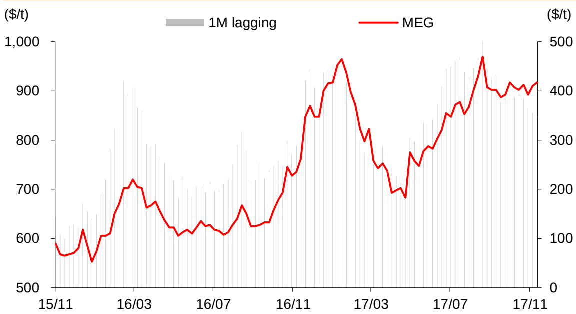
Butadiene price & 1M lagging naphtha spread



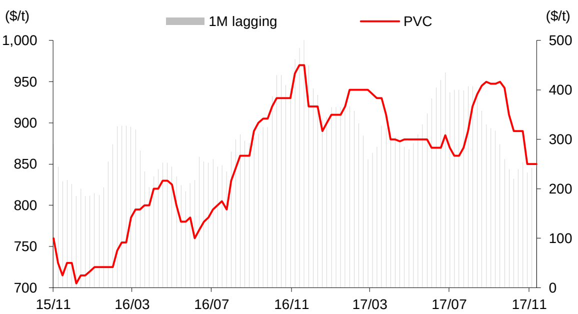
HDPE price & 1M lagging naphtha spread



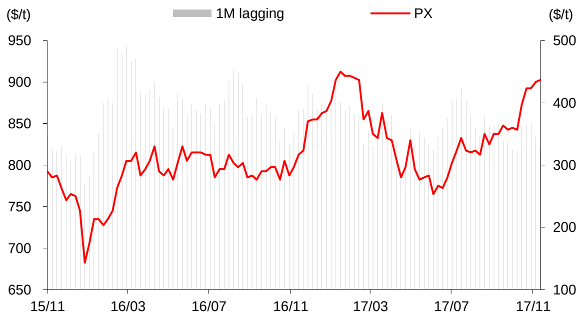
MEG price & 1M lagging naphtha spread



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: 전기뉴스)
제목	中, 미국과 천연가스 부문 1494억달러 투자협약
결론	중국의 PNG 수입 프로젝트가 지연되며 LNG 수입량 일시 증가 전망
세부	
1)	트럼프 방중 기간에 중미간 천연가스 투자협약 맺은 것으로 밝혀짐
2)	웨스트버지니아주와 837억달러 규모의 셰일가스 개발 프로젝트 추진
3)	Sinopec은 AGDC와 430억달러 규모의 알래스카 LNG 개발 협약 체결
4)	알래스카 LNG 수출 프로젝트는 2019년 착공해 2025년 운영 시작 예정임
5)	중국의 PNG 수입 프로젝트가 지연되며 LNG 수입량 일시 증가 전망

WTI Comment	(출처: 연합뉴스)
제목	美휘발유 재고 증가에 급락…WTI 2.9%↓
상승 요인	
하락 요인	EIA, "美 지난주 휘발유 재고는 WoW 170만b 증가함"

Issue 1	(출처: 조선일보)
제목	삼성重 '적자 커밍아웃'… 1년 만에 유상증자도
결론	후판가 인상분을 선가에 반영시키지 못한 영향으로 적자 기록하게 됨
세부	
1)	2017년 매출액 7.9조원, 영업손실 4,900억원 전망을 공정공시함
2)	2018년에는 매출액 5.1조원, 영업손실 2,400억원 전망을 공정공시함
3)	현재 조선소에 남은 일감은 206억달러로 1~1년 6개월 치에 불과함
4)	내년 5월까지 1.5조원 규모의 유상증자를 추진한다고 밝힘
5)	후판가 인상분을 선가에 반영시키지 못한 영향으로 적자 기록하게 됨

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	2015avg.	2016avg.	2017acc.
F/X	**USD/EUR**	0.848	0.846	0.844	0.861	0.839	0.887	0.933	0.951	0.901	0.904	0.890
	Change, %		*0.3*	*0.4*	*(1.6)*	*1.0*	*(4.4)*	*(9.1)*	*(10.8)*	*(5.9)*	*(6.2)*	*(4.7)*
	USD/JPY	112.3	112.6	111.9	113.7	109.2	109.4	114.0	117.0	121.1	108.8	112.1
	Change, %		*(0.3)*	*0.3*	*(1.2)*	*2.8*	*2.6*	*(1.5)*	*(4.0)*	*(7.2)*	*3.2*	*0.2*
	USD/KRW	1,093.4	1,085.8	1,076.7	1,115.1	1,135.6	1,117.2	1,171.2	1,205.8	1,131.2	1,160.5	1,134.3
	Change, %		*0.7*	*1.6*	*(1.9)*	*(3.7)*	*(2.1)*	*(6.6)*	*(9.3)*	*(3.3)*	*(5.8)*	*(3.6)*
Agriculture	**Corn**	339.3	339.8	339.0	348.0	347.0	377.3	351.0	352.0	376.8	358.5	360.3
	Change, %		*(0.1)*	*0.1*	*(2.5)*	*(2.2)*	*(10.1)*	*(3.3)*	*(3.6)*	*(10.0)*	*(5.4)*	*(5.8)*
	Soybean	1,002.8	1,008.5	992.5	984.0	964.5	923.5	1,047.8	996.5	945.4	987.5	976.8
	Change, %		*(0.6)*	*1.0*	*1.9*	*4.0*	*8.6*	*(4.3)*	*0.6*	*6.1*	*1.5*	*2.7*
	Wheat	398.5	406.0	416.5	430.8	421.8	435.8	389.5	408.0	508.1	436.4	437.6
	Change, %		*(1.8)*	*(4.3)*	*(7.5)*	*(5.5)*	*(8.5)*	*2.3*	*(2.3)*	*(21.6)*	*(8.7)*	*(8.9)*
	Rice	12.2	12.3	12.4	11.2	12.5	11.1	10.0	9.4	11.1	10.3	11.0
	Change, %		*(1.2)*	*(1.5)*	*8.4*	*(2.2)*	*9.8*	*22.3*	*30.3*	*10.2*	*17.8*	*10.7*
	Oats	232.0	239.0	246.5	269.0	235.0	256.3	209.5	228.5	250.2	196.3	253.1
	Change, %		*(2.9)*	*(5.9)*	*(13.8)*	*(1.3)*	*(9.5)*	*10.7*	*1.5*	*(7.3)*	*18.2*	*(8.3)*
MYR/mt	**Palm Oil**	2,435.0	2,456.0	2,468.0	2,772.0	2,720.0	2,738.0	3,268.0	3,218.0	2,190.3	2,653.8	2,814.4
	Change, %		*(0.9)*	*(1.3)*	*(12.2)*	*(10.5)*	*(11.1)*	*(25.5)*	*(24.3)*	*11.2*	*(8.2)*	*(13.5)*
	Cocoa	1,911.0	1,929.0	2,096.0	2,117.0	1,954.0	1,975.0	2,347.0	2,126.0	3,091.6	2,854.0	2,014.2
	Change, %		*(0.9)*	*(8.8)*	*(9.7)*	*(2.2)*	*(3.2)*	*(18.6)*	*(10.1)*	*(38.2)*	*(33.0)*	*(5.1)*
	Cotton	75.2	75.0	75.5	68.9	75.3	76.0	72.4	70.7	63.3	65.6	73.3
	Change, %		*0.3*	*(0.5)*	*9.2*	*(0.1)*	*(1.1)*	*3.8*	*6.4*	*18.8*	*14.6*	*2.5*
	Sugar	14.5	14.9	15.1	14.6	14.3	14.0	19.5	19.5	13.1	18.2	15.9
	Change, %		*(3.0)*	*(4.1)*	*(0.8)*	*1.1*	*3.4*	*(25.9)*	*(25.9)*	*10.0*	*(20.4)*	*(9.2)*
	Coffee	124.9	126.0	129.6	125.6	126.6	125.6	138.0	137.1	132.6	136.1	133.8
	Change, %		*(0.9)*	*(3.7)*	*(0.6)*	*(1.4)*	*(0.6)*	*(9.5)*	*(8.9)*	*(5.9)*	*(8.2)*	*(6.7)*
Energy	**WTI**	56.0	57.6	57.3	57.4	49.2	48.2	50.9	53.7	48.8	43.4	50.5
	Change, %		*(2.9)*	*(2.3)*	*(2.4)*	*13.8*	*16.1*	*9.9*	*4.2*	*14.6*	*29.0*	*10.9*
	Brent	61.3	62.9	63.1	64.3	54.2	50.1	53.9	56.8	53.7	45.1	54.2
	Change, %		*(2.5)*	*(2.9)*	*(4.7)*	*13.0*	*22.2*	*13.6*	*7.8*	*14.1*	*35.9*	*13.1*
	Natural Gas	2.9	2.9	3.2	3.1	3.0	3.0	3.6	3.7	2.6	2.6	3.0
	Change, %		*0.3*	*(8.1)*	*(6.8)*	*(2.6)*	*(3.9)*	*(19.6)*	*(21.5)*	*11.1*	*14.5*	*(4.0)*
	Ethanol	1.3	1.4	1.4	1.5	1.6	1.6	1.6	1.6	1.5	1.5	1.5
	Change, %		*(2.4)*	*(2.6)*	*(11.0)*	*(15.6)*	*(15.5)*	*(17.9)*	*(18.0)*	*(12.8)*	*(13.1)*	*(12.8)*
	RBOB Gasoline	166.1	171.8	173.1	183.0	167.3	155.5	153.6	166.5	163.6	140.0	162.2
	Change, %		*(3.3)*	*(4.0)*	*(9.2)*	*(0.7)*	*6.8*	*8.1*	*(0.3)*	*1.5*	*18.7*	*2.4*
	Coal	97.1	96.6	96.8	98.8	97.9	77.0	84.0	88.4	59.0	65.5	87.4
	Change, %		*0.6*	*0.3*	*(1.7)*	*(0.8)*	*26.2*	*15.6*	*9.8*	*64.7*	*48.3*	*11.1*
Metal	**Gold**	1,263.3	1,265.9	1,283.9	1,282.1	1,334.2	1,294.2	1,169.8	1,152.3	1,160.6	1,248.5	1,258.0
	Change, %		*(0.2)*	*(1.6)*	*(1.5)*	*(5.3)*	*(2.4)*	*8.0*	*9.6*	*8.9*	*1.2*	*0.4*
	Silver	16.0	16.1	16.5	17.2	17.9	17.7	16.7	15.9	15.7	17.1	17.1
	Change, %		*(0.9)*	*(3.5)*	*(7.3)*	*(10.7)*	*(9.9)*	*(4.5)*	*0.3*	*1.5*	*(6.7)*	*(6.8)*
	Copper	6,550.0	6,543.0	6,760.0	6,970.0	6,901.0	5,616.0	5,884.0	5,535.5	5,503.1	4,872.0	6,145.7
	Change, %		*0.1*	*(3.1)*	*(6.0)*	*(5.1)*	*16.6*	*11.3*	*18.3*	*19.0*	*34.4*	*6.6*
	Nickel	699.0	702.6	734.9	837.1	782.4	575.4	786.0	682.0	759.5	646.4	675.3
	Change, %		*(0.5)*	*(4.9)*	*(16.5)*	*(10.7)*	*21.5*	*(11.1)*	*2.5*	*(8.0)*	*8.1*	*3.5*
	Zinc	3,085.0	3,112.0	3,157.0	3,232.0	3,095.0	2,459.0	2,800.0	2,576.0	1,941.9	2,097.5	2,865.4
	Change, %		*(0.9)*	*(2.3)*	*(4.5)*	*(0.3)*	*25.5*	*10.2*	*19.8*	*58.9*	*47.1*	*7.7*
	Lead	2,511.0	2,502.0	2,434.3	2,507.0	2,314.3	2,059.0	2,324.0	2,003.5	1,791.2	1,868.3	2,302.7
	Change, %		*0.4*	*3.2*	*0.2*	*8.5*	*22.0*	*8.0*	*25.3*	*40.2*	*34.4*	*9.0*
	Aluminum	14,195.0	14,485.0	14,560.0	15,955.0	16,215.0	13,630.0	13,765.0	12,765.0	12,184.0	12,373.5	14,566.7
	Change, %		*(2.0)*	*(2.5)*	*(11.0)*	*(12.5)*	*4.1*	*3.1*	*11.2*	*16.5*	*14.7*	*(2.6)*
	Cobalt	70,099.0	69,944.0	66,790.0	60,860.0	60,850.0	56,100.0	30,500.0	32,734.0	28,444.4	25,480.1	54,624.9
	Change, %		*0.2*	*5.0*	*15.2*	*15.2*	*25.0*	*129.8*	*114.1*	*146.4*	*175.1*	*28.3*
	HR Coil	630.0	629.0	629.0	611.0	640.0	589.0	575.0	633.0	461.5	519.3	618.5
	Change, %		*0.2*	*0.2*	*3.1*	*(1.6)*	*7.0*	*9.6*	*(0.5)*	*36.5*	*21.3*	*1.9*
	Scrap	349.0	349.0	349.0	330.0	380.0	355.0	270.0	302.0	252.9	275.7	343.6
	Change, %		*0.0*	*0.0*	*5.8*	*(8.2)*	*(1.7)*	*29.3*	*15.6*	*38.0*	*26.6*	*1.6*

자료: Bloomberg

참고) NYMEX, ICE, LME 중 대표지수를 사용

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Refining Price Data

Daily Price		12/06	1D	1W	1M	3M	6M	12M	YTD	2015avg.	2016avg.	2017acc.
Crude Oil	**WTI**	56.0	57.6	57.3	57.4	49.2	45.7	49.8	53.7	48.8	43.4	50.4
	Change, %		*(2.9)*	*(2.3)*	*(2.4)*	*13.8*	*22.4*	*12.4*	*4.2*	*14.7*	*29.1*	*11.0*
	Dubai	60.7	60.2	61.0	60.6	52.1	48.4	50.4	53.8	50.8	41.3	52.5
	Change, %		*0.8*	*(0.4)*	*0.2*	*16.5*	*25.4*	*20.6*	*12.8*	*19.6*	*47.0*	*15.7*
Crude Oil Product	**Gasoline(휘발유)**	74.9	74.5	75.9	75.8	71.0	62.5	64.4	69.8	69.5	56.3	67.5
	Change, %		*0.5*	*(1.4)*	*(1.1)*	*5.5*	*19.8*	*16.3*	*7.2*	*7.7*	*33.1*	*11.0*
	Kerosene(등유)	74.1	73.2	74.6	73.4	66.7	57.7	62.1	66.4	64.7	52.9	64.5
	Change, %		*1.2*	*(0.7)*	*0.9*	*11.1*	*28.3*	*19.3*	*11.5*	*14.4*	*40.1*	*14.9*
	Diesel(경유)	73.9	73.0	74.2	71.8	67.8	58.3	61.0	65.5	64.8	52.1	64.9
	Change, %		*1.2*	*(0.5)*	*2.9*	*8.9*	*26.8*	*21.2*	*12.8*	*14.1*	*41.8*	*13.8*
	Bunker-C	55.2	55.3	56.1	57.3	49.4	46.1	49.1	52.1	45.3	35.5	49.1
	Change, %		*(0.2)*	*(1.6)*	*(3.6)*	*11.7*	*19.8*	*12.4*	*6.0*	*22.0*	*55.4*	*12.3*
	Naphtha	64.0	63.2	64.9	64.2	53.3	46.0	49.5	53.5	52.6	42.6	52.9
	Change, %		*1.3*	*(1.3)*	*(0.2)*	*20.1*	*39.3*	*29.4*	*19.8*	*21.7*	*50.3*	*21.0*
Dubai Spread	**Gasoline(휘발유)**	14.2	14.3	15.0	15.2	18.8	14.1	14.0	16.0	18.7	14.9	15.0
	Change		*(0.1)*	*(0.8)*	*(1.0)*	*(4.6)*	*0.1*	*0.1*	*(1.8)*	*(4.6)*	*(0.8)*	*(0.8)*
	Kerosene(등유)	13.4	13.0	13.6	12.8	14.6	9.3	11.8	12.6	14.0	11.6	12.0
	Change		*0.4*	*(0.3)*	*0.5*	*(1.2)*	*4.0*	*1.6*	*0.7*	*(0.6)*	*1.8*	*1.4*
	Diesel(경유)	13.2	12.8	13.3	11.2	15.7	9.8	10.6	11.7	14.0	10.8	12.4
	Change		*0.4*	*(0.1)*	*2.0*	*(2.5)*	*3.3*	*2.6*	*1.5*	*(0.8)*	*2.4*	*0.8*
	Bunker-C	(5.5)	(4.9)	(4.9)	(3.3)	(2.7)	(2.3)	(1.2)	(1.8)	(5.5)	(5.8)	(3.3)
	Change		*(0.6)*	*(0.6)*	*(2.2)*	*(2.8)*	*(3.2)*	*(4.3)*	*(3.8)*	*0.0*	*0.3*	*(2.2)*
	Naphtha	3.3	3.0	3.9	3.6	1.1	(2.5)	(0.9)	(0.4)	1.8	1.3	0.4
	Change		*0.3*	*(0.6)*	*(0.3)*	*2.2*	*5.8*	*4.2*	*3.7*	*1.5*	*2.0*	*2.9*
Refining Margin	**Simple(단순)**	2.3	2.5	2.8	3.0	5.0	2.6	3.6	3.8	3.3	1.9	3.2
	Change		*(0.2)*	*(0.5)*	*(0.6)*	*(2.7)*	*(0.3)*	*(1.2)*	*(1.5)*	*(1.0)*	*0.4*	*(0.8)*
	Complex(복합)	7.7	7.7	8.2	7.7	10.5	6.7	7.4	8.3	9.3	7.0	8.0
	Change		*0.0*	*(0.4)*	*(0.0)*	*(2.8)*	*1.1*	*0.3*	*(0.5)*	*(1.6)*	*0.8*	*(0.2)*
	Complex(lagging)	9.5	9.4	12.1	14.4	12.3	7.1	15.1	18.0	7.3	8.5	8.8
	Change		*0.2*	*(2.6)*	*(4.9)*	*(2.8)*	*2.4*	*(5.5)*	*(8.4)*	*2.3*	*1.0*	*0.7*

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			12/06	12/05	12/04	12/01	11/30	11/29	11/28	11/27	11/24	11/23
Spot Price	**Naphtha**	CFR Japan	585.6	579.5	591.0	588.5	588.5	593.0	598.0	596.5	598.0	591.3
	Ethylene	CFR SE Asia	1,180.0	1,180.0	1,180.0	1,180.0	1,175.0	1,175.0	1,175.0	1,175.0	1,175.0	1,160.0
	Propylene	FOB Korea	903.0	899.0	899.0	897.0	899.0	901.0	901.0	899.0	892.0	892.0
	Butadiene	FOB Korea	1,010.0	1,010.0	1,010.0	1,010.0	1,010.0	1,010.0	1,010.0	1,000.0	1,000.0	1,000.0
	HDPE	CFR FE Asia	1,290.0	1,305.0	1,305.0	1,300.0	1,300.0	1,300.0	1,300.0	1,280.0	1,280.0	1,280.0
	LDPE	CFR FE Asia	1,240.0	1,245.0	1,250.0	1,250.0	1,250.0	1,250.0	1,250.0	1,245.0	1,245.0	1,245.0
	LLDPE	CFR FE Asia	1,170.0	1,175.0	1,180.0	1,180.0	1,180.0	1,180.0	1,180.0	1,170.0	1,170.0	1,170.0
	MEG	CFR China	920.0	926.0	923.0	915.0	915.0	912.0	910.0	905.0	913.0	903.0
	PP	CFR FE Asia	1,140.0	1,140.0	1,120.0	1,120.0	1,110.0	1,120.0	1,115.0	1,115.0	1,120.0	1,120.0
	PX	CFR China	888.2	885.7	889.8	889.0	877.7	883.2	883.7	885.7	890.7	893.7
	PTA	CFR China	715.0	715.0	710.0	705.0	705.0	700.0	700.0	700.0	700.0	695.0
	Benzene	FOB Korea	908.0	885.0	875.0	873.0	869.5	879.5	893.5	879.5	876.5	869.0
	Toluene	FOB Korea	695.0	699.0	701.0	689.0	698.0	702.0	707.5	702.5	696.5	691.5
	Xylene	FOB Korea	707.0	707.0	713.0	711.0	699.0	702.5	702.0	699.0	697.0	690.5
	SM	FOB Korea	1,318.0	1,299.0	1,287.0	1,281.0	1,297.0	1,302.0	1,297.0	1,284.0	1,293.0	1,276.5

Weekly Price			Last Week	1W	1M	3M	6M	12M	YTD	2015avg.	2016avg.	2017acc.
Spot Price	**Naphtha**	CFR Japan	579.0	595.5	574.0	470.0	464.0	465.5	484.5	493.0	399.5	486.4
	Change, %			*(2.8)*	*0.9*	*23.2*	*24.8*	*24.4*	*19.5*	*17.4*	*44.9*	*19.0*
	Ethylene	CFR SE Asia	1,200.0	1,195.0	1,130.0	1,190.0	1,030.0	975.0	990.0	1,103.7	1,040.9	1,078.9
	Change, %			*0.4*	*6.2*	*0.8*	*16.5*	*23.1*	*21.2*	*8.7*	*15.3*	*11.2*
	Propylene	CFR SE Asia	845.0	835.0	775.0	800.0	770.0	685.0	815.0	770.0	705.7	879.6
	Change, %			*1.2*	*9.0*	*5.6*	*9.7*	*23.4*	*3.7*	*9.7*	*19.7*	*(3.9)*
	Butadiene	CFR SE Asia	1,050.0	1,025.0	950.0	1,325.0	925.0	1,600.0	2,100.0	877.5	1,116.8	1,507.9
	Change, %			*2.4*	*10.5*	*(20.8)*	*13.5*	*(34.4)*	*(50.0)*	*19.7*	*(6.0)*	*(30.4)*
	Benzene	CFR SE Asia	892.5	877.5	817.5	817.5	750.0	770.0	822.5	690.0	646.7	834.2
	Change, %			*1.7*	*9.2*	*9.2*	*19.0*	*15.9*	*8.5*	*29.3*	*38.0*	*7.0*
	Toluene	CFR SE Asia	715.0	715.0	705.0	660.0	650.0	667.5	690.0	700.8	630.5	687.0
	Change, %			*0.0*	*1.4*	*8.3*	*10.0*	*7.1*	*3.6*	*2.0*	*13.4*	*4.1*
	Xylene	CFR SE Asia	695.0	695.0	662.5	635.0	632.5	655.0	675.0	699.3	627.7	665.5
	Change, %			*0.0*	*4.9*	*9.4*	*9.9*	*6.1*	*3.0*	*(0.6)*	*10.7*	*4.4*
Spread	**Ethylene**	-Naphtha	621.0	599.5	556.0	720.0	566.0	509.5	505.5	610.6	641.4	592.6
	Change, %			*3.6*	*11.7*	*(13.8)*	*9.7*	*21.9*	*22.8*	*1.7*	*(3.2)*	*4.8*
	Propylene	-Naphtha	266.0	239.5	201.0	330.0	306.0	219.5	330.5	277.0	306.2	393.2
	Change, %			*11.1*	*32.3*	*(19.4)*	*(13.1)*	*21.2*	*(19.5)*	*(4.0)*	*(13.1)*	*(32.4)*
	Butadiene	-Naphtha	471.0	429.5	376.0	855.0	461.0	1,134.5	1,615.5	384.5	717.3	1,021.5
	Change, %			*9.7*	*25.3*	*(44.9)*	*2.2*	*(58.5)*	*(70.8)*	*22.5*	*(34.3)*	*(53.9)*
	Benzene	-Naphtha	313.5	282.0	243.5	347.5	286.0	304.5	338.0	197.0	247.2	347.8
	Change, %			*11.2*	*28.7*	*(9.8)*	*9.6*	*3.0*	*(7.2)*	*59.2*	*26.8*	*(9.9)*
	Toluene	-Naphtha	136.0	119.5	131.0	190.0	186.0	202.0	205.5	207.8	231.0	200.6
	Change, %			*13.8*	*3.8*	*(28.4)*	*(26.9)*	*(32.7)*	*(33.8)*	*(34.5)*	*(41.1)*	*(32.2)*
	Xylene	-Naphtha	116.0	99.5	88.5	165.0	168.5	189.5	190.5	206.3	228.2	179.1
	Change, %			*16.6*	*31.1*	*(29.7)*	*(31.2)*	*(38.8)*	*(39.1)*	*(43.8)*	*(49.2)*	*(35.2)*

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

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Weekly Price			Last Week	1W	1M	3M	6M	12M	YTD	2015avg.	2016avg.	2017acc.
Spot Price	HDPE	CFR SE Asia	1,207.5	1,207.5	1,187.5	1,137.5	1,077.5	1,110.0	1,142.5	1,230.1	1,134.6	1,138.3
	Change, %			0.0	1.7	6.2	12.1	8.8	5.7	(1.8)	6.4	6.1
	MEG	CFR SE Asia	917.5	910.0	902.5	930.0	877.5	762.5	847.5	780.8	660.8	846.7
	Change, %			0.8	1.7	(1.3)	4.6	20.3	8.3	17.5	38.9	8.4
	PVC	CFR SE Asia	850.0	850.0	890.0	935.0	860.0	970.0	920.0	820.8	823.4	901.9
	Change, %			0.0	(4.5)	(9.1)	(1.2)	(12.4)	(7.6)	3.6	3.2	(5.8)
	PP	CFR SE Asia	1,147.5	1,147.5	1,127.5	1,127.5	1,087.5	1,010.0	1,032.5	1,109.8	978.4	1,094.3
	Change, %			0.0	1.8	1.8	5.5	13.6	11.1	3.4	17.3	4.9
	2-EH	CFR Korea	1,030.0	1,020.0	1,000.0	990.0	960.0	840.0	865.0	930.1	772.4	963.9
	Change, %			1.0	3.0	4.0	7.3	22.6	19.1	10.7	33.4	6.9
	ABS	CFR SE Asia	2,000.0	1,960.0	1,890.0	2,010.0	1,850.0	1,585.0	1,635.0	1,431.1	1,347.1	1,829.3
	Change, %			2.0	5.8	(0.5)	8.1	26.2	22.3	39.8	48.5	9.3
	SBR	CFR SE Asia	1,640.0	1,610.0	1,570.0	1,690.0	1,490.0	1,840.0	2,000.0	1,332.1	1,483.0	2,003.2
	Change, %			1.9	4.5	(3.0)	10.1	(10.9)	(18.0)	23.1	10.6	(18.1)
	SM	CFR SE Asia	1,327.5	1,305.0	1,195.0	1,355.0	1,150.0	1,180.0	1,205.0	1,100.7	1,064.6	1,246.9
	Change, %			1.7	11.1	(2.0)	15.4	12.5	10.2	20.6	24.7	6.5
	Caustic	FOB NEA	705.0	700.0	651.0	471.0	467.5	400.0	422.5	296.8	316.6	479.2
	Change, %			0.7	8.3	49.7	50.8	76.3	66.9	137.6	122.7	47.1
	PX	CFR SE Asia	902.5	900.0	872.5	812.5	832.5	812.5	855.0	842.9	790.4	840.2
	Change, %			0.3	3.4	11.1	8.4	11.1	5.6	7.1	14.2	7.4
	PO	CFR China	1,732.5	1,677.5	1,872.5	1,992.5	1,542.5	1,632.5	1,562.5	1,683.4	1,396.8	1,580.0
	Change, %			3.3	(7.5)	(13.0)	12.3	6.1	10.9	2.9	24.0	9.7
	Caprolactam	CFR SE Asia	2,020.0	2,020.0	2,170.0	1,740.0	1,760.0	1,480.0	1,850.0	1,581.5	1,344.9	1,923.4
	Change, %			0.0	(6.9)	16.1	14.8	36.5	9.2	27.7	50.2	5.0
	PTA	CFR SE Asia	715.0	712.5	670.0	657.5	657.5	620.0	642.5	648.0	613.7	663.7
	Change, %			0.4	6.7	8.7	8.7	15.3	11.3	10.3	16.5	7.7
Spread	HDPE		628.5	612.0	613.5	667.5	613.5	644.5	658.0	737.1	735.1	651.9
	Change, %			2.7	2.4	(5.8)	2.4	(2.5)	(4.5)	(14.7)	(14.5)	(3.6)
	MEG		338.5	314.5	328.5	460.0	413.5	297.0	363.0	287.8	261.3	360.4
	Change, %			7.6	3.0	(26.4)	(18.1)	14.0	(6.7)	17.6	29.6	(6.1)
	PVC		271.0	254.5	316.0	465.0	396.0	504.5	435.5	327.8	423.9	415.6
	Change, %			6.5	(14.2)	(41.7)	(31.6)	(46.3)	(37.8)	(17.3)	(36.1)	(34.8)
	PP		568.5	552.0	553.5	657.5	623.5	544.5	548.0	616.8	578.9	608.0
	Change, %			3.0	2.7	(13.5)	(8.8)	4.4	3.7	(7.8)	(1.8)	(6.5)
	2-EH		451.0	424.5	426.0	520.0	496.0	374.5	380.5	437.0	372.9	477.6
	Change, %			6.2	5.9	(13.3)	(9.1)	20.4	18.5	3.2	21.0	(5.6)
	ABS		1,421.0	1,364.5	1,316.0	1,540.0	1,386.0	1,119.5	1,150.5	938.1	947.6	1,342.9
	Change, %			4.1	8.0	(7.7)	2.5	26.9	23.5	51.5	50.0	5.8
	SBR	BD spread	590.0	585.0	620.0	365.0	565.0	240.0	(100.0)	454.7	366.2	495.3
	Change, %			0.9	(4.8)	61.6	4.4	145.8	(690.0)	29.8	61.1	19.1
	SM		748.5	709.5	621.0	885.0	686.0	714.5	720.5	607.7	665.1	760.6
	Change, %			5.5	20.5	(15.4)	9.1	4.8	3.9	23.2	12.5	(1.6)
	Caustic											
	Change, %											
	PX		323.5	304.5	298.5	342.5	368.5	347.0	370.5	349.9	390.9	353.8
	Change, %			6.2	8.4	(5.5)	(12.2)	(6.8)	(12.7)	(7.5)	(17.2)	(8.6)
	PO	propylene sprea	887.5	842.5	1,097.5	1,192.5	772.5	947.5	747.5	913.4	691.1	700.4
	Change, %			5.3	(19.1)	(25.6)	14.9	(6.3)	18.7	(2.8)	28.4	26.7
	Caprolactam	benzene sprea	1,127.5	1,142.5	1,352.5	922.5	1,010.0	710.0	1,027.5	891.6	698.2	1,089.2
	Change, %			(1.3)	(16.6)	22.2	11.6	58.8	9.7	26.5	61.5	3.5
	PTA	px spread	83.3	82.5	59.3	88.8	74.8	51.3	44.0	58.0	60.4	75.6
	Change, %			0.9	40.5	(6.2)	11.4	62.4	89.2	43.5	37.8	10.1

자료 : Cischem, Platts, SK증권

참고 : Spread는 Naphtha spread로 일괄적용

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Global peers

	Currency	12/06	1D	1W	1M	3M	6M	12M	YTD	MKT CAP (mil USD)	PER 17E	PER 18E	PBR 17E	PBR 18E	EV/EBITDA 17E	EV/EBITDA 18E
Petrochemical																
DowDuPont	USD	71.1	(0.6)	(1.0)	1.2	9.6	11.5	26.4	24.2	166,327	21.2	17.5	1.6	1.8	11.8	10.1
Eastman	USD	90.6	(0.6)	(0.9)	0.3	6.5	12.9	20.2	20.5	13,024	12.8	11.2	2.6	2.4	9.3	8.5
BASF	EUR	93.8	0.2	0.1	(3.6)	12.5	11.5	12.9	6.2	101,616	15.3	15.1	2.5	2.4	8.2	8.0
Akzo Nobel	EUR	73.0	(0.2)	(3.5)	(6.4)	(7.4)	(3.7)	27.4	23.0	21,757	17.8	17.0	3.1	3.0	9.7	9.4
Arkema	EUR	102.8	(0.4)	0.3	(5.7)	10.4	10.1	12.2	10.6	9,196	14.5	13.4	1.9	1.8	6.6	6.3
Lanxess	EUR	62.0	(1.6)	(2.0)	(11.4)	(0.4)	(8.9)	2.2	(0.6)	6,691	16.1	14.5	2.1	2.0	7.1	8.4
Sumitomo Chemical	JPY	776	(1.8)	(3.2)	(5.6)	19.9	31.1	35.7	39.6	11,445	9.8	9.7	1.4	1.3	7.3	7.2
Mitsubishi Chemical	JPY	1,201	(0.5)	(2.0)	(1.2)	19.2	39.0	62.7	58.4	16,111	9.3	9.2	1.4	1.3	6.5	6.3
Shin-Etsu Chemical	JPY	11,380	(1.5)	(4.7)	(7.6)	17.4	10.4	32.2	25.5	43,811	21.5	18.6	2.1	1.9	9.5	8.1
Asahi Kasei	JPY	1,341	(2.0)	(4.8)	(2.2)	5.4	19.2	29.8	31.5	16,758	13.8	13.6	1.5	1.4	7.1	6.9
JSR	JPY	2,184	(0.9)	0.4	(0.5)	4.5	14.6	28.0	18.5	4,400	14.9	14.5	1.3	1.2	8.1	7.6
Nitto Denko	JPY	9,990	(4.4)	(8.9)	(11.8)	5.8	11.5	20.5	11.4	15,465	18.0	16.3	2.3	2.1	8.2	7.5
SABIC	SAR	101.1	(0.2)	0.5	0.6	1.8	2.4	4.4	10.5	80,842	15.2	14.3	1.8	1.7	7.5	7.3
Yansab	SAR	61.0	0.0	3.3	9.8	7.9	7.2	20.2	12.0	9,146	15.2	14.2	2.3	2.3	9.6	9.3
Formosa Plastics	TWD	93.0	(0.6)	(0.6)	1.3	(2.5)	3.1	3.0	4.3	19,693	13.5	14.2	1.8	1.7	19.2	19.2
Formosa Fiber	TWD	95.5	(0.3)	1.7	4.0	0.4	3.5	(3.5)	(0.8)	18,620	12.1	13.0	1.7	1.7	10.5	10.8
Nan Ya Plastics	TWD	75.0	(1.1)	(1.2)	0.5	0.0	4.6	8.5	5.3	19,786	14.4	14.8	1.7	1.7	15.1	15.5
Sinopec Shanghai	CNY	6.51	0.2	2.7	1.2	0.6	(0.3)	5.0	1.1	9,188	12.4	11.9	2.5	2.2	6.7	6.7
Sinopec Yizheng(Fibe	CNY	2.81	(2.4)	(4.7)	(8.5)	(12.2)	(22.6)	(31.1)	(31.5)	5,429	#N/A N/A	52.0	5.4	5.4	27.1	14.1
Reliance	INR	927	1.4	(2.0)	(0.6)	12.6	41.2	84.4	71.2	93,355	17.1	14.6	1.9	1.7	11.8	9.6
Industries Qatar	QAR	90.0	(0.4)	(1.6)	(5.3)	1.9	(8.2)	(16.6)	(23.4)	14,677	15.5	13.1	1.6	1.5	55.5	48.7
PTT Chemical	THB	80.0	0.3	0.9	3.2	5.3	12.7	25.5	27.0	11,043	10.2	10.4	1.4	1.3	5.5	5.3
Petronas	MYR	7.4	(0.9)	(1.2)	0.1	(0.1)	2.5	7.6	5.7	14,492	15.0	15.2	2.0	1.9	8.6	8.6
LG화학	KRW	408,500	(1.3)	(3.3)	(0.1)	9.8	40.1	68.8	56.5	26,306	15.2	14.3	2.0	1.8	6.8	6.3
롯데케미칼	KRW	363,500	(1.1)	3.3	(1.9)	(10.0)	3.9	3.7	(1.5)	11,366	5.4	5.4	1.1	0.9	3.7	3.3
한화케미칼	KRW	30,350	(1.1)	2.0	(4.1)	(14.1)	2.9	23.6	22.9	4,563	4.9	5.4	0.8	0.7	6.6	6.4
금호석유	KRW	88,000	(2.9)	(2.5)	16.4	10.6	14.4	18.4	7.3	2,446	15.1	14.0	1.6	1.5	10.5	9.4
SKC	KRW	40,800	(3.5)	(3.4)	(0.2)	9.2	31.4	33.1	23.6	1,397	10.8	9.8	1.0	0.9	9.5	8.1
국도화학	KRW	66,000	(1.5)	(1.8)	8.4	29.7	27.9	19.3	20.2	350	0.0	0.0	0.0	0.0	0.0	0.0
효성	KRW	7,730	(4.4)	(3.9)	(0.8)	11.9	13.0	45.8	13.7	4,261	7.9	7.8	1.1	1.0	7.2	6.3
Average			**(1.1)**	**(1.4)**	**(1.0)**	**5.5**	**11.3**	**21.0**	**16.4**							
Refinery																
Valero	USD	85.0	(0.9)	2.0	4.3	24.8	36.4	31.3	24.4	37,181	16.9	13.3	1.9	1.8	7.3	6.4
Conoco Phillips	USD	50.4	(1.7)	(0.7)	(6.1)	11.8	13.3	1.0	0.5	60,230	91.6	31.4	2.0	2.0	8.6	6.7
Formosa Petrochemic	TWD	109.0	(1.8)	2.8	3.3	2.3	2.8	(1.8)	(2.7)	34,540	15.1	18.5	3.2	3.2	9.6	11.7
Andeavor	USD	107.7	0.1	2.5	(3.4)	8.2	21.4	21.4	23.2	16,807	15.1	12.8	1.7	1.7	8.9	7.1
Marathon Petroleum	USD	63.5	(1.7)	3.4	1.8	21.2	19.5	34.4	26.0	30,995	16.4	15.1	2.5	2.5	8.3	7.5
Devon Energy	USD	36.9	(3.9)	(0.6)	(9.7)	12.9	8.8	(22.0)	(19.2)	19,380	20.6	16.7	2.7	2.3	8.9	7.9
Hollyfrontier	USD	45.1	(1.7)	1.7	7.2	44.3	87.3	44.9	37.7	7,995	19.0	16.4	1.6	1.6	8.7	7.6
Phillips 66	USD	97.6	(0.7)	2.8	3.3	17.1	26.7	14.9	12.9	49,453	21.3	15.6	2.2	2.2	10.7	8.8
Murphy Oil	USD	28.2	(2.5)	0.3	(3.2)	15.1	13.7	(15.3)	(9.4)	4,868	#N/A N/A	189.3	1.1	1.1	5.2	4.6
JX Holdings	JPY	644.5	(0.9)	3.9	5.6	20.9	32.9	34.0	30.3	19,678	8.2	8.3	0.9	0.9	7.4	7.1
Idemitsu	JPY	3,850.0	(1.2)	2.8	12.1	38.2	21.5	35.9	24.0	7,135	7.3	7.1	1.0	0.9	7.1	6.6
Nesteoil	EUR	52.0	0.0	2.7	6.1	42.9	49.4	35.4	42.3	15,726	16.6	16.3	3.1	2.8	9.6	10.0
Ashland	USD	70.4	(1.7)	(4.5)	2.9	14.8	5.9	28.3	31.7	4,375	17.5	21.3	1.4	1.3	7.9	9.9
Fuchs Petrolub	EUR	43.5	(0.7)	(0.6)	(10.0)	(7.7)	(13.2)	16.6	9.2	6,893	23.0	21.6	4.5	4.0	13.5	12.8
SK이노베이션	KRW	208,000	(0.2)	0.2	(1.9)	12.4	28.4	35.5	42.0	17,545	8.2	7.9	1.0	1.0	5.0	4.6
S-Oil	KRW	122,000	(1.2)	1.2	(4.3)	0.8	23.1	41.0	44.0	12,530	12.1	9.3	2.1	1.9	9.3	6.8
GS	KRW	60,400	0.3	(1.3)	(8.2)	(8.5)	(17.5)	9.6	11.6	5,120	5.8	5.5	0.7	0.7	6.8	6.4
Average			**(1.2)**	**1.1**	**(0.0)**	**16.0**	**21.2**	**20.3**	**19.3**							

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

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Global peers

	Currency	12/06	1D	1W	1M	3M	6M	12M	YTD	MKT CAP (mil USD)	PER 17E	PER 18E	PBR 17E	PBR 18E	EV/EBITDA 17E	EV/EBITDA 18E
E&P/Shale																
Exxon Mobil	USD	82	(0.7)	0.0	(1.8)	4.4	1.3	(6.0)	(8.8)	348,629	22.7	20.0	2.0	1.9	9.9	8.8
BP	GBP	494	0.5	(0.1)	(5.2)	10.6	6.3	6.6	(3.0)	130,767	22.2	16.8	1.4	1.4	6.5	5.8
Shell	EUR	2,366	(0.1)	0.0	(3.7)	10.9	12.9	15.3	5.5	263,778	16.9	15.0	1.3	1.3	6.9	6.3
Chevron	USD	120	(0.6)	2.1	2.2	7.0	14.8	6.1	1.6	227,184	29.4	22.8	1.6	1.6	8.3	7.2
Total	EUR	47	(0.1)	(0.7)	(2.6)	7.6	3.5	5.1	(2.8)	141,238	13.4	12.9	1.3	1.2	6.2	5.5
Sinopec	CNY	6	(0.7)	0.8	(1.8)	1.5	0.0	14.9	12.6	105,871	13.9	12.9	1.0	1.0	4.5	4.4
Petrochina	CNY	8	(1.6)	(1.8)	(3.5)	(0.6)	4.8	6.4	1.8	212,200	50.9	31.4	1.2	1.2	6.6	6.1
CNOOC	CNY	11	(0.5)	(4.7)	(8.5)	(7.8)	(8.2)	(21.2)	(17.9)	60,464	12.9	11.0	1.0	1.0	4.1	3.9
Gazprom	RUB	134	0.3	0.3	6.4	14.4	12.6	(11.6)	(13.3)	53,587	4.5	4.3	0.3	0.2	4.0	3.7
Rosneft	RUB	292	(0.3)	(0.7)	(8.0)	(3.5)	(3.4)	(17.1)	(27.4)	52,349	10.6	7.2	0.8	0.7	5.4	4.6
Anadarko	USD	47	(2.4)	(1.6)	(9.1)	11.2	(6.0)	(30.9)	(32.4)	25,777	#N/A N/A	#N/A N/A	1.8	1.8	7.4	6.5
Petrobras	BRL	16	1.4	1.2	(11.0)	3.3	17.8	(3.9)	4.4	63,576	13.6	9.3	0.6	0.6	5.0	4.6
Lukoil	USD	3,403	0.0	2.9	7.4	16.6	25.0	4.1	(1.3)	48,865	7.0	6.4	0.7	0.7	N/A	N/A
Kinder	USD	17	(0.2)	2.1	(5.4)	(11.5)	(9.0)	(19.0)	(17.4)	47,497	26.5	24.3	1.1	1.1	10.9	10.5
Statoil	NOK	167	(1.4)	0.1	(0.4)	11.8	13.6	13.1	5.2	66,492	16.0	16.8	1.7	1.7	3.5	3.4
BHP	AUD	27	(2.0)	(1.6)	(1.7)	(1.9)	16.5	6.8	8.5	103,835	14.2	16.8	1.8	1.8	5.8	6.2
PTT E&P	THB	93	0.3	1.4	1.6	5.7	8.1	2.2	(3.1)	11,342	15.1	12.8	0.9	0.9	3.5	3.2
Petronas gas	MYR	16	0.4	0.0	(5.5)	(12.1)	(15.7)	(24.2)	(24.1)	7,849	18.0	16.9	2.6	2.4	10.3	9.6
Chesapeake	USD	4	(3.8)	(6.9)	(9.8)	0.3	(25.2)	(50.3)	(46.3)	3,426	5.4	5.2	#N/A N/A	#N/A N/A	7.5	6.5
Noble Energy	USD	26	(2.7)	(0.0)	(10.7)	2.7	(11.0)	(35.0)	(31.9)	12,603	#N/A N/A	602.3	1.3	1.3	7.7	7.1
Average		**0**	**(0.7)**	**(0.4)**	**(3.5)**	**3.5**	**2.9**	**(6.9)**	**(9.5)**							
PV																
WACKER	EUR	136.0	0.0	(1.0)	(3.4)	22.4	40.9	53.8	37.5	8,361	30.5	22.6	2.2	2.1	7.5	7.1
GCL-Poly	HKD	1.2	(4.0)	(8.5)	(15.6)	36.8	45.1	16.7	28.0	2,831	8.2	7.7	0.8	0.7	6.4	5.9
SunPower	USD	7.6	2.4	(7.1)	(13.2)	(18.7)	(7.2)	9.6	15.4	1,065	#N/A N/A	#N/A N/A	1.4	1.4	15.6	11.9
Canadian Solar	USD	16.6	0.4	(6.6)	(11.7)	3.2	31.5	38.1	36.0	961	11.1	9.0	0.9	0.9	9.5	10.8
JA Solar	USD	7.2	(0.5)	(2.2)	(9.2)	(0.8)	10.9	34.1	52.1	345	8.7	13.7	1.7	1.7	4.1	3.9
Yingli	USD	1.9	(5.0)	(12.8)	(12.8)	(17.0)	2.7	(38.9)	(26.9)	35	#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	63.2	3.3	5.4	2.9	33.6	68.9	97.3	97.1	6,604	25.4	44.3	1.0	1.2	13.0	12.2
한화큐셀	USD	7.4	(3.8)	(4.9)	(12.1)	1.0	8.9	(12.7)	(9.7)	613	64.1	33.5	#N/A N/A	#N/A N/A	8.7	8.1
OCI	KRW	120,500	(2.8)	(2.0)	(5.1)	15.9	38.0	59.4	53.1	2,622	13.7	15.0	0.9	0.8	7.5	6.3
웅진에너지	KRW	8,920	(0.3)	(4.1)	15.5	(10.6)	32.0	125.0	88.4	204	N/A	0.9	0.8	7.5	6.3	7.9
신성솔라에너지	KRW	2,050	(0.7)	(3.8)	17.1	(0.7)	4.9	12.6	(7.2)	324	N/A	0.8	7.5	6.3	7.9	7.8
Average			**(1.0)**	**(4.3)**	**(4.3)**	**5.9**	**25.1**	**35.9**	**33.1**							
Gas Company																
Towngas China	HKD	5.9	(2.8)	(5.0)	(8.9)	14.0	21.0	47.1	45.3	2,102	13.4	12.1	1.1	1.0	12.4	11.4
Kulun	HKD	7.0	1.3	3.7	(1.3)	(7.5)	3.1	22.5	21.2	7,264	11.2	10.3	1.3	1.2	5.7	5.6
Beijing Enterprise	HKD	43.3	(2.3)	(5.7)	(4.8)	4.8	12.8	19.4	18.1	6,995	8.3	7.7	0.9	0.8	15.5	13.4
ENN Energy	HKD	56.2	0.8	(4.1)	(3.4)	5.5	29.5	61.7	76.2	7,790	15.0	13.1	2.9	2.5	9.1	8.1
China Resources Gas	HKD	29.4	1.0	(1.0)	4.3	7.7	14.9	29.3	34.6	8,355	16.7	14.9	3.2	2.8	9.8	8.9
China Gas Holdings	HKD	23.9	(1.0)	(4.4)	1.3	25.0	83.3	133.9	127.2	15,200	19.6	16.3	4.8	3.9	15.3	12.9
Shenzen Gas	HKD	13.9	(3.1)	(1.4)	(7.2)	(1.3)	7.8	26.1	23.0	3,609	11.4	10.9	1.3	1.2	8.7	8.1
Shann Xi	CNY	8.0	(0.9)	(1.7)	(3.1)	(8.2)	(6.3)	(19.8)	(16.3)	1,350	17.0	15.2	1.6	1.5	#N/A N/A	#N/A N/A
Suntien	HKD	1.8	0.0	(7.1)	(13.6)	7.0	21.1	76.9	84.0	875	6.9	5.9	0.7	0.6	9.7	8.3
China Oil & Gas	HKD	0.6	(5.1)	0.0	5.7	0.0	1.8	(11.1)	(8.2)	418	9.2	7.8	0.9	0.8	6.3	5.7
Average			**(1.2)**	**(2.7)**	**(3.1)**	**4.7**	**18.9**	**38.6**	**40.5**							
EV																
LG화학	KRW	408,500	(1.3)	(3.3)	(0.1)	9.8	40.1	68.8	56.5	26,306	14.2	13.7	1.9	1.7	6.8	6.5
삼성SDI	KRW	202,500	(0.7)	(8.2)	(6.9)	5.2	27.8	125.3	85.8	12,703	20.6	12.6	1.2	1.1	22.9	14.4
Panasonic	JPY	1585.0	(1.9)	(6.2)	(6.7)	8.4	8.1	28.0	33.2	34,641	20.3	15.6	2.2	2.0	6.8	5.9
GS Yuasa	JPY	555.0	(2.1)	(3.1)	(2.3)	4.3	9.9	17.3	14.2	2,045	17.0	15.2	1.3	1.3	7.6	7.0
NEC	JPY	2959.0	(1.0)	(0.9)	(1.5)	2.4	2.7	(5.5)	(4.5)	6,867	15.4	17.4	0.9	0.8	7.3	6.7
BYD Auto	CNY	60.9	(2.9)	(5.4)	(7.1)	21.1	21.8	14.6	22.6	24,200	35.6	25.4	3.0	2.7	15.2	12.3
Tesla Motors	USD	313.3	3.1	1.9	3.5	(9.1)	(11.2)	68.6	46.6	52,649	#N/A N/A	#N/A N/A	11.1	11.0	130.5	31.2
Kandi Technologies	USD	7.0	(1.4)	(1.4)	(4.1)	75.9	67.5	36.3	41.8	334	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A
Average			**(1.0)**	**(3.3)**	**(3.2)**	**14.8**	**20.8**	**44.2**	**37.0**							

＊ Bloomberg 기준 / valuation multiple 또한 Bloomberg consensus 기준임