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SK 증권

1. News Summary (3 page)

2018년 9월 13일

News		Conclusion
WTI comment	원유재고 감소에 상승…WTI 70달러 회복	
Headline	러시아, 對중국 PNG 신규 루트 합의에 근접	중국으로의 PNG 유입 확대는 LNG의 경쟁력 저하를 야기할 전망임
News 1.	아람코(Aramco), 사빅(SABIC) 인수 가격 할인 원해	아람코 원유 및 가스 개발 영구권 박탈에 이어 정부와의 갈등 표면화중
News 2.	-	-
News 3.	-	-
News 4.	-	-

2. Prices Summary (4~7 page)

Daily	Unit	Price	1D	1W	1M	3M	12M
Refinery			%	%	%	%	%
WTI	$/bbl	70.4	1.6	2.4	4.7	5.6	42.7
Dubai	$/bbl	77.5	1.6	2.1	8.7	5.4	46.5
Gasoline	$/bbl	89.7	1.6	1.9	6.5	7.6	26.9
Diesel	$/bbl	92.6	0.9	0.5	6.9	6.0	37.2
Complex margin	$/bbl	6.9	(0.3)	(0.5)	(1.6)	0.6	(2.9)
1M lagging	$/bbl	13.8	3.6	2.5	8.8	8.5	1.0
Petrochemical			%	%	%	%	%
Naphtha	$/t	687	1.2	0.8	8.0	5.5	37.0
Butadiene	$/t	1,590	(0.6)	(5.9)	(8.6)	(7.6)	8.2
HDPE	$/t	1,270	0.0	(0.4)	(3.1)	(6.6)	6.7
MEG	$/t	910	(0.5)	(8.4)	0.1	(0.5)	(4.1)
PX	$/t	1,315	1.7	0.0	18.4	35.7	58.9
SM	$/t	1,377	(0.7)	(2.7)	(3.8)	(4.8)	2.3
Commodity			%	%	%	%	%
Natural Gas	$/mmbtu	2.83	0.0	1.2	(4.0)	(3.6)	(5.0)
Natural rubber	$/t	1,320	1.5	0.8	(0.8)	(3.6)	(21.4)
Cotton	C/lbs	82.8	(0.3)	1.3	2.1	(11.8)	18.3

*참고: 정제마진의 변동률은 %가 아닌 $/bbl임

Weekly	Update	Unit	Price	1W	1M	3M	12M
Petrochemical				%	%	%	%
Ethylene	09/10	$/t	1,138	(4.4)	(10.8)	(6.4)	(7.1)
Propylene	09/10	$/t	1,030	(0.5)	(0.7)	1.7	18.4
Benzene	09/10	$/t	870	(1.4)	(0.9)	1.8	5.8
Toluene	09/10	$/t	830	0.0	0.0	1.8	21.2
Xylene	09/10	$/t	870	0.0	3.6	3.6	37.0
PP	09/10	$/t	1,238	0.0	0.4	(3.5)	7.8
PVC	09/10	$/t	950	0.0	0.5	3.3	0.5
ABS	09/10	$/t	1,880	0.0	(4.1)	(8.7)	(7.4)
SBR	09/10	$/t	1,875	0.0	2.5	(1.3)	4.7
SM	09/10	$/t	1,448	(0.5)	(1.9)	(5.1)	0.5
BPA	09/10	$/t	1,960	0.6	8.0	4.4	3.8
Caustic	09/10	$/t	440	10.0	19.2	(20.0)	(7.8)
2-EH	09/10	$/t	1,130	1.3	0.9	2.7	14.1
Caprolactam	09/10	$/t	2,130	0.0	(1.2)	0.5	23.8
Solar				%	%	%	%
Polysilicon	09/12	$/kg	10.8	(3.4)	(5.2)	(14.6)	(35.5)
Module	09/12	$/W	0.25	(0.8)	(2.8)	(13.4)	(23.6)

3. Global Peers Summary (8~9 page)

	Unit	Price	1D	1W	1M	3M	12M
E&P			%	%	%	%	%
ExxonMobil	USD	83.1	0.3	2.2	4.7	0.9	4.6
Shell	EUR	2,483	1.0	(1.0)	(1.9)	(4.4)	16.2
Petrochina	CNY	8.27	0.4	0.9	3.0	5.6	3.0
Gazprom	RUB	155.1	1.8	5.4	7.1	9.0	27.1
Petrobras	BRL	19.0	2.4	1.6	(3.3)	22.6	27.4
Refinery							
Phillips66	USD	112.2	(0.3)	(4.9)	(8.5)	(2.9)	30.8
Valero	USD	116.3	1.1	(0.5)	0.8	(1.4)	65.7
JX	JPY	737.7	0.1	(2.3)	(8.1)	(0.5)	36.8
Neste Oil	EUR	73.2	0.4	1.9	(2.3)	5.8	100.7

	Unit	Price	1D	1W	1M	3M	12M
Petrochemical			%	%	%	%	%
BASF	EUR	77.2	1.2	(0.2)	(2.1)	(11.7)	(10.1)
DowDuPont	USD	69.2	(1.2)	(1.2)	2.2	(0.8)	1.1
SABIC	SAR	119.0	(0.7)	(1.3)	(5.7)	(6.0)	18.1
Formosa Pla.	TWD	111.0	0.0	0.5	0.5	3.3	15.9
Shin-Etsu	JPY	9,341	(4.4)	(7.2)	(13.8)	(14.1)	(4.8)
Renewable							
Wacker	EUR	110.9	(6.0)	(6.1)	(10.7)	(4.9)	(1.7)
First Solar	USD	48.90	0.9	(4.6)	(7.4)	(9.2)	3.0
GCL-Poly	HKD	0.53	0.0	(3.6)	(10.2)	(33.8)	(40.4)
Tesla Motors	USD	290.5	4.0	3.5	(18.3)	(15.2)	(19.9)

4. Coverage Summary

	09/12	1D	1W	1M	3M	6M	12M	투자의견	TP	%	P/E	P/B
KOSPI	2,283	(0.0)	(0.4)	1.5	(5.8)	(8.5)	(3.2)				* 추정치는 12M fwd 기준임	
KOSPI화학	5,483	0.3	(1.3)	(1.6)	(8.9)	(11.1)	(5.1)				* 모든 coverage 업체의 실적은 연결기준임	
LG화학	343,500	0.7	(4.1)	(6.7)	(7.2)	(16.1)	(12.4)	매수	400,000	16.4	13.57	1.53
롯데케미칼	288,000	0.2	(4.2)	(17.0)	(20.7)	(34.0)	(30.9)	매수	400,000	38.9	8.94	0.81
한화케미칼	18,800	0.0	(5.5)	(9.2)	(23.3)	(38.6)	(49.3)	매수	30,000	59.6	8.45	0.46
금호석유화학	102,500	1.0	6.2	0.0	(3.3)	8.2	26.4	매수	150,000	46.3	9.56	1.32
KCC	349,000	(0.9)	5.8	4.6	1.5	(0.9)	(8.0)	매수	400,000	14.6	30.26	0.54
OCI	118,000	4.9	0.4	12.9	6.8	(21.1)	14.0	매수	140,000	18.6	8.97	0.85
SKC	46,700	(0.8)	0.5	4.6	14.5	15.9	17.2	매수	50,000	7.1	12.74	1.11
SK이노베이션	201,500	(0.5)	5.2	4.7	(5.4)	(3.4)	5.5	매수	230,000	14.1	11.85	1.01
S-Oil	125,500	(0.4)	5.5	6.4	14.6	1.6	1.2	매수	140,000	11.6	14.32	2.10
GS	53,100	0.2	2.5	(0.7)	(10.2)	(18.7)	(21.6)	매수	80,000	50.7	4.92	0.60
SK가스	89,400	0.3	1.5	6.3	(4.5)	(8.1)	(15.3)	매수	130,000	45.4	8.45	0.60
포스코대우	19,100	0.8	5.5	7.9	(18.2)	(7.1)	(9.7)	매수	25,000	30.9	10.02	0.75
LG상사	21,250	(2.5)	(0.7)	(7.0)	(19.5)	(20.1)	(26.0)	매수	38,000	78.8	7.87	0.60
한국전력	30,300	(0.2)	0.8	(2.7)	(12.3)	(7.8)	(26.0)	매수	45,000	48.5	7.33	0.24
한국가스공사	57,200	1.6	6.1	3.6	(5.8)	18.8	33.0	매수	75,000	31.1	8.87	0.74

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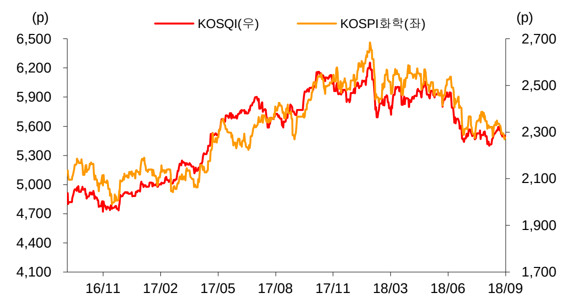
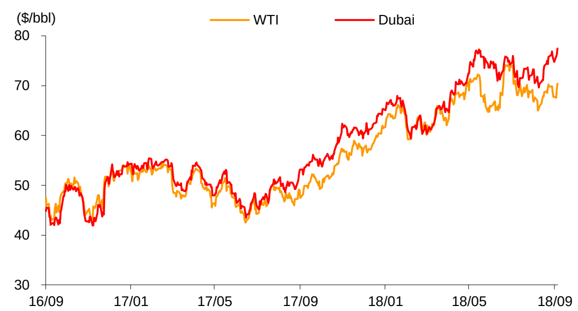
Key Chart

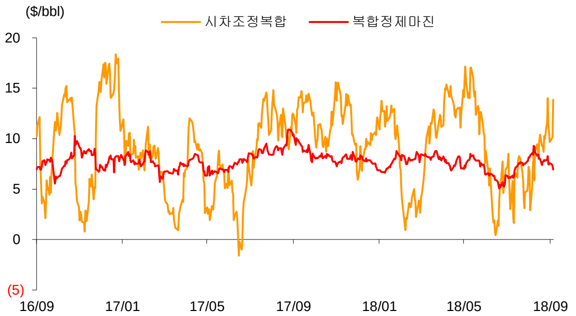
KOSPI/KOSPI화학



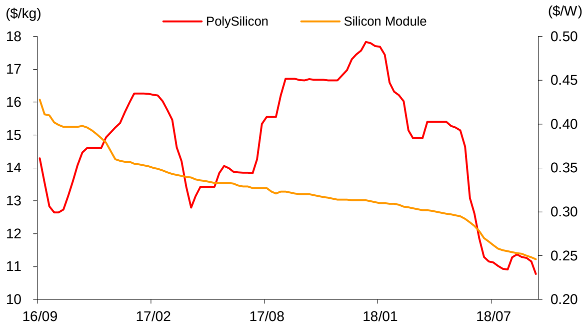
WTI/Dubai



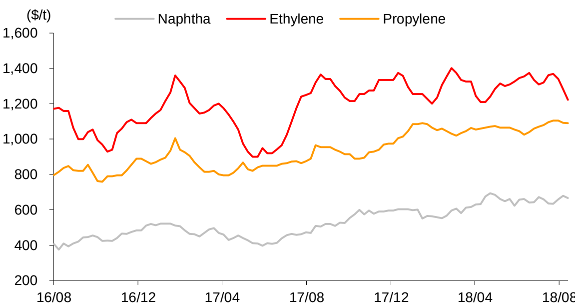
Complex & 1M lagging margin



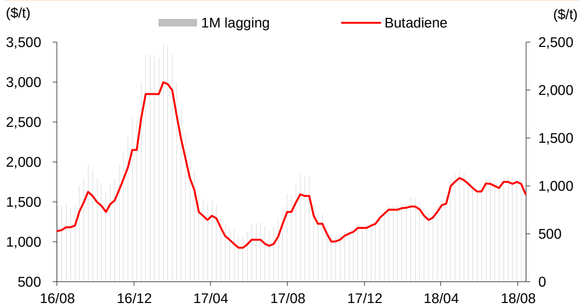
Polysilicon & Module prices



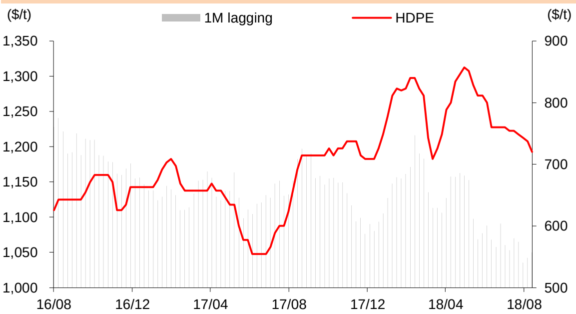
Naphtha/Ethylene/Propylene prices



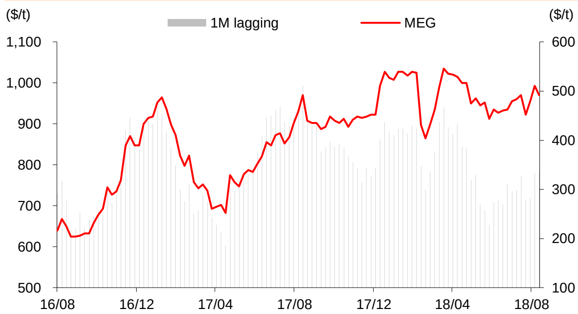
Butadiene price & 1M lagging naphtha spread



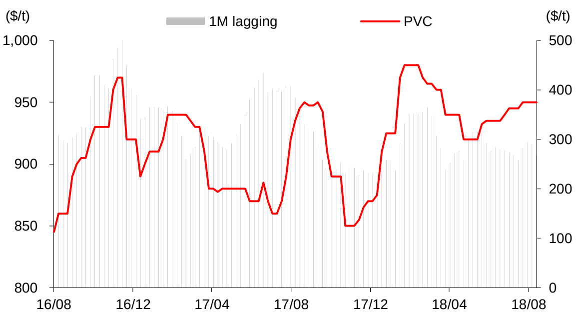
HDPE price & 1M lagging naphtha spread



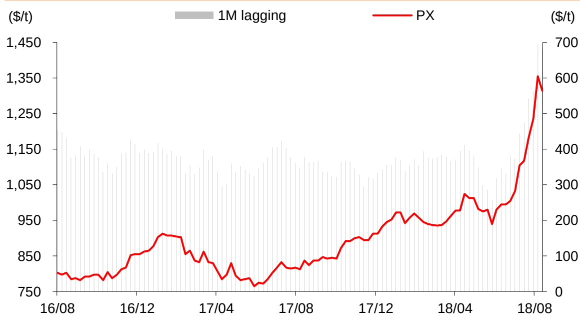
MEG price & 1M lagging naphtha spread



PVC price & 1M lagging naphtha spread



PX price & 1M lagging naphtha spread



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

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News Comment

Headline	(출처: Reuters)
제목	러시아, 對중국 PNG 신규 루트 합의에 근접
결론	중국으로의 PNG 유입 확대는 LNG의 경쟁력 저하를 야기할 전망임
세부	
	1) 푸틴과 시진핑이 지난 화요일 극동 러시아인 블라디보스톡에서 회동
	2) 러시아가 중국으로의 신규 가스 프이프 루트에 대한 합의에 근접했음
	3) 러시아 에너지장관, "중국이 서쪽 루트로의 가스 공급 계약 합의 원함"
	4) 러시아 에너지장관, "모든 기술적 조건에 대한 합의는 끝난 상황임"
	5) 중국으로의 PNG 유입 확대는 LNG의 경쟁력 저하를 야기할 전망임

WTI Comment	(출처: 연합뉴스)
제목	원유재고 감소에 상승…WTI 70달러 회복
상승 요인	EIA, "지난주 미국의 원유재고가 530만 배럴 줄었음"
하락 요인	

Issue 1	(출처: The Wall Street Journal)
제목	아람코(Aramco), 사빅(SABIC) 인수 가격 할인 원해
결론	아람코 원유 및 가스 개발 영구권 박탈에 이어 정부와의 갈등 표면화중
세부	
	1) 아람코는 PIF의 사빅 지분 70%를 시장가인 119리얄/주 이하로 매수 원함
	2) 관계자에 의하면 아람코는 100리얄/주 또는 그 이하를 원하고 있음
	3) 이는 PIF가 원하는 120~125리얄/주에 비해 현격히 낮은 수준임
	4) 사빅 주가는 올해 사우디 증시로 수십억 달러가 유입되며 18% 가량 오름
	5) 아람코 원유 및 가스 개발 영구권 박탈에 이어 정부와의 갈등 표면화중

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)
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	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**	0.860	0.862	0.860	0.876	0.851	0.811	0.836	0.833	0.904	0.887	0.837
	Change, %		(0.2)	0.0	(1.8)	1.0	6.1	2.9	3.3	(4.8)	(3.0)	2.8
	USD/JPY	111.3	111.6	111.5	110.8	110.4	106.4	110.2	112.6	108.8	112.1	109.5
	Change, %		(0.3)	(0.2)	0.4	0.8	4.5	1.0	(1.2)	2.3	(0.8)	1.7
	USD/KRW	1,128.5	1,125.3	1,121.1	1,129.0	1,077.1	1,065.2	1,128.9	1,066.7	1,160.5	1,130.9	1,089.5
	Change, %		0.3	0.7	(0.0)	4.8	5.9	(0.0)	5.8	(2.8)	(0.2)	3.6
Agriculture	**Corn**	341.5	355.3	351.8	357.8	377.5	384.3	340.0	350.8	358.5	359.4	368.6
	Change, %		(3.9)	(2.9)	(4.5)	(9.5)	(11.1)	0.4	(2.6)	(4.7)	(5.0)	(7.4)
	Soybean	829.0	820.3	825.5	846.0	954.0	1,033.3	944.3	951.8	987.5	975.9	957.3
	Change, %		1.1	0.4	(2.0)	(13.1)	(19.8)	(12.2)	(12.9)	(16.1)	(15.1)	(13.4)
	Wheat	481.8	493.8	493.8	546.8	534.5	489.8	419.5	427.0	436.4	436.0	488.6
	Change, %		(2.4)	(2.4)	(11.9)	(9.9)	(1.6)	14.8	12.8	10.4	10.5	(1.4)
	Rice	10.6	10.6	10.7	10.6	11.9	12.1	12.7	11.7	10.3	11.1	11.9
	Change, %		0.0	(0.6)	0.9	(10.7)	(12.3)	(16.1)	(8.9)	2.9	(3.8)	(10.9)
	Oats	234.0	233.8	233.8	256.8	242.3	258.8	235.5	241.0	196.3	252.3	246.0
	Change, %		0.1	0.1	(8.9)	(3.4)	(9.6)	(0.6)	(2.9)	19.2	(7.2)	(4.9)
MYR/mt	**Palm Oil**	2,195.0	2,213.0	2,239.0	2,206.0	2,330.0	2,390.0	2,830.0	2,444.0	2,653.8	2,787.3	2,359.1
	Change, %		(0.8)	(2.0)	(0.5)	(5.8)	(8.2)	(22.4)	(10.2)	(17.3)	(21.3)	(7.0)
	Cocoa	2,355.0	2,283.0	2,314.0	2,086.0	2,413.0	2,565.0	1,999.0	1,892.0	2,854.0	2,005.2	2,360.7
	Change, %		3.2	1.8	12.9	(2.4)	(8.2)	17.8	24.5	(17.5)	17.4	(0.2)
	Cotton	82.8	83.0	81.7	85.9	95.2	83.3	70.7	78.6	65.6	73.5	84.1
	Change, %		(0.3)	1.3	(3.6)	(13.1)	(0.6)	17.0	5.3	26.2	12.5	(1.6)
	Sugar	11.7	11.2	10.9	10.5	12.4	12.9	14.0	15.2	18.2	15.8	12.1
	Change, %		4.4	7.2	10.7	(5.5)	(9.7)	(16.8)	(23.0)	(35.7)	(26.2)	(3.9)
	Coffee	97.9	96.2	100.1	107.0	117.4	118.2	133.8	126.2	136.1	133.0	115.0
	Change, %		1.7	(2.2)	(8.6)	(16.6)	(17.2)	(26.9)	(22.5)	(28.1)	(26.4)	(14.9)
Energy	**WTI**	70.4	69.3	68.7	67.6	66.4	61.4	48.2	60.4	43.4	51.0	66.6
	Change, %		1.6	2.4	4.1	6.0	14.7	45.9	16.5	62.2	38.1	5.7
	Brent	79.7	79.1	77.3	72.8	75.9	65.0	54.3	66.9	45.1	54.9	72.3
	Change, %		0.9	3.2	9.5	5.1	22.8	46.9	19.2	76.9	45.4	10.3
	Natural Gas	2.8	2.8	2.8	2.9	2.9	2.8	3.0	3.0	2.6	3.0	2.8
	Change, %		0.0	1.2	(3.9)	(3.7)	1.8	(5.7)	(4.2)	10.8	(6.4)	(0.5)
	Ethanol	1.3	1.3	1.3	1.3	1.4	1.5	1.6	1.3	1.5	1.5	1.4
	Change, %		(2.2)	(2.0)	(6.2)	(12.4)	(16.3)	(18.4)	(4.2)	(16.5)	(15.5)	(10.9)
	RBOB Gasoline	203.5	201.4	196.5	203.9	209.0	189.4	165.6	179.9	140.0	162.9	201.1
	Change, %		1.0	3.6	(0.2)	(2.6)	7.4	22.9	13.1	45.4	24.9	1.2
	Coal	115.1	115.7	114.8	116.7	115.6	98.0	99.8	100.8	65.5	88.2	107.4
	Change, %		(0.5)	0.2	(1.4)	(0.4)	17.4	15.3	14.1	75.8	30.4	7.2
Metal	**Gold**	1,206.3	1,198.6	1,197.0	1,211.7	1,296.0	1,323.1	1,331.8	1,302.6	1,248.5	1,258.6	1,288.3
	Change, %		0.6	0.8	(0.4)	(6.9)	(8.8)	(9.4)	(7.4)	(3.4)	(4.2)	(6.4)
	Silver	14.3	14.1	14.2	15.3	16.9	16.5	17.9	16.9	17.1	17.1	16.2
	Change, %		0.8	0.5	(6.9)	(15.5)	(13.8)	(20.4)	(15.9)	(16.7)	(16.5)	(12.1)
	Copper	5,997.0	5,859.0	5,871.0	6,190.0	7,222.0	6,913.0	6,668.0	7,247.0	4,872.0	6,199.4	6,707.5
	Change, %		2.4	2.1	(3.1)	(17.0)	(13.3)	(10.1)	(17.2)	23.1	(3.3)	(10.6)
	Nickel	905.6	887.4	894.2	952.5	1,029.0	886.8	760.8	809.1	646.4	680.2	920.5
	Change, %		2.1	1.3	(4.9)	(12.0)	2.1	19.0	11.9	40.1	33.1	(1.6)
	Zinc	2,370.5	2,311.0	2,419.5	2,547.0	3,199.0	3,239.5	3,061.0	3,319.0	2,097.5	2,888.5	3,038.6
	Change, %		2.6	(2.0)	(6.9)	(25.9)	(26.8)	(22.6)	(28.6)	13.0	(17.9)	(22.0)
	Lead	2,004.3	1,946.0	2,033.0	2,083.5	2,462.0	2,344.0	2,281.3	2,482.8	1,868.3	2,315.7	2,355.0
	Change, %		3.0	(1.4)	(3.8)	(18.6)	(14.5)	(12.1)	(19.3)	7.3	(13.4)	(14.9)
	Aluminum	14,495.0	14,655.0	14,600.0	14,520.0	14,745.0	13,940.0	16,355.0	15,020.0	12,373.5	14,556.6	14,372.8
	Change, %		(1.1)	(0.7)	(0.2)	(1.7)	4.0	(11.4)	(3.5)	17.1	(0.4)	0.9
	Cobalt	62,806.0	61,556.0	62,306.0	61,650.0	80,750.0	84,020.0	60,650.0	75,205.0	25,480.1	55,906.9	79,366.4
	Change, %		2.0	0.8	1.9	(22.2)	(25.2)	3.6	(16.5)	146.5	12.3	(20.9)
	HR Coil	865.0	863.0	863.0	901.0	911.0	820.0	633.0	662.0	519.3	620.1	838.8
	Change, %		0.2	0.2	(4.0)	(5.0)	5.5	36.7	30.7	66.6	39.5	3.1
	Scrap	377.0	377.0	379.0	392.0	408.0	374.0	373.0	367.0	275.7	344.7	388.2
	Change, %		0.0	(0.5)	(3.8)	(7.6)	0.8	1.1	2.7	36.8	9.4	(2.9)

자료: Bloomberg

참고) NYMEX, ICE, LME 중 대표지수를 사용

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Refining Price Data

Daily Price		09/12	1D	1W	1M	3M	6M	12M	YTD	2015avg.	2016avg.	2017acc.
Crude Oil	**WTI**	70.4	69.3	68.7	67.2	66.6	61.0	49.3	53.7	43.4	50.9	66.5
	Change, %		*1.6*	*2.4*	*4.7*	*5.6*	*15.4*	*42.7*	*31.0*	*62.3*	*38.3*	*5.8*
	Dubai	77.5	76.2	75.8	71.3	73.5	61.2	52.9	53.8	41.3	53.1	69.6
	Change, %		*1.6*	*2.1*	*8.7*	*5.4*	*26.5*	*46.5*	*43.9*	*87.5*	*45.9*	*11.3*
Crude Oil Product	**Gasoline(휘발유)**	89.7	88.3	88.0	84.2	83.4	74.8	70.7	69.8	56.3	68.0	82.1
	Change, %		*1.6*	*1.9*	*6.5*	*7.6*	*19.9*	*26.9*	*28.4*	*59.4*	*31.9*	*9.2*
	Kerosene(등유)	91.4	90.6	90.9	86.3	87.1	76.7	66.5	66.4	52.9	65.2	84.9
	Change, %		*0.9*	*0.5*	*6.0*	*5.0*	*19.2*	*37.5*	*37.6*	*72.9*	*40.2*	*7.7*
	Diesel(경유)	92.6	91.7	92.1	86.6	87.3	76.9	67.5	65.5	52.1	65.6	84.1
	Change, %		*0.9*	*0.5*	*6.9*	*6.0*	*20.4*	*37.2*	*41.3*	*77.6*	*41.1*	*10.0*
	Bunker-C	70.1	69.7	68.2	68.8	68.3	56.2	50.1	52.1	35.5	49.7	64.2
	Change, %		*0.6*	*2.9*	*2.0*	*2.7*	*24.8*	*40.1*	*34.7*	*97.4*	*41.2*	*9.3*
	Naphtha	74.5	73.7	74.1	70.2	70.9	61.4	54.2	53.5	42.6	53.7	68.6
	Change, %		*1.0*	*0.6*	*6.1*	*5.1*	*21.3*	*37.5*	*39.4*	*74.9*	*38.6*	*8.5*
Dubai Spread	**Gasoline(휘발유)**	12.2	12.0	12.2	12.9	9.9	13.6	17.8	16.0	14.9	14.9	12.5
	Change		*0.2*	*0.0*	*(0.7)*	*2.3*	*(1.3)*	*(5.6)*	*(3.8)*	*(2.7)*	*(2.7)*	*(0.3)*
	Kerosene(등유)	14.0	14.4	15.1	15.0	13.6	15.5	13.6	12.6	11.6	12.1	15.3
	Change		*(0.4)*	*(1.1)*	*(1.1)*	*0.4*	*(1.5)*	*0.4*	*1.4*	*2.4*	*1.8*	*(1.3)*
	Diesel(경유)	15.1	15.5	16.3	15.4	13.8	15.7	14.6	11.7	10.8	12.5	14.5
	Change		*(0.4)*	*(1.2)*	*(0.2)*	*1.3*	*(0.6)*	*0.5*	*3.4*	*4.3*	*2.6*	*0.6*
	Bunker-C	(7.3)	(6.5)	(7.6)	(2.5)	(5.2)	(5.0)	(2.8)	(1.8)	(5.8)	(3.4)	(5.4)
	Change		*(0.8)*	*0.3*	*(4.8)*	*(2.1)*	*(2.3)*	*(4.5)*	*(5.6)*	*(1.5)*	*(3.9)*	*(1.9)*
	Naphtha	(3.0)	(2.5)	(1.8)	(1.1)	(2.6)	0.2	1.3	(0.4)	1.3	0.6	(1.0)
	Change		*(0.5)*	*(1.2)*	*(1.9)*	*(0.4)*	*(3.1)*	*(4.3)*	*(2.6)*	*(4.2)*	*(3.6)*	*(2.0)*
Refining Margin	**Simple(단순)**	1.1	1.6	1.4	3.8	1.5	3.1	4.5	3.8	1.9	3.2	2.3
	Change		*(0.5)*	*(0.3)*	*(2.7)*	*(0.5)*	*(2.1)*	*(3.4)*	*(2.8)*	*(0.9)*	*(2.1)*	*(1.2)*
	Complex(복합)	6.9	7.3	7.5	8.6	6.3	8.5	9.8	8.3	7.0	8.0	7.5
	Change		*(0.3)*	*(0.5)*	*(1.6)*	*0.6*	*(1.5)*	*(2.9)*	*(1.3)*	*(0.0)*	*(1.0)*	*(0.6)*
	Complex(lagging)	13.8	10.2	11.4	5.1	5.4	8.6	12.8	18.0	8.5	8.9	9.1
	Change		*3.6*	*2.5*	*8.8*	*8.5*	*5.2*	*1.0*	*(4.1)*	*5.4*	*4.9*	*4.8*

자료 : Petronet, SK증권
참고 1) Crude Oil 가격은 현물(spot) 기준으로 선물(future) 가격과 다를 수 있음
참고 2) Gasoline은 95RON, 경유는 L/P 0.5%, Bunker-C는 380cst/4.0% 기준임

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Petrochemical Price Data

Daily Price			09/12	09/11	09/10	09/07	09/06	09/05	09/04	09/03	08/31	08/30
Spot Price	**Naphtha**	CFR Japan	686.5	678.3	681.0	670.1	672.4	681.0	695.0	680.1	680.1	679.6
	Ethylene	CFR SE Asia	1,215.0	1,215.0	1,215.0	1,215.0	1,225.0	1,230.0	1,230.0	1,230.0	1,230.0	1,240.0
	Propylene	FOB Korea	1,110.0	1,090.0	1,090.0	1,090.0	1,085.0	1,085.0	1,085.0	1,085.0	1,090.0	1,090.0
	Butadiene	FOB Korea	1,590.0	1,600.0	1,615.0	1,620.0	1,690.0	1,690.0	1,690.0	1,720.0	1,730.0	1,740.0
	HDPE	CFR FE Asia	1,270.0	1,270.0	1,270.0	1,270.0	1,275.0	1,275.0	1,280.0	1,285.0	1,290.0	1,290.0
	LDPE	CFR FE Asia	1,110.0	1,110.0	1,110.0	1,110.0	1,110.0	1,110.0	1,120.0	1,120.0	1,120.0	1,120.0
	LLDPE	CFR FE Asia	1,090.0	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
	MEG	CFR China	910.0	915.0	938.0	955.0	981.0	993.0	981.0	983.0	977.0	952.0
	PP	CFR FE Asia	1,220.0	1,220.0	1,220.0	1,215.0	1,215.0	1,215.0	1,205.0	1,205.0	1,210.0	1,210.0
	PX	CFR China	1,315.3	1,293.0	1,308.7	1,306.3	1,312.3	1,315.3	1,334.3	1,348.7	1,351.7	1,352.0
	PTA	CFR China	1,080.0	1,070.0	1,070.0	1,070.0	1,065.0	1,065.0	1,065.0	1,065.0	1,065.0	1,050.0
	Benzene	FOB Korea	846.3	839.3	844.3	854.0	867.7	868.7	869.7	875.0	877.7	881.7
	Toluene	FOB Korea	826.0	823.0	818.0	818.0	821.0	821.0	826.0	821.0	819.5	814.5
	Xylene	FOB Korea	901.0	893.0	889.0	890.0	904.0	908.0	908.0	908.0	911.5	930.5
	SM	FOB Korea	1,377.0	1,387.0	1,392.0	1,397.0	1,415.0	1,415.0	1,417.0	1,414.0	1,422.0	1,412.0

Weekly Price			Last Week	1W	1M	3M	6M	12M	YTD	2016avg.	2017avg.	2018acc.
Spot Price	**Naphtha**	CFR Japan	667.0	680.0	635.5	649.5	676.0	510.0	484.5	399.5	493.5	625.3
	Change, %			*(1.9)*	*5.0*	*2.7*	*(1.3)*	*30.8*	*37.7*	*67.0*	*35.2*	*6.7*
	Ethylene	CFR SE Asia	1,137.5	1,190.0	1,275.0	1,215.0	1,155.0	1,225.0	990.0	1,040.9	1,090.9	1,236.7
	Change, %			*(4.4)*	*(10.8)*	*(6.4)*	*(1.5)*	*(7.1)*	*14.9*	*9.3*	*4.3*	*(8.0)*
	Propylene	CFR SE Asia	1,030.0	1,035.0	1,037.5	1,012.5	1,015.0	870.0	815.0	705.7	823.6	1,061.3
	Change, %			*(0.5)*	*(0.7)*	*1.7*	*1.5*	*18.4*	*26.4*	*46.0*	*25.1*	*(2.9)*
	Butadiene	CFR SE Asia	1,550.0	1,675.0	1,700.0	1,675.0	1,650.0	1,450.0	2,100.0	1,116.8	1,481.1	1,489.9
	Change, %			*(7.5)*	*(8.8)*	*(7.5)*	*(6.1)*	*6.9*	*(26.2)*	*38.8*	*4.7*	*4.0*
	Benzene	CFR SE Asia	870.0	882.5	877.5	855.0	857.5	822.5	822.5	646.7	838.8	868.4
	Change, %			*(1.4)*	*(0.9)*	*1.8*	*1.5*	*5.8*	*5.8*	*34.5*	*3.7*	*0.2*
	Toluene	CFR SE Asia	830.0	830.0	830.0	815.0	815.0	685.0	690.0	630.5	689.5	778.6
	Change, %			*0.0*	*0.0*	*1.8*	*1.8*	*21.2*	*20.3*	*31.6*	*20.4*	*6.6*
	Xylene	CFR SE Asia	870.0	870.0	840.0	840.0	807.5	635.0	675.0	627.7	668.8	795.9
	Change, %			*0.0*	*3.6*	*3.6*	*7.7*	*37.0*	*28.9*	*38.6*	*30.1*	*9.3*
Spread	**Ethylene**	-Naphtha	470.5	510.0	639.5	565.5	479.0	715.0	505.5	641.4	597.4	611.4
	Change, %			*(7.7)*	*(26.4)*	*(16.8)*	*(1.8)*	*(34.2)*	*(6.9)*	*(26.6)*	*(21.2)*	*(23.0)*
	Propylene	-Naphtha	363.0	355.0	402.0	363.0	339.0	360.0	330.5	306.2	330.1	435.9
	Change, %			*2.3*	*(9.7)*	*0.0*	*7.1*	*0.8*	*9.8*	*18.6*	*10.0*	*(16.7)*
	Butadiene	-Naphtha	883.0	995.0	1,064.5	1,025.5	974.0	940.0	1,615.5	717.3	987.6	864.5
	Change, %			*(11.3)*	*(17.1)*	*(13.9)*	*(9.3)*	*(6.1)*	*(45.3)*	*23.1*	*(10.6)*	*2.1*
	Benzene	-Naphtha	203.0	202.5	242.0	205.5	181.5	312.5	338.0	247.2	345.3	243.1
	Change, %			*0.2*	*(16.1)*	*(1.2)*	*11.8*	*(35.0)*	*(39.9)*	*(17.9)*	*(41.2)*	*(16.5)*
	Toluene	-Naphtha	163.0	150.0	194.5	165.5	139.0	175.0	205.5	231.0	196.0	153.3
	Change, %			*8.7*	*(16.2)*	*(1.5)*	*17.3*	*(6.9)*	*(20.7)*	*(29.4)*	*(16.8)*	*6.3*
	Xylene	-Naphtha	203.0	190.0	204.5	190.5	131.5	125.0	190.5	228.2	175.3	170.6
	Change, %			*6.8*	*(0.7)*	*6.6*	*54.4*	*62.4*	*6.6*	*(11.1)*	*15.8*	*19.0*

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

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Weekly Price			Last Week	1W	1M	3M	6M	12M	YTD	2016avg.	2017avg.	2018acc.
Spot Price	**HDPE**	CFR SE Asia	1,192.5	1,207.5	1,222.5	1,287.5	1,292.5	1,167.5	1,142.5	1,134.6	1,142.5	1,248.0
	Change, %			(1.2)	(2.5)	(7.4)	(7.7)	2.1	4.4	5.1	4.4	(4.4)
	MEG	CFR SE Asia	970.0	992.5	970.0	945.0	1,000.0	970.0	847.5	660.8	850.6	972.8
	Change, %			(2.3)	0.0	2.6	(3.0)	0.0	14.5	46.8	14.0	(0.3)
	PVC	CFR SE Asia	950.0	950.0	945.0	920.0	940.0	945.0	920.0	823.4	899.9	943.3
	Change, %			0.0	0.5	3.3	1.1	0.5	3.3	15.4	5.6	0.7
	PP	CFR SE Asia	1,237.5	1,237.5	1,232.5	1,282.5	1,262.5	1,147.5	1,032.5	978.4	1,099.6	1,255.2
	Change, %			0.0	0.4	(3.5)	(2.0)	7.8	19.9	26.5	12.5	(1.4)
	2-EH	CFR Korea	1,130.0	1,115.0	1,120.0	1,100.0	1,165.0	990.0	865.0	772.4	970.0	1,116.8
	Change, %			1.3	0.9	2.7	(3.0)	14.1	30.6	46.3	16.5	1.2
	ABS	CFR SE Asia	1,880.0	1,880.0	1,960.0	2,060.0	2,050.0	2,030.0	1,635.0	1,347.1	1,844.7	2,004.6
	Change, %			0.0	(4.1)	(8.7)	(8.3)	(7.4)	15.0	39.6	1.9	(6.2)
	SBR	CFR SE Asia	1,875.0	1,875.0	1,830.0	1,900.0	1,800.0	1,790.0	2,000.0	1,483.0	1,980.5	1,769.7
	Change, %			0.0	2.5	(1.3)	4.2	4.7	(6.3)	26.4	(5.3)	5.9
	SM	CFR SE Asia	1,447.5	1,455.0	1,475.0	1,525.0	1,407.5	1,440.0	1,205.0	1,064.6	1,253.8	1,409.9
	Change, %			(0.5)	(1.9)	(5.1)	2.8	0.5	20.1	36.0	15.5	2.7
	Caustic	FOB NEA	440.0	400.0	369.0	550.0	598.0	477.0	422.5	316.6	491.2	531.0
	Change, %			10.0	19.2	(20.0)	(26.4)	(7.8)	4.1	39.0	(10.4)	(17.1)
	PX	CFR SE Asia	1,315.0	1,355.0	1,117.5	975.0	1,025.0	837.5	855.0	790.4	844.4	1,011.4
	Change, %			(3.0)	17.7	34.9	28.3	57.0	53.8	66.4	55.7	30.0
	PO	CFR China	1,960.0	1,947.5	1,815.0	1,877.5	1,880.0	1,887.5	1,562.5	1,396.8	1,601.2	1,871.2
	Change, %			0.6	8.0	4.4	4.3	3.8	25.4	40.3	22.4	4.7
	Caprolactam	CFR SE Asia	2,130.0	2,130.0	2,155.0	2,120.0	2,100.0	1,720.0	1,850.0	1,344.9	1,936.4	2,127.4
	Change, %			0.0	(1.2)	0.5	1.4	23.8	15.1	58.4	10.0	0.1
	PTA	CFR SE Asia	1,080.0	1,075.0	920.0	860.0	825.0	667.5	642.5	613.7	667.8	839.1
	Change, %			0.5	17.4	25.6	30.9	61.8	68.1	76.0	61.7	28.7
Spread	**HDPE**		525.5	527.5	587.0	638.0	616.5	657.5	658.0	735.1	649.0	622.7
	Change, %			(0.4)	(10.5)	(17.6)	(14.8)	(20.1)	(20.1)	(28.5)	(19.0)	(15.6)
	MEG		303.0	312.5	334.5	295.5	324.0	460.0	363.0	261.3	357.1	347.5
	Change, %			(3.0)	(9.4)	2.5	(6.5)	(34.1)	(16.5)	16.0	(15.1)	(12.8)
	PVC		283.0	270.0	309.5	270.5	264.0	435.0	435.5	423.9	406.4	317.9
	Change, %			4.8	(8.6)	4.6	7.2	(34.9)	(35.0)	(33.2)	(30.4)	(11.0)
	PP		570.5	557.5	597.0	633.0	586.5	637.5	548.0	578.9	606.1	629.9
	Change, %			2.3	(4.4)	(9.9)	(2.7)	(10.5)	4.1	(1.5)	(5.9)	(9.4)
	2-EH		463.0	435.0	484.5	450.5	489.0	480.0	380.5	372.9	476.5	491.5
	Change, %			6.4	(4.4)	2.8	(5.3)	(3.5)	21.7	24.2	(2.8)	(5.8)
	ABS		1,213.0	1,200.0	1,324.5	1,410.5	1,374.0	1,520.0	1,150.5	947.6	1,351.2	1,379.3
	Change, %			1.1	(8.4)	(14.0)	(11.7)	(20.2)	5.4	28.0	(10.2)	(12.1)
	SBR	BD spread	325.0	200.0	130.0	225.0	150.0	340.0	(100.0)	366.2	499.4	279.9
	Change, %			62.5	150.0	44.4	116.7	(4.4)	(425.0)	(11.2)	(34.9)	16.1
	SM		780.5	775.0	839.5	875.5	731.5	930.0	720.5	665.1	760.3	784.6
	Change, %			0.7	(7.0)	(10.9)	6.7	(16.1)	8.3	17.4	2.7	(0.5)
	Caustic											
	Change, %											
	PX		648.0	675.0	482.0	325.5	349.0	327.5	370.5	390.9	351.0	386.1
	Change, %			(4.0)	34.4	99.1	85.7	97.9	74.9	65.8	84.6	67.8
	PO	propylene sprea	930.0	912.5	777.5	865.0	865.0	1,017.5	747.5	691.1	777.6	809.9
	Change, %			1.9	19.6	7.5	7.5	(8.6)	24.4	34.6	19.6	14.8
	Caprolactam	benzene spreac	1,260.0	1,247.5	1,277.5	1,265.0	1,242.5	897.5	1,027.5	698.2	1,097.6	1,259.0
	Change, %			1.0	(1.4)	(0.4)	1.4	40.4	22.6	80.5	14.8	0.1
	PTA	px spread	159.5	126.5	137.8	177.5	107.5	81.3	44.0	60.4	76.7	131.1
	Change, %			26.1	15.8	(10.1)	48.4	96.3	262.5	164.0	108.0	21.6

자료 : Cischem, Platts, SK증권

참고 : Spread는 Naphtha spread로 일괄적용

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Global peers

	Currency	09/12	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	69.2	(1.2)	(1.2)	2.2	(0.8)	(2.9)	1.1	(2.8)	168,245	17.7	14.9	1.8	1.7	10.2	9.2
Eastman	USD	96.0	0.1	(1.8)	(3.9)	(12.3)	(13.4)	11.4	3.6	13,550	11.6	10.7	2.5	2.2	8.7	8.1
BASF	EUR	77.2	1.2	(0.2)	(2.1)	(11.7)	(9.4)	(10.1)	(15.8)	101,214	14.6	13.6	2.4	2.2	7.8	7.4
Akzo Nobel	EUR	79.5	(1.4)	(1.3)	(2.0)	3.3	(1.1)	1.7	8.9	22,073	17.0	15.8	3.0	2.8	9.3	8.8
Arkema	EUR	105.8	1.5	1.5	0.3	3.4	(2.9)	9.8	4.2	9,270	13.2	12.2	1.7	1.6	6.3	6.0
Lanxess	EUR	65.8	(0.1)	0.7	(4.8)	(7.1)	(4.6)	0.9	(0.7)	7,282	15.5	13.1	2.1	1.9	9.3	8.2
Sumitomo Chemical	JPY	601	(0.8)	(1.8)	(4.6)	(8.2)	(4.5)	(10.8)	(25.8)	11,911	10.1	10.5	1.3	1.2	7.4	8.0
Mitsubishi Chemical	JPY	945	(0.8)	(2.6)	(3.9)	(5.7)	(11.2)	(8.1)	(23.6)	16,544	9.2	8.7	1.3	1.2	6.3	6.1
Shin-Etsu Chemical	JPY	9,341	(4.4)	(7.2)	(13.8)	(14.1)	(16.9)	(4.8)	(18.4)	43,948	18.5	16.6	1.9	1.8	8.1	7.4
Asahi Kasei	JPY	1,560	(0.8)	(1.1)	(0.5)	3.9	11.2	17.0	7.3	18,109	14.4	13.6	1.5	1.4	7.4	7.0
JSR	JPY	1,988	(0.3)	(4.3)	(7.3)	(3.3)	(21.0)	(6.8)	(10.4)	4,455	14.5	13.4	1.2	1.1	7.7	7.2
Nitto Denko	JPY	8,015	(0.1)	(3.3)	(5.0)	(8.4)	(7.9)	(16.0)	(19.9)	15,450	15.7	14.6	2.1	1.9	7.3	7.0
SABIC	SAR	119.0	(0.7)	(1.3)	(5.7)	(6.0)	7.5	18.1	17.3	80,773	14.2	13.7	1.7	1.7	7.3	7.1
Yansab	SAR	71.0	(0.7)	(0.3)	(2.7)	(2.7)	1.6	25.8	20.3	8,861	13.7	13.9	2.2	1.9	9.0	8.9
Formosa Plastics	TWD	111.0	0.0	0.5	0.5	3.3	7.2	15.9	12.5	21,114	14.4	13.9	1.8	1.8	18.9	19.2
Formosa Fiber	TWD	118.0	(0.4)	(1.7)	(0.8)	1.7	9.8	22.9	14.6	20,511	13.7	13.4	1.7	1.7	11.6	11.5
Nan Ya Plastics	TWD	83.6	(0.5)	0.1	(1.2)	(2.0)	3.9	10.7	7.3	20,648	14.8	15.3	1.7	1.7	16.2	16.4
Sinopec Shanghai	CNY	5.67	2.2	0.7	5.8	(1.2)	(6.6)	(10.1)	(10.4)	9,462	12.0	12.6	2.2	2.0	6.8	7.3
Sinopec Yizheng(Fibe	CNY	1.97	0.0	0.0	0.5	(3.9)	(15.1)	(38.4)	(26.2)	5,394	50.4	66.3	5.3	5.0	13.9	10.3
Reliance	INR	1,253	1.2	2.1	4.0	25.6	34.6	52.0	37.7	93,404	14.4	12.9	1.7	1.5	9.4	8.7
Industries Qatar	QAR	127.7	0.6	3.0	6.0	15.6	24.8	46.1	31.6	16,144	14.5	13.9	1.6	1.5	46.4	27.2
PTT Chemical	THB	77.5	0.6	(1.6)	(5.5)	(11.4)	(19.5)	0.0	(8.8)	11,766	10.7	10.4	1.4	1.3	5.5	5.4
Petronas	MYR	9.4	0.0	0.0	2.4	13.2	16.7	26.6	22.5	15,624	16.1	15.5	2.0	1.9	9.2	8.9
LG화학	KRW	343,500	0.7	(4.1)	(8.4)	(9.7)	(16.3)	(11.9)	(15.2)	27,313	13.8	12.8	1.8	1.6	6.5	6.1
롯데케미칼	KRW	288,000	0.2	(4.2)	(16.4)	(24.3)	(32.8)	(30.6)	(21.7)	11,632	5.5	5.2	0.9	0.8	3.6	3.3
한화케미칼	KRW	18,800	0.0	(5.5)	(11.5)	(26.4)	(40.0)	(49.3)	(40.5)	5,050	5.7	5.5	0.8	0.7	6.7	6.5
금호석유	KRW	102,500	1.0	6.2	(0.5)	1.0	9.6	27.8	3.0	2,969	14.1	11.9	1.6	1.5	9.3	8.4
SKC	KRW	46,700	(0.8)	0.5	3.2	10.4	15.6	17.0	(0.6)	1,643	9.9	8.7	1.1	1.0	8.8	7.9
국도화학	KRW	54,600	(0.4)	(4.0)	(6.5)	(19.7)	(10.2)	7.3	(13.5)	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	6,540	(1.4)	(1.4)	3.3	(13.7)	(33.5)	(0.9)	(13.7)	4,595	8.2	7.3	1.1	1.0	7.2	6.8
Average			**(0.2)**	**(1.1)**	**(2.6)**	**(3.7)**	**(4.2)**	**3.8**	**(2.6)**							
Refinery																
Valero	USD	116.3	1.1	(0.5)	0.8	(1.4)	25.5	65.7	26.5	40,608	14.1	13.4	2.0	2.0	6.9	6.9
Conoco Phillips	USD	72.0	0.7	(1.4)	0.0	3.7	31.5	60.2	31.1	66,136	34.0	25.9	2.2	2.2	7.2	6.7
Formosa Petrochemic	TWD	127.5	1.6	2.8	5.8	3.7	9.9	19.2	10.4	37,040	18.2	18.7	3.2	3.2	11.7	12.1
Andeavor	USD	155.9	0.6	0.3	3.8	11.9	55.9	50.7	36.3	17,904	12.9	11.4	1.8	1.7	7.3	7.1
Marathon Petroleum	USD	84.2	0.8	0.3	4.0	11.6	21.6	56.6	27.6	32,812	15.0	12.8	2.6	2.7	7.7	7.5
Devon Energy	USD	42.0	1.1	0.6	(2.1)	0.0	27.8	30.4	1.3	22,192	17.5	14.0	2.7	2.3	8.4	7.4
Hollyfrontier	USD	70.7	(1.5)	(4.3)	2.4	(3.1)	53.6	114.2	37.9	9,094	16.8	15.2	1.8	1.8	8.0	8.0
Phillips 66	USD	112.2	(0.3)	(4.9)	(8.5)	(2.9)	18.1	30.8	10.9	51,561	15.6	14.5	2.3	2.2	9.0	8.8
Murphy Oil	USD	31.3	1.3	3.0	0.7	(5.9)	22.6	28.1	0.7	5,548	162.4	113.2	1.2	1.1	4.9	4.5
JX Holdings	JPY	737.7	0.1	(2.3)	(8.1)	(0.5)	12.6	36.8	1.5	22,130	8.8	8.0	0.9	0.9	7.0	6.6
Idemitsu	JPY	5,570.0	(1.2)	0.2	6.7	47.2	33.1	102.1	23.1	8,360	7.9	7.5	1.0	0.9	6.8	6.8
Nesteoil	EUR	73.2	0.4	1.9	(2.3)	5.8	23.7	100.7	37.1	16,473	16.7	16.7	2.9	2.7	10.2	10.3
Ashland	USD	83.8	(0.6)	(0.6)	(1.9)	5.5	15.3	31.7	17.7	4,550	21.6	18.7	1.3	1.3	10.2	9.6
Fuchs Petrolub	EUR	48.8	0.2	0.0	(1.2)	6.3	1.6	(0.6)	10.2	7,127	22.1	20.9	4.1	3.7	13.0	12.3
SK이노베이션	KRW	201,500	(0.5)	5.2	4.9	(6.3)	(6.1)	5.2	(1.5)	17,975	7.9	7.7	0.9	0.9	4.9	4.8
S-Oil	KRW	125,500	(0.4)	5.5	7.3	12.6	0.4	2.4	7.3	12,400	9.3	8.1	1.8	1.6	7.6	6.6
GS	KRW	53,100	0.2	2.5	(1.1)	(10.9)	(20.6)	(21.2)	(14.6)	5,467	6.0	5.5	0.7	0.6	6.9	6.3
Average			**0.2**	**0.5**	**0.7**	**4.5**	**19.2**	**41.9**	**15.5**							

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

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Global peers

	Currency	09/12	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	83	0.3	2.2	4.7	0.9	10.5	4.6	(0.6)	351,957	17.8	14.8	1.8	1.7	8.0	6.9
BP	GBP	553	1.6	1.2	(0.6)	(4.4)	15.7	23.2	5.8	144,196	13.0	11.6	1.4	1.4	5.0	4.6
Shell	EUR	2,483	1.0	(1.0)	(1.9)	(4.4)	10.2	16.2	0.1	271,090	11.9	10.1	1.3	1.3	5.6	5.2
Chevron	USD	116	0.7	(2.6)	(6.1)	(8.9)	(0.9)	2.9	(7.5)	221,871	14.6	12.8	1.5	1.4	6.0	5.4
Total	EUR	54	1.7	2.6	(0.1)	3.0	15.6	21.1	17.0	167,045	11.6	10.4	1.3	1.3	5.6	5.1
Sinopec	CNY	7	(1.9)	(0.7)	0.3	3.4	3.1	11.6	8.5	116,918	10.1	9.7	1.1	1.0	3.9	3.8
Petrochina	CNY	8	0.4	0.9	3.0	5.6	2.7	3.0	2.2	210,352	25.6	21.3	1.2	1.2	5.5	5.3
CNOOC	CNY	11	0.4	2.3	7.0	5.6	(2.2)	(1.1)	4.6	80,547	9.9	9.0	1.4	1.3	3.9	3.8
Gazprom	RUB	155	1.8	5.4	7.1	9.0	9.7	27.1	18.8	53,101	3.2	3.2	0.3	0.3	2.5	2.5
Rosneft	RUB	445	(0.9)	2.4	2.7	15.7	41.4	41.4	52.6	68,212	8.2	6.7	1.0	0.9	4.7	4.3
Anadarko	USD	62	(1.3)	(4.1)	(7.6)	(13.4)	4.7	47.9	15.2	31,631	21.3	15.1	2.6	2.2	6.2	5.4
Petrobras	BRL	19	2.4	1.6	(3.3)	22.6	(15.1)	27.4	17.7	65,711	6.4	5.3	0.7	0.6	4.5	4.0
Lukoil	USD	4,623	(1.8)	(0.3)	1.0	11.1	22.6	56.1	38.6	57,192	5.5	5.7	0.8	0.7	N/A	N/A
Kinder	USD	18	0.8	2.1	(0.1)	7.3	9.7	(6.2)	0.5	47,497	21.0	18.4	1.2	1.2	10.7	10.5
Equinor ASA	NOK	217	1.0	3.2	0.8	(0.1)	22.0	45.0	23.7	87,712	13.3	12.1	2.0	1.8	3.5	3.2
BHP	AUD	31	(0.3)	(3.4)	(7.8)	(7.7)	7.6	14.7	5.2	113,429	12.8	14.0	2.2	2.1	5.8	6.1
PTT E&P	THB	141	2.2	1.4	1.8	3.3	22.1	60.7	41.0	17,115	13.4	12.1	1.4	1.3	4.3	4.0
Petronas gas	MYR	19	1.3	0.2	(1.1)	6.8	5.6	0.3	7.6	8,986	19.5	19.3	2.8	2.7	10.7	10.6
Chesapeake	USD	4	0.0	(5.8)	(12.9)	(15.6)	30.5	8.6	2.5	3,704	5.2	5.3	#N/A N/A	6.6	6.4	6.3
Noble Energy	USD	29	(0.3)	(1.9)	(4.3)	(14.6)	(5.2)	16.5	0.4	14,136	28.7	22.0	1.3	1.3	7.0	6.1
Average		**0**	**0.5**	**0.3**	**(0.9)**	**1.3**	**10.5**	**21.1**	**12.7**							
PV																
WACKER	EUR	110.9	(6.0)	(6.1)	(10.7)	(4.9)	(20.8)	(1.7)	(31.6)	6,726	15.8	14.2	1.7	1.6	6.0	5.8
GCL-Poly	HKD	0.5	0.0	(3.6)	(10.2)	(33.8)	(56.6)	(40.4)	(62.1)	1,238	8.6	6.4	0.4	0.3	7.1	6.4
SunPower	USD	6.9	(0.3)	2.2	(4.5)	(12.7)	(5.8)	(18.6)	(18.6)	967	#N/A N/A	#N/A N/A	98.0	980.0	16.7	10.5
Canadian Solar	USD	14.9	1.5	3.6	4.6	20.5	(7.7)	(9.5)	(11.4)	875	10.4	10.5	0.9	0.8	6.8	7.7
JA Solar	USD	7.5	0.0	0.0	0.0	4.8	1.6	(8.5)	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	(7.4)	(16.9)	(24.2)	(84.4)	(85.1)	(89.2)	(85.2)	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	48.9	0.9	(4.6)	(7.4)	(9.2)	(30.2)	3.0	(27.6)	5,125	29.9	16.0	0.9	0.9	6.6	3.5
한화큐셀	USD	8.5	0.8	1.6	2.3	29.9	6.9	12.5	20.9	707	15.2	31.4	#N/A N/A	#N/A N/A	8.9	9.1
OCI	KRW	118,000	4.9	0.4	9.8	3.1	(24.4)	16.3	(13.2)	2,515	0.0	13.5	0.0	0.8	0.0	5.8
웅진에너지	KRW	2,770	0.7	(4.6)	(14.4)	(46.9)	(62.3)	(70.3)	(66.3)	74	N/A	0.0	0.8	0.0	5.8	0.0
신성솔라에너지	KRW	1,385	(0.7)	0.0	(1.1)	(19.2)	(24.3)	(35.9)	(27.7)	214	N/A	0.8	0.0	5.8	0.0	2.4
Average			**(0.5)**	**(2.6)**	**(5.1)**	**(13.9)**	**(28.1)**	**(22.0)**	**(29.3)**							
Gas Company																
Towngas China	HKD	7.0	(1.6)	(3.6)	(10.7)	(5.9)	11.4	35.4	10.8	2,492	13.5	12.0	1.1	1.1	12.3	11.1
Kulun	HKD	8.4	0.7	(0.2)	9.4	18.3	15.6	13.5	3.1	8,629	11.1	9.7	1.4	1.3	5.6	5.2
Beijing Enterprise	HKD	38.9	(2.5)	3.7	4.4	(9.0)	(11.0)	(8.4)	(16.3)	6,247	6.6	6.0	0.7	0.6	13.2	12.4
ENN Energy	HKD	72.2	(2.1)	(1.2)	(6.4)	(9.8)	14.7	35.5	29.4	10,345	16.3	14.0	3.4	2.9	10.2	8.8
China Resources Gas	HKD	37.6	1.6	2.2	5.6	23.3	44.4	40.6	32.5	10,640	18.4	16.4	3.3	2.8	10.1	9.1
China Gas Holdings	HKD	23.7	1.5	(4.8)	(22.0)	(31.9)	(0.8)	13.7	9.7	15,343	15.1	12.8	3.5	2.9	12.4	10.5
Shenzen Gas	HKD	13.7	(1.6)	(4.7)	(2.6)	(20.5)	(13.3)	(7.8)	(7.9)	3,687	8.9	7.4	1.1	1.0	7.0	6.1
Shann Xi	CNY	7.2	(1.0)	3.3	(8.9)	(0.4)	(3.6)	(16.1)	(14.3)	1,170	17.4	15.3	1.4	1.3	#N/A N/A	#N/A N/A
Suntien	HKD	2.0	(2.9)	(10.8)	(15.4)	(24.1)	1.5	4.2	(4.3)	937	5.2	4.5	0.7	0.6	8.2	7.0
China Oil & Gas	HKD	0.6	(3.3)	0.0	(10.8)	(12.1)	(18.3)	3.6	(31.8)	431	#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			**(1.1)**	**(1.6)**	**(5.7)**	**(7.2)**	**4.1**	**11.4**	**1.1**							
EV																
LG화학	KRW	343,500	0.7	(4.1)	(8.4)	(9.7)	(16.3)	(11.9)	(15.2)	21,671	13.2	11.9	1.5	1.3	6.4	5.7
삼성SDI	KRW	247,500	(0.8)	2.1	15.9	7.6	22.2	23.8	21.0	15,210	22.7	15.8	1.4	1.3	14.3	11.0
Panasonic	JPY	1255.5	(1.5)	(4.4)	(11.7)	(21.4)	(25.2)	(18.4)	(23.9)	27,669	11.5	10.2	1.6	1.4	4.6	4.3
GS Yuasa	JPY	524.0	(1.1)	(0.6)	4.4	1.2	(10.7)	(8.6)	(6.6)	1,947	15.9	14.6	1.2	1.1	7.1	6.6
NEC	JPY	3005.0	(0.5)	(2.1)	(0.3)	(1.6)	(7.4)	3.3	(1.2)	7,032	22.2	12.4	0.9	0.8	7.4	5.4
BYD Auto	CNY	42.0	1.3	(1.1)	0.8	(16.0)	(37.1)	(24.7)	(35.4)	16,158	27.1	20.3	2.0	1.9	12.1	10.5
Tesla Motors	USD	290.5	4.0	3.5	(18.3)	(15.2)	(15.9)	(19.9)	(6.7)	49,564	#N/A N/A	90.3	8.9	8.3	38.0	17.1
Kandi Technologies	USD	3.8	0.0	(7.3)	(9.5)	(17.8)	(27.6)	(12.6)	(44.1)	196	#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			**0.3**	**(1.7)**	**(3.4)**	**(9.1)**	**(14.8)**	**(8.6)**	**(14.0)**							

* Bloomberg 기준 / valuation multiple 또한 Bloomberg consensus 기준임