

## 1. News Summary (3 page)

2017년 2월 20일

News	
<b>WTI comment</b>	미국 원유채굴장치 증가에 강보합...WTI 0.1%↑
<b>Headline</b>	[주간가격] 트레이더들 차익 실현 매물로 MEG 40\$ 하락
<b>News 1.</b>	[주간가격] 바이어 매수세 꺾이며 부타디엔 가격 전주 대비 플랫
<b>News 2.</b>	[주간가격] 에틸렌 가격 톤당 75\$ 상승 마감
<b>News 3.</b>	[주간가격] 아시아 SBR, 중국 수요 안정화 불구 SEA 우려로 혼조세
<b>News 4.</b>	[주간가격] CFR China, FOB Korea 프로필렌 강세

Conclusion	
	단기적으로 MEG 하락세를 보이지만 예단하기 어렵다는 판단
	라니냐 및 재배면적 이슈로 고무계열 강세는 불가피할 것
	가격 강세는 필연적으로 Capex의 증가를 야기할 것
	재배면적에서 비롯된 공급 측면 쏠티지로 SBR 가격 지속 강세 전망
	4월 ~ 5월까지 메이저 업체 정기보수로 공급차질 지속될 것

## 2. Prices Summary (4~7 page)

Daily	Unit	Price	1D	1W	1M	3M	12M
<b>Refinery</b>			%	%	%	%	%
WTI	\$/bbl	53.4	0.1	(0.9)	4.0	16.9	80.2
Dubai	\$/bbl	54.1	0.2	0.5	1.9	26.3	79.8
Gasoline	\$/bbl	68.2	(3.6)	(4.8)	(1.0)	18.5	56.2
Diesel	\$/bbl	66.7	0.0	0.1	4.1	21.0	65.0
Complex margin	\$/bbl	7.7	(1.1)	(1.2)	(0.2)	(1.0)	0.9
1M lagging	\$/bbl	7.9	(1.6)	(1.6)	(0.1)	6.0	(5.6)
<b>Petrochemical</b>			%	%	%	%	%
Naphtha	\$/t	513	(2.4)	(1.3)	(0.6)	19.3	69.1
Butadiene	\$/t	3,000	0.0	0.0	3.8	105.5	268.1
HDPE	\$/t	1,195	0.0	0.8	4.4	4.8	11.2
MEG	\$/t	893	(0.6)	(3.5)	(2.9)	22.3	40.6
PX	\$/t	896	0.1	(0.5)	5.2	15.5	26.7
SM	\$/t	1,444	(3.2)	(1.1)	13.1	25.6	52.2
<b>Commodity</b>			%	%	%	%	%
Natural Gas	\$/mmbtu	2.83	(0.7)	(6.6)	(11.7)	(6.0)	10.6
Natural rubber	\$/t	2,150	(4.9)	(0.5)	3.4	29.5	100.9
Cotton	C/lbs	73.5	(2.0)	(3.1)	0.6	0.1	22.4

\*참고: 정제마진의 변동률은 %가 아닌 \$/bbl임

Weekly	Update	Unit	Price	1W	1M	3M	12M
<b>Petrochemical</b>				%	%	%	%
Ethylene	02/13	\$/t	1,125	3.2	11.9	24.0	25.7
Propylene	02/13	\$/t	1,000	2.6	9.3	47.1	52.7
Benzene	02/13	\$/t	1,075	4.1	15.3	58.7	100.9
Toluene	02/13	\$/t	775	0.0	6.9	19.2	33.6
Xylene	02/13	\$/t	720	0.7	0.7	9.9	24.1
PP	02/13	\$/t	1,098	1.9	5.3	5.5	29.9
PVC	02/13	\$/t	920	1.1	2.2	(1.1)	26.9
ABS	02/13	\$/t	1,930	2.4	9.7	28.2	70.8
SBR	02/13	\$/t	3,125	2.5	5.9	76.1	161.5
SM	02/13	\$/t	1,485	(5.1)	16.5	27.5	52.3
BPA	02/13	\$/t	1,655	(0.5)	6.3	13.0	42.1
Caustic	02/13	\$/t	423	1.2	1.2	11.2	47.0
2-EH	02/13	\$/t	950	4.4	6.7	18.8	38.7
Caprolactam	02/13	\$/t	2,175	3.6	7.1	52.1	95.9
<b>Solar</b>				%	%	%	%
Polysilicon	02/15	\$/kg	16.3	0.0	3.6	12.4	25.8
Module	02/15	\$/W	0.35	(0.3)	(1.1)	(11.3)	(36.1)

## 3. Global Peers Summary (8~9 page)

	Unit	Price	1D	1W	1M	3M	12M
<b>E&amp;P</b>			%	%	%	%	%
ExxonMobil	USD	81.8	(0.7)	(0.9)	(6.4)	(4.1)	(0.3)
Shell	EUR	2,095	(1.3)	(3.3)	(6.5)	5.1	27.6
Petrochina	CNY	8.28	(0.5)	(1.9)	(3.0)	11.6	10.1
Gazprom	RUB	138.1	(0.7)	(1.7)	(10.1)	(6.5)	0.7
Petrobras	BRL	15.6	(1.6)	0.2	(1.3)	9.2	233.5
<b>Refinery</b>							
Phillips66	USD	78.7	0.2	(1.5)	(5.9)	(6.2)	(2.4)
Valero	USD	65.5	(1.7)	(2.9)	(1.1)	1.3	13.4
JX	JPY	533.4	(1.1)	1.4	5.4	23.9	22.8
Neste Oil	EUR	34.8	0.9	0.6	5.7	(4.8)	25.9

	Unit	Price	1D	1W	1M	3M	12M
<b>Petrochemical</b>			%	%	%	%	%
BASF	EUR	89.0	(0.3)	0.6	0.8	9.6	48.3
Dow Chemical	USD	61.3	(0.2)	0.1	6.9	14.8	27.7
SABIC	SAR	97.5	0.0	1.4	3.9	13.3	40.9
Formosa Pla.	TWD	93.5	(0.5)	1.1	3.9	8.5	21.7
Shin-Etsu	JPY	9,893	0.8	0.8	5.9	18.8	77.9
<b>Renewable</b>							
Wacker	EUR	108.8	0.5	(2.2)	1.0	33.3	65.3
First Solar	USD	34.84	2.1	6.1	(0.9)	11.8	(45.1)
Trina Solar	USD	10.2	0.3	0.8	1.4	(1.7)	5.3
Tesla Motors	USD	272.2	1.2	1.1	15.6	44.3	61.4

## 4. Coverage Summary

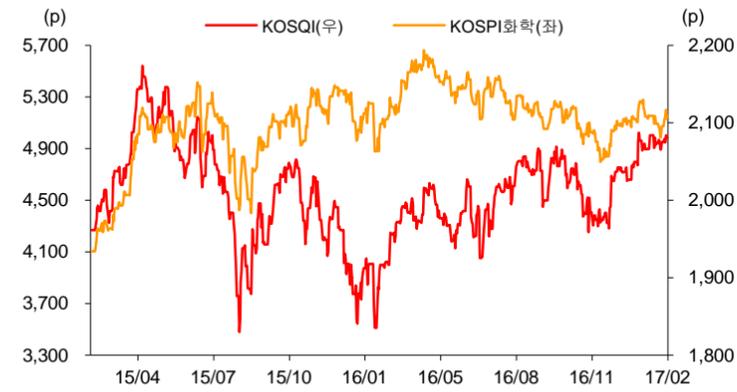
	02/17	1D	1W	1M	3M	6M	12M
KOSPI	2,081	(0.1)	0.3	0.5	5.4	1.2	10.4
KOSPI화학	5,148	0.3	1.5	(1.2)	4.0	(1.5)	5.5
LG화학	277,000	0.7	(1.4)	2.0	18.6	6.9	(2.8)
롯데케미칼	392,500	0.4	(3.6)	3.0	24.0	36.0	38.4
한화케미칼	26,900	(0.9)	1.3	(2.0)	8.5	0.9	8.0
금호석유화학	82,500	0.4	0.5	(6.9)	13.3	15.4	46.0
KCC	339,500	(0.3)	3.5	(2.4)	(12.8)	(21.5)	(21.1)
OCI	93,500	1.7	1.9	5.1	15.3	3.1	20.0
SKC	33,150	1.8	(0.3)	3.6	4.9	15.1	9.6
국도화학	52,700	1.5	0.0	(3.3)	(5.7)	(9.6)	(1.9)
SK이노베이션	156,500	(0.9)	0.3	(3.7)	3.0	1.6	13.4
S-Oil	86,400	(0.7)	2.9	0.0	4.6	14.9	12.9
GS	54,700	(0.5)	1.7	1.7	0.2	9.2	8.1
SK가스	109,000	0.5	0.5	(4.8)	0.9	11.1	43.8
포스코대우	25,800	(1.9)	(0.4)	(9.0)	(3.7)	11.2	32.0
LG상사	34,100	(1.3)	(2.3)	4.6	7.6	(3.0)	1.9

투자의견	TP	%	P/E	P/B
			* 추정치는 12M fwd 기준임	
			* 모든 coverage 업체의 실적은 연결기준임	
매수	350,000	26.4	10.38	1.43
매수	410,000	4.5	9.96	1.51
매수	28,000	4.1	9.71	0.81
매수	100,000	21.2	13.68	1.54
매수	500,000	47.3	13.34	0.52
매수	100,000	7.0	17.26	0.70
매수	40,000	20.7	10.55	0.81
매수	70,000	32.8	11.08	0.65
매수	180,000	15.0	8.55	0.87
매수	100,000	15.7	11.14	1.46
매수	65,000	18.8	8.64	0.87
매수	130,000	19.3	8.71	0.81
매수	29,000	12.4	10.45	1.19
매수	42,000	23.2	11.71	1.11

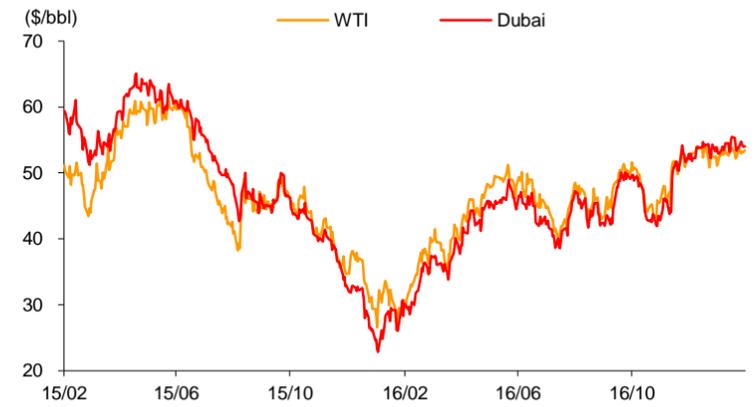
\* 작성자(손지우)는 본 조사분석자료에 게재된 내용들이 본인의 의견을 정확하게 반영하고 있으며, 외부의 부당한 압력이나 간섭없이 신의성실하게 작성되었음을 확인합니다.  
\* 본 보고서에 언급된 종목의 경우 당사 조사분석담당자는 본인의 담당종목을 보유하고 있지 않습니다.  
\* 본 보고서는 기관투자가 또는 제 3자에게 사전 제공된 사실이 없습니다.  
\* 당사는 본 보고서의 발간시점에 해당종목을 1% 이상 보유하고 있지 않습니다.

## Key Chart

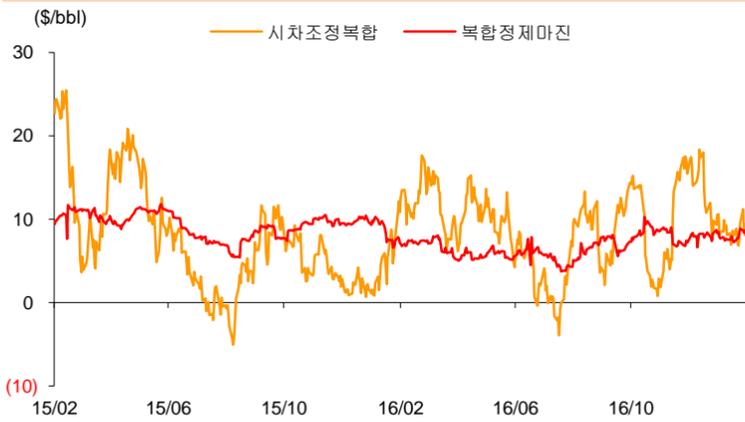
KOSPI/KOSPI화학



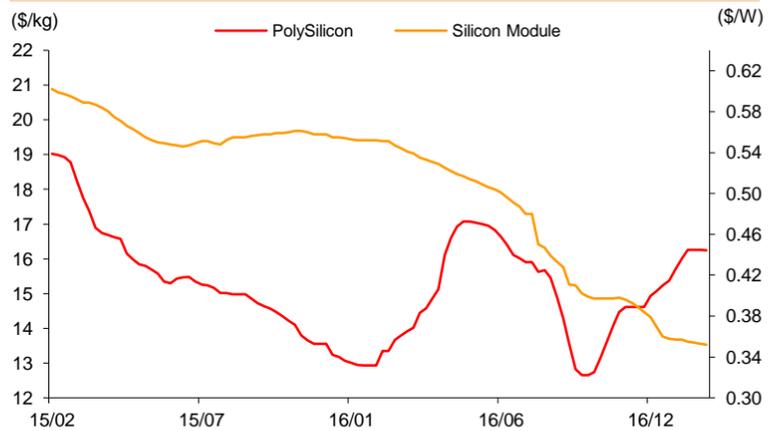
WTI/Dubai



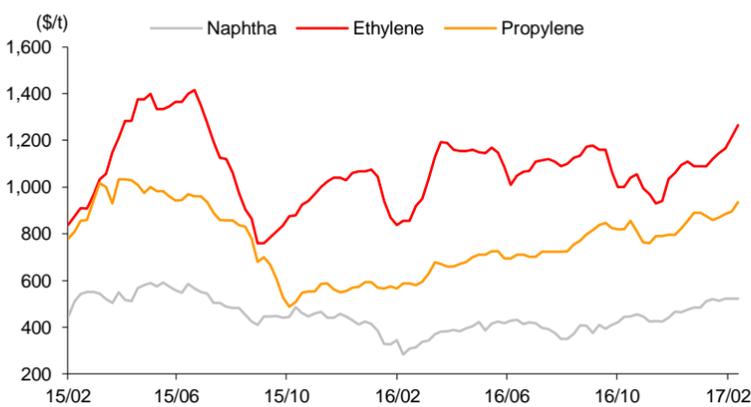
Complex & 1M lagging margin



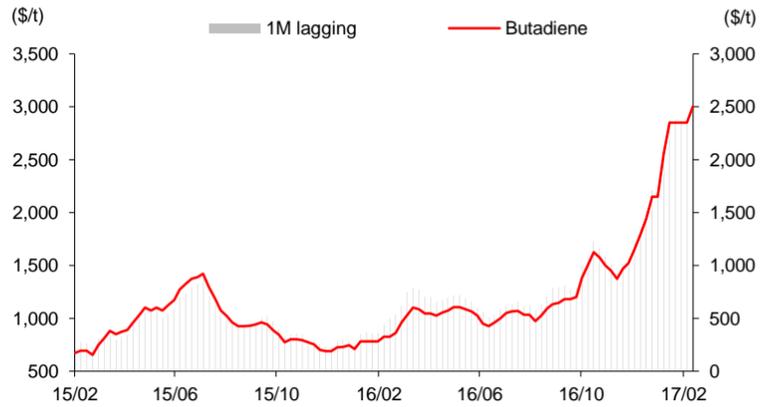
Polysilicon & Module prices



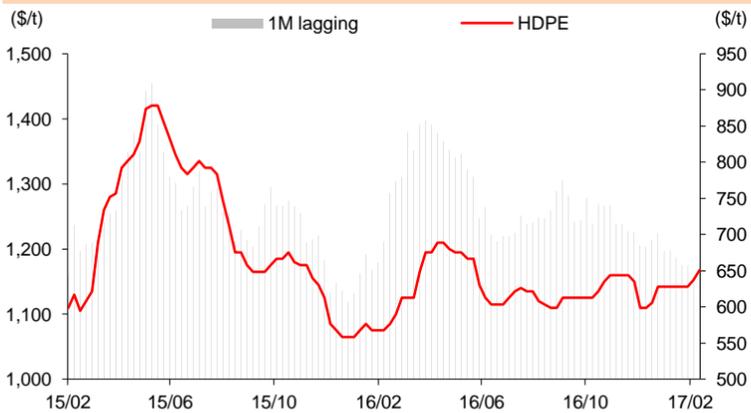
Naphtha/Ethylene/Propylene prices



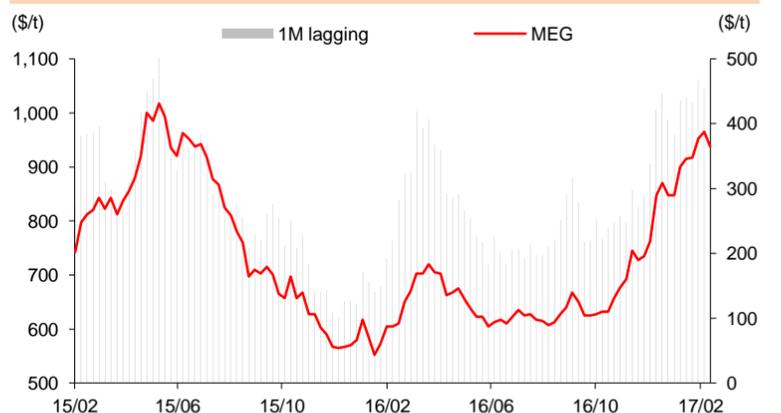
Butadiene price & 1M lagging naphtha spread



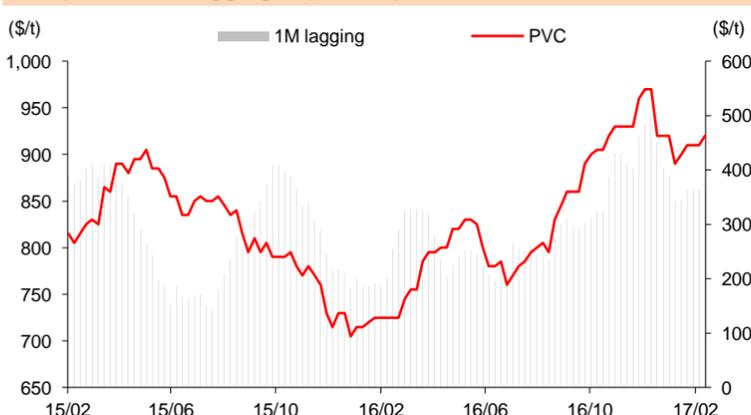
HDPE price & 1M lagging naphtha spread



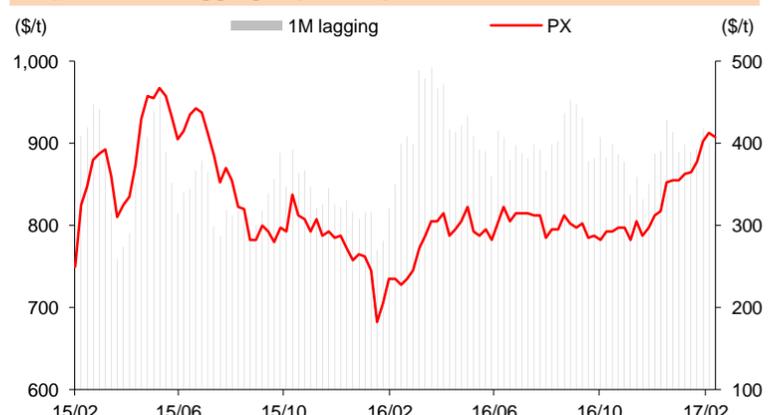
MEG price & 1M lagging naphtha spread



PVC price & 1M lagging naphtha spread



PX price & 1M lagging naphtha spread



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

## News Comment

Headline	(출처: Platts)
<b>제목</b> [주간가격] 트레이더들 차익 실현 매물로 MEG 40\$ 하락	
<b>결론</b> 단기적으로 MEG 하락세를 보이지만 예단하기 어렵다는 판단	
<b>세부</b>	
1) 아시아 MEG 가격이 40\$ 가량 빠지며 893\$/mt 기록	
2) 관계자, "금주 MEG 약세는 주요 트레이더들의 차익실현때문"	
3) 주요 트레이더들이 롱 포지션을 청산하며 가격이 빠짐	
4) 여전히 펀더멘탈리스트들은 공급과잉 상태라고 판단함	
5) 단기적으로 MEG 하락세를 보이지만 예단하기 어렵다는 판단	

Issue 1	(출처: Platts)
<b>제목</b> [주간가격] 바이어 매수세 꺾이며 부타디엔 가격 전주 대비 플랫	
<b>결론</b> 라니냐 및 재배면적 이슈로 고무계열 강세는 불가피할 것	
<b>세부</b>	
1) 3월 인도분 부타디엔 가격은 중국 바이어들 매수세 감소로 플랫	
2) CFR China 가격 오퍼가 톤당 3,300\$에서 톤당 3,050\$ 수준이 됨	
3) 동시에 유럽과 미주지역 재고가 부족하다는 우려가 상존	
4) 게다가 정기보수 시즌 돌입으로 공급측면 문제도 남아있음	
5) 라니냐 및 재배면적 이슈로 고무계열 강세는 불가피할 것	

Issue 3	(출처: Platts)
<b>제목</b> [주간가격] 아시아 SBR, 중국 수요 안정화 불구 SEA 우려로 혼조세	
<b>결론</b> 재배면적에서 비롯된 공급 측면 숏티지로 SBR 가격 지속 강세 전망	
<b>세부</b>	
1) 중국 기반 타이어 메이커들의 SBR 수요 안정화 추세 보임	
2) 구정 연휴가 끝나며 생산을 늘리는 타이어 업체들의 동향	
3) 그러나 중국 내 자동차 판매량 감소세로 시장에 우려감도 상존	
4) 1월 자동차 판매량은 yoy 1.1% 감소세를 보인 바 있음	
5) 재배면적에서 비롯된 공급 측면 숏티지로 SBR 가격 지속 강세 전망	

Issue 5	(출처: 동아닷컴)
<b>제목</b> 테슬라 모델3, 이달 중 시험생산...7월 양산 문제없나	
<b>결론</b> 모델3 스펙 감안시 3.5만\$에 양산할 수 있는지에 대한 의구심 제기됨	
<b>세부</b>	
1) 기다림에 지친 투자자들과 계약자들의 갈증 해소 위한 쇼라는 지적	
2) 오는 20일부터 캘리포니아 프리몬트 공장에서 시험생산 돌입	
3) 양산모델 본격 생산은 7월부터 이뤄질 계획	
4) 양산버전 실물이 여전히 비공개이며 디자인 변경 소문까지 도는 실정	
5) 모델3 스펙 감안시 3.5만\$에 양산할 수 있는지에 대한 의구심 제기됨	

WTI Comment	(출처: 연합뉴스)
<b>제목</b> 미국 원유채굴장치 증가에 강보합...WTI 0.1%↑	
<b>상승</b> 산유국이 작년 합의한 대로 생산량을 줄여 나가고 있는 것	
<b>요인</b> 이미 합의한 감산량의 90%까지 줄인 것으로 분석됨	
<b>하락</b> 베이커휴, "미국에서 가동중인 원유채굴장치는 6개 늘어 지난주 597개"	
<b>요인</b> 전날 미국의 원유 재고와 휘발유 재고가 급증한 것으로 발표됨	
<b>달러 강세</b>	

Issue 2	(출처: Platts)
<b>제목</b> [주간가격] 에틸렌 가격 톤당 75\$ 상승 마감	
<b>결론</b> 가격 강세는 필연적으로 Capex의 증가를 야기할 것	
<b>세부</b>	
1) 다운스트림인 SM 수요 증가로 에틸렌 가격 상승 압력 받음	
2) 에틸렌 강세가 지속될 것이라는 것이 시장의 판단	
3) 그러나 PE 약세와 재고 증가세를 감안했을 때, 강세 지속 의문	
4) 관계자, "현재 가격 수준에서 에틸렌 생산 늘리는 것은 비경제적"	
5) 가격 강세는 필연적으로 Capex의 증가를 야기할 것	

Issue 4	(출처: Platts)
<b>제목</b> [주간가격] CFR China, FOB Korea 프로필렌 강세	
<b>결론</b> 4월 ~ 5월까지 메이저 업체 정기보수로 공급차질 지속될 것	
<b>세부</b>	
1) 동북아시아 프로필렌 공급 차질로 강세를 보인다는 분석	
2) 일반적으로 2월은 다른 달에 비해 생산량이 적은 경향이 있음	
3) 한국과 일본의 견조한 내수 수요로 spot cargo 물량 감소함	
4) 주요 공장들이 정기 보수 시즌에 돌입한 영향이 큼	
5) 4월 ~ 5월까지 메이저 업체 정기보수로 공급차질 지속될 것	

Issue 6	(출처: 키뉴스)
<b>제목</b> LG화학, 중국발 약재에도 지난해 배터리 판매 50% 증가	
<b>결론</b> GM Volt와 Bolt 수주에 기인하며, Bolt 發 성장 가속화 될 것	
<b>세부</b>	
1) 시장 점유율이 소폭 감소했지만 대외 환경 악화 감안시 호실적	
2) SNE리서치, "2016년 세계 전기차 배터리 출하량은 60% 증가"	
3) BYD, CATL, 유틸텀 등 중국 정부의 배터리 보조금 중단 수혜 받음	
4) NCA, NCM 양극재가 아닌 LFP 삼원계 업체들 수혜본 것	
5) GM Volt와 Bolt 수주에 기인하며, Bolt 發 성장 가속화 될 것	

## Commodity Price Data

Daily Price		Today	1D	1W	1M	3M	6M	12M	YTD	2015avg.	2016avg.	2017acc.	
F/X	USD/EUR	0.942	0.937	0.940	0.933	0.941	0.886	0.899	0.951	0.901	0.904	0.939	
	Change, %		0.6	0.3	0.9	0.1	6.4	4.8	(0.9)	4.5	4.2	0.3	
	USD/JPY	112.8	113.2	113.2	112.6	110.1	100.3	114.1	117.0	121.1	108.8	114.3	
	Change, %		(0.4)	(0.3)	0.2	2.5	12.5	(1.1)	(3.5)	(6.8)	3.8	(1.3)	
	USD/KRW	1,146.3	1,141.6	1,151.0	1,174.4	1,176.0	1,108.4	1,227.0	1,205.8	1,131.2	1,160.5	1,168.5	
	Change, %		0.4	(0.4)	(2.4)	(2.5)	3.4	(6.6)	(4.9)	1.3	(1.2)	(1.9)	
	Agriculture	Corn	368.3	373.5	374.5	365.5	342.0	330.3	367.3	352.0	376.8	358.5	364.5
		Change, %		(1.4)	(1.7)	0.8	7.7	11.5	0.3	4.6	(2.3)	2.7	1.0
	Soybean	1,032.5	1,043.8	1,059.0	1,069.3	989.5	1,030.5	882.5	996.5	945.4	987.5	1,036.3	
	Change, %		(1.1)	(2.5)	(3.4)	4.3	0.2	17.0	3.6	9.2	4.6	(0.4)	
	Wheat	441.0	447.8	449.0	433.5	403.0	426.0	468.5	408.0	508.1	436.4	429.4	
	Change, %		(1.5)	(1.8)	1.7	9.4	3.5	(5.9)	8.1	(13.2)	1.1	2.7	
	Rice	9.3	9.3	9.6	10.0	9.5	10.2	11.0	9.4	11.1	10.3	9.6	
	Change, %		(0.1)	(2.4)	(6.2)	(1.8)	(8.7)	(15.4)	(0.2)	(15.6)	(9.7)	(2.7)	
	Oats	256.8	255.8	254.5	249.3	235.0	170.5	200.5	228.5	250.2	196.3	248.4	
	Change, %		0.4	0.9	3.0	9.3	50.6	28.1	12.4	2.6	30.8	3.3	
MYR/mt	Palm Oil	3,094.0	3,151.0	3,268.0	3,255.0	2,883.0	2,888.0	2,545.0	3,218.0	2,190.3	2,653.8	3,239.6	
	Change, %		(1.8)	(5.3)	(4.9)	7.3	7.1	21.6	(3.9)	41.3	16.6	(4.5)	
	Cocoa	2,034.0	2,072.0	1,939.0	2,235.0	2,426.0	3,055.0	2,878.0	2,126.0	3,091.6	2,854.0	2,117.0	
	Change, %		(1.8)	4.9	(9.0)	(16.2)	(33.4)	(29.3)	(4.3)	(34.2)	(28.7)	(3.9)	
	Cotton	73.5	75.0	75.8	72.1	73.4	68.4	59.9	70.7	63.3	65.6	74.1	
	Change, %		(2.0)	(3.1)	1.9	0.1	7.5	22.7	4.0	16.1	12.0	(0.9)	
	Sugar	20.3	20.4	20.4	20.7	20.2	19.7	13.2	19.5	13.1	18.2	20.5	
	Change, %		(0.3)	(0.6)	(2.1)	0.4	2.9	54.3	4.0	54.5	11.8	(1.0)	
	Coffee	147.8	146.3	145.8	149.9	159.3	135.1	114.6	137.1	132.6	136.1	147.2	
	Change, %		1.0	1.4	(1.4)	(7.2)	9.4	29.0	7.8	11.4	8.6	0.4	
Energy	WTI	53.4	53.4	53.9	52.5	45.4	46.8	30.7	53.7	48.8	43.4	53.0	
	Change, %		0.1	(0.9)	1.8	17.6	14.1	74.2	(0.6)	9.3	23.1	0.8	
	Brent	55.8	55.7	56.7	55.5	46.5	49.9	34.5	56.8	53.7	45.1	55.8	
	Change, %		0.3	(1.6)	0.6	20.0	12.0	61.8	(1.8)	4.0	23.8	(0.0)	
	Natural Gas	2.8	2.9	3.0	3.4	2.7	2.6	1.9	3.7	2.6	2.6	3.2	
	Change, %		(0.7)	(6.6)	(16.9)	4.8	8.2	45.9	(23.9)	7.8	11.0	(11.9)	
	Ethanol	1.5	1.5	1.6	1.5	1.5	1.4	1.4	1.6	1.5	1.5	1.5	
	Change, %		(1.4)	(5.1)	0.9	(1.6)	6.0	9.1	(5.4)	0.7	0.4	0.2	
	RBOB Gasoline	151.7	152.5	159.0	160.0	134.3	145.1	100.3	166.5	163.6	140.0	157.1	
	Change, %		(0.5)	(4.6)	(5.2)	12.9	4.6	51.1	(8.9)	(7.3)	8.3	(3.4)	
	Coal	40.0	40.0	40.0	40.0	40.0	39.5	43.2	40.0	45.2	41.3	40.0	
	Change, %		0.0	0.0	0.0	0.0	1.3	(7.3)	0.0	(11.5)	(3.2)	0.0	
Metal	Gold	1,235.0	1,239.1	1,233.7	1,217.0	1,216.5	1,348.8	1,208.6	1,152.3	1,160.6	1,248.5	1,205.2	
	Change, %		(0.3)	0.1	1.5	1.5	(8.4)	2.2	7.2	6.4	(1.1)	2.5	
	Silver	18.0	18.1	18.0	17.2	16.7	19.7	15.3	15.9	15.7	17.1	17.2	
	Change, %		(0.6)	0.2	4.6	7.9	(8.6)	17.7	13.0	14.4	5.2	4.7	
	Platinum	1,003.0	1,012.7	1,011.8	976.0	933.9	1,118.4	942.8	903.5	1,055.7	988.4	984.5	
	Change, %		(1.0)	(0.9)	2.8	7.4	(10.3)	6.4	11.0	(5.0)	1.5	1.9	
	Palladium	778.2	793.1	785.2	750.3	728.0	694.0	514.1	681.0	691.9	614.3	757.5	
	Change, %		(1.9)	(0.9)	3.7	6.9	12.1	51.4	14.3	12.5	26.7	2.7	
	Copper	5,960.0	6,000.0	6,090.0	5,754.0	5,495.5	4,774.0	4,589.0	5,535.5	5,503.1	4,872.0	5,826.6	
	Change, %		(0.7)	(2.1)	3.6	8.5	24.8	29.9	7.7	8.3	22.3	2.3	
	Uranium	25.0	25.0	26.8	22.9	18.5	26.1	34.0	20.4	36.9	26.4	23.9	
	Change, %		0.0	(6.5)	9.2	35.1	(4.0)	(26.5)	22.5	(32.2)	(5.4)	4.7	
	HR Coil	615.0	615.0	620.0	622.0	494.0	596.0	396.0	633.0	461.5	519.3	621.7	
	Change, %		0.0	(0.8)	(1.1)	24.5	3.2	55.3	(2.8)	33.3	18.4	(1.1)	
	Scrap	310.0	310.0	305.7	305.0	255.0	260.0	250.0	302.0	252.9	275.7	302.7	
	Change, %		0.0	1.4	1.6	21.6	19.2	24.0	2.6	22.6	12.5	2.4	
	Zinc	2,809.5	2,858.0	2,924.0	2,716.5	2,533.0	2,273.0	1,645.0	2,576.0	1,941.9	2,097.5	2,768.4	
	Change, %		(1.7)	(3.9)	3.4	10.9	23.6	70.8	9.1	44.7	33.9	1.5	

자료: Bloomberg

참고) NYMEX, ICE, LME 중 대표지수를 사용

## Refining Price Data

Daily Price		02/17	1D	1W	1M	3M	6M	12M	YTD	2015avg.	2016avg.	2017acc.
Crude Oil	<b>WTI</b>	53.4	53.4	53.9	51.4	45.7	48.5	29.6	53.7	48.8	43.4	52.9
	<i>Change, %</i>		<i>0.1</i>	<i>(0.9)</i>	<i>4.0</i>	<i>16.9</i>	<i>10.1</i>	<i>80.2</i>	<i>(0.6)</i>	<i>9.5</i>	<i>23.2</i>	<i>1.0</i>
	<b>Dubai</b>	54.1	54.0	53.8	53.0	42.8	47.3	30.1	53.8	50.8	41.3	53.9
	<i>Change, %</i>		<i>0.2</i>	<i>0.5</i>	<i>1.9</i>	<i>26.3</i>	<i>14.4</i>	<i>79.8</i>	<i>0.4</i>	<i>6.4</i>	<i>30.9</i>	<i>0.3</i>
Crude Oil Product	<b>Gasoline(휘발유)</b>	68.2	70.7	71.6	68.9	57.6	58.0	43.7	69.8	69.5	56.3	70.0
	<i>Change, %</i>		<i>(3.6)</i>	<i>(4.8)</i>	<i>(1.0)</i>	<i>18.5</i>	<i>17.5</i>	<i>56.2</i>	<i>(2.4)</i>	<i>(1.9)</i>	<i>21.2</i>	<i>(2.6)</i>
	<b>Kerosene(등유)</b>	65.9	66.3	66.2	64.3	55.0	57.7	42.7	66.4	64.7	52.9	65.5
	<i>Change, %</i>		<i>(0.6)</i>	<i>(0.4)</i>	<i>2.5</i>	<i>19.9</i>	<i>14.3</i>	<i>54.2</i>	<i>(0.8)</i>	<i>1.8</i>	<i>24.6</i>	<i>0.6</i>
	<b>Diesel(경유)</b>	66.7	66.7	66.7	64.1	55.2	57.8	40.4	65.5	64.8	52.1	65.6
	<i>Change, %</i>		<i>0.0</i>	<i>0.1</i>	<i>4.1</i>	<i>21.0</i>	<i>15.5</i>	<i>65.0</i>	<i>1.8</i>	<i>3.0</i>	<i>28.0</i>	<i>1.7</i>
	<b>Bunker-C</b>	49.6	50.5	49.3	50.0	41.7	40.5	24.1	52.1	45.3	35.5	50.3
	<i>Change, %</i>		<i>(1.8)</i>	<i>0.5</i>	<i>(0.9)</i>	<i>18.7</i>	<i>22.3</i>	<i>106.0</i>	<i>(4.8)</i>	<i>9.5</i>	<i>39.5</i>	<i>(1.5)</i>
	<b>Naphtha</b>	56.3	57.5	56.9	55.1	46.0	42.9	34.2	53.5	52.6	42.6	55.9
	<i>Change, %</i>		<i>(2.1)</i>	<i>(1.1)</i>	<i>2.0</i>	<i>22.3</i>	<i>31.2</i>	<i>64.4</i>	<i>5.3</i>	<i>6.9</i>	<i>32.1</i>	<i>0.7</i>
Dubai Spread	<b>Gasoline(휘발유)</b>	14.1	16.8	17.8	15.8	14.8	10.8	13.6	16.0	18.7	14.9	16.1
	<i>Change</i>		<i>(2.6)</i>	<i>(3.7)</i>	<i>(1.7)</i>	<i>(0.6)</i>	<i>3.4</i>	<i>0.5</i>	<i>(1.9)</i>	<i>(4.6)</i>	<i>(0.8)</i>	<i>(1.9)</i>
	<b>Kerosene(등유)</b>	11.9	12.4	12.4	11.3	12.2	10.4	12.7	12.6	14.0	11.6	11.6
	<i>Change</i>		<i>(0.5)</i>	<i>(0.5)</i>	<i>0.6</i>	<i>(0.3)</i>	<i>1.5</i>	<i>(0.8)</i>	<i>(0.8)</i>	<i>(2.1)</i>	<i>0.3</i>	<i>0.3</i>
	<b>Diesel(경유)</b>	12.7	12.8	12.9	11.1	12.4	10.5	10.4	11.7	14.0	10.8	11.7
	<i>Change</i>		<i>(0.1)</i>	<i>(0.2)</i>	<i>1.6</i>	<i>0.3</i>	<i>2.1</i>	<i>2.3</i>	<i>1.0</i>	<i>(1.3)</i>	<i>1.9</i>	<i>1.0</i>
Dubai Spread	<b>Bunker-C</b>	(4.5)	(3.5)	(4.5)	(3.0)	(1.1)	(6.8)	(6.0)	(1.8)	(5.5)	(5.8)	(3.6)
	<i>Change</i>		<i>(1.0)</i>	<i>(0.0)</i>	<i>(1.5)</i>	<i>(3.4)</i>	<i>2.2</i>	<i>1.5</i>	<i>(2.7)</i>	<i>1.0</i>	<i>1.3</i>	<i>(0.9)</i>
	<b>Naphtha</b>	2.2	3.5	3.1	2.1	3.2	(4.4)	4.2	(0.4)	1.8	1.3	1.9
	<i>Change</i>		<i>(1.3)</i>	<i>(0.9)</i>	<i>0.1</i>	<i>(1.0)</i>	<i>6.6</i>	<i>(2.0)</i>	<i>2.6</i>	<i>0.4</i>	<i>0.9</i>	<i>0.3</i>
Refining Margin	<b>Simple(단순)</b>	2.6	3.6	3.2	3.1	4.6	0.4	2.1	3.8	3.3	1.9	3.0
	<i>Change</i>		<i>(0.9)</i>	<i>(0.6)</i>	<i>(0.5)</i>	<i>(2.0)</i>	<i>2.3</i>	<i>0.5</i>	<i>(1.2)</i>	<i>(0.7)</i>	<i>0.7</i>	<i>(0.4)</i>
	<b>Complex(복합)</b>	7.7	8.8	8.9	7.8	8.7	5.0	6.8	8.3	9.3	7.0	8.0
	<i>Change</i>		<i>(1.1)</i>	<i>(1.2)</i>	<i>(0.2)</i>	<i>(1.0)</i>	<i>2.7</i>	<i>0.9</i>	<i>(0.6)</i>	<i>(1.6)</i>	<i>0.7</i>	<i>(0.3)</i>
Refining Margin	<b>Complex(lagging)</b>	7.9	9.4	9.5	8.0	1.8	10.0	13.5	18.0	7.3	8.5	9.4
	<i>Change</i>		<i>(1.6)</i>	<i>(1.6)</i>	<i>(0.1)</i>	<i>6.0</i>	<i>(2.1)</i>	<i>(5.6)</i>	<i>(10.1)</i>	<i>0.6</i>	<i>(0.6)</i>	<i>(1.6)</i>

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

## Petrochemical Price Data

Daily Price			02/17	02/16	02/15	02/14	02/13	02/10	02/09	02/08	02/07	02/06	
Spot Price	<b>Naphtha</b>	CFR Japan	512.8	525.3	523.8	528.9	522.0	520.5	519.3	506.0	517.8	527.0	
	<b>Ethylene</b>	CFR SE Asia	1,150.0	1,110.0	1,110.0	1,110.0	1,110.0	1,110.0	1,100.0	1,095.0	1,095.0	1,075.0	
	<b>Propylene</b>	FOB Korea	999.0	1,000.0	936.0	935.0	935.0	935.0	925.0	899.0	900.0	905.0	
	<b>Butadiene</b>	FOB Korea	3,000.0	3,000.0	3,000.0	3,000.0	3,000.0	3,000.0	3,000.0	3,000.0	3,000.0	3,000.0	
	<b>HDPE</b>	CFR FE Asia	1,195.0	1,195.0	1,195.0	1,195.0	1,195.0	1,185.0	1,185.0	1,185.0	1,185.0	1,185.0	
	<b>LDPE</b>	CFR FE Asia	1,320.0	1,320.0	1,320.0	1,320.0	1,330.0	1,310.0	1,310.0	1,310.0	1,310.0	1,310.0	
	<b>LLDPE</b>	CFR FE Asia	1,180.0	1,180.0	1,180.0	1,180.0	1,190.0	1,195.0	1,195.0	1,195.0	1,195.0	1,175.0	
	<b>MEG</b>	CFR China	893.0	898.0	890.0	915.0	938.0	933.0	925.0	925.0	935.0	940.0	960.0
	<b>PP</b>	CFR FE Asia	1,040.0	1,060.0	1,070.0	1,060.0	1,060.0	1,030.0	1,040.0	1,035.0	1,035.0	1,035.0	
	<b>PX</b>	CFR China	895.5	894.7	895.7	899.7	900.7	893.7	899.7	902.2	906.7	911.7	
	<b>PTA</b>	CFR China	688.0	688.0	690.0	698.0	695.0	685.0	675.0	677.0	677.0	680.0	
	<b>Benzene</b>	FOB Korea	1,005.5	1,024.0	1,043.0	1,051.0	1,053.0	1,036.0	1,026.0	1,050.0	1,051.0	1,054.0	
	<b>Toluene</b>	FOB Korea	728.5	731.5	726.0	730.0	741.0	732.0	740.0	748.0	756.0	766.0	
	<b>Xylene</b>	FOB Korea	704.0	704.0	715.0	715.0	715.0	715.0	726.0	734.0	737.0	737.0	
	<b>SM</b>	FOB Korea	1,444.0	1,492.5	1,495.0	1,495.0	1,496.0	1,485.0	1,460.0	1,448.0	1,464.0	1,499.0	

Weekly Price			Last Week	1W	1M	3M	6M	12M	YTD	2015avg.	2016avg.	2017acc.
Spot Price	<b>Naphtha</b>	CFR Japan	522.0	522.5	520.0	427.0	446.0	309.0	484.5	493.0	399.5	513.6
	<i>Change, %</i>			<i>(0.1)</i>	<i>0.4</i>	<i>22.2</i>	<i>17.0</i>	<i>68.9</i>	<i>7.7</i>	<i>5.9</i>	<i>30.7</i>	<i>1.6</i>
	<b>Ethylene</b>	CFR SE Asia	1,125.0	1,090.0	1,005.0	907.5	1,030.0	895.0	990.0	1,103.7	1,040.9	1,048.6
	<i>Change, %</i>			<i>3.2</i>	<i>11.9</i>	<i>24.0</i>	<i>9.2</i>	<i>25.7</i>	<i>13.6</i>	<i>1.9</i>	<i>8.1</i>	<i>7.3</i>
	<b>Propylene</b>	CFR SE Asia	1,000.0	975.0	915.0	680.0	765.0	655.0	815.0	770.0	705.7	887.1
	<i>Change, %</i>			<i>2.6</i>	<i>9.3</i>	<i>47.1</i>	<i>30.7</i>	<i>52.7</i>	<i>22.7</i>	<i>29.9</i>	<i>41.7</i>	<i>12.7</i>
	<b>Butadiene</b>	CFR SE Asia	2,950.0	2,800.0	2,800.0	1,325.0	1,575.0	785.0	2,100.0	877.5	1,116.8	2,678.6
	<i>Change, %</i>			<i>5.4</i>	<i>5.4</i>	<i>122.6</i>	<i>87.3</i>	<i>275.8</i>	<i>40.5</i>	<i>236.2</i>	<i>164.1</i>	<i>10.1</i>
	<b>Benzene</b>	CFR SE Asia	1,075.0	1,032.5	932.5	677.5	637.5	535.0	822.5	690.0	646.7	961.8
	<i>Change, %</i>			<i>4.1</i>	<i>15.3</i>	<i>58.7</i>	<i>68.6</i>	<i>100.9</i>	<i>30.7</i>	<i>55.8</i>	<i>66.2</i>	<i>11.8</i>
	<b>Toluene</b>	CFR SE Asia	775.0	775.0	725.0	650.0	660.0	580.0	690.0	700.8	630.5	737.9
	<i>Change, %</i>			<i>0.0</i>	<i>6.9</i>	<i>19.2</i>	<i>17.4</i>	<i>33.6</i>	<i>12.3</i>	<i>10.6</i>	<i>22.9</i>	<i>5.0</i>
	<b>Xylene</b>	CFR SE Asia	720.0	715.0	715.0	655.0	642.5	580.0	675.0	699.3	627.7	705.7
	<i>Change, %</i>			<i>0.7</i>	<i>0.7</i>	<i>9.9</i>	<i>12.1</i>	<i>24.1</i>	<i>6.7</i>	<i>3.0</i>	<i>14.7</i>	<i>2.0</i>

Spread	<b>Ethylene</b>	-Naphtha	603.0	567.5	485.0	480.5	584.0	586.0	505.5	610.6	641.4	534.9
	<i>Change, %</i>			<i>6.3</i>	<i>24.3</i>	<i>25.5</i>	<i>3.3</i>	<i>2.9</i>	<i>19.3</i>	<i>(1.3)</i>	<i>(6.0)</i>	<i>12.7</i>
	<b>Propylene</b>	-Naphtha	478.0	452.5	395.0	253.0	319.0	346.0	330.5	277.0	306.2	373.5
	<i>Change, %</i>			<i>5.6</i>	<i>21.0</i>	<i>88.9</i>	<i>49.8</i>	<i>38.2</i>	<i>44.6</i>	<i>72.6</i>	<i>56.1</i>	<i>28.0</i>
	<b>Butadiene</b>	-Naphtha	2,428.0	2,277.5	2,280.0	898.0	1,129.0	476.0	1,615.5	384.5	717.3	2,164.9
	<i>Change, %</i>			<i>6.6</i>	<i>6.5</i>	<i>170.4</i>	<i>115.1</i>	<i>410.1</i>	<i>50.3</i>	<i>531.5</i>	<i>238.5</i>	<i>12.2</i>
	<b>Benzene</b>	-Naphtha	553.0	510.0	412.5	250.5	191.5	226.0	338.0	197.0	247.2	448.1
	<i>Change, %</i>			<i>8.4</i>	<i>34.1</i>	<i>120.8</i>	<i>188.8</i>	<i>144.7</i>	<i>63.6</i>	<i>180.7</i>	<i>123.7</i>	<i>23.4</i>
	<b>Toluene</b>	-Naphtha	253.0	252.5	205.0	223.0	214.0	271.0	205.5	207.8	231.0	224.2
	<i>Change, %</i>			<i>0.2</i>	<i>23.4</i>	<i>13.5</i>	<i>18.2</i>	<i>(6.6)</i>	<i>23.1</i>	<i>21.8</i>	<i>9.5</i>	<i>12.8</i>
	<b>Xylene</b>	-Naphtha	198.0	192.5	195.0	228.0	196.5	271.0	190.5	206.3	228.2	192.1
	<i>Change, %</i>			<i>2.9</i>	<i>1.5</i>	<i>(13.2)</i>	<i>0.8</i>	<i>(26.9)</i>	<i>3.9</i>	<i>(4.0)</i>	<i>(13.2)</i>	<i>3.1</i>

자료 : Cischem, Platts, Bloomberg, SK증권

참고 : Spread는 Polymer와 Naphtha의 가격차이임

Weekly Price		Last Week	1W	1M	3M	6M	12M	YTD	2015avg.	2016avg.	2017acc.	
Spot Price	HDPE	CFR SE Asia	1,167.5	1,152.5	1,142.5	1,160.0	1,135.0	1,085.0	1,142.5	1,230.1	1,134.6	1,147.5
	Change, %			1.3	2.2	0.6	2.9	7.6	2.2	(5.1)	2.9	1.7
	MEG	CFR SE Asia	937.5	965.0	915.0	745.0	632.5	610.0	847.5	780.8	660.8	919.3
	Change, %			(2.8)	2.5	25.8	48.2	53.7	10.6	20.1	41.9	2.0
	PVC	CFR SE Asia	920.0	910.0	900.0	930.0	905.0	725.0	920.0	820.8	823.4	908.6
	Change, %			1.1	2.2	(1.1)	1.7	26.9	0.0	12.1	11.7	1.3
	PP	CFR SE Asia	1,097.5	1,077.5	1,042.5	1,040.0	1,005.0	845.0	1,032.5	1,109.8	978.4	1,056.1
	Change, %			1.9	5.3	5.5	9.2	29.9	6.3	(1.1)	12.2	3.9
	2-EH	CFR Korea	950.0	910.0	890.0	800.0	780.0	685.0	865.0	930.1	772.4	897.9
	Change, %			4.4	6.7	18.8	21.8	38.7	9.8	2.1	23.0	5.8
	ABS	CFR SE Asia	1,930.0	1,885.0	1,760.0	1,505.0	1,420.0	1,130.0	1,635.0	1,431.1	1,347.1	1,792.9
	Change, %			2.4	9.7	28.2	35.9	70.8	18.0	34.9	43.3	7.6
	SBR	CFR SE Asia	3,125.0	3,050.0	2,950.0	1,775.0	1,850.0	1,195.0	2,000.0	1,332.1	1,483.0	2,796.4
	Change, %			2.5	5.9	76.1	68.9	161.5	56.3	134.6	110.7	11.7
	SM	CFR SE Asia	1,485.0	1,565.0	1,275.0	1,165.0	1,020.0	975.0	1,205.0	1,100.7	1,064.6	1,356.8
	Change, %			(5.1)	16.5	27.5	45.6	52.3	23.2	34.9	39.5	9.4
	Caustic	FOB NEA	422.5	417.5	417.5	380.0	350.0	287.5	422.5	296.8	316.6	418.9
	Change, %			1.2	1.2	11.2	20.7	47.0	0.0	42.4	33.5	0.9
	PX	CFR SE Asia	907.5	912.5	865.0	805.0	792.5	727.5	855.0	842.9	790.4	883.2
	Change, %			(0.5)	4.9	12.7	14.5	24.7	6.1	7.7	14.8	2.7
PO	CFR China	1,655.0	1,662.5	1,557.5	1,465.0	2,090.0	1,165.0	1,562.5	1,683.4	1,396.8	1,612.5	
Change, %			(0.5)	6.3	13.0	(20.8)	42.1	5.9	(1.7)	18.5	2.6	
Caprolactam	CFR SE Asia	2,175.0	2,100.0	2,030.0	1,430.0	1,435.0	1,110.0	1,850.0	1,581.5	1,344.9	2,035.0	
Change, %			3.6	7.1	52.1	51.6	95.9	17.6	37.5	61.7	6.9	
PTA	CFR SE Asia	702.5	687.5	660.0	622.5	622.5	577.5	642.5	648.0	613.7	670.7	
Change, %			2.2	6.4	12.9	12.9	21.6	9.3	8.4	14.5	4.7	
Spread	HDPE		645.5	630.0	622.5	733.0	689.0	776.0	658.0	737.1	735.1	633.9
	Change, %			2.5	3.7	(11.9)	(6.3)	(16.8)	(1.9)	(12.4)	(12.2)	1.8
	MEG		415.5	442.5	395.0	318.0	186.5	301.0	363.0	287.8	261.3	405.6
	Change, %			(6.1)	5.2	30.7	122.8	38.0	14.5	44.4	59.0	2.4
	PVC		398.0	387.5	380.0	503.0	459.0	416.0	435.5	327.8	423.9	394.9
	Change, %			2.7	4.7	(20.9)	(13.3)	(4.3)	(8.6)	21.4	(6.1)	0.8
	PP		575.5	555.0	522.5	613.0	559.0	536.0	548.0	616.8	578.9	542.4
	Change, %			3.7	10.1	(6.1)	3.0	7.4	5.0	(6.7)	(0.6)	6.1
	2-EH		428.0	387.5	370.0	373.0	334.0	376.0	380.5	437.0	372.9	384.2
	Change, %			10.5	15.7	14.7	28.1	13.8	12.5	(2.1)	14.8	11.4
	ABS		1,408.0	1,362.5	1,240.0	1,078.0	974.0	821.0	1,150.5	938.1	947.6	1,279.2
	Change, %			3.3	13.5	30.6	44.6	71.5	22.4	50.1	48.6	10.1
	SBR	BD spread	175.0	250.0	150.0	450.0	275.0	410.0	(100.0)	454.7	366.2	117.9
	Change, %			(30.0)	16.7	(61.1)	(36.4)	(57.3)	(275.0)	(61.5)	(52.2)	48.5
	SM		963.0	1,042.5	755.0	738.0	574.0	666.0	720.5	607.7	665.1	843.1
	Change, %			(7.6)	27.5	30.5	67.8	44.6	33.7	58.5	44.8	14.2
	Caustic											
	Change, %											
	PX		385.5	390.0	345.0	378.0	346.5	418.5	370.5	349.9	390.9	369.6
	Change, %			(1.2)	11.7	2.0	11.3	(7.9)	4.0	10.2	(1.4)	4.3
PO	propylene spread	655.0	687.5	642.5	785.0	1,325.0	510.0	747.5	913.4	691.1	725.4	
Change, %			(4.7)	1.9	(16.6)	(50.6)	28.4	(12.4)	(28.3)	(5.2)	(9.7)	
Caprolactam	benzene spread	1,100.0	1,067.5	1,097.5	752.5	797.5	575.0	1,027.5	891.6	698.2	1,073.2	
Change, %			3.0	0.2	46.2	37.9	91.3	7.1	23.4	57.6	2.5	
PTA	px spread	67.3	48.8	54.5	59.0	67.8	68.3	44.0	58.0	60.4	52.5	
Change, %			37.9	23.4	14.0	(0.7)	(1.5)	52.8	15.9	11.3	28.2	

자료 : Ciscem, Platts, SK증권

참고 : Spread는 Naphtha spread로 일괄적용

## Global peers

	Currency	02/17	1D	1W	1M	3M	6M	12M	YTD	MKT CAP (mil USD)	PER		PBR		EV/EBITDA	
											16	17E	16	17E	16	17E
<b>Petrochemical</b>																
Dow Chemical	USD	61.3	(0.2)	0.1	6.9	14.8	16.4	27.7	7.1	74,327	16.8	15.1	2.7	2.7	9.4	8.5
Du Pont	USD	77.5	(0.4)	0.4	6.2	12.0	12.9	27.9	5.6	66,996	23.7	20.9	7.1	4.1	13.0	11.7
Eastman	USD	80.3	(0.4)	1.1	4.3	7.8	23.9	25.7	6.7	11,777	11.9	11.0	2.5	2.3	8.6	8.3
BASF	EUR	89.0	(0.3)	0.6	0.8	9.6	22.9	48.3	0.8	86,769	18.6	17.0	2.7	2.6	9.2	8.4
Akzo Nobel	EUR	62.8	(0.0)	(2.7)	4.0	8.5	5.6	16.5	5.7	16,806	14.9	14.9	2.4	2.4	8.2	8.0
Arkema	EUR	95.6	0.7	3.0	6.6	8.3	21.4	79.9	2.8	7,683	17.9	15.2	1.9	1.8	7.2	6.6
Lanxess	EUR	67.7	0.3	1.0	3.2	18.5	42.1	83.2	8.6	6,578	27.1	21.8	2.4	2.3	7.6	6.5
Sumitomo Chemical	JPY	638	0.5	0.8	16.8	28.6	49.1	33.8	14.7	9,360	15.1	12.2	1.3	1.2	8.7	7.9
Mitsubishi Chemical	JPY	856	1.9	3.6	11.9	21.7	49.9	42.2	12.9	11,424	9.8	11.0	1.2	1.1	7.0	6.6
Shin-Etsu Chemical	JPY	9,893	0.8	0.8	5.9	18.8	38.0	77.9	9.1	37,884	24.7	21.3	2.0	1.9	10.5	9.2
Asahi Kasei	JPY	1,090	(0.7)	(0.9)	6.3	11.2	29.0	59.0	6.9	13,543	14.9	14.2	1.4	1.3	7.1	6.7
JSR	JPY	2,085	(1.0)	2.6	6.9	35.8	43.6	34.5	13.1	4,177	20.0	18.0	1.3	1.2	9.3	7.7
Nitto Denko	JPY	9,585	(0.9)	1.4	10.2	22.4	34.7	67.5	6.9	14,760	27.2	21.9	2.5	2.3	11.1	9.5
SABIC	SAR	97.5	0.0	1.4	3.9	13.3	17.3	40.9	6.5	77,991	17.5	16.0	1.8	1.7	8.2	7.7
Yansab	SAR	57.7	0.0	1.3	4.3	22.4	33.0	83.0	6.0	8,663	15.1	15.4	2.0	2.0	8.9	9.2
Formosa Plastics	TWD	93.5	(0.5)	1.1	3.9	8.5	17.6	21.7	4.8	19,253	17.8	16.4	2.0	1.9	28.9	26.0
Formosa Fiber	TWD	98.6	0.1	(0.4)	0.7	2.6	17.0	37.9	2.4	18,694	14.6	14.3	1.9	1.8	12.7	12.4
Nan Ya Plastics	TWD	77.0	(0.5)	(0.3)	5.5	16.8	24.6	27.7	8.1	19,753	16.9	18.3	1.8	1.7	20.6	17.3
Sinopec Shanghai	CNY	6.77	0.7	2.0	0.1	12.8	5.1	19.6	5.1	9,331	13.5	14.4	3.0	2.6	7.1	7.9
Sinopec Yizheng(Fiber)	CNY	3.88	(0.5)	0.5	(0.5)	(3.7)	(3.0)	(40.8)	(5.4)	7,242	#N/A	N/A	#N/A	N/A	#N/A	N/A
Reliance	INR	1,076	0.7	4.4	3.3	10.0	6.1	12.9	(0.6)	51,999	11.5	11.4	1.2	1.1	10.3	8.5
Industries Qatar	QAR	118.0	0.0	4.0	(1.7)	13.5	1.0	12.4	0.4	19,606	19.3	18.1	2.1	2.1	46.4	58.1
PTT Chemical	THB	69.8	0.7	3.3	9.0	15.8	12.0	30.4	10.7	8,891	12.0	11.1	1.4	1.3	6.0	5.6
Petronas	MYR	7.5	2.7	4.0	4.9	8.2	12.6	7.8	7.4	13,476	21.6	18.9	2.3	2.2	11.0	9.7
LG화학	KRW	277,000	0.7	(1.4)	(0.5)	15.7	5.5	(2.8)	6.1	16,987	0.0	0.0	0.0	0.0	0.0	0.0
롯데케미칼	KRW	392,500	0.4	(3.6)	(0.3)	24.2	32.6	38.4	6.4	11,687	0.0	0.0	0.0	0.0	0.0	0.0
한화케미칼	KRW	26,900	(0.9)	1.3	(2.9)	8.0	(0.9)	8.0	8.9	3,851	0.0	5.6	0.0	0.8	0.0	6.4
금호석유	KRW	82,500	0.4	0.5	(10.2)	12.2	14.9	46.0	0.6	2,184	0.0	0.0	0.0	0.0	0.0	0.0
SKC	KRW	33,150	1.8	(0.3)	4.4	4.9	13.5	9.6	0.5	1,081	0.0	0.0	0.0	0.0	0.0	0.0
국도화학	KRW	52,700	1.5	0.0	(2.4)	(8.2)	(9.9)	(1.9)	(4.0)	266	0.0	0.0	0.0	0.0	0.0	0.0
효성	KRW	7,840	(0.4)	(2.9)	(6.8)	36.3	42.3	203.9	15.3	3,996	0.0	0.0	0.0	0.0	0.0	0.0
<b>Average</b>			<b>0.2</b>	<b>0.9</b>	<b>3.4</b>	<b>13.9</b>	<b>20.4</b>	<b>38.0</b>	<b>5.8</b>							
<b>Refinery</b>																
Valero	USD	65.5	(1.7)	(2.9)	(1.1)	1.3	18.7	13.4	(4.1)	29,645	17.8	12.5	1.5	1.4	6.9	5.7
Conoco Phillips	USD	47.5	(1.7)	(5.2)	(5.3)	8.9	10.0	40.1	(5.2)	58,783	#N/A	N/A	69.6	1.7	1.7	16.3
Formosa Petrochemical	TWD	107.0	(1.4)	(0.5)	2.4	7.0	7.6	32.1	(4.5)	32,970	16.9	17.7	3.5	3.3	11.3	12.0
Tesoro	USD	86.6	(0.7)	(0.8)	7.2	0.1	14.2	22.9	(0.9)	10,135	21.2	13.9	1.9	1.5	8.3	5.9
Marathon Petroleum	USD	50.0	0.1	(0.2)	2.6	15.4	18.5	51.8	(0.7)	26,401	25.6	15.8	2.0	1.9	10.2	7.9
Devon Energy	USD	44.2	0.1	(2.7)	(5.0)	3.0	2.0	117.3	(3.3)	23,172	#N/A	N/A	24.1	3.8	3.4	14.3
Hollyfrontier	USD	29.9	(0.3)	(0.8)	(0.4)	7.2	8.9	(3.7)	(8.7)	5,281	54.2	14.2	1.1	1.2	12.0	6.2
Phillips 66	USD	78.7	0.2	(1.5)	(5.9)	(6.2)	1.2	(2.4)	(9.0)	40,731	25.6	16.7	1.8	1.8	11.9	8.9
Murphy Oil	USD	28.1	0.4	(1.4)	(9.8)	(7.3)	(3.4)	56.2	(9.8)	4,837	#N/A	N/A	61.5	0.9	0.9	8.4
JX Holdings	JPY	533.4	(1.1)	1.4	5.4	23.9	36.8	22.8	7.8	11,796	9.4	8.7	0.8	0.7	8.3	7.9
Idemitsu	JPY	3,655.0	(0.3)	7.5	11.6	46.3	91.1	107.2	17.7	5,183	8.8	8.1	1.0	0.9	8.7	7.8
Tonengeneral	JPY	1,336.0	(1.1)	1.4	5.8	26.4	44.9	43.8	8.4	4,333	12.1	10.8	1.9	1.8	6.7	6.0
Nesteoil	EUR	34.8	0.9	0.6	5.7	(4.8)	(9.0)	25.9	(4.6)	0	11.7	13.5	2.4	2.2	6.8	7.8
Ashland	USD	121.8	0.8	2.6	9.8	11.4	6.8	29.3	11.5	7,579	17.8	27.9	2.8	2.2	8.8	12.0
Fuchs Petrolub	EUR	43.7	0.2	0.5	5.6	15.6	8.4	21.3	9.5	6,255	24.0	23.0	5.1	4.5	14.3	13.7
SK이노베이션	KRW	156,500	(0.9)	0.3	(3.4)	0.6	(0.9)	13.4	6.8	12,571	0.0	0.0	0.0	0.0	0.0	0.0
S-Oil	KRW	86,400	(0.7)	2.9	0.7	4.7	13.7	12.9	2.0	8,450	0.0	0.0	0.0	0.0	0.0	0.0
GS	KRW	54,700	(0.5)	1.7	0.4	0.2	9.2	8.1	1.1	4,415	0.0	0.0	0.0	0.0	0.0	0.0
<b>Average</b>			<b>(0.4)</b>	<b>0.1</b>	<b>1.4</b>	<b>8.1</b>	<b>14.7</b>	<b>32.2</b>	<b>0.7</b>							

\* Bloomberg 기준 / valuation multiple 또한 Bloomberg consensus 기준임

\* 국내업체의 multiple은 Dataguidepro 기준임

## Global peers

	Currency	02/17	1D	1W	1M	3M	6M	12M	YTD	MKT CAP (mil USD)	PER		PBR		EV/EBITDA	
											16	17E	16	17E	16	17E
<b>E&amp;P/Shale</b>																
Exxon Mobil	USD	82	(0.7)	(0.9)	(6.4)	(4.1)	(7.2)	(0.3)	(9.4)	339,034	37.9	19.8	2.0	2.0	12.3	8.0
BP	GBP	446	(0.5)	(3.0)	(11.2)	(0.3)	3.1	27.5	(12.5)	108,072	30.3	15.0	1.2	1.2	7.1	5.2
Shell	EUR	2,095	(1.3)	(3.3)	(6.5)	5.1	8.7	27.6	(6.6)	217,308	25.3	14.4	1.1	1.1	8.7	6.3
Chevron	USD	110	(0.3)	(2.4)	(5.1)	2.0	7.9	24.9	(6.3)	208,278	79.5	23.7	1.4	1.4	12.1	6.9
Total	EUR	47	(0.8)	(1.0)	(1.6)	8.6	9.4	20.6	(2.6)	123,549	15.0	12.1	1.2	1.2	7.4	5.8
Sinopec	CNY	6	(0.3)	(1.4)	(3.3)	16.0	15.6	30.1	7.0	100,451	16.7	13.3	1.0	0.9	5.5	5.0
Petrochina	CNY	8	(0.5)	(1.9)	(3.0)	11.6	11.6	10.1	4.2	211,642	212.3	30.8	1.3	1.2	7.8	6.6
CNOOC	CNY	13	(2.0)	(0.3)	3.0	2.6	4.5	(0.3)	1.7	7,488	#N/A N/A	383.8	1.7	1.7	#N/A N/A	17.3
Gazprom	RUB	138	(0.7)	(1.7)	(10.1)	(6.5)	0.3	0.7	(10.6)	55,886	3.4	3.7	0.3	0.3	4.1	3.6
Rosneft	RUB	354	(2.2)	(6.3)	(9.6)	4.7	2.4	26.5	(12.1)	64,124	14.4	7.1	1.2	1.0	5.2	3.8
Anadarko	USD	67	0.3	(3.7)	(5.6)	8.7	22.8	64.9	(4.2)	37,323	#N/A N/A	127.7	2.3	2.4	13.4	8.2
Petrobras	BRL	16	(1.6)	0.2	(1.3)	9.2	22.3	233.5	5.0	68,478	#N/A N/A	13.3	0.8	0.8	6.9	5.8
Lukoil	USD	3,199	(1.0)	(1.4)	(1.1)	3.0	9.1	29.7	(7.3)	46,577	7.7	5.7	0.6	0.6	N/A	N/A
Kinder	USD	22	(0.1)	(3.2)	(3.5)	1.8	0.1	26.7	5.1	47,497	32.2	31.9	1.4	1.4	12.1	12.1
Statoil	NOK	147	(0.8)	(2.3)	(8.3)	4.6	11.4	22.2	(7.1)	57,216	125.0	16.5	1.4	1.5	5.1	3.3
BHP	AUD	27	(1.1)	2.9	(0.3)	10.7	27.4	66.7	6.3	102,190	14.3	16.9	1.8	1.8	6.3	7.0
PTT E&P	THB	92	(0.8)	(1.9)	(4.4)	13.3	11.9	41.7	(4.7)	10,408	22.6	15.5	0.9	0.9	3.3	3.0
Petronas gas	MYR	21	0.0	0.8	3.7	(3.4)	(7.0)	(8.0)	(3.1)	9,173	23.5	22.9	3.4	3.3	13.2	13.1
Chesapeake	USD	6	0.3	(4.4)	(13.0)	3.6	7.4	224.5	(13.1)	5,413	#N/A N/A	8.0	#N/A N/A	#N/A N/A	13.8	8.4
Noble Energy	USD	37	(0.4)	(4.7)	(7.5)	4.8	4.1	21.8	(2.7)	15,951	#N/A N/A	#N/A N/A	1.7	1.7	10.1	7.9
<b>Average</b>		<b>0</b>	<b>(0.7)</b>	<b>(2.0)</b>	<b>(4.8)</b>	<b>4.8</b>	<b>8.3</b>	<b>44.6</b>	<b>(3.6)</b>							
<b>PV</b>																
WACKER	EUR	108.8	0.5	(2.2)	1.0	33.3	34.0	65.3	10.1	6,023	33.2	20.8	2.4	2.3	6.3	5.6
GCL-Poly	HKD	1.0	(1.0)	0.0	8.3	4.0	(10.3)	(1.9)	11.8	2,491	7.7	7.4	0.8	0.7	6.0	5.6
SunPower	USD	7.9	16.7	10.2	8.4	14.7	(23.8)	(67.2)	19.4	1,094	#N/A N/A	#N/A N/A	0.9	1.1	13.0	24.0
Canadian Solar	USD	14.1	5.3	13.2	11.8	20.9	15.6	(26.6)	15.9	811	8.8	6.9	0.8	0.7	10.6	7.9
JA Solar	USD	5.1	2.4	7.9	1.4	(9.5)	(34.2)	(42.5)	6.5	241	6.3	#N/A N/A	0.3	0.3	3.6	5.4
Trina Solar	USD	10.2	0.3	0.8	1.4	(1.7)	(2.9)	5.3	9.8	944	10.1	29.9	0.7	0.7	6.7	8.4
Solar City	USD	20.3	0.0	0.0	0.0	(0.3)	(13.8)	(2.2)	0.0	2,049	#N/A N/A	#N/A N/A				
Yingli	USD	2.7	(2.2)	(3.9)	(3.9)	(20.2)	(37.0)	(38.0)	3.5	49	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A	12.4	28.3
First Solar	USD	34.8	2.1	6.1	(0.9)	11.8	(5.6)	(45.1)	8.6	3,620	7.4	85.8	0.7	0.7	4.1	8.4
한화큐셀	USD	8.8	(0.5)	10.5	3.9	(0.1)	(30.0)	(44.3)	8.3	743	6.4	29.0	#N/A N/A	#N/A N/A	6.0	9.2
OCI	KRW	93,500	1.7	1.9	5.4	12.4	3.1	20.0	18.8	1,937	0.0	0.0	0.0	0.0	0.0	0.0
웅진에너지	KRW	4,840	(0.4)	0.8	(2.1)	(2.0)	(42.7)	(64.1)	2.2	96	N/A	0.0	0.0	0.0	0.0	0.0
신성솔라에너지	KRW	1,915	(0.5)	3.5	(16.7)	(19.4)	(14.9)	8.8	(13.3)	288	N/A	0.0	0.0	0.0	0.0	0.0
<b>Average</b>			<b>1.8</b>	<b>3.5</b>	<b>1.3</b>	<b>3.1</b>	<b>(11.6)</b>	<b>(16.6)</b>	<b>7.3</b>							
<b>Gas Company</b>																
Towngas China	HKD	4.4	(0.5)	2.8	2.3	11.1	(2.7)	19.6	7.8	1,537	9.7	9.4	0.8	0.8	11.2	10.7
Kulun	HKD	6.7	0.2	1.4	11.0	19.2	9.9	17.1	14.7	6,916	11.9	11.8	1.1	1.0	4.8	4.9
Beijing Enterprise	HKD	40.3	(1.9)	0.2	6.9	19.2	(10.4)	18.0	10.0	6,553	8.2	7.5	0.8	0.8	15.8	14.4
ENN Energy	HKD	37.9	0.7	0.5	2.0	9.2	(10.6)	10.7	18.8	5,286	12.2	11.2	2.3	2.0	7.7	7.3
China Resources Gas	HKD	23.9	0.0	0.0	(5.9)	1.1	(8.8)	23.5	9.6	6,848	14.8	13.4	2.6	2.3	10.0	9.1
China Gas Holdings	HKD	11.3	0.4	(0.9)	0.0	5.0	(13.7)	15.3	7.4	7,260	13.8	12.2	2.6	2.3	11.7	10.5
Shenzen Gas	HKD	11.4	(1.0)	(1.0)	2.5	(1.7)	(3.6)	(5.0)	0.7	2,870	11.5	10.8	1.1	1.0	8.4	8.1
Shann Xi	CNY	9.6	(0.9)	(0.1)	2.6	(6.1)	(12.0)	2.1	(0.4)	1,546	18.9	17.1	2.0	1.8	10.3	9.4
Suntien	HKD	1.3	0.0	3.1	8.1	25.5	18.8	54.7	33.0	637	10.0	8.1	0.6	0.5	9.8	8.1
China Oil & Gas	HKD	0.6	(4.5)	0.0	5.0	3.3	8.6	35.5	3.3	473	9.3	9.0	1.1	1.0	5.9	5.3
<b>Average</b>			<b>(0.8)</b>	<b>0.6</b>	<b>3.5</b>	<b>8.6</b>	<b>(2.4)</b>	<b>19.1</b>	<b>10.5</b>							
<b>EV</b>																
LG화학	KRW	277,000	0.7	(1.4)	(0.5)	15.7	5.5	(2.8)	6.1	16,987	14.4	12.2	1.4	1.4	6.1	5.4
삼성SDI	KRW	124,000	0.8	(0.8)	8.8	30.1	5.1	26.3	13.8	7,407	52.5	17.9	0.8	0.8	#N/A N/A	10.0
Panasonic	JPY	1252.0	(1.1)	2.8	5.1	21.3	21.9	42.8	5.3	27,218	18.7	15.2	1.6	1.5	5.6	5.1
GS Yuasa	JPY	504.0	1.8	3.5	8.4	10.0	25.1	14.0	3.7	1,847	16.7	14.6	1.3	1.2	7.0	6.5
NEC	JPY	272.0	(1.4)	0.7	(14.5)	(9.0)	5.0	(1.1)	(12.3)	6,279	13.6	12.9	0.9	0.9	7.7	6.5
BYD Auto	CNY	48.6	(0.7)	(2.2)	0.7	(12.9)	(20.0)	(9.8)	(2.3)	17,984	26.1	22.4	2.6	2.4	12.7	11.3
Tesla Motors	USD	272.2	1.2	1.1	15.6	44.3	21.9	61.4	27.4	43,853	#N/A N/A	#N/A N/A	11.7	10.7	74.3	42.9
Kandi Technologies	USD	4.2	(2.4)	1.8	(14.4)	6.4	(38.6)	(44.1)	(15.3)	198	#N/A N/A	#N/A N/A				
<b>Average</b>			<b>(0.1)</b>	<b>0.7</b>	<b>1.1</b>	<b>13.2</b>	<b>3.2</b>	<b>10.8</b>	<b>3.3</b>							

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