19 OCTOBER 2017

INDONESIA / CHEMICALS

CHANDRA ASRI PETROCHEMICAL TPIA IJ

HOLD

TARGET PRICE	IDR22,500
UP/DOWNSIDE	-7.6%
CLOSE	IDR24,350

Riding the chemical wave

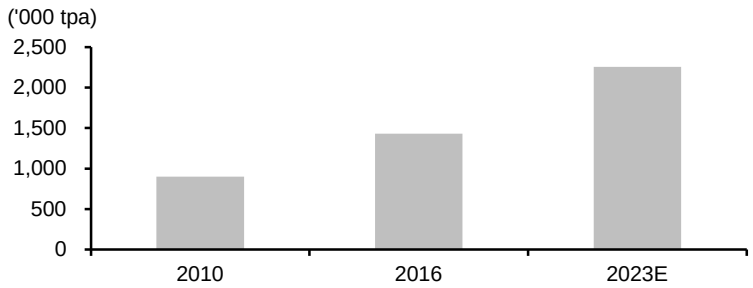
- **Initiate coverage at HOLD with a IDR22,500 TP**
  We initiate coverage of Chandra Asri Petrochemical (CAP), with a HOLD rating and TP of IDR 22,500. CAP is Indonesia's sole naphtha cracker with world-scale capacity. A well-timed expansion in 2015 led to earnings rising to a record high in 2016.

- **Chemical down-cycle concerns overblown**
  Large new US ethane cracker start-ups from late-17 highlight the risk of an ethylene downcycle, but we forecast the chemical cycle to remain strong with only a modest decline in ethylene margins due to China supply-side reform, and improving margins of PP, SM and BD.

- **Manifold advantages from Siam Cement partnership**
  Since acquiring a 30% stake in CAP in 2011, Siam Cement (SCG) has boosted CAP's operational capabilities, introduced plant improvements, improved feedstock procurement, lowered funding costs, and made CAP a key part of SCG's Asean growth strategy.

- **Fully valued at current levels**
  While we expect CAP to generate mid-to-high cycle earnings over the next few years, we believe that CAP's share price is fairly valued at present taking into account its local advantage and long-term growth potential but high multiples vs regional peers.

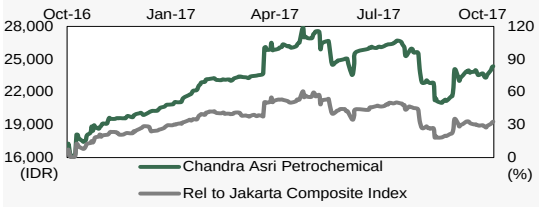
CAP's olefin capacity growth



Sources: Datastream; BNP Paribas estimates

KEY STOCK DATA

YE Dec (USD m)	2016A	2017E	2018E	2019E
Revenue	1,930	2,300	2,387	2,598
Rec. net profit	300	330	268	302
Recurring EPS (USD)	0.09	0.09	0.08	0.08
EPS growth (%)	1,039.1	1.2	(18.5)	12.4
Recurring P/E (x)	19.7	19.5	23.9	21.3
Dividend yield (%)	2.5	2.1	1.7	1.9
EV/EBITDA (x)	12.0	11.3	13.6	12.6
Price/book (x)	5.2	3.8	3.5	3.2
Net debt/Equity (%)	4.6	(25.3)	(18.4)	(12.3)
ROE (%)	29.8	23.3	15.3	15.7



Share price performance	1 Month	3 Month	12 Month
Absolute (%)	4.3	(7.4)	45.1
Relative to country (%)	3.5	(9.0)	32.8

Next Results	November 2017
Mkt cap (USD m)	6,426
3m avg daily turnover (USD m)	4.3
Free float (%)	9
Major shareholder	Barito Pacific (46%)
12m high/low (IDR)	27,903/16,197
3m historic vol. (%)	29.9
ADR ticker	-
ADR closing price (USD)	-
Issued shares (m)	3,567

Sources: FactSet estimates; BNP Paribas estimates

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Investment thesis

We initiate coverage of Chandra Asri Petrochemical (CAP) with a HOLD rating and TP of IDR 22,500. CAP is Indonesia's only naphtha cracker with ethylene capacity of 860ktpa, and is well positioned to benefit from Indonesia's rapidly growing chemical demand, in our view. Following a well-timed plant expansion in 2015, CAP's net profit rose to a record high of USD300m, and we forecast net profit of USD268m-330m for 2017-19E. In light of the stable chemical cycle, local advantage, long-term growth potential and high multiples relative to peers, we believe CAP is fairly valued at present.

Catalyst

A key short-term positive catalyst could come from reviving chemical spreads this winter.

A key long-term positive catalyst could come with the final investment decision (FID) on the new cracker project.

A downside catalyst could come from a more severe-than-expected decline in ethylene margins.

Risk to our call

Upside risks include: 1) rising chemical prices from reduced production in China due to anti-pollution efforts; and 2) stronger-than-expected demand. Downside risks include: 1) a spike in oil prices; and 2) weaker-than-expected demand.

Company background

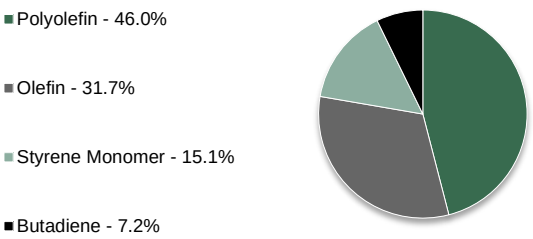
Chandra Asri Petrochemical operates Indonesia's only naphtha cracker in West Java with ethylene capacity of 860k tpa. It was formed in 2011 from the merger of Tri Polyta Indonesia and Chandra Asri.

Key executives

	Age	Joined	Title
Erwin Ciputra	42	2007	President Director
Kulachet Dharachandra	43	2016	Vice President Director
Terry Lim	59	2006	CFO

www.chandra-asri.com

Principal activities (revenue, 2016)



Source: Chandra Asri Petrochemical

Event calendar

Date	Event
4Q18	FID on cracker project

Key assumptions

(USD/t)	2015	2016	2017E	2018E	2019E
Ethylene-naphtha	611	687	650	530	560
PE-naphtha	669	634	660	570	610
PP-naphtha	662	642	580	560	640
BD-naphtha	410	750	900	680	860

Sources: Chandra Asri Petrochemical; BNP Paribas estimates

Earnings sensitivity

	--- Worst case ---		--- Base case ---		---- Best case ----	
	2018E	2019E	2018E	2019E	2018E	2019E
PE-naphtha (USD/t)	430	460	530	560	630	660
Change (%)	*(19)*	*(18)*			*19*	*18*
Net profit (USD m)	243	276	268	302	294	327
Change (%)	*(9)*	*(9)*			*10*	*8*

Sources: Chandra Asri Petrochemical; BNP Paribas estimates

- We estimate each USD100/t change in PE margins would impact net profit by 8-10% for 2018-19, all else equal.
- We estimate each USD100/t change in PP margins would impact net profit by 15-16% for 2018-19, all else equal.
- We estimate each USD100/t change in BD margins would impact net profit by 4-5% for 2018-19, all else equal.

CONTENTS

Executive summary

PT Chandra Asri Petrochemical TBK (CAP) is the operator of Indonesia's sole integrated naphtha cracker. It began operations in 1995 as a cracker and Polyethylene (PE) plant and, through a series of well-timed mergers and expansion, has emerged as a world-scale integrated producer of olefins, poly-olefins and Styrene Monomer (SM). We believe that CAP is poised to capture the benefits of:

- A well-timed plant expansion at end-2015 that saw CAP increase olefin capacity by 43%, allowing it to benefit from rising olefin margins throughout 2016 and improving economies of scale.
- Synergies from its 30% shareholder, Siam Cement, which improved CAP's operational capability, improved procurement and lowered its financing costs.
- Indonesia's rapidly growing chemical demand, (we believe it can sustain at the 10-year historical growth rate of 6-6.5% pa), stable GDP growth outlook (5-5.5% for 2017-18 and gentle inflation (4.2-4.5% for 2017-18E).

The key concern for CAP and the chemical sector is a potential chemical down-cycle when large new ethane crackers in the US start up from end-2017. In this regard, BNPP expects the impact on CAP to be moderated by:

- Robust demand growth and project delays resulting in global ethylene utilisation rates falling to a trough of 89% in 2018, similar to 2014-15 levels and gradually recovering to 89.3% in 2019.
- Stricter environmental regulations and supply-side reforms have driven coal-chemical production costs in China by up to 23% over the past year, resulting in upward price pressure on related chemicals.
- Improving margins of propylene, butadiene and SM in 2018-19 due to slowing capacity additions.

In tandem with our expectations of continued low oil prices over 2017-19, we expect CAP to generate net profit of USD268m-330m pa over the same period, a mid-to-high cycle level.

We value CAP using an ROCE methodology, based on a 2017-19E ROCE of 21.0%, WACC of 8.5% and terminal growth rate of 2.0%. This results in an EV/CE multiple of 2.9x, from which we derive our TP of IDR22,500. We note that CAP trades at a premium to regional peers, which we feel justified given the scarcity factor in Indonesia and long-term growth potential for petro-chemical demand in Indonesia.

Upside risks include: 1) rising chemical prices from reduced production in China due to anti-pollution efforts; and 2) stronger-than-expected demand. Downside risks include: 1) a spike in oil prices; and 2) weaker-than-expected demand.

Exhibit 1: Summary of products, margins trends and earnings sensitivities

	% of 2016		Margin direction (y-y chg)			EBIT sensitivity to
	Revenue	EBIT	2017	2018	2019	USD20/t margin chg
Ethylene	19	31	↘	↘	↗	1.8
Propylene	5	3	=	↗	↗	0.7
Pygas	5	1	↗	↗	↗	1.1
PE	20	29	↘	↘	↗	1.5
PP	26	27	↘	↘	↗	2.0
SM	15	5	↗	↗	↗	1.3
BD	7	3	↗	↘	↗	0.9

Sources: Chandra Asri Petrochemical; BNP Paribas estimates

Valuation methodology

We value CAP using an asset-based approach, linking equity valuation to return on capital employed (ROCE) using the formula: enterprise value (EV) / capital employed (CE) = ROCE/WACC.

We believe this is the most suitable approach to valuing CAP as the chemical sector is cyclical and this methodology captures CAP's returns within the timeframe under consideration. The key assumptions driving our valuation are a 2017-19E ROCE of 21.0%, WACC of 8.5% and terminal growth rate of 2.0%. This results in an EV/CE multiple of 2.9x, from which we derive our TP of IDR22,500.

In determining our WACC, we have used the risk-free rate and equity risk premium sourced from BNPP's equity strategy team while the beta used is the Bloomberg unadjusted beta. The cost of equity works out to 9.1% using the CAPM formula. Together with a cost of debt of 4.9%, we arrive at a WACC of 8.5%.

Exhibit 2: CAP's WACC derivation

	unit	
Cost of equity		
Risk-free rate	%	7.1
Beta		0.28
Risk premium	%	7.1
Cost of equity	%	9.1
Cost of debt		
Cost of debt	%	4.9
Tax rate	%	25
Cost of debt after tax	%	3.8
% - equity	%	90
% - debt	%	10
WACC	**%**	**8.5**

Sources: Bloomberg; BNP Paribas estimates

Our valuation was determined by assuming an ROCE of 26.1%, WACC of 8.5% and 1.5% terminal growth rate. The key rationales for our valuation inputs are:

- We believe that using a 2017E ROCE is appropriate as we expect the market to focus on a potential chemical margin rebound in 2H17.
- We believe a 1.5% terminal growth rate is appropriate to capture CAP's growth potential from planned expansions and is conservative as it does not factor in the potential value from the proposed new cracker.

Exhibit 3: CAP – target price derivation

	Unit	Value
Capital employed	USD m	1,889
Target EV/CE	x	2.9
Implied EV	USD m	5,483
Add cash/(debt)	USD m	397
Implied market capitalisation	USD m	5,881
Price target	IDR	22,500

Source: BNP Paribas estimates

Amongst the listed chemical assets in Asia, we think Lotte Titan most closely resembles CAP as it is a naphtha cracker focused on producing PE, PP and butadiene and Lotte Titan's ethylene capacity of 793ktpa is just slightly less than CAP's capacity of 860ktpa.

While Asian chemical companies have similar basic operations in their crackers, there can be a wide range of valuation multiples between different countries.

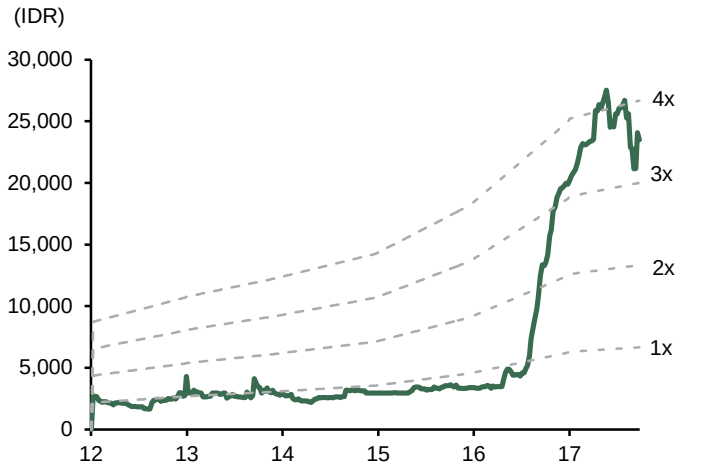
In this regard, we believe that CAP has the potential to command a valuation premium to its peers due to its status as: 1) the only naphtha cracker in Indonesia; 2) an Indonesian company operating in USD; and 3) the 12th largest component of the Jakarta Composite Index.

Exhibit 4: Chemical sector valuation comparison

Company	BBG code	Rating	Mkt.cap	Price	TP	------ P/E -------		------ P/BV ------		------ ROE ------		---- Div yield ----		-- EV/EBITDA --	
						'17E	'18E	'17E	'18E	'17E	'18E	'17E	'18E	'17E	'18E
			(USD b)	(LC)	(LC)	(x)	(x)	(x)	(x)	(%)	(%)	(%)	(%)	(x)	(x)
Large-cap															
LGC	051910 KS	HOLD	26.3	384,000	340,000	13.8	15.4	1.9	1.7	14.4	11.5	1.3	1.3	6.9	6.7
FPC	1301 TT	HOLD	19.6	93.0	100.0	12.9	12.8	1.8	1.7	14.3	13.8	5.8	5.8	18.8	19.8
NYP	1303 TT	BUY	19.6	74.7	88.0	13.4	13.2	1.7	1.7	12.9	12.8	5.7	5.7	23.9	15.5
FCFC	1326 TT	BUY	18.3	94	116	12.3	12.0	1.7	1.6	13.8	13.6	6.3	6.2	11.5	11.2
SCG	SCC TB	BUY	17.9	494	615	11.1	10.7	2.2	1.9	20.8	19.0	3.6	3.8	9.1	8.4
PCHEM	PCHEM MK	BUY	13.9	7.33	8.50	13.4	13.3	2.0	1.9	14.6	2.7	3.7	3.8	7.7	7.7
L. Chem	011170 KS	BUY	12.1	400,500	500,000	6.2	7.7	1.2	1.1	21.2	14.6	1.2	1.2	4.2	4.7
PTTGC	PTTGC TB	HOLD	11.2	82.0	80.0	11.1	12.9	1.4	1.3	13.0	10.6	4.6	4.0	7.4	7.3
					Average	**11.8**	**12.2**	**1.7**	**1.6**	**15.6**	**12.3**	**4.0**	**4.0**	**11.2**	**10.2**
Mid-cap															
IVL	IVL TB	NR	7.2	45.3	NA	17.6	15.3	2.1	2.0	13.0	13.5	1.8	2.1	10.9	9.7
CAP	TPIA IJ	HOLD	6.4	24,350	22,500	19.5	23.9	3.8	3.5	23.3	15.3	2.1	1.7	11.3	13.6
HCC	009830 KS	NR	4.9	33,400	NA	5.5	6.2	0.9	0.8	17.3	13.6	1.1	1.1	6.9	6.9
L. Titan	TTNP MK	NR	2.9	5.36	NA	11.2	9.3	0.9	0.9	9.8	10.2	3.0	4.1	6.3	4.9
KPIC	006650 KS	NR	1.5	261,500	NA	7.3	4.8	1.1	0.9	16.7	21.4	1.6	1.6	5.3	3.6
					Average	**12.2**	**11.9**	**1.8**	**1.6**	**16.0**	**14.8**	**1.9**	**2.1**	**8.2**	**7.8**

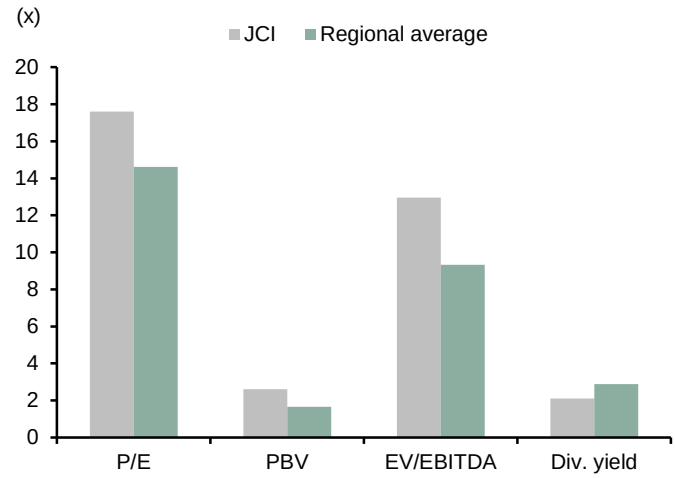
As of 18 October 2017. Estimates for non-rated stocks from Bloomberg consensus.
Sources: Bloomberg; BNP Paribas estimates

Exhibit 5: CAP – forward P/BV band chart



Sources: Bloomberg, BNP Paribas estimates

Exhibit 6: Regional index valuation comparison (2017E)



Region includes KLCI, TWSE, SET and KOSPI. JCI – Jakarta Composite Index
Sources: Bloomberg, BNP Paribas estimates

Rising to the occasion

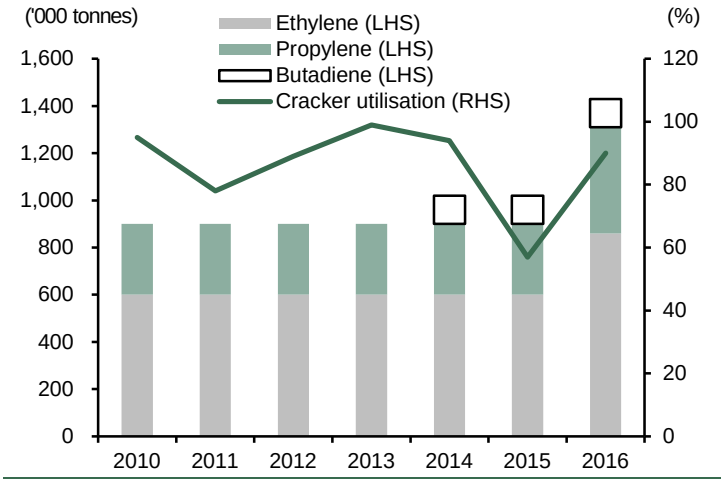
Well-timed capacity expansion

Since beginning operations in 1995 as PT Chandra Asri (CA), CAP has embarked on a steady and well-timed expansion strategy.

- CA expanded its cracker to 600k tpa (+80k tpa) and acquired PT Styrindo Mono Indonesia (SM capacity of 340k tpa) in 2007.
- CA merged with PT Tri Polyta Indonesia TBK in 2011 and the surviving entity changed its name to CAP, adding Polypropylene (PP) capacity of 480k tpa.
- CAP completed a 100k tpa Butadiene extraction unit at the end of 2013.
- At end-2015, CAP completed a major debottlenecking exercise, expanding ethylene capacity to 860k tpa (+260k tpa).

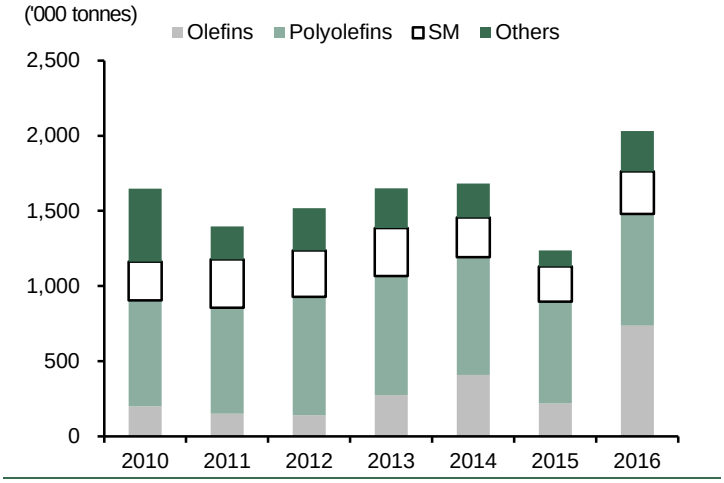
Through these expansions, CAP expanded total production capacity from 1.5m tpa in 2005 to the present capacity of 3.3m tpa, bringing CAP's naphtha cracking capacity close to 1m tpa, which is considered world-scale. We believe newly achieved economies of scale were a significant factor in CAP achieving a record high EBITDA margin of 26% in 2016, which is in line with those of regional peers.

Exhibit 7: CAP – Olefin production capacity and utilisation



Source: Chandra Asri Petrochemical

Exhibit 8: CAP – sales volume trend



Source: Chandra Asri Petrochemical

With a total land size of 134 hectares in Cilegon, West Java, CAP has room for expansion, and has announced the projects listed below. Altogether, we expect these projects to generate additional revenue of USD300m pa (based on BNPP chemical price projections) when fully complete, equivalent to 16% of total revenue in 2016.

Exhibit 9: CAP's expansion plan

Category	Product	New capacity ('000 tpa)	Cost (USD m)	Start-up	Annual revenue (USD m)
Debottlenecking	Butadiene	37	42	2Q18	54
	PP	80	15	3Q18	98
	Ethylene	40	45	1Q21	48
Expansion	SBR*	120	570	1Q18	215
	PE	400	300	3Q19	516
	MTBE	130	100	3Q20	104
	Butene 1	43			32

* 45% JV
Source: Chandra Asri Petrochemical

CAP is presently conducting a feasibility study for the construction of a second petrochemical complex in Indonesia at a site adjoining the current complex. This complex is targeted to have an ethylene capacity of 1mtpa and is expected to cost USD4b-5b, according to CAP.

To defray the cost of the project, CAP is in discussions with various third parties as potential partners. We believe that Siam Cement is a potential partner, as it already owns a 30% stake in CAP and has announced that it is studying this project.

As this project is at a preliminary stage, we base our estimates of the projects' potential contributions on the assumptions detailed in the table below. Based on current product prices, we estimate that this chemical complex could generate annual revenues of USD2.6b and operating profits of USD400m.

Exhibit 10: Hypothetical configuration of new cracker

	Capacity ('000 tpa)	Revenue (USD m)
Naphtha cracker		
Ethylene	1,000	
Propylene	500	
Butadiene	150	
Benzene	300	
Downstream		2,595
PE	1,000	1,200
PP	500	570
SM	375	375
SBR	250	450

Source: BNP Paribas estimates

Synergies from Siam Cement partnership

In September 2011, Siam Cement acquired a 30% stake in CAP from PT Barito Pacific TBK (7%) and Temasek Holdings (23%) for a cash consideration of IDR3.8t (USD425m), equivalent to IDR4,088/share. At CAP's current share price, Siam Cement has generated a total return of 6.5x in IDR terms and 4.3x in USD terms.

Siam Cement's acquisition of CAP is part of its strategy to build its presence in the Asean region. In this regard, Indonesia represents Siam Cement's most important investment destination, accounting for 55% of its total assets in Asean markets. At present, Siam Cement owns stakes in 20 Indonesian companies which employ over 5,700 employees.

We believe that Siam Cement has brought the following benefits to CAP:

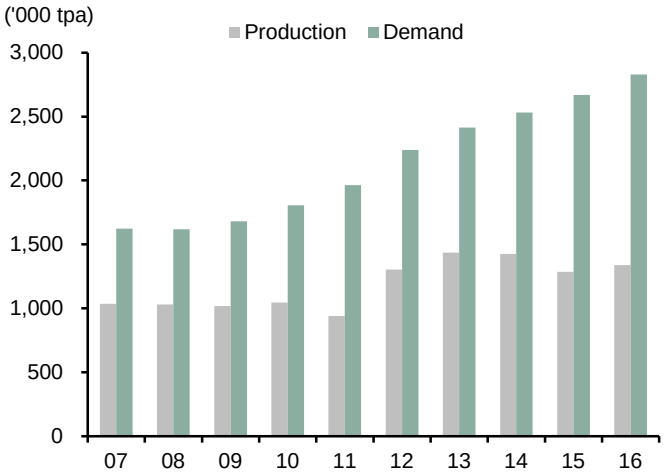
- Improved operational capability with a team of managerial and technical experts from Siam Cement led by Mr Kulachet Dharachandra, VP Director of Operations and Mr Piboon Sirinantanakul, Director of Manufacturing.
- Introducing new technology such as Siam Cement's emisspro, a high emissivity coating for industrial furnaces designed to achieve greater energy efficiency.
- Procurement synergies which enable CAP to purchase naphtha at lower prices. CAP also sends pygas to Siam Cement for benzene extraction, which is returned to CAP for SM production via a tolling arrangement.
- Lowering interest expenses through increased access to Thai banks which has resulted in the average cost of debt falling to 6% in 2014-16 compared to 15% in 2011-13.

Prime beneficiary of Indonesia's rising consumption

In 2016, Indonesia recorded polyolefin demand of 2.8mt, making it the largest polyolefin consumer in the Asean region and representing 1.8% of global polyolefin demand. Over the past decade, Indonesia's polyolefin demand has grown by 6.4% pa, implying a GDP multiplier of 1.2x.

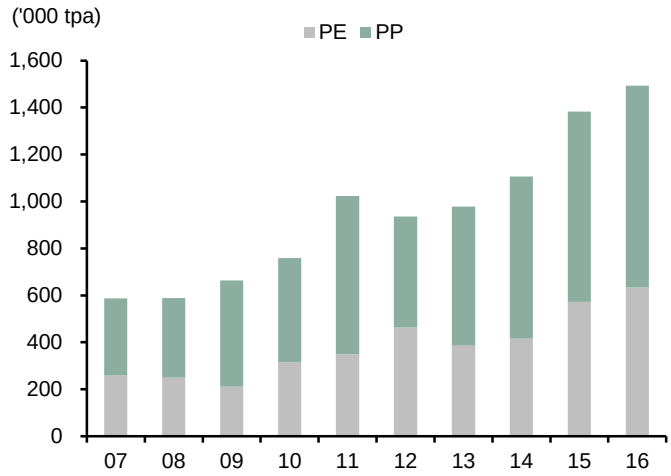
Domestic production in Indonesia has been unable to keep up with increasing demand as no new crackers have been built in the country since CAP's cracker in 1995. Consequently, Indonesia has had to import increasing amounts of polyolefin, equivalent to a 10-year historical CAGR of 10.9%. In 2016, Indonesia was Asia's second largest importer of polyolefins after China.

Exhibit 11: Indonesia polyolefin production & demand



Source: Nexant

Exhibit 12: Indonesia polyolefin imports

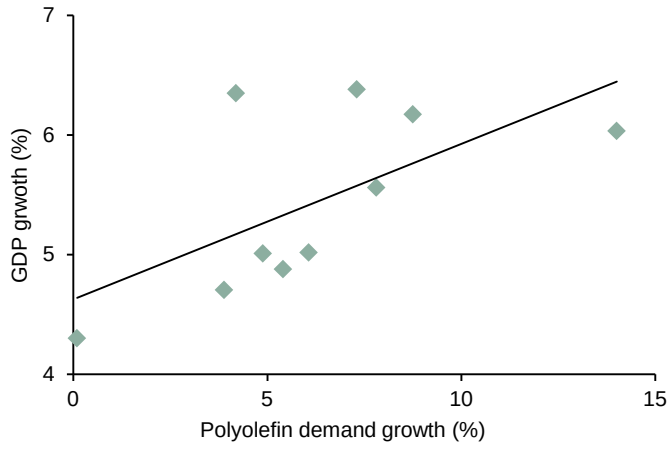


Source: Nexant

Demand growth of polyolefins is closely correlated to GDP growth, since these products are mainly consumed locally for packaging, construction and manufacturing.

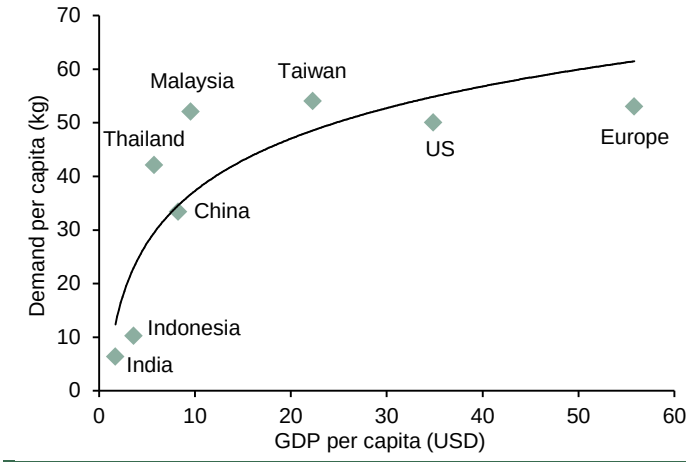
There is still considerable room for Indonesian chemical demand growth, as Indonesian per-capita demand of polyolefins is only 4kg in 2016, significantly lower than the 33kg in China or 42kg in Thailand (Exhibit 16). Judging by regional comparisons, we believe that Indonesia is on the cusp of rapid growth as it is at the beginning of the steep demand slope.

Exhibit 13: Indonesia polyolefin demand vs GDP growth (2007-16)



Sources: Nexant; IMF

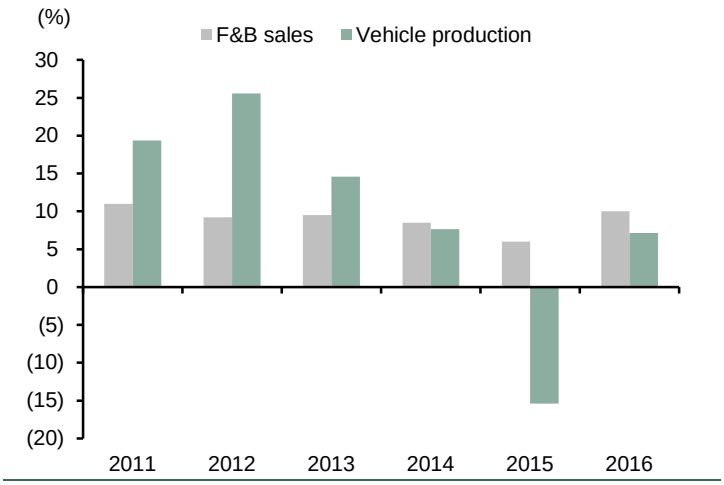
Exhibit 14: Polyolefin demand vs GDP per capita (2016)



Sources: Nexant; IMF

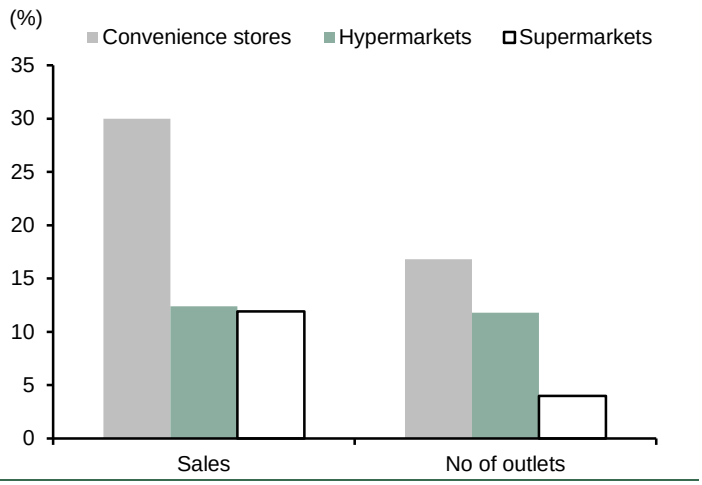
Indonesia's polyolefin demand growth is driven by the packaging sector for domestic consumption, in which the Indonesian Packaging Federation estimates the most important component is food & beverage (F&B), accounting for 70% of packaging demand. Based on the high growth of modern stores in Indonesia, we think F&B sales in Indonesia will maintain recent growth rates of 9-10% pa for the next few years at least.

Exhibit 15: Indonesia F&B and vehicle growth (y-y)



Source: CEIC

Exhibit 16: Indonesia stores and sales growth (2010-15 CAGR)



Source: Euromonitor

Long term, we believe that Indonesia's "Masterplan for Development 2011-25" can drive higher chemical demand. This plan identifies six economic corridors: 1) Sumatra; 2) Java; 3) Kalimantan; 4) Sulawesi; 5) Bali-Nusa Tenggara; and 6) Papua – Maluku. Of these, the three we think could drive chemical demand growth are:

- Sumatra, which will become the centre of production and processing of agricultural resources such as palm oil and oleo chemicals.
- Java, where the bulk of Indonesia's manufacturing capacity is located.
- Kalimantan, which will become the country's centre of production and processing for mining and energy reserves.

Exhibit 17: Indonesia's Economic Corridors under the Masterplan for Development 2011-25

Sources: Indonesia Investment Coordinating Board

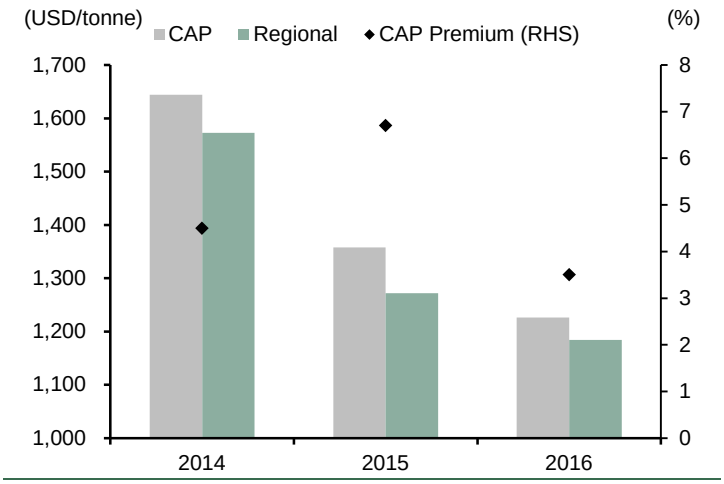
Exhibit 18: Economic and financial forecasts for Indonesia

(%)	2014	2015	2016	2017E	2018E
GDP growth	5.0	4.9	5.0	5.0	5.5
Private consumption	5.1	5.0	5.0	5.0	5.0
Fixed investment	4.4	5.0	4.5	6.2	6.2
CPI	6.4	6.4	3.5	4.5	4.2
7-day reverse repo rate	6.6	6.3	4.8	4.8	4.5

Sources: Bank Indonesia; BNP Paribas estimates

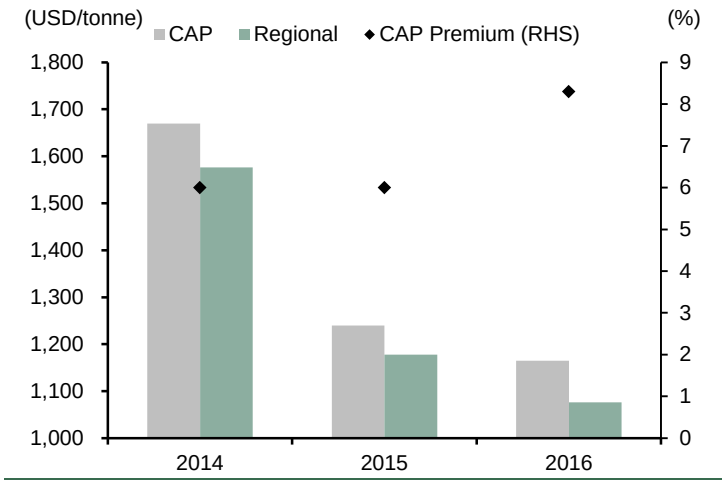
Indonesia's increasing import dependency for polyolefins benefits CAP as it is able to charge a premium of 4-8% compared to the regional benchmark price for its polyolefin sales. This is partly because CAP can use its local production facilities to ship polyolefin resins in smaller form factors more suited to local requirements.

Exhibit 19: Polyethylene (PE) price comparison



Sources: Chandra Asri Petrochemical; ICIS

Exhibit 20: Polypropylene (PP) price comparison



Source: Chandra Asri Petrochemical; ICIS

Beneficiary of lower oil prices

We believe CAP is a prime beneficiary of low oil prices, a situation which we expect to continue for the next two years as we assume oil prices stay below USD60/b.

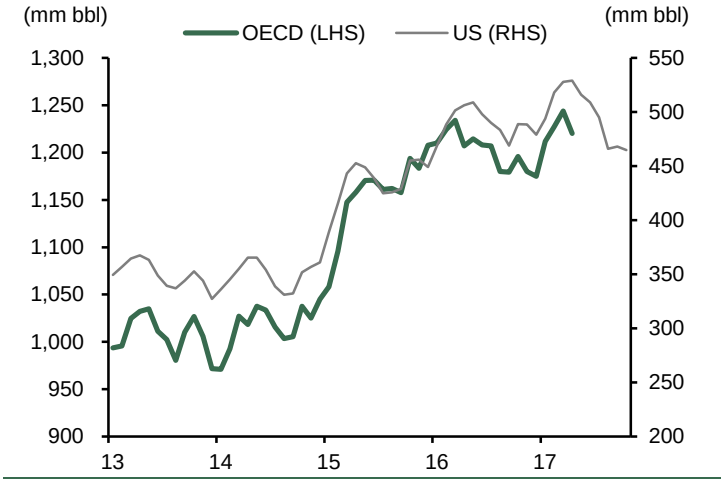
Oil prices recovered following OPEC's decision to cut production on 30 November 2016 and subsequent evidence that OPEC members were adhering to the production cuts. Oil prices fell in early May 2017 but recovered in the past two months on signs of falling inventories.

In our view, the behaviour of oil prices this year indicates that they are likely to remain range bound. A period of high oil prices, as early this year, would likely to lead to a quick increase in the US oil drilling rig count and vice versa.

Exhibit 21: Brent price trend

Source: Bloomberg

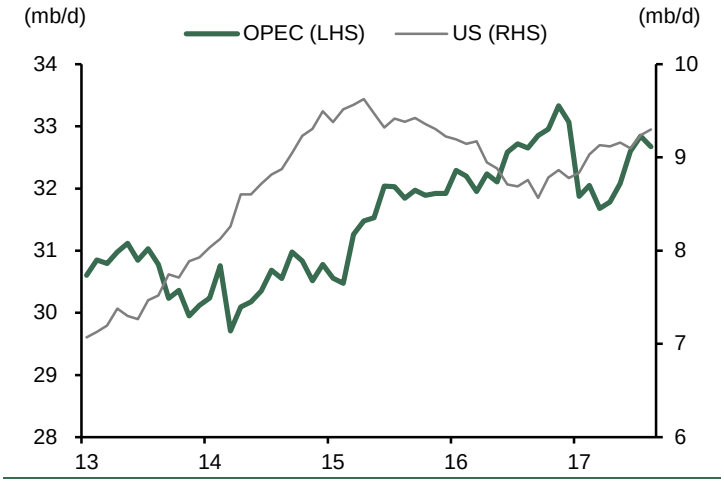
Exhibit 22: OECD and US crude inventories



Sources: IEA and EIA

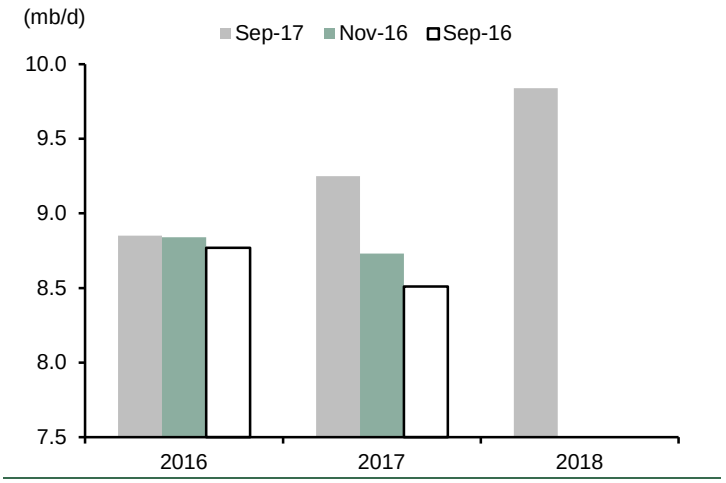
Overall, global oil inventories remain persistently high due to a quicker-than-expected recovery in US crude production, which has recovered from a trough of 8.5mb/d in October 2016 to the present level of 9.3mb/d. For 2017, the Energy Information Administration (EIA) forecasts US oil production to rise by 430kb/d compared to its forecast in November 2016 of a contraction of 110kb/d.

Exhibit 23: OPEC and US crude production



Source: IEA

Exhibit 24: EIA estimates of US crude production



Source: EIA

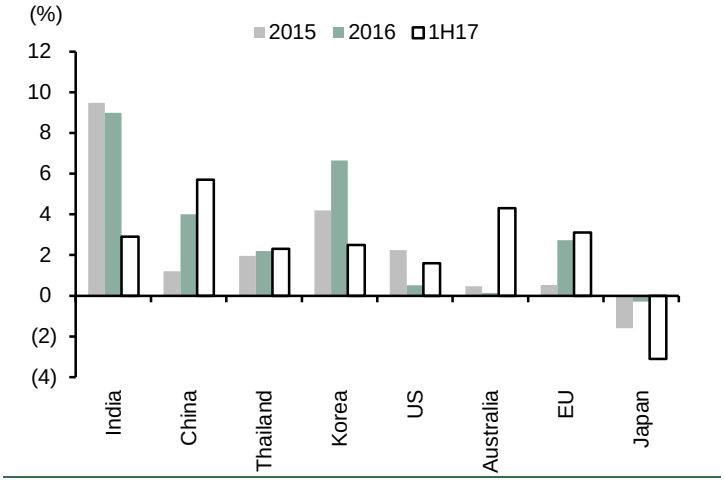
Globally, oil demand growth slowed in 1H17, following two years of strong growth as the positive effects of low oil prices began to fade. YTD, we note that oil demand has contracted in Japan, while sharply slowing in India, Korea and Thailand. China and the European Union are the only two large regions to show steady growth.

On 25 May, OPEC announced that existing production cuts would be extended to March 2018, a decision which had been well signalled to the market. We believe this decision is necessary as:

- Global oil inventories rose during 1Q17 despite full compliance with OPEC's production targets; and
- Major oil agencies and consultants estimate 2018 supply growth of 1.4-1.7mb/d, a level of growth similar to that seen in the 2014-15 periods.

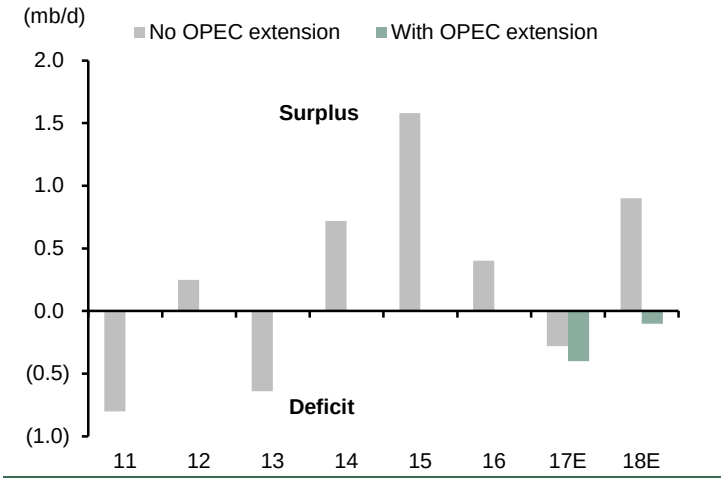
Our base case assumes that OPEC production cuts are maintained with a high level of compliance until March 2018. According to our calculations, this will lead to a slight tightening of oil balances in 2H17 before loosening in 2018. Hence, we forecast flat Brent prices of USD52/b for 2017 and USD51/b for 2018.

Exhibit 25: Global oil demand growth



Source: IEA

Exhibit 26: Global oil supply less demand



Sources: IEA; BNP Paribas estimates

Exhibit 27: Oil price forecasts

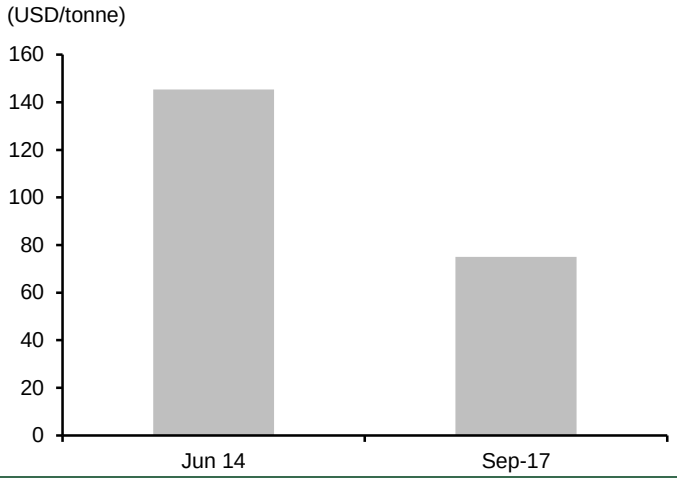
(USD/b)	2017	2018	2019
BNPP Asia Equity Research	52.0	51.0	60.0
Forward curve	55.4	54.5	53.9
BBG consensus	52.9	56.0	59.5
EIA	51.1	51.6	na
IHS	51.7	48.4	na
Average	**52.6**	**52.3**	**57.8**

Sources: Agencies; BNP Paribas estimates

Lower oil prices benefit naphtha crackers by:

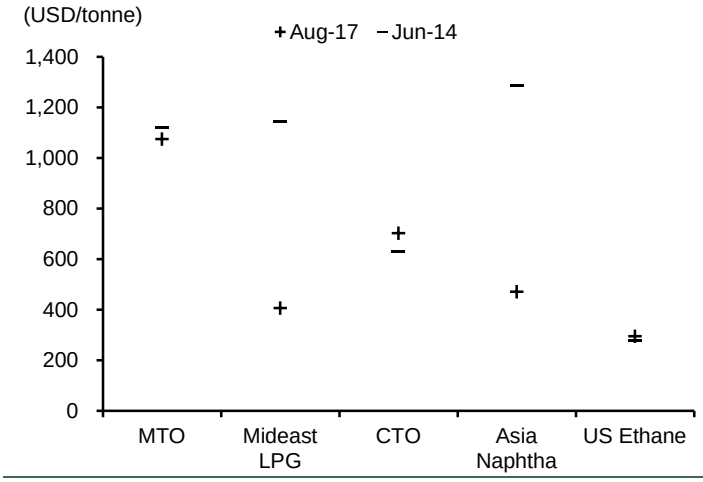
- Reducing production costs since there is a naphtha loss of 15% during the cracking process. As per our calculation, this amounts to savings of USD80/t per tonne of naphtha cracked when comparing the present situation to that of the June 2014 period.
- Improving naphtha cracking competitiveness vs other feedstocks. Currently, naphtha cracking is significantly cheaper than methanol to olefins (MTO) and coal to olefins (CTO) processes or Mideast LPG.

Exhibit 28: Naphtha cracker fuel loss (per t of naphtha)



Sources: Datastream; BNP Paribas estimates

Exhibit 29: Ethylene cash production cost comparison

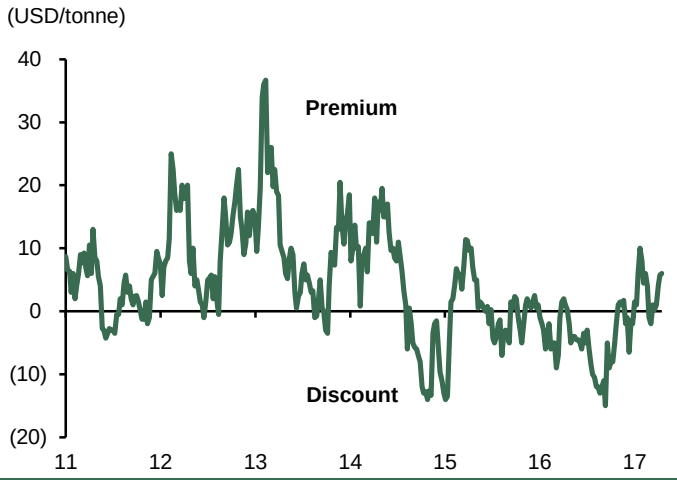


Source: IHS

- Reducing naphtha procurement costs, as naphtha crackers have been able to buy naphtha cargoes at discounts of up to USD15/t from 2H14, compared to premiums of a similar magnitude from 2011-1H14.

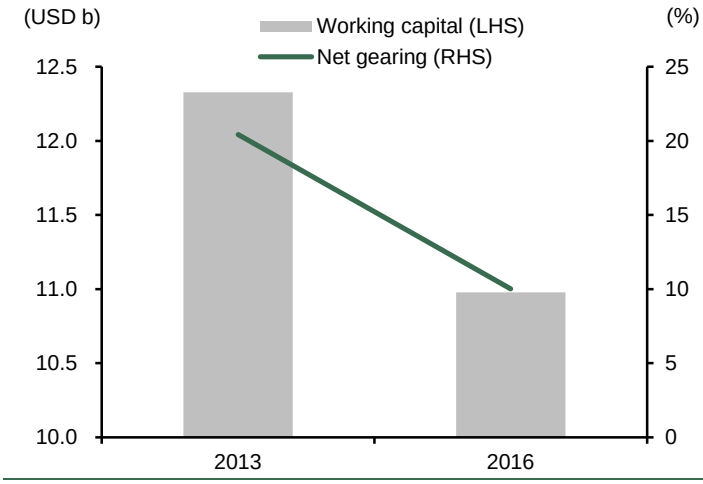
- Significantly reducing working capital requirements which has led to sharply lower net gearing levels across the sector.

Exhibit 30: Naphtha price vs benchmark



Source: Reuters

Exhibit 31: BNPP chemical universe financial metrics



Sources: Companies; BNP Paribas

In CAP's case, we believe that the total savings from lower oil prices amounted to USD110m when comparing the situation in 2016 with that in 2013, and we believe this has made a significant contribution towards CAP's much improved earnings in that period.

Exhibit 32: CAP's cost savings from lower oil prices

	Ethylene capacity (ktpa)	Naphtha used (ktpa)	Naphtha loss (USD m)	Cargo prem/(disc) (USD m)	Total cost (USD m)
2013	600	1824	139	18	157
2016	860	2614	60	(13)	47

Source: BNP Paribas estimates

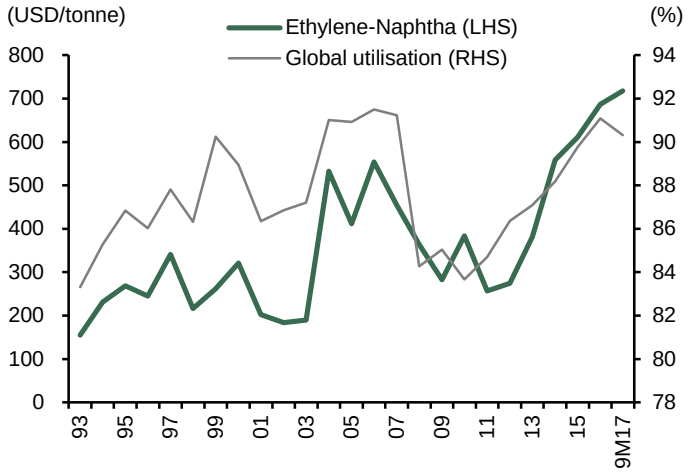
Chemical cycle – a controlled descent

Ethylene down but not out

At present, the ethylene chain (ethylene and PE) is the main contributor of CAP's operating profits, constituting around 60% of operating profits in 2016. Ethylene has been on an upcycle since 2011, and the YTD margin of USD718/t is slightly higher than last year's record level, and equivalent to an EBITDA margin of over 40%.

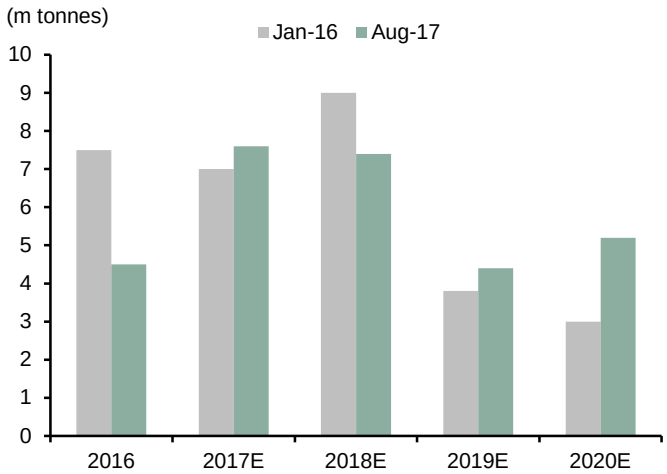
The current ethylene upcycle has enjoyed an unprecedented run due to the following factors: 1) the sharp decline of oil prices from late 2014 which boosted demand as a result of falling prices; 2) significant delays to new projects resulting in an average global capacity growth of only 1.9% pa from 2011-16; and 3) the concern over large capacity expansions in the US leading to industry players being cautious about capacity expansion.

Exhibit 33: Global ethylene margins and utilisation rate



Sources: IHS; Datastream

Exhibit 34: Expectations of global ethylene additions

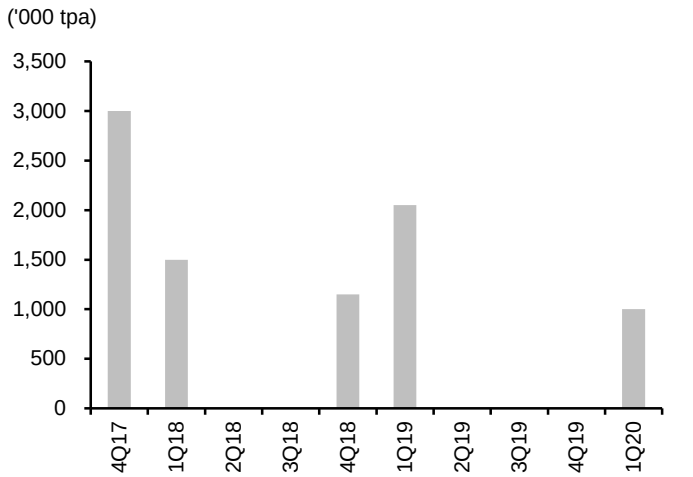


Source: IHS

We believe that the ethylene cycle will peak in 1H17 and fall from 4Q17 onwards, when a series of large new US ethane crackers start up. These plants are being built by global majors such as ChevronPhillips, Dow and Exxonmobil and are on target to meet their start-up schedules.

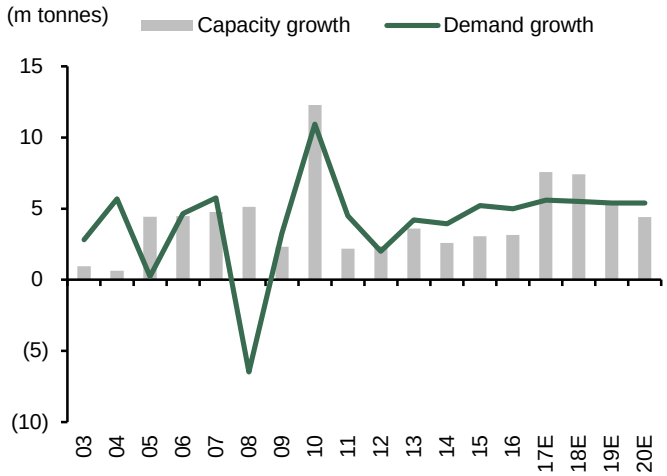
We expect the ethylene cycle to turn downwards in 2018 before stabilising in 2019 and tightening in 2020. Overall, we expect only a moderate decline as we estimate global ethylene utilisations will trough at 89% in 2018, similar to 2014-15 levels.

Exhibit 35: US ethylene capacity additions



Source: IHS

Exhibit 36: Global ethylene capacity vs demand growth



Source: IHS

Also, we believe that the ethylene down-cycle is likely to be mitigated as a result of the following supply-side measures that were implemented in China last year.

Event #1: Coal price hike

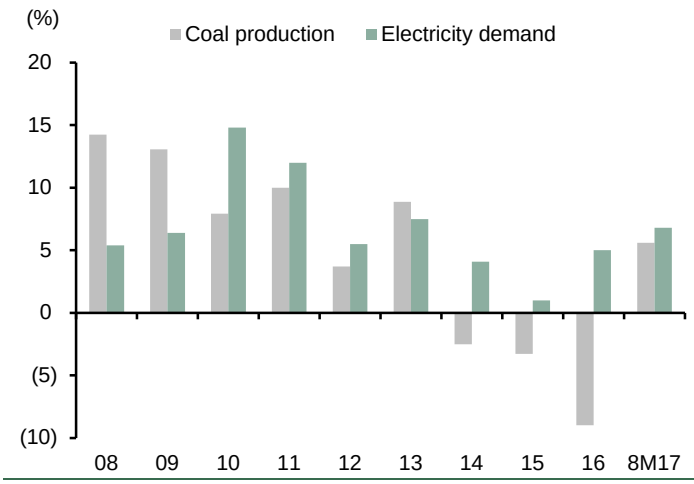
Since bottoming out in April 2016, China's coal price rose by 26% due to:

- Government measures to reduce coal production, particularly the decision in April 2016 to cut the number of statutory working days for coal miners to 276 from 330. This resulted in China coal production declining 9% y-y in 2016.
- Rising thermal power generation, due to improving industrial production. China's electricity demand rose to 7% y-y in 8M17 from 5% in 2016 and 1% in 2015.

Exhibit 37: China nationwide coal price index

Source: WIND

Exhibit 38: China coal production & electricity demand growth

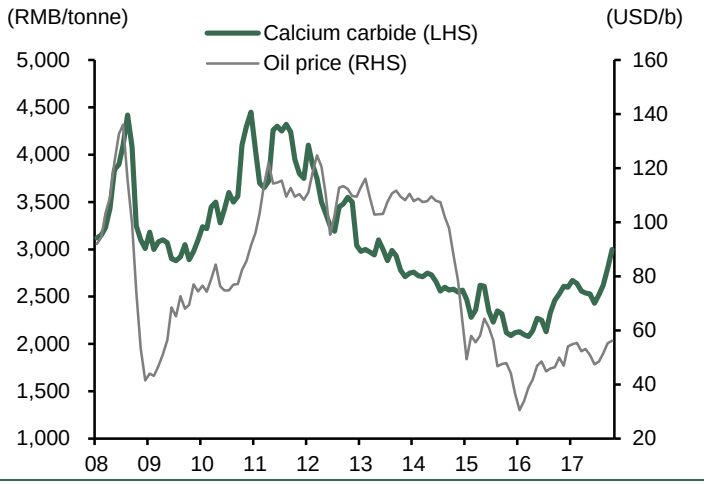


Source: NBS

We believe that the current level of coal prices is sustainable as the government has guided for coal prices to be within a 6% range of RMB535/t for 5,500kcal/kg coal. This is to ensure that the coal sector remains healthy and in a strong position to continue with capacity rationalisations.

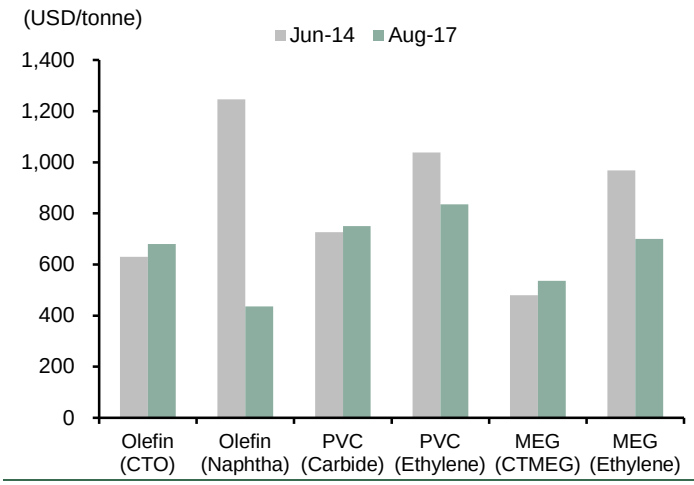
The increase in coal prices has disadvantaged coal-based chemical producers by raising feedstock costs. Currently, we estimate that naphtha crackers' ethylene production costs are around USD250/t cheaper than CTO, while carbide-based PVC production costs have risen to levels similar to ethylene-based production costs.

Exhibit 39: Calcium carbide vs oil price



Source: CEIC

Exhibit 40: Production cost comparison of chemicals



Sources: IHS; BNP Paribas estimates

Event #2 – Freight rate hike

From 21 September 2016, the China Ministry of Transport began enforcing strict weight limits for commercial vehicles. The new regulations mandate that the goods carried by a truck should not weigh more than 49 tonnes, compared to the previous cap of 55 tonnes. The penalty for overloaded vehicles is RMB500 for each tonne of excess weight, subject to a maximum of RMB30,000.

In theory, this rule would cause trucking freight rates to rise by over 30%, as we calculate in the table below. According to SX Coal, coal truck freight rates in North China rose by 17-21% after this rule was introduced, although they have fallen by around 5-10% YTD.

Exhibit 41: China truck freight rate estimates before and after 21 Sep 2016

	unit	Prior	Post
Wagon	tonne	16.5	16.5
Load	tonne	38.5	32.5
Total	tonne	55	49
Height	meters	4.5	4.5
Trip cost	RMB	3,850	3,850
	RMB/tonne	100	133

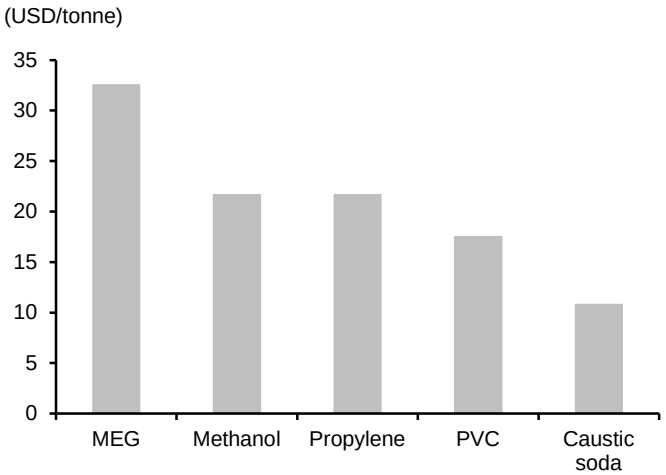
Source: sanwen.com

This increase in freight rates is likely to have a cascading impact on coal-chemical prices as the main mode of transportation of chemicals such as calcium carbide, methanol and PVC is via truck. The remote location of CTO plants means that their delivered costs to Eastern China are also likely to rise significantly.

We believe that this new freight regulation regarding lower maximum weight limits has been strictly implemented, thereby resulting in a higher number of trips as evidenced by:

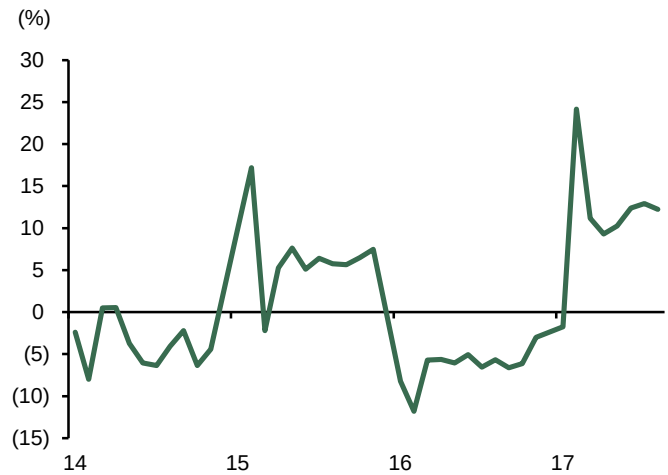
- China highway freight volumes rising by 12% y-y in 8M17.
- China diesel demand rising by 3% y-y in 8M17, the best growth since 2011.

Exhibit 42: Impact of freight rate hikes in China



Source: BNP Paribas estimates

Exhibit 43: China highway freight volumes



Source: NBS

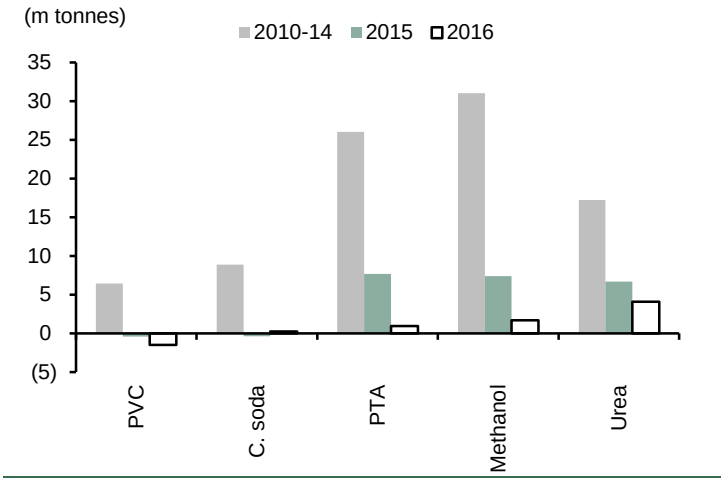
Event #3 – Capacity rationalisation

In the past, China's capacity additions in coal-chemicals have been rapid as companies raced to secure cheap coal resources to transform into higher value chemicals. In the past two years, the pace of additions has slowed sharply as:

- The decline in coal prices reduced the capability of coal companies to make the required heavy investments in chemical plants. For example, we estimate that a CTO plant with 600k tpa of olefin capacity requires capex of RMB20b.
- Profitability of coal-chemicals has diminished owing to the decreased price gap between coal and competing feedstocks such as gas and oil.
- Enforcement of environmental pollution regulations became stricter, particularly for PVC, such as energy consumption limits and waste water treatment.

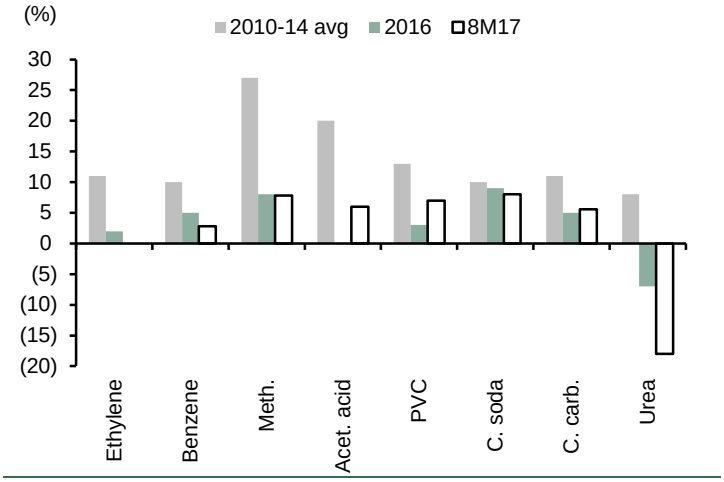
These circumstances resulted in decreased growth of chemicals production in China during 2015-16 which has continued in 2017. The contraction in urea production has deepened this year, helping to balance the international urea market this year.

Exhibit 44: China chemical capacity additions



Source: NBS

Exhibit 45: China production growth of key chemicals



Source: NBS

Event #4 – Higher environmental standards

In December 2016, the State Council released the 13th Five-Year Plan (FYP) for Environmental Protection, which detailed plans to improve the quality of the environment by 2020. This FYP states that environmental measures will be used to promote the elimination of backward processes and excess capacity, including strict energy consumption limits and raising emissions and pollutant discharge standards.

We have compiled a list of the major environmental regulations that China introduced over the past year.

Exhibit 46: China's new environmental regulations

Regulation	Action
GB 11655.1-2012	PVC plants relocated to chemical parks
GB 30527-2014	PVC plants to meet strict energy efficiency targets
GB 15581-2016	Chlor-alkali plants to meet new emissions standards
Environment Tax	RMB1.2/kg of air pollutants
Carbon Trading	Chemical companies included in the first phase
Minamata Convention	Phasing out the use of mercury catalysts in VCM plants
13th Five-Year Plan	Environmental rules to catalyse supply-side reform

Source: Ministry of Environmental Protection

In September 2016, the Ministry of Environmental Protection (MEP) released new emission standards for the chlor-alkali industry, updating standards set in 1995 (Exhibit 47). The chlor-alkali industry was targeted as it consumes significant amounts of electricity, generates a high level of pollution and contravenes the Minamata Convention regarding mercury usage.

From 1 September 2016, new chlor-alkali plants will need to meet these emission standards. The standards will be fully implemented from 1 July 2018 and will bring Chinese emissions standards to a level similar to those in developed countries.

Exhibit 47: China's emission standards for the chlor-alkali industry (GB 15581-2016)

Pollutant	Pollution source	---------- Direct emission limit ----------	
		(mg/cu m) / mg/L	*Change vs old standards (%)*
Air standards			
Particulate	PVC	80	*(51)*
	Carbide	60	*(51)*
SO2	Caustic soda	100	*(58)*
NO2	Caustic soda	200	*(58)*
Chlorine	HCL	5	*(58)*
HCL	VCM	20	*(72)*
Mercury	VCM	0.01	*(72)*
Water standards			
pH value	Chlor-alkali	6-9	*na*
COD	Chlor-alkali	60	*(77)*
BOD	Chlor-alkali	20	*(67)*
Matter	Chlor-alkali	30	*(67)*
Ammonia	Chlor-alkali	15	*(67)*
Mercury	VCM	0.003	*(67)*

Source: Ministry of Environmental Protection

The MEP has estimated the following costs of implementing these measures for the chlor-alkali industry:

- Implementing sewage treatment facilities will require a total investment of RMB2.2b, accounting for 4% of fixed investments and increase annual operating costs by RMB400m, accounting for 0.8% of production costs.

- Implementing waste gas treatment facilities will require a total investment of RMB2.4b, accounting for 4.3% of fixed investment and increase annual operating costs by RMB200m, accounting for 0.4% of production costs.

The government has also undertaken these key measures:

- On 25 December 2016, the NPC Standing Committee approved the Environmental Tax Law (which will come into force from 1 January 2018) that will make polluters pay RMB1.2 per kg of air pollutants, RMB1.2 on stipulated quantities of water pollutants and RMB5-1000 per tonne of solid waste.

- Over the past two years, the MEP has taken significant action to enforce environmental laws. Between January 2014 and June 2016, the Environmental Resource Courts have concluded 37,216 criminal cases involving air, water and soil pollution and 195,141 civil cases involving resource ownership and environmental infringement.

- In August 2016, the State Council announced that a national carbon emissions trading system for China would be implemented. It will include the refining and chemical industry in the first stage of this new market.

Event #5 – Phasing our recycled imports

China's recent anti-pollution efforts have led to a reduction in plastic recycling by raising the cost of plastic recycling and reducing imports of recycled plastics. This, in our view, is likely to encourage the production of virgin resin, boosting chemical demand.

The cost of recycling plastic has risen as a result of: 1) new regulations requiring higher minimum plant capacities; 2) requiring recyclers to switch to gas boilers from coal boilers by end-2017 to reduce pollution; and 3) increasing truck freight rates from October 2017.

Based on the assumptions detailed below, we calculate that recycling costs have risen by USD120/t for PET and USD82/t for PE.

Exhibit 48: Production costs of 1t of recycled plastic

	PET		HDPE	
(RMB)	Jun-16	Dec-16	Jun-16	Dec-16
Raw materials				
– Postconsumer PET	3,470	3,767	3,848	3,986
– Caustic soda	48	63	0	0
Energy use				
– Electricity	303	909	268	804
– Diesel	396	497	396	497
Total	4,217	5,236	4,512	5,287
Total (USD)	639	759	684	766

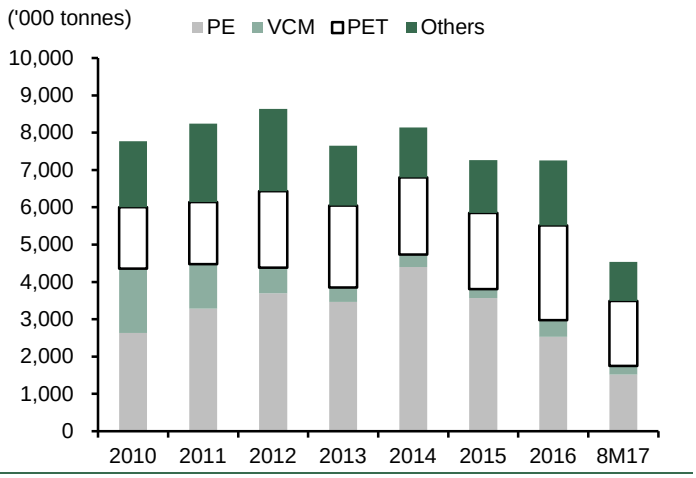
Sources: American Chemistry Council; BNP Paribas estimates

China intends to reduce imports of recycled plastics. Since peaking at 8.9m tonnes in 2012, China's imports of recycled plastics declined to 7.3m tonnes in 2016.

On 18 April 2017, the government passed a bill forbidding imports of solid waste, including recycled plastics, citing the need to protect the environment. Details about the ban on specific industries and schedules are to be confirmed at a later date.

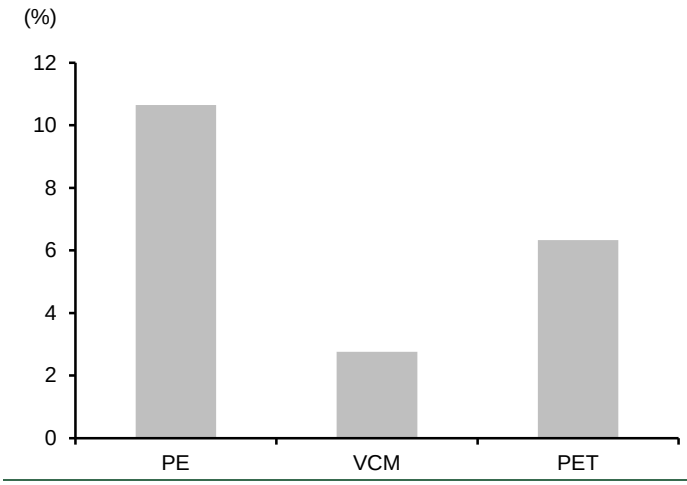
In our view, this development will benefit PE and polyester intermediates (PX, MEG and PTA) the most since China imports significant quantities of recycled PE and polyester. Our scenario analysis suggests that a 50% reduction in recycled import volumes could boost global utilisation rates of the above products by 1.2-1.6ppt.

Exhibit 49: China's imports of recycled plastics



Source: China Customs Statistics

Exhibit 50: Recycled imports as % of China demand (2016)



Sources: NBS; BNP Paribas estimates

Assessing the positive impact on ethylene margins

While we believe China's chemical production levels should remain largely unaffected, we expect production costs to materially increase. For example, we estimate that the production costs of carbide-based PVC have risen by USD130/t over the past year due to the cumulative impact of:

- The 27% increase in China's average coal prices in that period.
- The 33% increase in truck freight rates since September 2016.

Exhibit 51: PVC and carbide production distribution in China (2014)

Region	PVC	Carbide
North	23	1
Northeast	2	1
East	6	1
Central	13	10
South	2	1
Southwest	9	7
Northwest	45	79

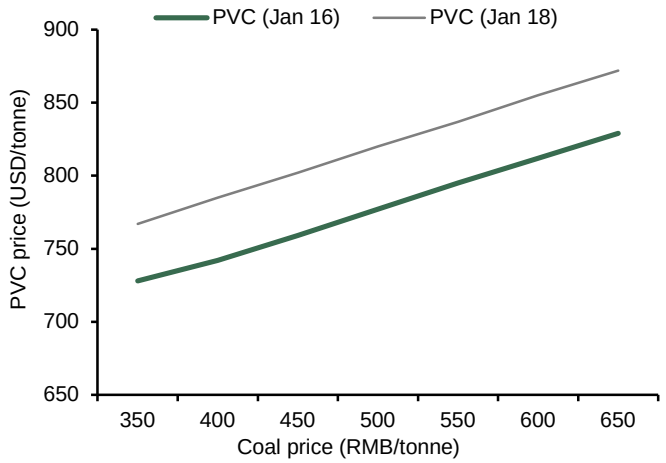
Source: CNCIC

By January 2018, we expect the production costs of carbide-based PVC to rise further by around USD45/t from the present levels to factor in the additional costs of compliance with new environmental measures.

Factoring in the premium that ethylene-based PVC commands over carbide-based PVC, we derive the ethylene-equivalent price per carbide price. At present, the carbide price is RMB2,600/t, which implies an ethylene price of USD990/t.

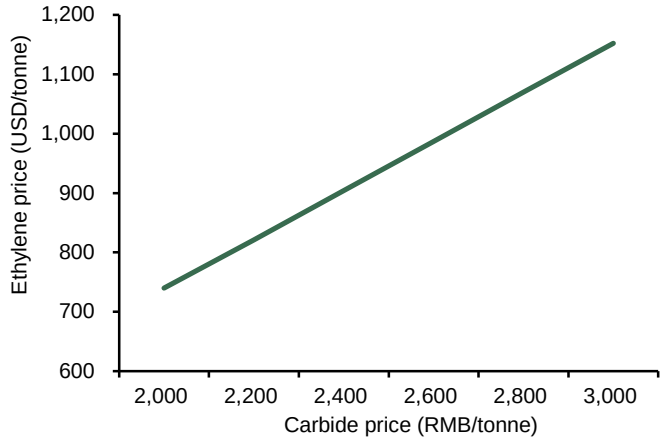
We believe there is scope for carbide prices to rise further, as we estimate that the breakeven costs for higher-cost carbide producers to be around RMB2,800/t. Longer term, carbide prices could rise further as industry consolidation drives overall utilisation higher. Hence, we believe that carbide prices are likely to move toward RMB3,000/t, which would in turn raise the ethylene equivalent price to USD1,150/t.

Exhibit 52: Carbide-based PVC cost curve



Sources: Datastream; BNP Paribas estimates

Exhibit 53: Carbide equivalent to ethylene (January 2018)



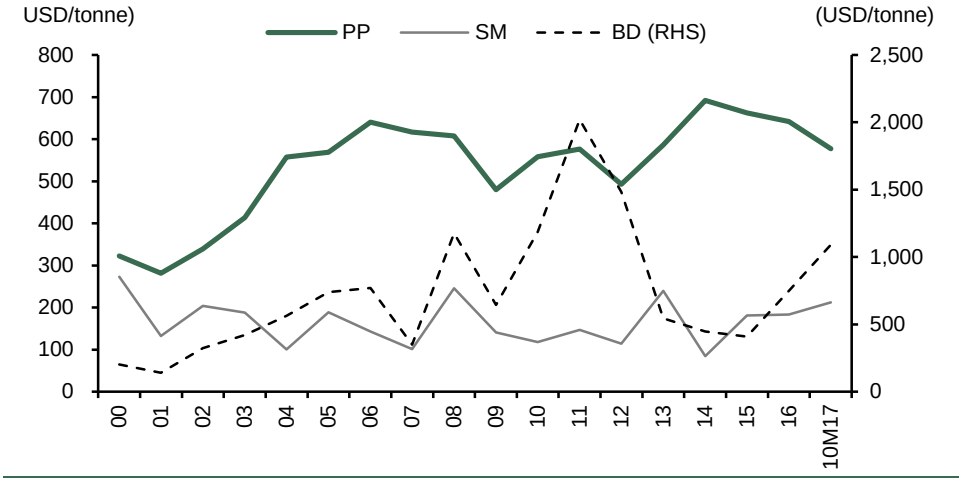
Sources: Datastream; BNP Paribas estimates

Gradual recovery in PP, BD and SM

In the past two years, ethylene has taken centre stage for CAP, but we believe that profit contributions from CAP's other key products – PP, BD and SM – are likely to become more important. In 2016, we estimate that PP, BD and SM contributed 22%, 14% and 4% respectively of operating profit.

In 2016, margins of PP were strong, BD recovered while SM remained stable. In 10M17, PP margins slipped, BD margins rose strongly and SM margins were stable.

Exhibit 54: Margin trend of PP< SM and BD



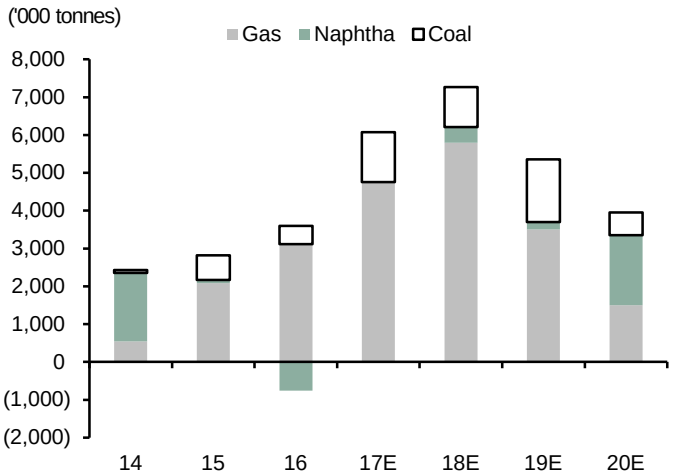
Source: Datastream

We expect margins of these three products to gradually improve over the coming years as we expect demand growth to remain steady at 3-4% pa, but capacity growth to lag demand growth.

The primary reasons for the slowing capacity growth are:

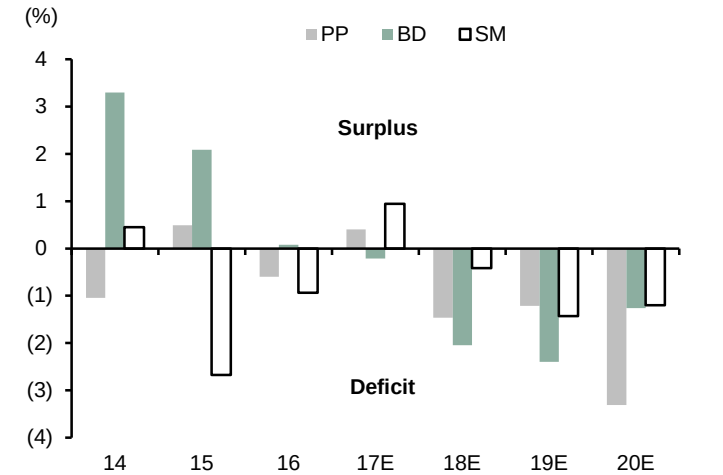
- Most ethylene additions over the coming years will be based on ethane feedstock. Cracking ethane only yields ethylene and no other by-products unlike cracking naphtha, which yields the whole slate.
- Butadiene and SM were in a down-cycle in 2014-15 and as a result have seen slowing additions due to weak profitability.

Exhibit 55: Global ethylene additions by feedstock



Sources: IHS; BNP Paribas estimates

Exhibit 56: Global capacity less demand growth



Sources: IHS; BNP Paribas estimates

Exhibit 57: Chemical price trends

(USD/tonne USD/bbl)	2009	2010	2011	2012	2013	2014	2015	2016	2017E	2018E	2019E
Naphtha	558	727	940	949	928	865	494	400	450	430	510
Ethylene	845	1,114	1,198	1,224	1,310	1,423	1,105	1,087	1,100	960	1,070
LDPE	1,142	1,421	1,565	1,310	1,493	1,530	1,251	1,183	1,200	1,070	1,190
HDPE	1,079	1,173	1,318	1,298	1,393	1,433	1,163	1,034	1,110	1,000	1,120
Propylene	901	1,201	1,448	1,360	1,396	1,347	831	755	810	810	930
PP	1,039	1,288	1,518	1,392	1,457	1,464	1,156	1,042	1,030	990	1,150
AN	1,237	2,174	2,300	1,907	1,817	1,947	1,303	1,142	1,460	1,440	1,570
Acrylic ester	1,658	2,701	2,975	2,272	2,050	1,739	1,156	959	1,110	1,130	1,270
Butadiene	1,003	1,913	2,960	2,432	1,472	1,311	904	1,150	1,350	1,110	1,370
SBR	1,455	2,149	3,460	2,750	1,995	1,793	1,251	1,391	1,615	1,500	1,710
Benzene	694	927	1,112	1,224	1,320	1,218	694	655	780	780	910
SM	954	1,194	1,395	1,460	1,689	1,486	1,068	1,034	1,150	1,150	1,250
PS	1,051	1,337	1,522	1,579	1,845	1,674	1,219	1,179	1,280	1,270	1,370
ABS	1,354	1,961	2,173	1,998	1,950	1,871	1,419	1,338	1,750	1,680	1,790
Phenol	858	1,586	1,657	1,631	1,453	1,406	882	822	930	920	1,010
BPA	1,276	1,918	2,068	1,799	1,834	1,806	1,161	1,133	1,310	1,320	1,430
PVC	777	962	1,063	979	1,013	1,014	815	824	880	830	905
MEG	632	880	1,184	1,025	1,055	928	777	657	810	715	740
PX	990	1,056	1,556	1,518	1,501	1,228	843	795	830	830	940
PTA	833	968	1,269	1,101	1,073	888	632	599	645	675	750
Polyester	1,091	1,432	1,793	1,499	1,480	1,385	1,071	953	1,080	1,090	1,170

Sources: Datastream; BNP Paribas estimates

Exhibit 58: Chemical margin trends

(USD/tonne)	2009	2010	2011	2012	2013	2014	2015	2016	2017E	2018E	2019E
Ethylene-Naphtha	287	387	258	275	382	558	611	687	650	530	560
LDPE-Naphtha	584	694	625	361	565	665	757	783	750	640	680
LDPE-Ethylene	297	307	367	86	183	107	146	96	100	110	120
HDPE-Naphtha	521	446	378	349	465	568	669	634	660	570	610
HDPE-Ethylene	234	59	120	74	83	10	58	(53)	10	40	50
Propylene-Naphtha	343	474	508	411	468	482	337	355	360	380	420
PP-Naphtha	481	561	578	443	529	599	662	642	580	560	640
PP-Propylene	138	87	70	32	61	117	325	287	220	180	220
AN-Propylene	336	973	852	547	421	600	472	387	650	630	640
Acrylic ester-Propylene	757	1,500	1,527	912	654	392	325	204	300	320	340
Butadiene-Naphtha	445	1,186	2,020	1,483	544	446	410	750	900	680	860
SBR-Naphtha	897	1,422	2,520	1,800	1,066	927	756	990	1,165	1,070	1,200
Benzene-Naphtha	136	200	172	275	392	353	200	255	330	350	400
SM-Naphtha	396	467	455	511	761	621	574	634	700	720	740
PS-SM	97	143	127	119	156	188	151	145	130	120	120
ABS-Naphtha	796	1,234	1,233	1,049	1,022	1,006	925	938	1,300	1,250	1,280
Phenol-Naphtha	300	859	717	682	525	541	388	422	480	490	500
BPA-Phenol	418	332	411	168	381	400	279	311	380	400	420
PVC-Ethylene	355	405	464	367	358	303	263	281	330	350	370
MEG-Ethylene	125	212	465	291	269	74	114	5	150	140	100
PX-Naphtha	432	329	616	569	573	363	349	395	380	400	430
PTA-PX	170	260	226	84	67	65	67	66	90	115	120
Polyester-PTA-MEG	130	257	241	153	146	259	223	181	210	230	240

Sources: Datastream; BNP Paribas estimates

Exhibit 59: Global supply-demand balance for petrochemicals

(m tonnes)	09	10	11	12	13	14	15	16	17E	18E	19E
Ethylene											
Capacity	133	145	147	149	153	156	159	162	169	177	182
Demand	112	123	127	129	133	137	142	147	152	157	163
Operating rate (%)	84.2	84.6	86.4	86.4	87.1	88.2	89.8	91.1	89.7	89.0	89.3
Propylene											
Capacity	87	93	97	100	104	107	113	118	123	126	129
Demand	68	76	78	80	85	88	92	96	100	104	108
Operating rate (%)	78.1	81.5	80.5	80.1	81.7	82.1	81.3	81.3	81.0	82.1	83.6
Butadiene											
Capacity	12	12	13	13	14	14	15	15	16	16	16
Demand	10	11	11	11	12	12	12	12	13	13	13
Operating rate (%)	80.4	86.8	88.1	86.4	85.0	82.3	80.7	80.6	80.5	82.2	84.1
Benzene											
Capacity	53	56	57	58	60	61	63	63	64	65	65
Demand	38	41	43	44	45	46	48	49	50	52	53
Operating rate (%)	70.8	74.0	74.7	75.2	75.0	75.5	75.9	78.0	78.2	79.7	81.8
PE											
Capacity	83	91	93	97	98	101	102	108	114	119	121
Demand	68	73	75	76	79	82	85	88	91	94	97
Operating rate (%)	82.0	80.0	81.1	79.1	80.2	80.8	82.9	81.7	79.8	79.3	80.4
PP											
Capacity	55	60	64	66	68	71	74	77	80	82	85
Demand	45	50	53	55	58	61	64	67	70	72	76
Operating rate (%)	82.8	82.4	82.3	83.1	85.1	85.9	85.5	86.3	86.6	87.9	88.9
SM											
Capacity	30	31	32	33	33	33	33	34	35	35	35
Demand	25	26	27	27	28	28	29	30	30	31	32
Operating rate (%)	83.4	84.6	84.6	84.2	85.4	85.0	87.3	88.1	87.3	87.7	88.9

Sources: IHS; BNP Paribas estimates

Exhibit 60: Global cracker start-ups

Country	Project	Feedstock	Ethylene (ktpa)	Commercial Start-up
India	OPAL	Mixed feed	1,100	1Q17
China	Zhongtian Hechuang	Coal	300	1Q17
US	Oxy	Ethane	500	2Q17
India	Reliance	Ethane	1,350	2Q17
US	Dow	Ethane	1,500	4Q17
China	CNOOC group	Naphtha	1,000	4Q17
US	Chevron	Ethane	1,500	4Q17
US	Exxon	Ethane	1,500	1Q18
US	FPC USA	Ethane	1,150	4Q18
US	Sasol	Ethane	1,500	1Q19
US	Shintech	Ethane	500	1Q19
US	Lotte Axiall	Ethane	1,000	1Q20
Malaysia	Petronas	Naphtha	1,000	2020

Sources: IHS; BNP Paribas

Earnings outlook remains bright

2016 earnings review

CAP achieved record net profit in 2016 of USD300m – up significantly from USD26m in 2015. We attribute the large earnings improvement to:

- A significant increase in the naphtha cracker utilisation to 90% in 2016 from 57% in 2015. Utilisation in 2015 was affected by major maintenance in 4Q15, which caused naphtha cracker utilisation to fall to 11% in that period. The maintenance period in 4Q15 was longer than usual since it included the cracker expansion.

- A significant increase in production volumes and better economies of scale during 2016 as a result of the completion of the cracker expansion, which resulted in olefin capacity growing by 43% y-y.

- An increase in olefin margins, of ethylene by USD76/t y-y and of butadiene by USD340/t y-y. Butadiene margins were particularly strong in 2H16 due to reduced supply after unexpected plant shutdowns globally, strong demand due to a sharp recovery in Chinese industrial production in 4Q16 and likely speculative activity.

In May 2017, a final DPS of USD0.04 was declared for 2016, equivalent to USD117m. This brought the full-year DPS to USD0.0457, equivalent to a c50% pay-out ratio, the highest pay-out ratio achieved.

1H17 earnings review

CAP's 1Q17 net profit rose to a new interim record high of USD174m (+34% y-y) and EBITDA rose to USD285m (+33% y-y). The main reasons for the improving operational performance were:

- A higher cracker utilisation rate of 99% in 1H17 compared to 79% in 1H16. Utilisation in 1Q16 was low at 65% as the newly expanded cracker ramped up.

- Higher olefin margins as a result of reduced production in China due to environmental restrictions coupled with stronger demand as industrial production accelerated. In particular, butadiene margins rose to over USD2,000/t in 1Q17 – the highest levels since 2011.

Earnings outlook

Based on our chemical price and margin forecasts (see Exhibits 59-60), we forecast CAP to generate net profit growth of 9% in 2017, and we expect the peak quarterly net profit to have taken place in 1Q17. We base our forecast of this descending quarterly earnings trend on:

- China's tightening liquidity conditions, as reflected in the increase in three-month SHIBOR rates to 4.6% at present from 2.8% in September 2016, has curbed speculative trading in chemicals. We believe, this has contributed to a USD2,000/t decline in BD prices at present from February 2017 .

- Chemical production in China was unexpectedly curtailed from November 2016 to February 2017 due to anti-pollution efforts. With the conclusion of winter, production normalised resulting in higher supply.

We expect CAP's net profit to decline by 18% in 2018 since we expect the large new cracker additions in the US to hurt ethylene and PE margins from late 2017. However, we expect this to be cushioned by improving butadiene and SM margins. We forecast CAP's net profit to rebound by 12% in 2019 as we forecast a gentle recovery in ethylene margins as global supply and demand return to a more balanced position. We expect the start of the Styrene Butadiene Rubber (SBR) JV in 1Q18 and butadiene and PP plant expansions in 2Q-3Q18 to boost 2019 earnings.

Exhibit 61: CAP – Income statement

(USD m)	2012	2013	2014	2015	2016	2017E	2018E	2019E
Sales	2,285	2,506	2,460	1,378	1,930	2,300	2,387	2,598
Gross profit	23	98	118	146	494	539	451	497
SG&A	(63)	(67)	(67)	(67)	(71)	(81)	(83)	(85)
Operating profit	(40)	31	50	79	424	458	368	412
Associates	0	0	(1)	(4)	(6)	(6)	4	6
Finance costs	(61)	(23)	(32)	(23)	(32)	(26)	(26)	(28)
Other income	0	10	13	16	15	11	12	12
Profit before tax	(111)	17	25	56	401	438	358	402
Income tax	23	(6)	(6)	(30)	(100)	(109)	(89)	(101)
Net profit	(87)	10	18	26	300	330	268	302
Dividends	0	3	5	10	150	132	107	121
Ratios (%)								
Gross margin	1	4	5	11	26	23	19	19
EBIT margin	(2)	1	2	6	22	20	15	16
Tax rate	21	35	26	53	25	25	25	25
Dividend payout ratio	nm	27	25	40	50	40	40	40
Growth (y-y %)								
Operating profit	*nm*	*nm*	*60*	*58*	*435*	*8*	*(20)*	*12*
Net profit	*nm*	*nm*	*88*	*44*	*1,039*	*10*	*(19)*	*12*

Sources: Chandra Asri Petrochemical; BNP Paribas estimates

Exhibit 62: CAP – Income statement segmental breakdown

(USD m)	2012	2013	2014	2015	2016	2017E	2018E	2019E
Revenue								
Olefins	640	616	514	171	610	790	784	841
Polyolefins	1194	1,272	1,303	869	885	910	999	1,099
SM	447	551	419	256	289	414	428	452
Butadiene		62	219	78	139	265	167	199
Total	**2,285**	**2,506**	**2,460**	**1,378**	**1,930**	8	8	8
Gross profit								
Olefins	19	12	10	(2)	168	234	175	191
Polyolefins	(3)	32	91	137	283	223	210	233
SM	4	45	7	13	23	33	36	39
Butadiene		6	6	(4)	15	45	22	29
Total	**23**	**98**	**117**	**146**	**494**	4	8	5
Gross margin (%)								
Olefins	3	2	2	(1)	27	30	22	23
Polyolefins	(0)	3	7	16	32	25	21	21
SM	1	8	2	5	8	8	9	9
Butadiene		10	3	(5)	11	17	13	15
Total	**1**	**4**	**5**	**11**	**26**	**23**	**19**	**19**

Sources: Chandra Asri Petrochemical; BNP Paribas estimates

Balance sheet

CAP's balance sheet strengthened significantly in 2016, with net debt falling to USD126m (USD401m in 2015) due to:

- Record high EBITDA of USD510m during 2016 from production volume increase and higher product margins; and
- The completion of plant expansion in 2015 resulted in capex falling to USD73m in 2016 compared to USD198m in 2015.

On 8 September 2017, CAP completed a rights issue of 279m shares at a price of IDR18,000/sh, which increased the free float of CAP to 9.1% from 3.9% and raised proceeds of USD378m. With this, we estimate that CAP will have turned to a net cash position of around USD400m as at end-2017.

CAP's balance sheet also benefits from efficient working capital management. In 2016, CAP had a negative working capital due to payable days of 65 vs inventory days of 38 and receivables days of 27.

Exhibit 63: CAP – Balance sheet

(USD m)	2012	2013	2014	2015	2016	2017E	2018E	2019E
Inventories	276	292	218	178	200	238	247	269
Trade receivables	158	188	108	50	140	167	174	189
Cash	123	242	222	110	309	792	700	611
Others	138	90	117	78	43	43	43	43
Total current assets	**695**	**812**	**666**	**417**	**693**	**1,241**	**1,164**	**1,112**
PP&E	972	988	1,144	1,308	1,317	1,368	1,590	1,895
Non-current funds	14	13	11	13	13	13	13	13
Investments in associates	0	5	13	38	32	26	30	37
Deferred tax assets	0	41	72	70	68	68	68	68
Others	6	49	18	16	7	7	7	7
Total non-current assets	**992**	**1,096**	**1,257**	**1,446**	**1,437**	**1,482**	**1,708**	**2,019**
Trade payables	449	538	399	244	344	410	426	463
Borrowings	25	68	69	121	63	33	33	60
Others	10	11	11	13	47	47	47	47
Total current liabilities	**484**	**618**	**478**	**378**	**454**	**490**	**505**	**570**
Deferred tax liabilities	130	127	132	146	142	141	141	141
Borrowings	331	289	422	427	362	362	362	362
Others	21	19	25	25	30	30	30	30
Total non-current liabilities	**482**	**434**	**580**	**598**	**534**	**534**	**534**	**534**
Shares capital	341	469	469	469	469	847	847	847
Reserves	369	377	390	411	666	846	980	1,174
Minorities	11	9	8	7	7	7	7	7
Shareholder's equity	**721**	**855**	**866**	**887**	**1,142**	**1,699**	**1,833**	**2,027**
Net cash/(debt)	(233)	(115)	(283)	(401)	(126)	397	305	189
New working capital	(15)	(58)	(72)	(15)	(4)	(5)	(5)	(6)
Ratios (%)								
Net gearing	33	14	31	50	10	(23)	(17)	(9)
ROCE	(2)	3	4	4	25	26	19	18
ROE	(12)	1	2	3	30	23	15	16

Sources: Chandra Asri Petrochemical; BNP Paribas estimates

Cash flow

In 2016, CAP generated record high operating free cash flow (OpFCF) of USD418m, benefiting from strong operating cash flows of USD491m and lower capex of USD73m. This allowed CAP to pay a c50% dividend payout ratio in 2016, which we expect to dip to 40% going forward.

CAP has guided for cumulative capex of USD1b for 2017-19E, of which firm expansion plans account for USD400m, plant maintenance for USD150m and initial spending on the new cracker of USD450m.

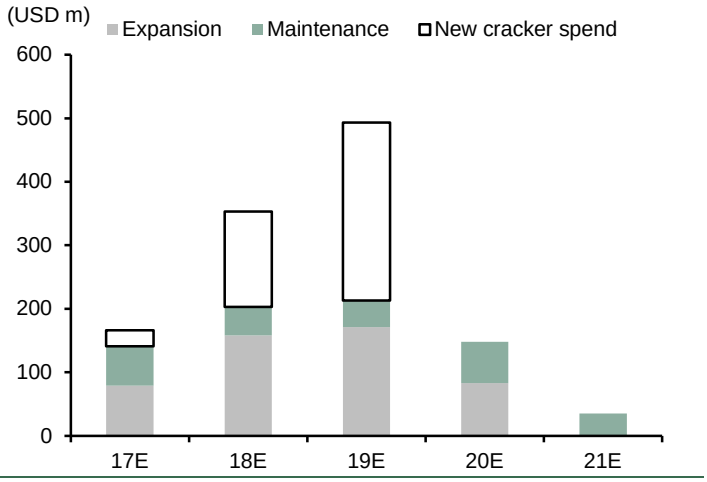
We believe there is a reasonable probability that the total capex for this period will come in lower than guidance as we believe CAP should be able to secure a partner for the project by the end of 2017. In this scenario (as illustrated in the exhibit below), we project CAP should still generate OpFCF in excess of USD150m for 2018-19E.

Exhibit 64: CAP – Cash flow

(USD m)	2012	2013	2014	2015	2016	2017E	2018E	2019E
Trading profit	(40)	31	50	79	424	458	368	412
Depreciation + amortisation	59	63	64	64	75	74	78	80
Working capital movement	105	43	14	(57)	11	(1)	(0)	(0)
Other (operating)	25	6	(38)	1	(19)	6	12	12
Operational cash flow	149	142	90	87	491	537	458	504
Interest paid	(60)	(21)	(26)	(23)	(32)	(26)	(26)	(28)
Dividends paid	0	0	(4)	(5)	(43)	(150)	(135)	(107)
Tax paid	23	(28)	(35)	(27)	(69)	(109)	(89)	(101)
Capital expenditure	(88)	(101)	(194)	(198)	(73)	(125)	(301)	(385)
Net acquisitions/disposals	1	1	(8)	(44)	(5)	0	0	0
Other	(21)	(3)	24	40	54	9	0	1
Share issues	0	128	0	0	0	378	0	0
Change in net debt/net cash	4	118	(153)	(170)	322	514	(93)	(116)

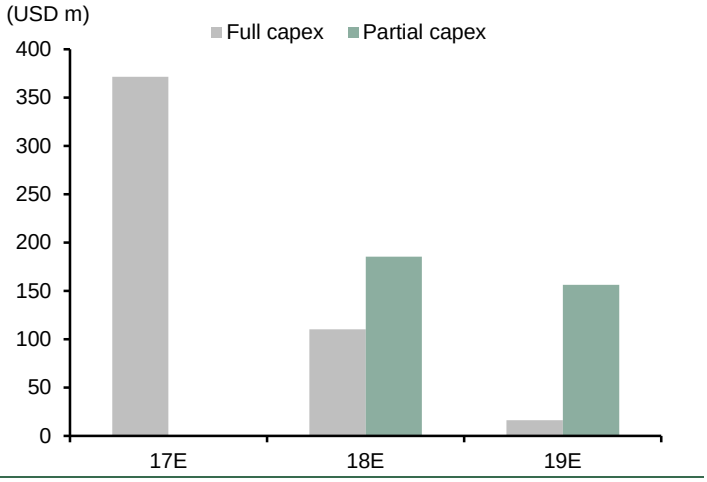
Sources: Chandra Asri Petrochemical; BNP Paribas estimates

Exhibit 65: CAP capex guidance



Sources: Chandra Asri Petrochemical; BNP Paribas estimates

Exhibit 66: CAP – OpFCF scenario analysis



Sources: Chandra Asri Petrochemical; BNP Paribas estimates

Exhibit 67: CAP – Dupont analysis

(%)	2012	2013	2014	2015	2016	2017E	2018E	2019E
Sales/IC	239	267	248	119	152	176	165	153
EBIT/Sales	(2)	1	2	6	22	20	15	16
EBIT ROIC	(4)	3	5	7	33	35	25	24
(EBIT-tax)/EBIT	41	81	87	63	76	76	76	76
ROIC	(2)	3	4	4	26	27	19	18
IC as % of CE	97	100	99	98	97	98	98	98
Returns on other IC	0	0	0	0	0	0	0	0
Other assets/CE	0	1	1	3	3	2	2	2
ROCE	(2)	3	4	4	25	26	19	18
CE/(equity + MI)	130	120	116	135	128	94	83	90
PAT/(EBIT - Tax)	389	14	27	-7	62	63	64	65
(Equity + MI)/Equity	101	101	101	101	101	100	100	100
Net profit/PAT	137	267	154	-797	150	150	150	150
ROE	(12)	1	2	3	30	23	15	16

Sources: Company; BNP Paribas estimates

Risks to our view

The key upside risks to our view on CAP include:

- **Participation in new cracker project.** CAP has announced plans to invest USD5b to construct a new naphtha cracker with 1m tpa of ethylene capacity, to be completed by 2021. If CAP were to secure a suitable partner and launch this project, we believe it would create significant long-term value for CAP.

- **Anti-pollution efforts in China** this winter could curb chemical production in China, which would result in higher chemical prices and margins for regional producers such as CAP.

- **Chemical demand may positively surprise**, as we note that that PMI of major economies are presently still above 50, indicating an expansionary trend. In its latest World Economic Outlook, the IMF forecasts global economic growth of 3.6% in 2017 and 3.7% in 2018, an upwards revision of 0.1ppt since its previous revision.

The key downside risks to our view on CAP include:

- **Ethylene down-cycle may be more severe.** Currently, we forecast ethylene margins to only moderately decline to USD580/t in 2018 from USD650/t in 2017 despite large US capacity expansions as we expect global ethylene demand growth to remain strong at 3.8% pa over 2017-18. However, if demand growth were to falter, this would introduce downside risks to our margin forecasts.

- **Propylene margins may stay weak.** Currently, we forecast propylene margins to improve slightly to USD380/t in 2018 from USD360/t in 2017 as we forecast propylene capacity additions will slow. However, there is significant excess capacity at Propane Dehydrogenation (PDH) plants, which could choose to increase runs if LPG prices fall significantly below naphtha prices, thus hurting propylene margins.

- **Naphtha prices may rise sharply.** CAP's primary feedstock is naphtha, whose prices are linked to oil prices. In the event oil prices rise higher than our forecast due to geopolitical risks, this would significantly increase production costs for CAP while hurting naphtha cracking economics vs gas crackers and raising working capital requirements.

- **Indonesian plastic demand may weaken.** Our positive view on Indonesian plastic demand is based on the BNPP economics team forecast of GDP growth of 5-5.5% pa and private consumption growth of 5.0% pa over 2017-18. If Indonesian growth were to miss these forecasts due to external (commodity price slowdown) or internal factors (politics, security issues), this would weaken the outlook on chemical margins.

- **Exchange rate risks.** CAP is exposed to fluctuations in the exchange rate between the USD and IDR. We estimate that each 1% change in the IDR/USD exchange rate would impact net profit by 0.3%, all else being the same.

- **Plant mechanical failure** may lead to unplanned shutdown of operations, resulting in lower production and expensive repairs.

- **Single plant risk.** CAP currently operates in a single geographic area, consisting of a single train naphtha cracker and various downstream units. Any disruption to the cracker would result in significant production loss, in our view.

Appendix 1: Company background

PT Chandra Asri Petrochemical TBK (CAP) was the result of a merger between PT Tri Polyta Indonesia TBK (TPI) and PT Chandra Asri (CA) on 1 January 2011. TPI was the largest PP producer in Indonesia and was established in 1984. CA was a producer of olefins and PE and was established in 1989.

Currently, CAP is owned by two major shareholders, PT Barito Pacific TBK (46.3%) and Siam Cement of Thailand (30.6%). PT Barito Pacific TBK (BRPT IJ, NR) is a diversified conglomerate with interests in chemicals, property, plantation and timber, and is majority owned by Mr Prajogo Pengestu, who also owns a direct 14% stake in CAP. In 2016, CAP constituted around 95% of PT Barito Pacific TBK's assets, revenues and net profits.

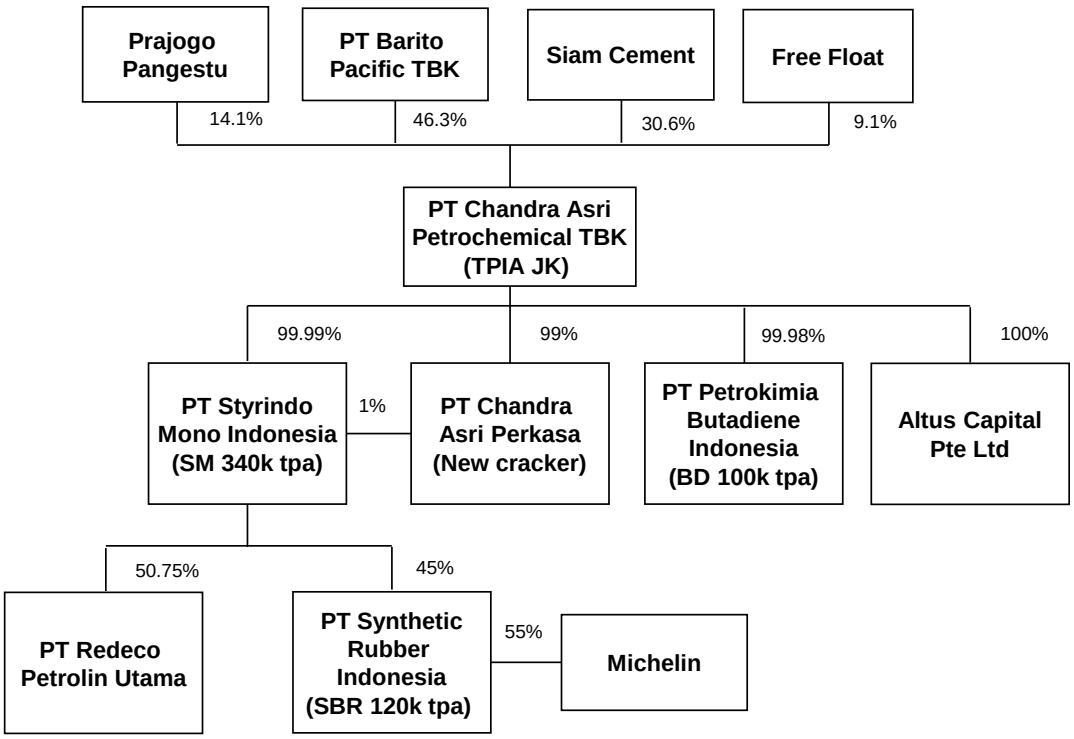
Siam Cement is Thailand's largest industrial conglomerate by market capitalisation. It operates three main businesses – cement, chemicals and packaging. The chemicals division generated 76% of PBT in 2016, primarily via Siam Cement's interests in two integrated naphtha crackers with a combined ethylene capacity of 1.7m tpa.

CAP operates the only naphtha cracker in Indonesia. Following a major expansion plan completed in December 2015, CAP has annual production capacity consisting of: ethylene 860k tpa, propylene 470k tpa, pygas 400 k tpa and mixed C4 315k tpa.

CAP's plant is strategically located in Cilegon, West Java, providing convenient access to key customers in the surrounding chemical cluster via a 45km distribution pipeline.

CAP is run by a strong management team which includes members from the SCG group. Mr Erwin Ciputra, aged 42, is the President Director of CAP and has been with CAP since 2004 and has a background in finance. Mr Kulachert Dharachandra, aged 43, is the Vice President Director and Director of Operations and comes from SCG where he has accumulated over 20 years of experience in the chemical industry spanning a variety of roles. CAP employs a total of 1,483 employees.

Exhibit 68: CAP organisation structure



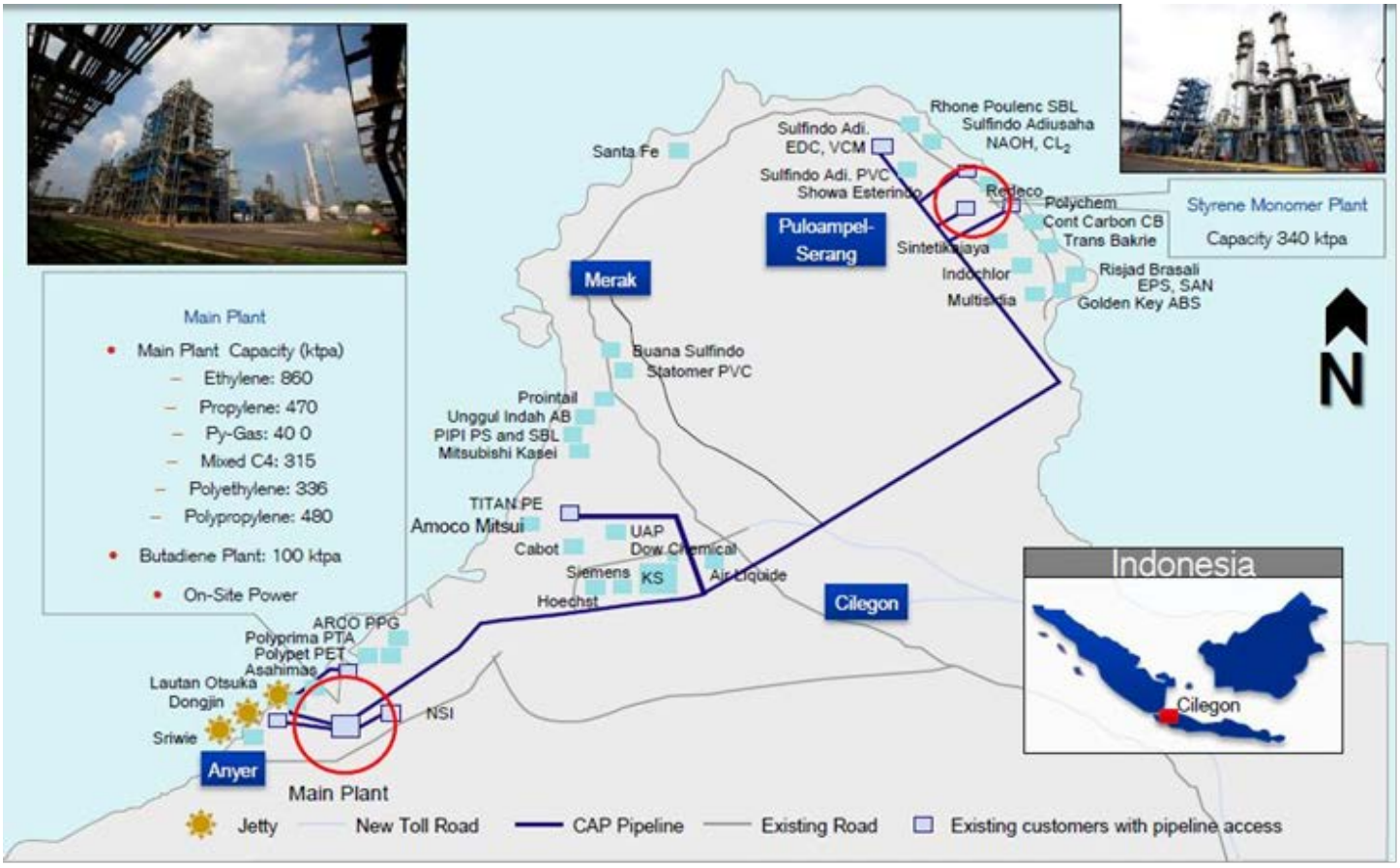
Source: Chandra Asri Petrochemical

Exhibit 69: CAP key product capacities

Plant	Product	Capacity ('000 tpa)	Licensor	Contractor	Yr started
Naphtha cracker	Ethylene	860	Lummus	Toyo Engineering	1995
	Propylene	470			
	Pygas	400			
	Mixed C4	315			
PE Unipol	LL/HDPE	200	Union Carbide	Toyo Engineering	1995
PE Showa Denko	HDPE	136	Showa Denko	Toyo Engineering	1995
PP Unipol	PP	480	Union Carbide	Toyo Engineering	1992-95
Butadiene plant	BD	100	BASF/Lummus	Toyo Engineering	2013
Styrene plant	SM	340	Lummus	Toyo Engineering	1992-99

Source: Chandra Asri Petrochemical

Exhibit 70: CAP's production facilities



Source: Chandra Asri Petrochemical

Appendix 2: Petrochemical fundamentals

Steam cracking process

A steam cracker is the basis of an integrated petrochemical complex and is the most common method of manufacturing olefins (ethylene, propylene and C_4s) feedstock used in petrochemical production.

'Cracking' refers to the process whereby larger molecules are broken down into smaller molecules. 'Steam cracking' uses heat to break the chemical bonds in feedstock and occurs in the presence of steam and temperatures of 800-850^{o}C. The process is very energy intensive and requires large amounts of fuel.

Steam crackers can be identified by their tall (over 200 feet) cylindrical furnaces used to perform chemical separation. There are typically 3-5 furnace stacks in a series and capacity can be added by adding another furnace stack.

Many olefin plants contain auxiliary units to further purify some of their co-products, including a propylene splitter to purify propylene, a butadiene extraction unit to separate 1,3 butadiene and butylenes and an aromatics extraction unit to recover benzene, toluene and xylenes.

The recent trend is for steam crackers to be larger to achieve economies of scale. Most new steam crackers being constructed have nameplate capacities of over 800k tpa and require capital investments in the range of USD1b-1.5b as per our estimates.

Various feedstocks can be fed into steam crackers which would result in differing product streams. In general, cracking a lighter feedstock such as ethane results in a product yield with a higher proportion of olefin fractions (C_2 – C_3) relative to heavier fractions (C_4 – C_8).

Ethylene is the most important product by volume produced in the cracking process. Steam cracking of naphtha produces the following product stream: ethylene (30%), propylene (16%), C_4 streams (10%), pyrolysis gasoline (23%) and fuels (21%).

Pyrolysis gasoline (pygas) is a benzene-rich liquid fraction that is further processed in an aromatics extraction unit by a hydrogenation process which produces the following product stream (as a percentage of naphtha feedstock): benzene (7%), toluene (4%) and xylenes (4%).

Exhibit 71: Product yield per 1,000 units of feedstock

	Feedstock			
Product yield	Ethane	Propane	Butane	Naphtha
Ethylene	809	416	406	316
Propylene	19	211	166	154
Butadiene	18	23	35	46
Butanes	8	16	67	65
Pyrolysis gasoline	16	54	72	236
Fuel oil	0	7	17	28
Hydrogen-rich gas	59	17	12	9
Methane-rich gas	70	257	224	147
Ethylene yield (%)	81	40	40	30

Source: IHS

Exhibit 72: Naphtha cracker economics (capacity 750ktpa at 93% utilisation)

	Quantity	Units	Price (USD/unit)	Annual sum (USD m)
Products				
Ethylene	1.0	tonnes	1,100	768
Propylene	0.5	tonnes	900	324
BTX	0.2	tonnes	600	95
Mixed C4	0.3	tonnes	800	173
Fuel (FOE)	0.8	tonnes	460	261
Light ends	0.2	tonnes	460	53
C7 - C9 cut	0.2	tonnes	460	64
Total revenue				1,738
Raw materials				
Naphtha	3.2	tonnes	460	1,037
Catalyst & chemicals		-		4
Total raw materials costs				1,041
Utilities				
Fuel	0.6	tonnes	460	188
High pressure steam (40 bar)	0.8	tonnes	85	44
Cooling water	0.5	'000 tonnes	78	25
Electricity	0.1	MWh	127	7
Total utility costs				265
Total direct fixed costs				49
Total cash cost				1,355
Total cash margin				383

Sources: IHS; BNP Paribas estimates

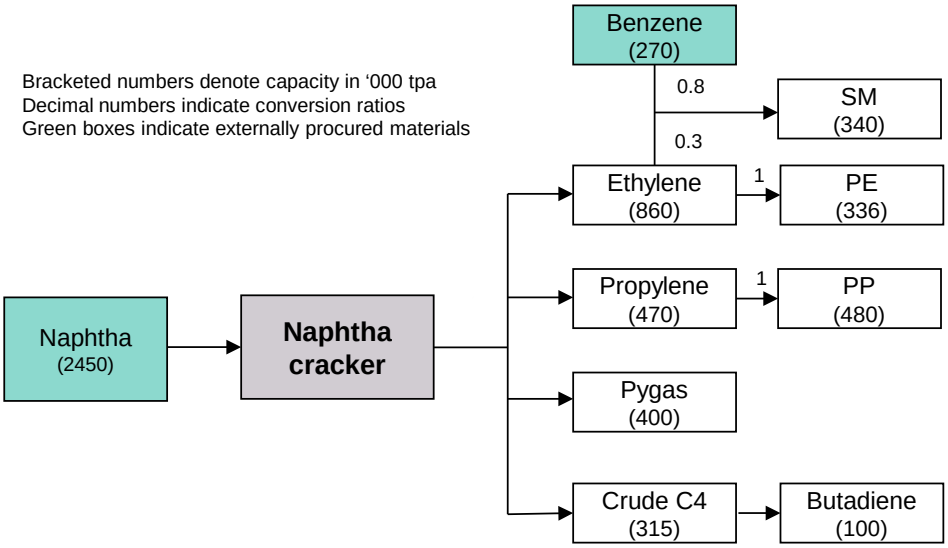
Exhibit 73: Profile of key products

Product	Abbrev	2016 global demand (m tonnes)	Feedstock	Key end use
Upstream				
Ethylene	C2	153	Naphtha	PE (59%), EDC (12%), EO (14%), SM (7%)
Propylene	C3	100	Naphtha	PP (62%), AN (8%), PO (8%), Cumene (6%)
Butadiene	C4	13	Naphtha	SM (52%), Cumene (19%), Cyclohexane (11%)
Midstream				
Styrene Monomer	SM	30	Ethylene, Benzene	PS (63%), ABS (16%), SBR (4%)
Downstream				
High Density Polyethylene	HDPE	47	Ethylene	Moulding (50%), Films (20%), Pipes (12%)
Linear Low Density Polyethylene	LLDPE	31	Ethylene	Films (80%), Injection moulding (10%)
Polypropylene	PP	91	Propylene	Moulding (35%), Films (23%), Raffia (16%), Fiber (15%)

Source: IHS

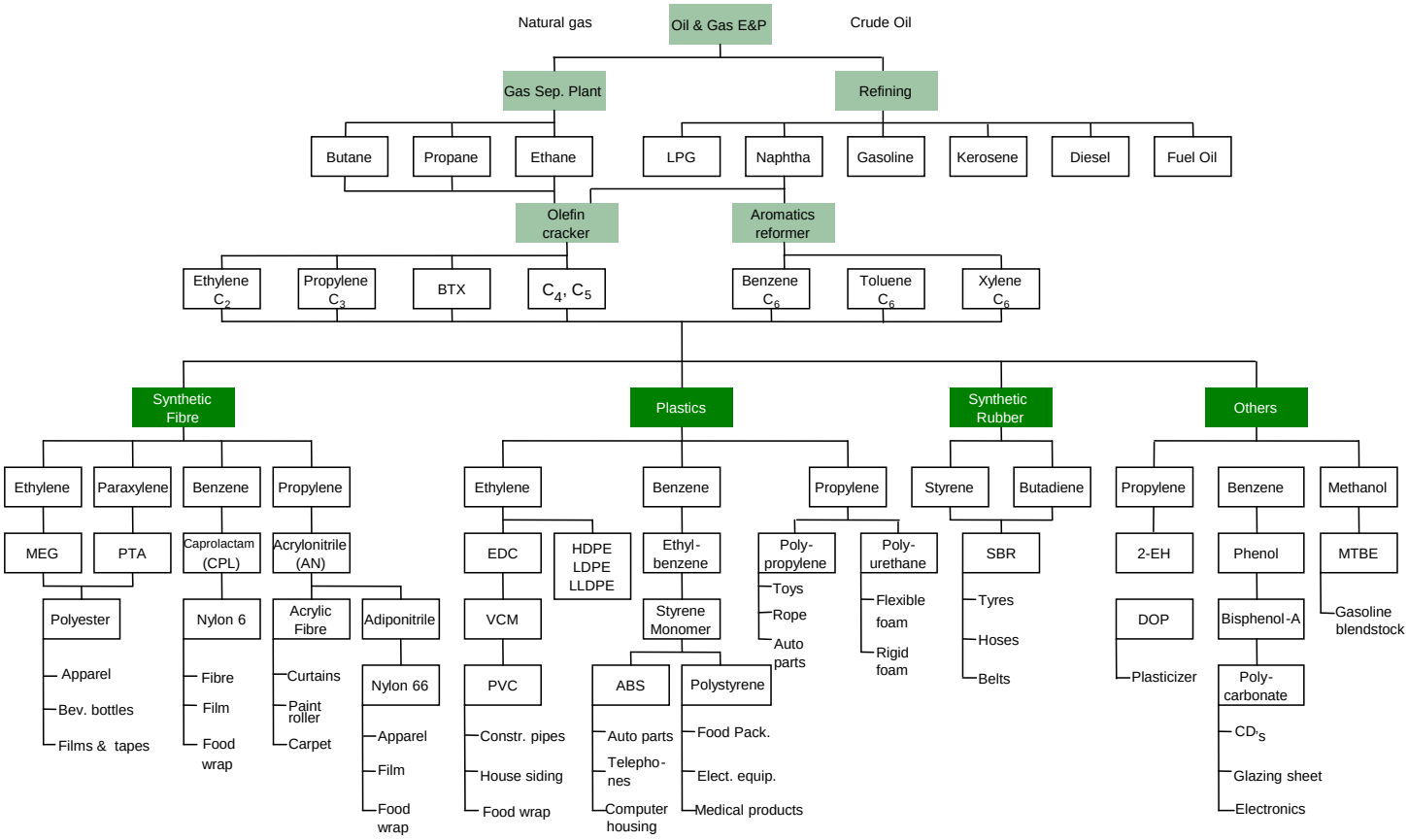
Appendix 3: Product flowcharts

Exhibit 74: CAP product flow chart



Source: IHS

Exhibit 75: Structure of the oil & petrochemical industry



Sources: IHS; BNP Paribas

Corporate governance

Board structure

Number of Independent Directors (ID) and Independent Commissioners (IC)	1 ID and 3 IC
Percentage of Independent Board Members (ID/IC)	30%
ID/IC participation/attendance at board meetings	94%
ID/IC participation in audit/remuneration committees	Yes
ID/IC terms (years of service, re-election/replacement procedures)	3 years

Sources: Chandra Asri Petrochemical; BNP Paribas

Audit Practices

Auditor	Satrio Bing Eny & Partner (Deloitte Indonesia)
Length of service	6+ years
Reporting incidents	None
Fee track record	USD 163,000 (2016)
Policy on change of Audit firm	Stable

Sources: Chandra Asri Petrochemical; BNP Paribas

Compensation and remuneration

Directors' remuneration vs. earnings/ROE/share performance	Based on firm financial performance and individual performance Total remuneration was USD 5.6 m in six-months ending June 2017
Changes/stability in senior management	2 director resignations and 2 appointments in 2016
Incidents of termination of senior management	N/A
Track record on Insider sales	N/A

Sources: Chandra Asri Petrochemical; BNP Paribas

Shareholders' rights

Communication - shareholder participation in AGMs/EGMs	Yes
Related party transactions	None
Voting issues - policies, incidents of rejected proposals	None

Sources: Chandra Asri Petrochemical; BNP Paribas

Financial statements

Chandra Asri Petrochemical

Profit and Loss (USD m) Year Ending Dec	2015A	2016A	2017E	2018E	2019E
Revenue	1,378	1,930	2,300	2,387	2,598
Cost of sales ex depreciation	(1,168)	(1,361)	(1,687)	(1,857)	(2,021)
Gross profit ex depreciation	**210**	**569**	**613**	**529**	**577**
Other operating income	-	-	-	-	-
Operating costs	(67)	(71)	(81)	(83)	(85)
Operating EBITDA	**143**	**499**	**532**	**446**	**492**
Depreciation	(64)	(75)	(74)	(78)	(80)
Goodwill amortisation	-	-	-	-	-
Operating EBIT	**79**	**424**	**458**	**368**	**412**
Net financing costs	(20)	(17)	(13)	(14)	(16)
Associates	(4)	(6)	(6)	4	6
Recurring non operating income	(4)	(6)	(6)	4	6
Non recurring items	0	0	0	0	0
Profit before tax	**56**	**401**	**438**	**358**	**402**
Tax	(30)	(100)	(109)	(89)	(101)
Profit after tax	**26**	**300**	**329**	**268**	**302**
Minority interests	0	(0)	0	0	0
Preferred dividends	0	0	0	0	0
Other items	0	0	0	0	0
Reported net profit	**26**	**300**	**330**	**268**	**302**
Non recurring items & goodwill (net)	0	0	0	0	0
Recurring net profit	**26**	**300**	**330**	**268**	**302**
Per share (USD)					
Recurring EPS *	0.0080	0.09	0.09	0.08	0.08
Reported EPS	0.0080	0.09	0.09	0.08	0.08
DPS	0.0014	0.05	0.04	0.03	0.03
Growth					
Revenue (%)	(44.0)	40.1	19.1	3.8	8.9
Operating EBITDA (%)	25.7	248.7	6.6	(16.0)	10.2
Operating EBIT (%)	57.9	434.9	8.0	(19.6)	11.9
Recurring EPS (%)	44.4	1,039.1	1.2	(18.5)	12.4
Reported EPS (%)	44.4	1,039.1	1.2	(18.5)	12.4
Operating performance					
Gross margin inc depreciation (%)	10.6	25.6	23.4	18.9	19.1
Operating EBITDA margin (%)	10.4	25.8	23.1	18.7	18.9
Operating EBIT margin (%)	5.8	22.0	19.9	15.4	15.9
Net margin (%)	1.9	15.5	14.3	11.2	11.6
Effective tax rate (%)	53.0	25.1	24.9	25.0	25.0
Dividend payout on recurring profit (%)	17.1	50.0	40.0	40.0	40.0
Interest cover (x)	3.9	24.1	33.9	25.8	26.1
Inventory days	62.0	50.7	47.3	47.6	46.5
Debtor days	21.0	18.0	24.4	26.1	25.5
Creditor days	100.4	78.8	81.6	82.1	80.3
Operating ROIC (%)	-	-	-	-	-
ROIC (%)	-	-	-	-	-
ROE (%)	3.0	29.8	23.3	15.3	15.7
ROA (%)	2.2	15.7	14.0	10.0	10.5
*Pre exceptional pre-goodwill and fully diluted					

Revenue By Division (USD m)	2015A	2016A	2017E	2018E	2019E
Polyolefin	869	884	1,053	1,093	1,190
Olefin	171	610	727	754	821
Styrene Monomer	256	290	345	358	390
Butadiene	78	139	166	172	187

Sources: Chandra Asri Petrochemical; BNP Paribas estimates

Financial statements

Chandra Asri Petrochemical

Cash Flow (USD m) Year Ending Dec	2015A	2016A	2017E	2018E	2019E
Recurring net profit	26	300	330	268	302
Depreciation	64	75	74	78	80
Associates & minorities	0	0	0	0	0
Other non-cash items	91	19	(29)	(16)	10
Recurring cash flow	**181**	**394**	**374**	**331**	**392**
Change in working capital	(56)	(8)	6	11	11
Capex - maintenance	0	0	0	0	0
Capex - new investment	(194)	(73)	(125)	(301)	(385)
Free cash flow to equity	**(68)**	**312**	**255**	**42**	**18**
Net acquisitions & disposals	0	0	0	0	0
Dividends paid	(5)	(43)	(150)	(135)	(107)
Non recurring cash flows	(44)	(5)	0	0	0
Net cash flow	**(117)**	**264**	**105**	**(93)**	**(89)**
Equity finance	0	0	378	0	0
Debt finance	5	(65)	0	0	0
Movement in cash	**(113)**	**200**	**483**	**(93)**	**(89)**
Per share (USD)					
Recurring cash flow per share	0.06	0.12	0.10	0.09	0.11
FCF to equity per share	(0.02)	0.10	0.07	0.01	0.0051

Balance Sheet (USD m) Year Ending Dec	2015A	2016A	2017E	2018E	2019E
Working capital assets	307	383	448	464	501
Working capital liabilities	(378)	(454)	(490)	(505)	(570)
Net working capital	**(71)**	**(71)**	**(41)**	**(42)**	**(69)**
Tangible fixed assets	1,321	1,330	1,380	1,603	1,908
Operating invested capital	**1,250**	**1,259**	**1,339**	**1,561**	**1,839**
Goodwill	0	0	0	0	0
Other intangible assets	87	75	75	75	75
Investments	38	32	26	30	37
Other assets	0	0	0	0	0
Invested capital	**1,375**	**1,366**	**1,440**	**1,667**	**1,950**
Cash & equivalents	(110)	(309)	(792)	(700)	(611)
Short term debt	0	0	0	0	0
Long term debt *	427	362	362	362	362
Net debt	**317**	**53**	**(431)**	**(338)**	**(249)**
Deferred tax	0	0	0	0	0
Other liabilities	171	172	172	172	172
Total equity	880	1,135	1,693	1,826	2,021
Minority interests	7	7	7	7	7
Invested capital	**1,375**	**1,366**	**1,440**	**1,667**	**1,950**
* includes convertables and preferred stock which is being treated as debt					
Per share (USD)					
Book value per share	0.27	0.35	0.47	0.51	0.57
Tangible book value per share	0.24	0.32	0.45	0.49	0.55
Financial strength					
Net debt/equity (%)	35.7	4.6	(25.3)	(18.4)	(12.3)
Net debt/total assets (%)	17.0	2.5	(15.8)	(11.8)	(7.9)
Current ratio (x)	1.1	1.5	2.5	2.3	2.0
CF interest cover (x)	7.4	23.2	29.5	24.7	26.2

Valuation	2015A	2016A	2017E	2018E	2019E
Recurring P/E (x) *	224.8	19.7	19.5	23.9	21.3
Recurring P/E @ target price (x) *	207.7	18.2	18.0	22.1	19.7
Reported P/E (x)	224.8	19.7	19.5	23.9	21.3
Dividend yield (%)	0.1	2.5	2.1	1.7	1.9
P/CF (x)	32.7	15.0	17.2	19.4	16.4
P/FCF (x)	(86.6)	19.0	25.1	153.1	352.4
Price/book (x)	6.7	5.2	3.8	3.5	3.2
Price/tangible book (x)	7.5	5.6	4.0	3.7	3.3
EV/EBITDA (x)	43.7	12.0	11.3	13.6	12.6
EV/EBITDA @ target price (x)	2.3	0.1	(0.8)	(0.7)	(0.5)
EV/invested capital (x)	4.5	4.4	4.2	3.7	3.2
* Pre exceptional & pre-goodwill and fully diluted					

Sources: Chandra Asri Petrochemical; BNP Paribas estimates

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    2) Stock options of the Company whose securities dealings are being solicited.
    3) Individual stock future, stock option, and warrants that use the stocks specified in Item 1) as underlying.

Company	Ticker	Price	Rating	Valuation & Risks
Chandra Asri Petrochemical	TPIA IJ	IDR 24,350	Hold	Target price based from 2.9x EV/CE. Upside risks include: 1) rising chemical prices from reduced production in China due to anti-pollution efforts; and 2) stronger-than-expected demand. Downside risks include: 1) a spike in oil prices; and 2) weaker-than-expected demand.

Sources: Factset; BNP Paribas

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