中性

万华化学 (600309.SS)

通过业务优化走向卓越，但估值已充分；首次覆盖评为中性 (摘要)

600309.SS	12个月目标价格: **Rmb47.00**	股价: **Rmb43.50**	上涨空间: **8.0%**

Initiation

万华化学是中国领先的化工企业，核心竞争产品是聚氨酯（MDI和TDI），公司是全球为数不多的具有MDI产能的生产商之一。万华化学向石化领域扩张，之后进军精细化工领域，由此实现了对核心业务的优化。我们看到，万华在优化生产流程和成本结构方面出色的规划和执行能力助力公司成为了全球最大的MDI供应商。但我们认为市场对公司短期盈利的预测仍过于乐观。该股当前股价对应13倍的2019年预期市盈率和9倍的EV/EBITDA，我们认为估值已经充分。我们的12个月目标价格人民币47.00元隐含的上行空间仅为8%，因此我们首次覆盖该股评为中性。

业务优化仍是核心竞争力

万华化学一直侧重于通过研发和技术进步实现对工厂、生产流程和成本结构的优化，从而确保以最低成本进行生产。我们认为这一战略令万华的利润率/净资产回报率稳定在40%/30%，因此为投资者带来了独特的安全网。

等待销量增长改善

随着MDI和TDI价格双双降至历史均值以下，我们需要看到实际需求增长（即销量增长和产能利用率上升）才会对万华转持更积极看法。今年以来疲弱的宏观数据和终端应用销量（如汽车销量）增速显示，2019年需求增长潜力有限。另一项销量增长推动力，即新建的烟台乙烯工厂，直到2020年下半年才会投产，并将在2021年才开始贡献盈利。

* 全文翻译随后提供

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主要数据

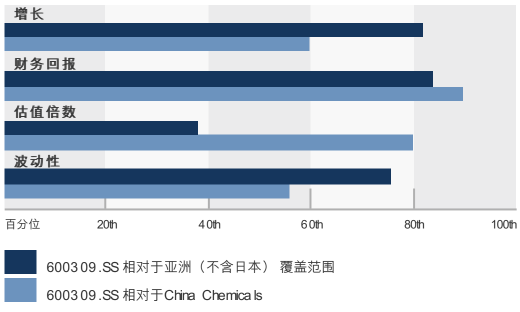
市值: Rmb136.6bn / $19.7bn
企业价值: Rmb167.0bn / $24.1bn
3个月日均成交量: Rmb791.9mn / $115.2mn
中国
China Chemicals
并购概率: 3
租赁是否计入净负债和企业价值: No

预测

	12/18	12/19 E	12/20E	12/21E
主营业务收入 (Rmb mn)	60,621.2	64,374.5	73,147.6	89,419.2
EBITDA (Rmb mn)	18,812.5	17,945.5	23,177.7	27,161.0
每股盈利 (Rmb)	3.88	3.39	4.34	5.18
市盈率 (X)	10.2	12.8	10.0	8.4
市净率 (X)	3.2	3.2	2.7	2.4
股息收益率 (%)	5.1	4.0	5.1	6.1
净负债/EBITDA (X) (剔除租赁)	1.0	1.6	1.3	1.1
CROCI (%)	27.8	18.0	19.2	19.5
自由现金流收益率 (%)	7.9	1.4	3.8	5.9

	3/19	6/19 E	9/19 E	12/19 E
每股盈利 (Rmb)	0.89	0.81	0.78	0.91

要素概要



资料来源：公司数据、高盛研究预测

中性

万华化学 (600309.SS)

评级自2019年8月5日

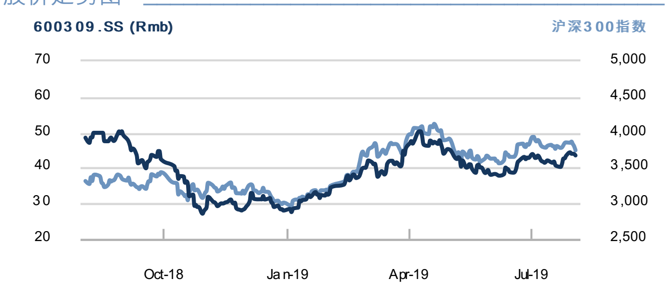
比率和估值

	12/18	12/19 E	12/20E	12/21E
市盈率 (X)	10.2	12.8	10.0	8.4
市净率 (X)	3.2	3.2	2.7	2.4
自由现金流收益率 (%)	7.9	1.4	3.8	5.9
EV/EBITDAR (X)	7.0	9.3	7.3	6.3
EV/EBITDA (X) (剔除租赁)	7.0	9.3	7.3	6.3
CROCI (%)	27.8	18.0	19.2	19.5
净资产回报率 (%)	34.8	27.6	29.3	30.2
净负债/股东权益 (%)	46.0	62.5	56.9	48.9
净负债/权益 (%) (剔除租赁)	46.0	62.5	56.9	48.9
利息保障倍数 (X)	16.5	11.7	12.8	15.2
存货销售天数	44.6	45.7	42.7	40.2
应收账款周转天数	78.9	72.1	68.3	63.6
应付账款周转天数	69.6	77.4	77.1	67.8
杜邦净资产回报率 (%)	27.0	23.5	25.8	26.4
周转率 (X)	0.8	0.7	0.7	0.8
杠杆比率 (X)	2.0	2.1	1.9	1.8
总现金投资，名义（剔除现金）(Rmb)	68,830.6	99,213.4	113,289.4	127,503.4
平均已动用资本 (Rmb)	53,357.8	65,488.6	78,204.3	87,201.3
每股净资产 (Rmb)	12.36	13.77	15.87	18.38

增长率和利润率 (%)

	12/18	12/19 E	12/20E	12/21E
主营业务收入增长率	14.1	6.2	13.6	22.2
EBITDA增长率	(7.5)	(4.6)	29.2	17.2
每股盈利增长	(4.7)	(12.7)	28.1	19.3
每股股息增速	33.3	(12.7)	28.1	19.3
EBIT利润率	25.8	21.5	24.6	24.3
EBITDA利润率	31.0	27.9	31.7	30.4
净利润率	17.5	16.5	18.6	18.2

股价走势图



	3个月	6个月	12个月
绝对	(3.8)%	26.3%	(14.7)%
相对于沪深300指数	0.4%	9.5%	(23.3)%

资料来源：公司数据、高盛研究预测、FactSet（股价为2019年8月2日收盘价）

损益表 (Rmb mn)

	12/18	12/19 E	12/20E	12/21E
主营业务收入	60,621.2	64,374.5	73,147.6	89,419.2
主营业务成本	(36,929.6)	(40,377.3)	(42,874.1)	(53,056.4)
销售、一般及管理费用	(4,333.1)	(5,471.8)	(6,437.0)	(8,396.5)
研发费用	–	–	–	–
其它营业收入/(费用)	(546.0)	(579.8)	(658.8)	(805.3)
EBITDA	**18,812.5**	**17,945.5**	**23,177.7**	**27,161.0**
折旧和摊销	(3,184.7)	(4,127.5)	(5,164.3)	(5,469.8)
EBIT	**15,627.8**	**13,818.0**	**18,013.5**	**21,691.2**
净利息收入/（支出）	(889.8)	(1,086.8)	(1,323.7)	(1,357.9)
联营公司损益	93.5	93.5	93.5	93.5
税前利润	**15,977.8**	**13,876.2**	**17,783.3**	**21,226.8**
税项拨备	(3,148.1)	(2,618.7)	(3,361.1)	(4,015.3)
少数股东损益	(2,219.3)	(619.2)	(793.2)	(946.6)
优先股息	–	–	–	–
非经常性项目前净利润	**10,610.4**	**10,638.3**	**13,629.0**	**16,264.8**
税后非经常性损益	–	–	–	–
非经常性项目后净利润	**10,610.4**	**10,638.3**	**13,629.0**	**16,264.8**
EPS（基本，扣非前）(Rmb)	**3.88**	**3.39**	**4.34**	**5.18**
EPS（摊薄，扣非前）(Rmb)	**3.88**	**3.39**	**4.34**	**5.18**
EPS（基本，扣非后）(Rmb)	**3.88**	**3.39**	**4.34**	**5.18**
EPS（摊薄，扣非后）(Rmb)	**3.88**	**3.39**	**4.34**	**5.18**
每股股息 (Rmb)	2.00	1.75	2.24	2.67
股息支付率 (%)	51.5	51.5	51.5	51.5

资产负债表 (Rmb mn)

	12/18	12/19 E	12/20E	12/21E
现金及等价物	5,096.0	4,529.3	3,838.3	3,763.4
应收账款	12,081.6	13,345.8	14,028.3	17,148.9
存货	7,810.2	8,296.7	8,809.7	10,902.0
其它流动资产	4,756.7	4,756.7	4,756.7	4,756.7
流动资产	**29,744.6**	**30,928.5**	**31,433.1**	**36,571.0**
固定资产净额	39,370.9	55,015.6	62,334.5	68,047.8
无形资产净额	3,406.8	4,534.6	4,351.5	4,168.4
投资总额	662.8	756.2	849.7	943.2
其它长期资产	3,727.6	3,827.6	3,827.6	3,827.6
资产合计	**76,912.7**	**95,062.6**	**102,796.3**	**113,557.9**
应付账款	7,835.3	9,296.7	8,809.7	10,902.0
短期债务	19,345.9	27,145.9	28,145.9	28,145.9
短期租赁负债	–	–	–	–
其它流动负债	5,798.4	5,798.4	5,798.4	5,798.4
流动负债	**32,979.6**	**42,240.9**	**42,754.0**	**44,846.2**
长期债务	3,817.5	5,717.5	5,717.5	5,717.5
长期租赁负债	–	–	–	–
其它长期负债	865.2	1,778.7	1,600.8	1,440.7
长期负债	**4,682.7**	**7,496.2**	**7,318.3**	**7,158.2**
负债合计	**37,662.2**	**49,737.1**	**50,072.3**	**52,004.4**
优先股	–	–	–	–
普通股权益	33,778.7	43,234.6	49,840.0	57,722.8
少数股东损益	**5,471.7**	**2,090.8**	**2,884.1**	**3,830.7**
负债及股东权益合计	**76,912.7**	**95,062.6**	**102,796.3**	**113,557.9**
调整后净负债	18,067.3	28,334.1	30,025.1	30,100.0

现金流量表 (Rmb mn)

	12/18	12/19 E	12/20E	12/21E
净利润	10,610.4	10,638.3	13,629.0	16,264.8
折旧及摊销加回	3,184.7	4,127.5	5,164.3	5,469.8
少数股东权益加回	2,219.3	619.2	793.2	946.6
运营资本增减净额	2,167.2	(289.3)	(1,682.5)	(3,120.6)
其它经营性现金流	1,075.9	(1,180.0)	(271.3)	(253.6)
经营活动产生的现金流	**19,257.5**	**13,915.7**	**17,632.6**	**19,307.1**
资本开支	(10,279.0)	(12,000.0)	(12,300.0)	(11,000.0)
收购	(145.7)	–	–	–
剥离	102.2	–	–	–
其它	4.5	–	–	–
投资活动产生的现金流	**(10,318.0)**	**(12,000.0)**	**(12,300.0)**	**(11,000.0)**
偿还租赁负债	–	–	–	–
支付的股息（普通股和优先股）	(5,330.0)	(5,482.4)	(7,023.7)	(8,382.0)
借款增减	(2,606.7)	3,000.0	1,000.0	–
其它融资性现金流	42.4	0.0	0.0	0.0
筹资活动产生的现金流	**(7,894.3)**	**(2,482.4)**	**(6,023.7)**	**(8,382.0)**
总现金流	**1,045.2**	**(566.7)**	**(691.0)**	**(74.9)**
自由现金流	8,978.5	1,915.7	5,332.6	8,307.1

资料来源：公司数据、高盛研究预测

目录

PM summary

We initiate on Wanhua Chemical with a Neutral rating

Wanhua is one of the largest chemical companies in China, with high-quality fundamental (balance sheet and cash flow) and cyclical product exposure (MDI, TDI and petrochemical demand are mostly GDP linked).

Product exposure remains favorable

We note Wanhua’s favorable exposure to MDI and TDI, with both having a high industry concentration, and fewer than 10 players globally are capable of producing MDI. Leading players (including Wanhua) are expanding capacity, which further increases industry concentration. The underlying end-markets are generally growing slightly faster than global GDP (despite short-term volatility). We believe Wanhua is well-prepared to capture most of the MDI demand growth potential from China.

Plant optimization adding more value

We like Wanhua’s focus on cost and production optimization, which put it at the low end of the global cost curve, not only in MDI but also in polyol, propylene derivatives and ethylene derivatives. We believe Wanhua’s focus on people and R&D facilitates the optimization process, incentivizing innovation and technological breakthroughs. Wanhua aims to achieve plant and product synergy and risk diversification in every new investment.

Where are we different from the market?

We are less worried about the new competitors (e.g., Chinese domestic suppliers) entering the MDI market, at least over the next three to four years. We believe it will be difficult for new players to gain a similar cost and scale competitiveness vs. global MDI suppliers, which: 1) have been in the market for decades; 2) have existing expansion plans; and 3) are getting ready to capture most of the demand growth potential at competitive capex and opex (expansion projects usually have much lower capex/ton than greenfield projects).

We are more concerned about Wanhua’s near-term earnings. Year-to-date, MDI and TDI prices have fallen significantly in both yoy and hoh terms. Our 2019E earnings estimates are c.15% below Bloomberg consensus. We believe consensus is still pricing too much optimism into the company’s potential MDI/TDI recovery.

We agree that the margin and return profile of new petrochemical, specialty chemical and new material businesses are likely dilutive to Wanhua’s existing high-margin polyurethane product exposure (i.e., not as strong cost advantage). However, we think the more diversified that Wanhua’s business is, the lower the normalized return would likely be though it could deserve a higher multiple (due to a less-cyclical asset portfolio).

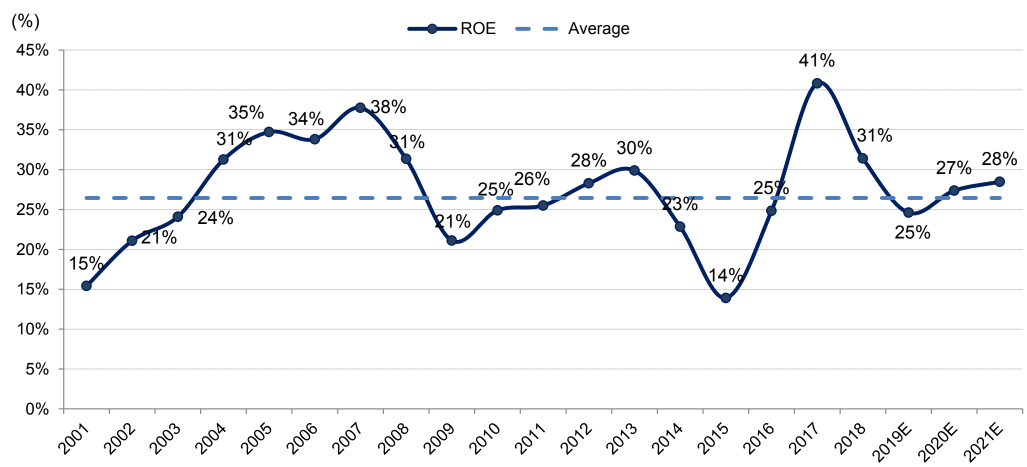
Valuations:

We apply 7.0X EV/EBITDA on the 2020-2021 blended average EBITDA (vs. an EBITDA CAGR of 13%) to derive a 12-month target price of Rmb47.0. The target multiple is slightly below its long-term historical average of 8.3X since listing, to factor in the near-term weak MDI/TDI margin.

The key risks

Product margins (+/-); Supply disruption (+); Project delays (-); Feedstock cost volatility (+/-); Operational risks (-); R&D success (+/-)

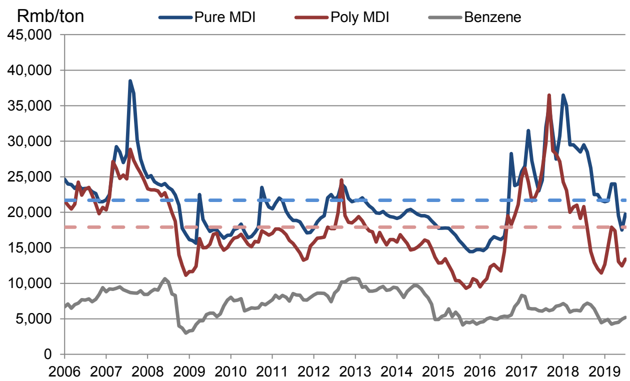
图表 1: We forecast Wanhua will maintain its long-term ROE



资料来源：公司数据, 高华证券研究

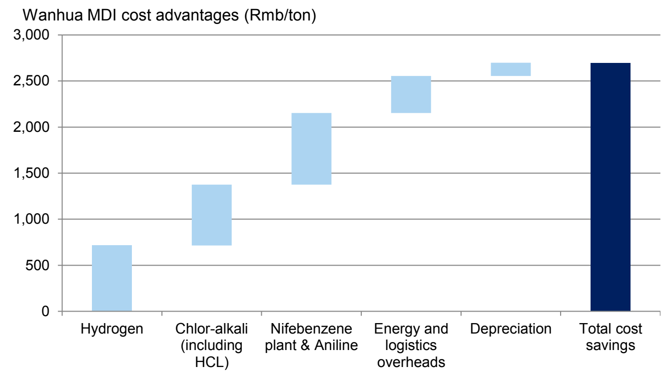
Our thesis in charts

图表 2: Both pure and poly MDI are below the historical average



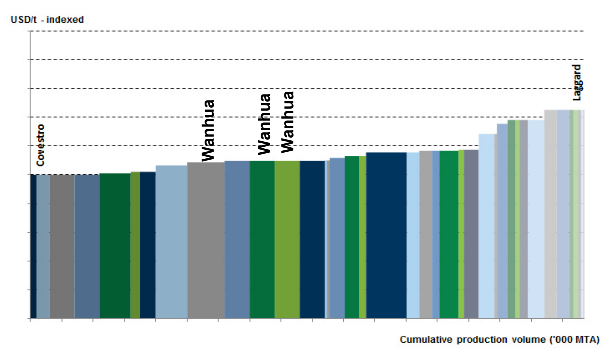
资料来源：万得

图表 3: We estimated the total cost savings of Wanhua’s MDI could amount to >Rmb2,500/ton



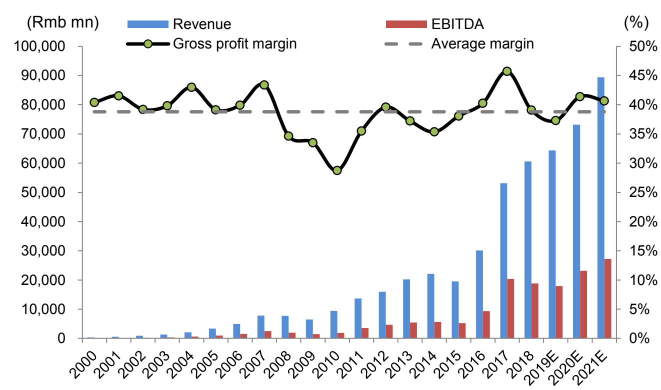
资料来源：公司数据, 万得, 高华证券研究

图表 4: We expect Wanhua has a competitive cost/ton MDI cost curve, latest



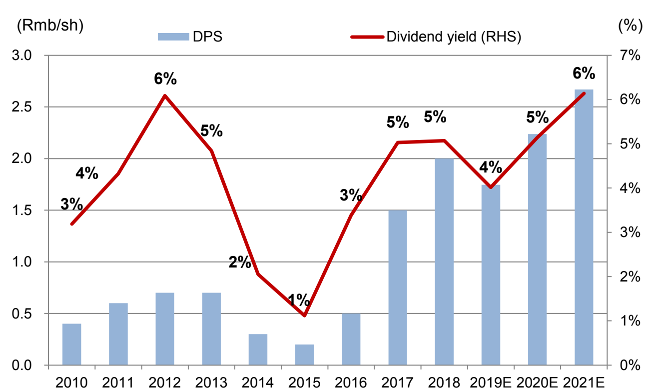
资料来源：高盛全球投资研究, 高华证券研究

图表 5: Volume matters more than margins for Wanhua



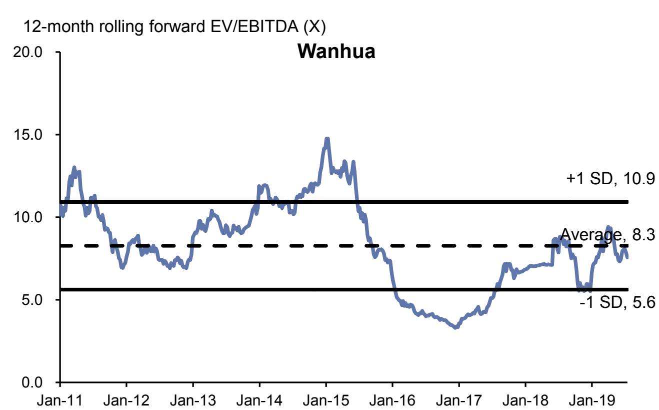
资料来源：公司数据, 高华证券研究

图表 6: Resilient dividend return to long term investors



资料来源：公司数据, 高华证券研究

图表 7: Wanhua is trading at its historical average EV/EBITDA



资料来源：公司数据, Datastream, 高华证券研究

Polyurethane market leader expanding into petrochemicals and specialty chemicals/new materials

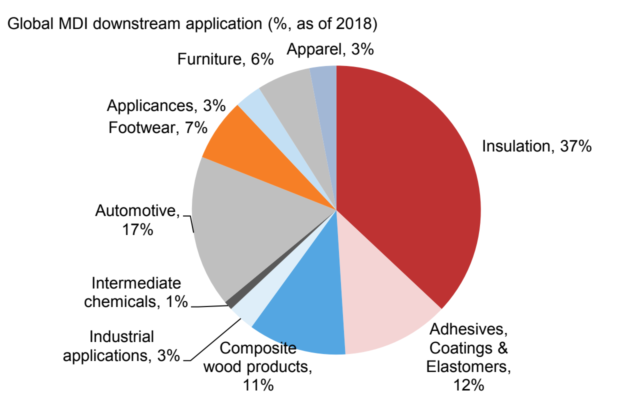
Wanhua Chemical, was established in 1998 and listed on the Shanghai Stock Exchange in 2001, started off as a synthetic leather factory in 1978, later building its own polyurethane and MDI plants. The company has specialized in the production of polyurethane for 30+ years. It is now the worlds’ largest producer of MDI. The company renamed from Wanhua Polyurethane to Wanhua Chemical in June 2013. Since then, it has accelerated the diversification of its operations. Wanhua now has three core business segments: polyurethane, petrochemicals and specialty chemicals & new materials.

Key driver 1 - Polyurethane (76% of gross profit; 51% of revenue as of FY2018)

Product details: Polyurethane is the bread and butter of Wanhua Chemical. The main products under this category include MDI and TDI. Methylenediphenyl diisocyanate (MDI), a key raw material of polyurethane, can be mixed with polyol to produce rigid polyurethane foam, widely used in refrigerators, coatings materials and thermal insulation of buildings. Toluene diisocyanate (TDI) can be mixed with polyol to produce flexible polyurethane foam, widely used in shoes, furniture, automotive components, bedding, etc.

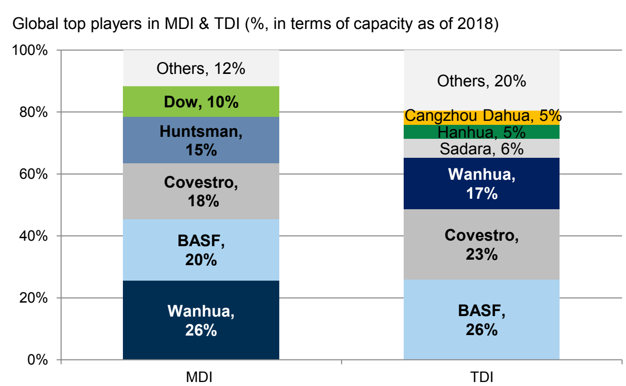
Global comparison: Wanhua has the largest MDI capacity globally (26% of total as of 2018). Wanhua’s MDI capacity increased from 10kt in 1995 to 100kt in 2002 and to 1,800kt now. Global leading MDI and TDI players include BASF, Covestro and Huntsman. Both products have a high industry concentration, and most of the technology used is self-invented without much external licensing. Product prices vary across different regions depending on the local supply-demand dynamics.

图表 8: MDI is mainly used as insulating material in the white goods, property and automotive sectors



资料来源：公司数据

图表 9: Wanhua is 26% and 17% of global MDI and TDI capacity



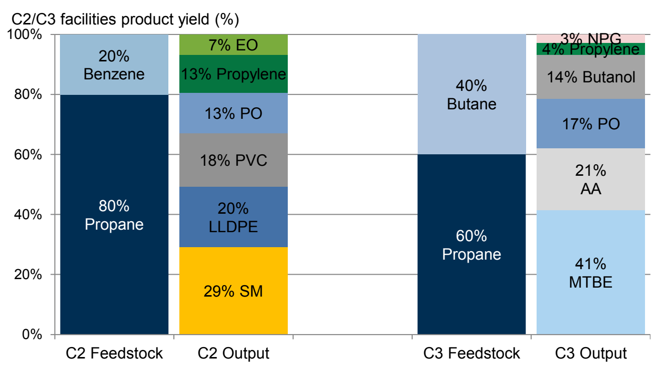
资料来源：公司数据, 高华证券研究

Key driver 2 - Petrochemical (9% of gross profit; 31% of revenue)

Product details: Wanhua is exposed to the C3 propylene value chain after building its PO/AE plant (propylene oxide and acrylate ester) in 2015. It now plans to enter the C2 ethylene value chain by building its own ethylene cracker, which it is targeting to commission in 2H2020. Both plants are taking LPG as the main feedstock and convert that to value-added ethylene and propylene derivatives. These derivatives are mostly classified as commodity chemicals because they are well-transacted and traded in the global market with many suppliers. There are a wide range of downstream applications, including plastics, polyester, fibers, etc.

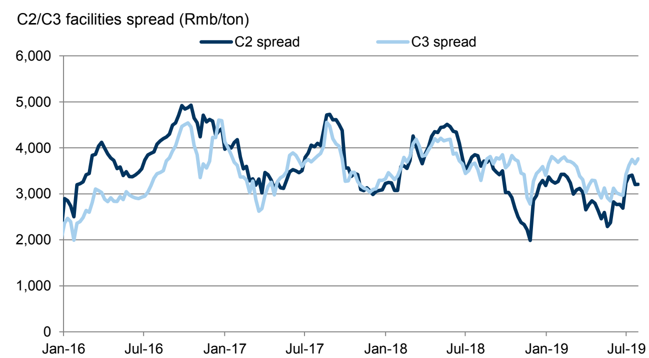
Global comparison: There are a lot of suppliers globally and domestically producing commoditized petrochemical products. In China, the core ethylene and propylene suppliers are still the major refiners (Sinopec and PetroChina). There is increasing supply from CTO/MTO (coal to olefin/methanol to olefin), PDH (propane dehydrogenation) and ethane crackers. These units help diversify the feedstock from oil to coal/methanol/LPG/ethane. Globally, we see increasing new supply from the US (taking advantages of the cheap US ethane supply) and the Middle East (using the cheap oil/naphtha supply).

图表 10: The new Wanhua C2 ethylene cracker adding ethylene derivatives to its portfolio
Product yields of Wanhua's C2 and C3 units



资料来源：公司数据

图表 11: Both C2 and C3 profitability holds up very well in recent years
Estimated C2 and C3 price spread (both use feedstock propane)



资料来源：万得, 公司数据, 高华证券研究

Key driver 3 - Specialty chemical & new material (9% of gross profit; 9% of revenue)

Product details: Wanhua's specialty chemical and new material segment includes sales and production of surface material, TPU, SAP, PC, modified isocyanate, and specialty amines. It often takes a longer time to achieve commercial production of specialty chemicals compared to commodity chemicals as those products require more R&D, products specialization, and end-market verification. The size of these production plants are usually smaller in scale.

图表 12: Wanhua is growing capacity in MDI, ethylene derivatives and select specialty chemicals
Wanhua’s capacity summary, 1Q2019

Category	Product	Capacity (ktpa)	New capacity (ktpa)	Comments
Polyurethane	MDI	600	500	Wanhua Yantai, to increase to 1,100k tons by 2019
		1200	300	Wanhua Ningbo, to increase to 1,500k tons by 2020
		300		BC plant in Hungary
			400	US greenfield project, 400k tons by 2021
	TDI	250		Wanhua Yantai, 300k tons plant completed at the end of 2018
		300		BC plant in Hungary
Petrochemical	Propylene	750		
	PO	240	300	New ethylene complex by 2020
	Butanol	300		
	AA	300		
	Butyl acrylate	360		
	MTBE	820		
	Ethylene		1,000	New ethylene complex by 2020
	EO		150	
	Styrene		650	
	Butadiene		50	
	PVC		400	
	LLDPE		450	
Specialty chemical and new material	Modified MDI	40		
	NPG	40		
	Polyol	400		
	TPU	100		
	Water-borne coatings	150	250	New ethylene complex to increase 250k tons by 2020
	SAP		30	SAP project expect to complete by Oct 2019
	PC	70	130	PC project to increase 130kt by Dec 2019.
	MMA	50		Completed in Jan 2019
	PMMA	80		Completed in Jan 2019
	HDI	50		
	HMDI	10		
	IPDI	15		

资料来源：公司数据, 高华证券研究

MDI/TDI below historical averages; pending further volume growth potential

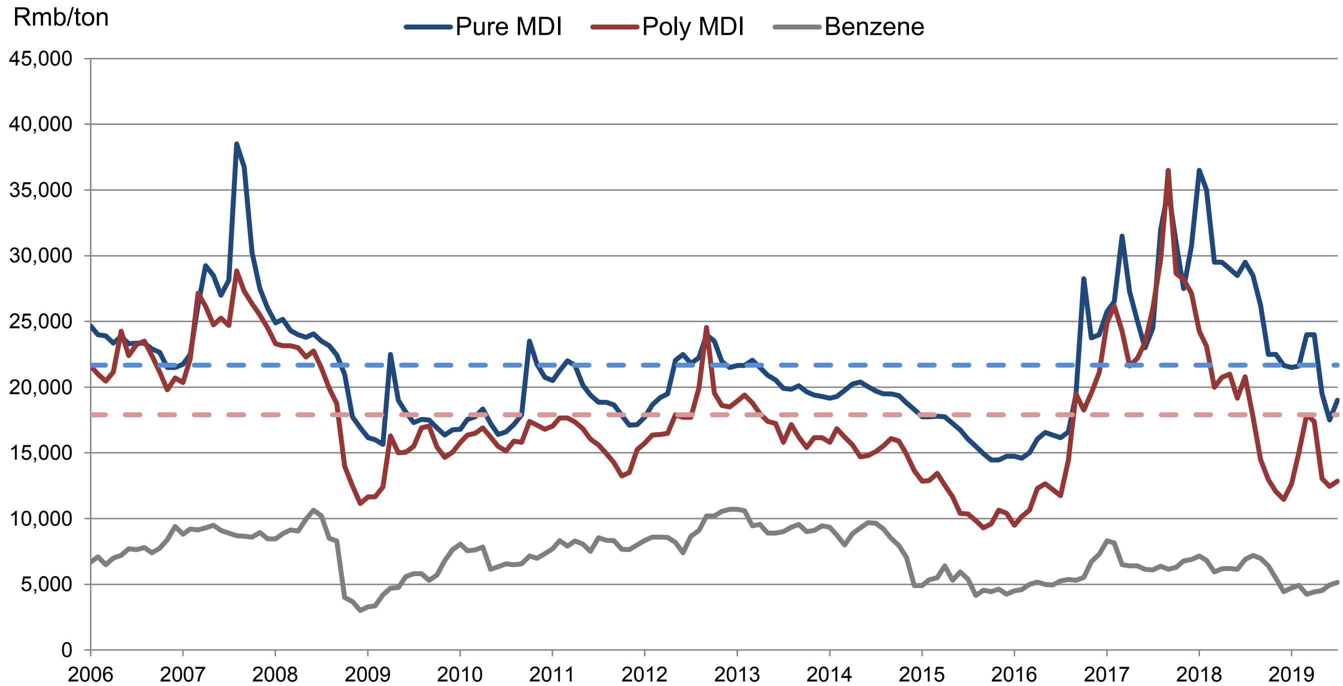
MDI/TDI prices are both below their historical ranges

Pure MDI prices fell 33% in 2018 from Rmb30,000/ton to Rmb20,000/ton, mainly due to weak demand. This weakness in MDI prices persisted for about four months before rebounding in March 2019, which we attribute to anticipation of US-China trade tensions being resolved and potential policy loosening in China. However, the rebound in prices has proven to be temporary, with MDI prices declining from the peak level of Rmb25,000/ton in April to Rmb17,000/ton in July. Current prices for pure and poly MDI are now 34%/43% above the bottom prices of Rmb14,600/ton and Rmb9,100/ton in 4Q2015 but 10%/27% below the historical average (since 2006).

China TDI prices fell 60% in 2018 from Rmb40,000/ton to Rmb16,000/ton. The TDI prices remained weak in most of 2019, particularly after the commissioning of Wanhua TDI capacity (300ktpa) at end-2018, adding 36% to China capacity. The current TDI price is about 21% above the bottom price of Rmb11,300/ton but 35% below the historical average (since 2013).

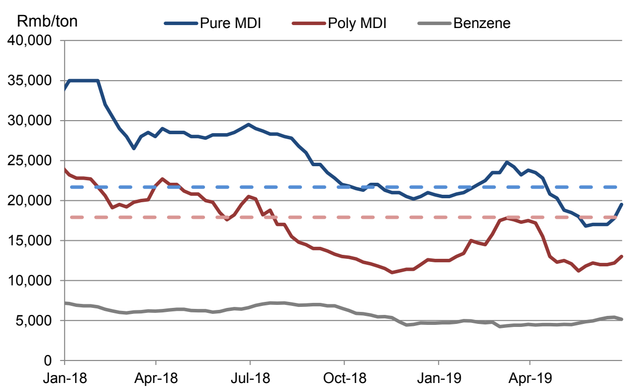
We expect both MDI and TDI, unlike many other commoditized chemical products, are mainly driven by its own products demand supply instead of cost-based. The high industry concentration of the industry allows the producers to manage the pricing according to their own production schedule to meet the demand. According to Wanhua, they can run at low plant utilization or go for maintenance if they see the near term demand is disappointing, in order to hold the ASP. The fluctuation in the main feedstock, such as benzene or toluene are not affecting the MDI prices as much.

图表 13: Both pure and poly MDI are below the historical average



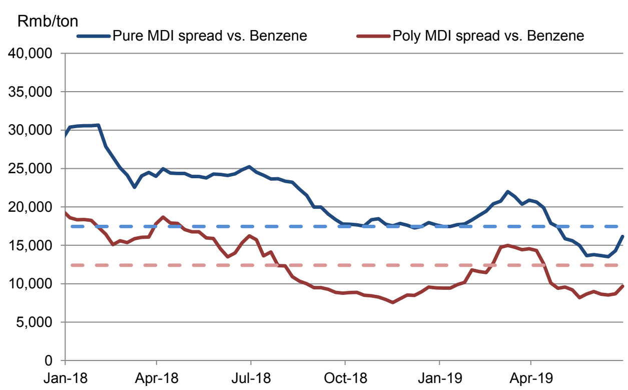
资料来源：万得

图表 14: Both pure and poly MDI prices have fallen significantly since 2018



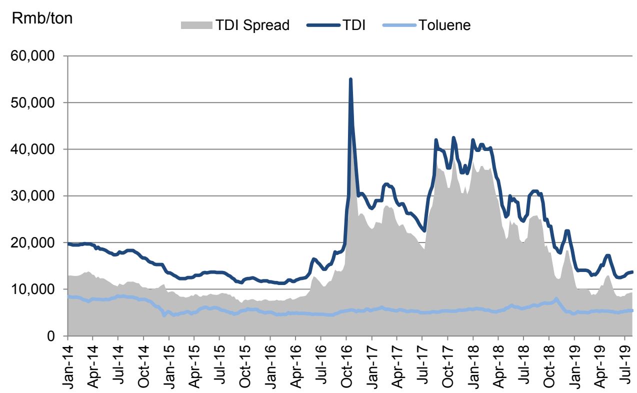
资料来源：万得

图表 15: Spread have also declined accordingly



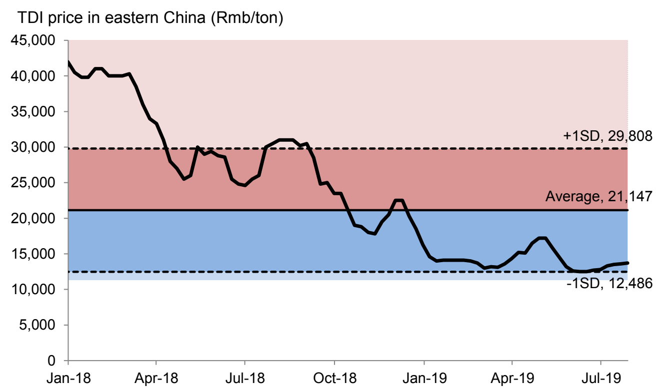
资料来源：万得

图表 16: TDI price and spread went back to periods before 2017



资料来源：万得

图表 17: TDI prices are 35% below the historical average (since 2014)



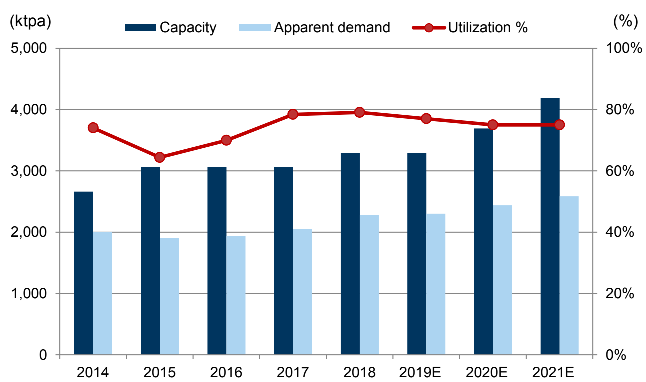
资料来源：万得

New supply started to come in 2020; global MDI leaders are ready for demand pickup globally

Global largest MDI suppliers continue to expand their capacity: Wanhua (the top supplier) is expanding its China Yantai and Ningbo units from 600/1,200ktpa to 1,100/1,500ktpa, respectively, in the next two years (adding in total 800ktpa, equivalent to a 25% increase to China capacity). They are also planning to build their first MDI unit (400ktpa) in the United States (Louisiana). BASF (the second large supplier) is adding 250ktpa capacity in Geismar in the US. Covestro (the third large supplier) is adding 200ktpa capacity in Germany, 100kpta capacity in China and planning 300ktpa capacity in Baytown in the US. All three players are well-prepared to capture future demand growth in Asia, Europe and the US.

New China domestic supplier announces capacity addition plans: In addition to the global MDI suppliers, we see new Chinese players interested in entering the MDI market - Fujian Connell (400ktpa, Wanhua recently announced the acquisition but not yet completed) and Xinjiang Juli (400ktpa). We believe it is too early to assess their chance of success to this highly concentrated market. We think it is safe to assume that these new suppliers are not likely to cause any material implications to the MDI supply in China in the next three to four years, given their commission time of 2021E and 2022E with high chance of project delay as it is their first time accessing (could easily take >6months for ramp up).

图表 18: We expect China MDI utilization to go lower with Wanhua’s new supply
China MDI demand supply



资料来源：万得, 公司数据, 高华证券研究

图表 19: New MDI supply in China is mainly from Wanhua

Additional capacity				
Company/Entity	Capacity (k ton)	Expected date	Province	Operator
2019 Total				
2020 Total				
Wanhua Yantai	500	2020	Shandong	Wanhua
2021 Total				
Wanhua Ningbo	300	2021	Zhejiang	Wanhua
Covestro - Caojing	100	2021	Shanghai	Covestro
Fujian Connell	400	2021	Fujian	Connell
2022 Total				
Xinjiang Juli	400	2022	Xinjiang	Juli

资料来源：公司数据, Gao Hua Securities Research

Demand tracker showing weaker year-to-date data points (particularly for autos)

Utilization near term hampered by the weak demand data points

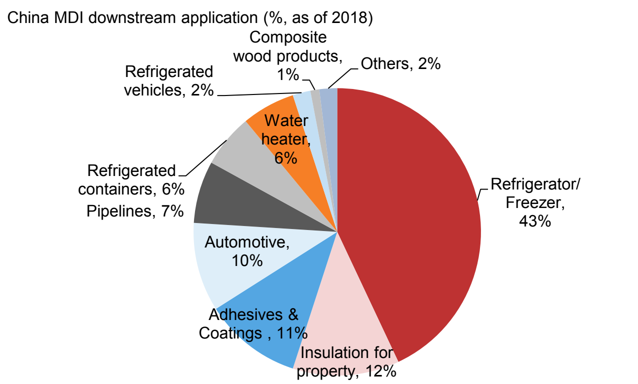
Based on our recent channel checks with industry consultants and corporates, the MDI and TDI plants in general are not running at high utilization at the moment (just roughly 70%). There are a couple of scheduled maintenance periods in the summer season. Despite the low plants utilization and maintenance, MDI and TDI prices are still trending weak.

The latest end-application demand data are not showing recovery signal yet. In particular, the monthly auto production/sales data (one core demand driver for MDI/TDI) is still trending weak. We have not yet seen material policy loosening (property or infrastructure spending). In the weak demand environment with low plants utilization, new TDI capacity addition (Wanhua’s plant in end-2018) has caused TDI exports to grow materially.

Impact on demand from US China trade tension

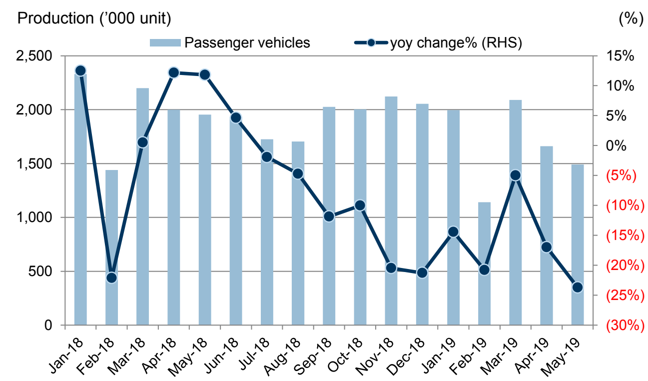
MDI is a highly GDP-driven chemical product. The extended trade tension between China and the US causes concerns around a macroeconomic slowdown. We expect the prolonged trade issue could have a negative impact on the MDI business, particularly in poly MDI given c.32% of China’s 2018 exports went to the US. Based on monthly data for the industry, we saw a sharp decline in China’s poly MDI exports to the US in May 2019. According to Wanhua’s management, they are able to redirect the trade flow internally and use their MDI units in Hungary to supply poly MDI to existing customers.

图表 20: White goods, property and autos are the three main demand drivers



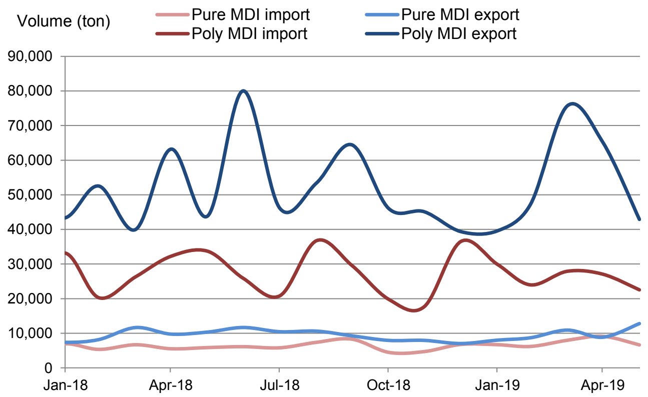
资料来源：315i.com

图表 21: Weak car sales data year-to-date



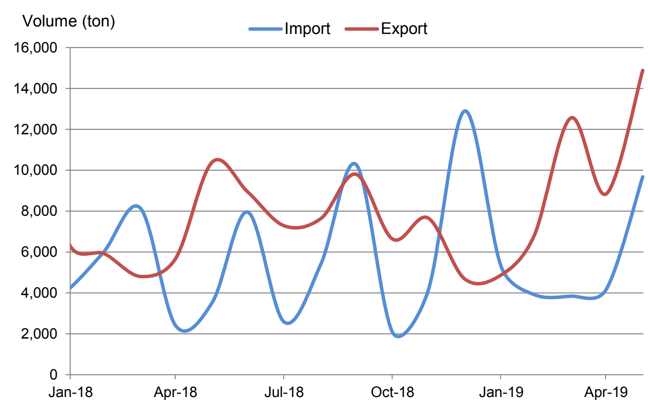
资料来源：万得

图表 22: MDI exports pick up slightly vs. 2018
Pure and Poly MDI import export



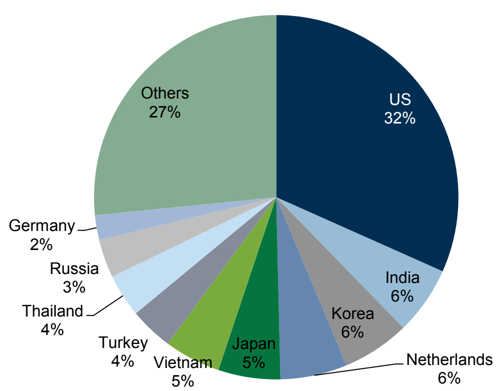
资料来源：China Customs, 万得

图表 23: TDI exports have gone much higher
TDI import export



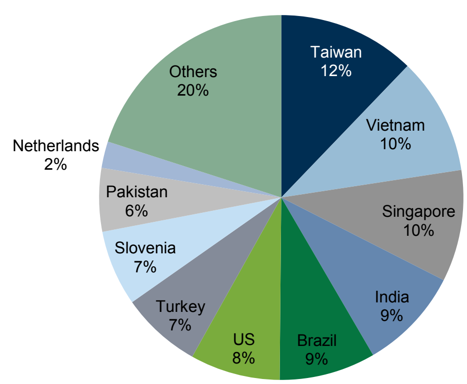
资料来源：China Customs, 万得

图表 24: Poly MDI exports to US accounts for 32% of total
Breakdown of China poly MDI exports, 2018



资料来源：315i.com

图表 25: Pure MDI exports to US accounts for 8% of total
Breakdown of China pure MDI exports, 2018

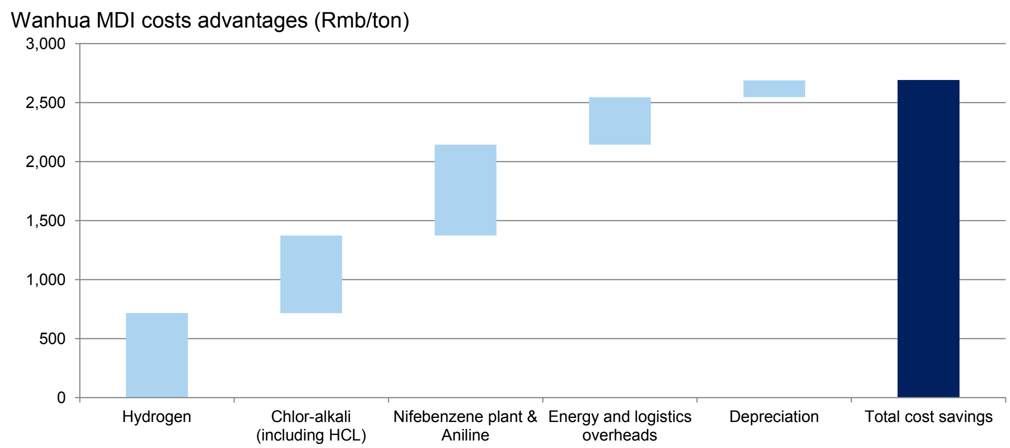


资料来源：315i.com

Optimization is the core competence needed to stay low at the cost curve

Production flow optimization: Wanhua has spent 10+ years optimizing the production flow, scale and cost structure of its assets and product portfolio. The company's MDI production facilities have been revamped more than 10 times to achieve the lowest cost possible and be environmentally friendly (e.g., emission control/recycling). We estimated the total cost savings from plant integration and optimization could amount to >Rmb2,500/ton after considering their internal supply of hydrogen, aniline and energy, a better recycling of resources (e.g. HCL) and better fixed cost sharing (lower per unit cost due to higher sales volume).

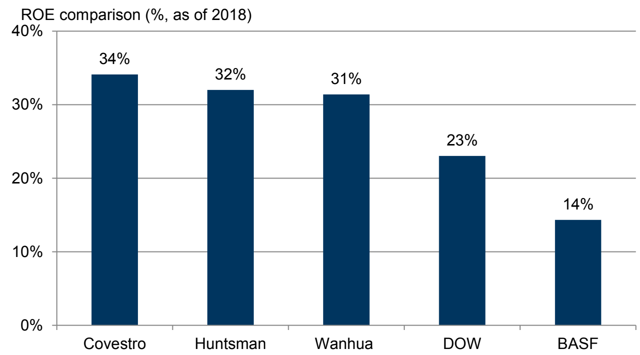
图表 26: We estimated the total cost savings of Wanhua's MDI could amount to >Rmb2,500/ton



资料来源：公司数据, 万得, 高华证券研究

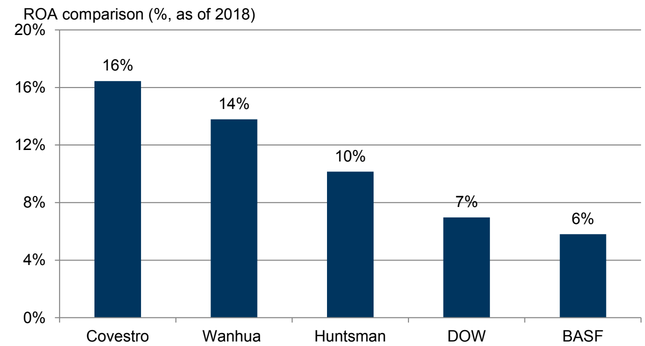
Competitive return vs. global peers: Wanhua is one of the lowest-cost producers globally. We expect Wanhua to remain the top MDI supplier and start to gain market share in the TDI market (after commissioning the new plant at end-2018). Among global players, only Covestro and BASF are still actively expanding MDI further in other countries to capture domestic demand growth. However, we note that Covestro and BASF have exposure to many other chemical products while most of Wanhua's earnings are still coming from its polyurethane business only. Given the wide range of chemical products exposure and high concentration industries, we found limited industry disclosure by the leading polyurethane suppliers globally. There are no clear pure-play chemical companies globally we could use as a proxy.

图表 27: Wanhua has a competitive ROE vs. global peers
ROE global comparison, 2018



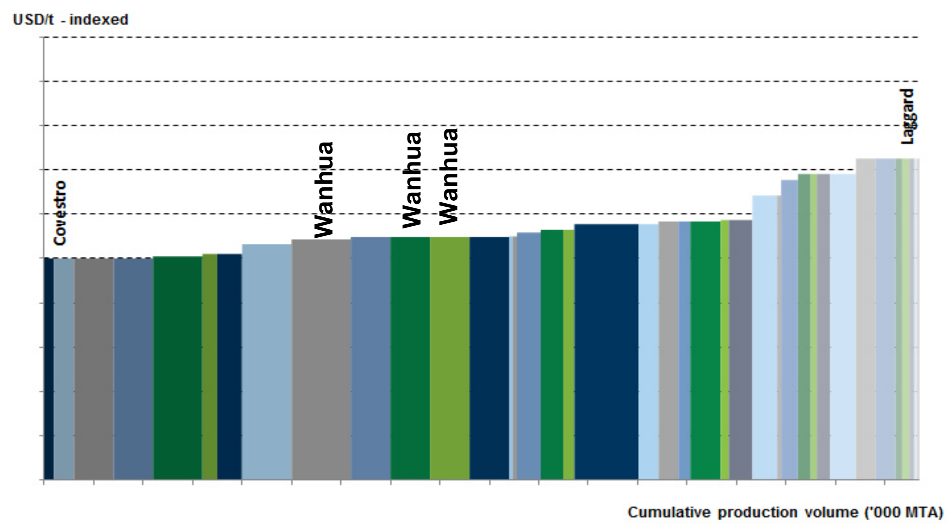
资料来源：公司数据

图表 28: In terms of ROA, Wanhua ranks second behind Covestro
ROA global comparison, 2018



资料来源：公司数据

图表 29: We expect Wanhua has a competitive cost/ton
MDI cost curve, latest



资料来源：高盛全球投资研究, 高华证券研究

Wanhua’s new growth potential - volume the first step

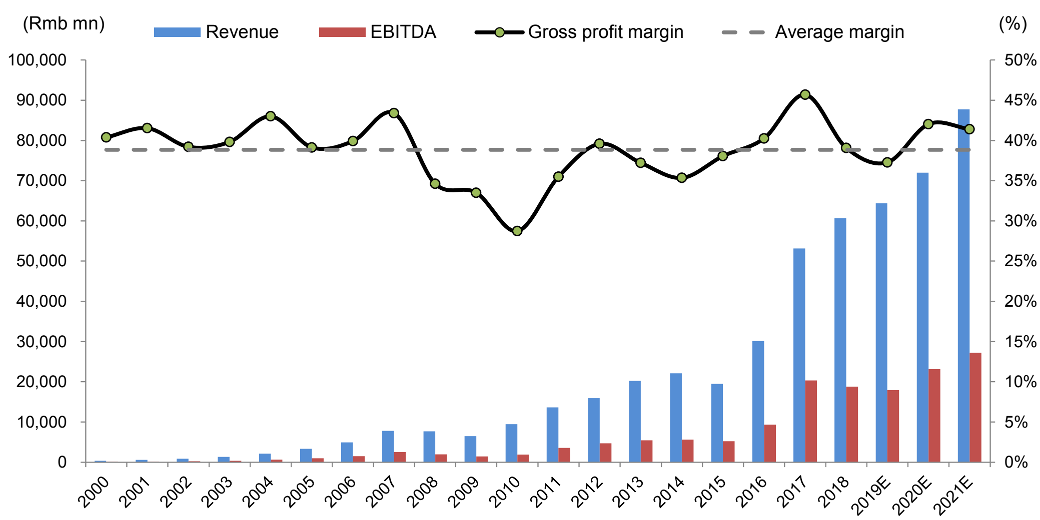
Expansion plan capturing most demand growth potential in China: Wanhua is planning a 25% increase in China MDI supply by expanding its Yantai and Ningbo MDI at very competitive capex and opex (enough to absorb about 4-5 years of MDI demand growth). Only Covestro’s plant and some new domestic Chinese players are expanding capacity in China. We do not see them as a big threat to Wanhua.

Seeking overseas market growth: Wanhua is expanding its presence in the overseas market (5-year revenue CAGR was 36% in 2013-2018). Its new MDI plant in the US is one of the ways Wanhua is deploying capital and diversifying its regional exposure (might delay due to recent trade tension). However, we also note that the gross profit margin of the overseas business is generally lower than what Wanhua can achieve domestically (partly due to transportation cost and penetration).

MDI price spread to remain stable with slight downside risk in 2020/2021: More than half of the MDI supply addition in 2020/2021 is coming from Wanhua. According to the company, they do not intend to flood the market with the additional supply but to maintain the price (not high enough to be demand destroying and low enough to be negative to share prices). For the rest of the supply addition, the global demand (we forecast about 5% on average) is enough to offset the global supply growth, leading to our forecasts of stable MDI pricing outlook in 2020/2021, back to about historical average MDI pricing.

New ethylene plant commissioning a catalyst in 2H2020: Wanhua has made good construction progress for its new Yantai ethylene plant. Assuming the plant is commissioned without a material delay in ramp up, we expect Wanhua could grow petrochemical segment sales further. It could also benefit the specialty chemical and new material business as ethylene is one of the key building blocks (at least for the production of polyol).

图表 30: Volume matters more than margins for Wanhua



资料来源：公司数据, 高华证券研究

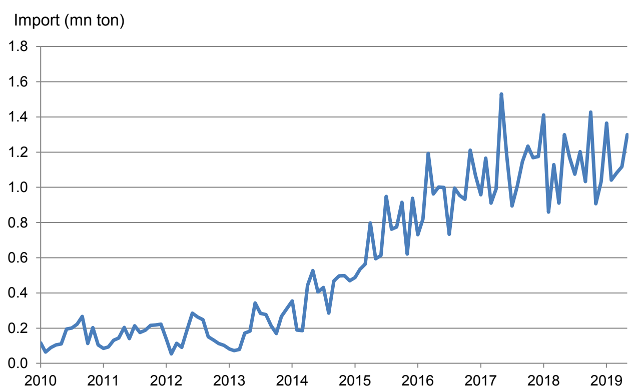
Petrochemical plants help remove limitation in feedstock

Cost-competitive petrochemical supplier

Integrated C3 propylene value chain: In 2001, Wanhua started planning the construction of a PO/AE plant (propylene oxide/acrylate ester), and put the plant into operation in August 2015. The unit converts LPG (imported from the Middle East) into propylene derivatives including propylene oxide (PO), acrylic acid (AA), and acrylate ester (AE). Wanhua has the largest China PDH capacity per unit (propane dehydrogenation) of 750ktpa and the third-largest China AA capacity of 300ktpa. The fully integrated propylene value chain enables Wanhua to earn a more stable price spread and profit margin (regardless of price changes for intermediate chemicals).

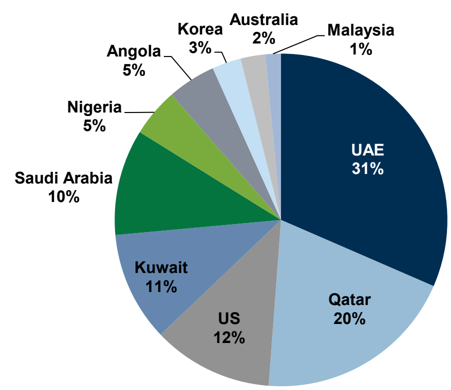
Unique LPG feedstock cost advantage: Wanhua has a 2.4mn m3 underground LPG storage capacity (expanded from 1.2mn m3) that helps it manages the high seasonality of LPG prices throughout the year. Due to the large volume of LPG it imports, Wanhua began recommending prices to Saudi Arabia to help set regional LPG daily prices starting in February 2016. Wanhua has also recently signed an agreement with Abu Dhabi on a 10-year LPG supply contract for the purchase of up to 1mn tonnes of LPG annually.

图表 31: Propane import volume has stabilized in the past two years
LPG import volume



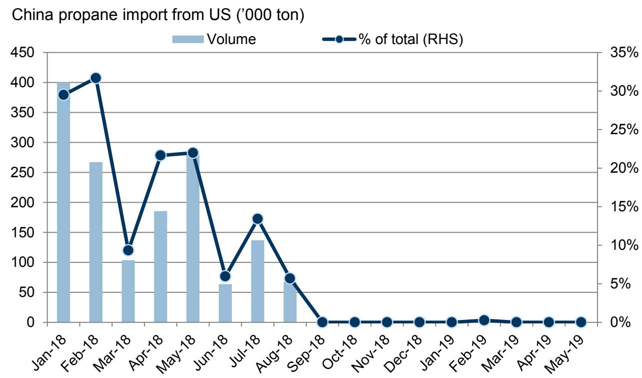
资料来源：China Customs, 万得

图表 32: Most of China's propane gas imports comes from the Middle East
LPG import source breakdown



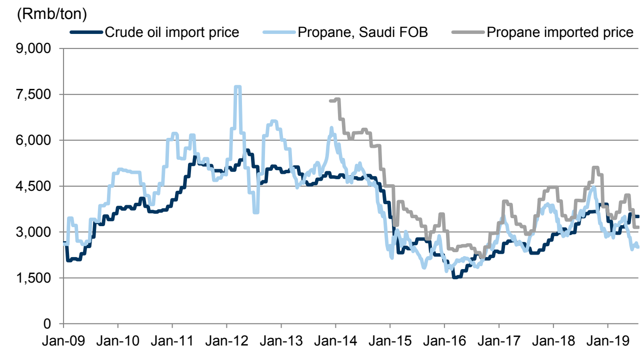
资料来源：China Customs, 万得

图表 33: Propane import volume from the US dropped to 0 amid the recent trade tension
LPG import from the US



资料来源：China Customs, 万得

图表 34: Propane prices are correlated with oil prices



资料来源：彭博, 万得

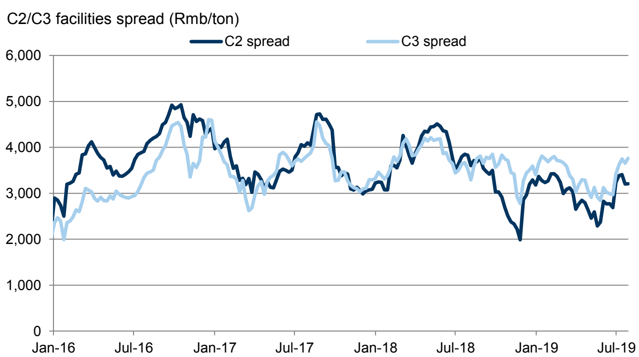
Expanding into C2 ethylene value chain: In August 2017, Wanhua announced it would build its own ethylene value chain, starting with a Rmb18bn investment in building an ethylene unit in Yantai. The plant is designed to take LPG as a main feedstock and convert it into ethylene derivatives (including PVC, ethylene oxide, styrene). Wanhua targets completion of the project in 2H2020 and the start of commercial operations in 2021.

Value-added plant integration

Petrochemical plants are set to resolve the feedstock constraint: Wanhua's existing PO/AE unit helps supply propylene oxide, the core feedstock of polyol (to be mixed with MDI/TDI to produce foams). The new ethylene unit helps supply ethylene oxide (EO), another core feedstock to polyol. Both feedstocks are flammable and explosive and hence are difficult to transport. Plant integration can help resolve the feedstock issue and reduce transportation and handling fees. The new ethylene plant can also utilize the hydrochloric acid (HCL) produced from Wanhua's Yantai polyurethane plant and convert it into value-added PVC for sale (previously Wanhua has had to pay a cost to handle the acidic HCL).

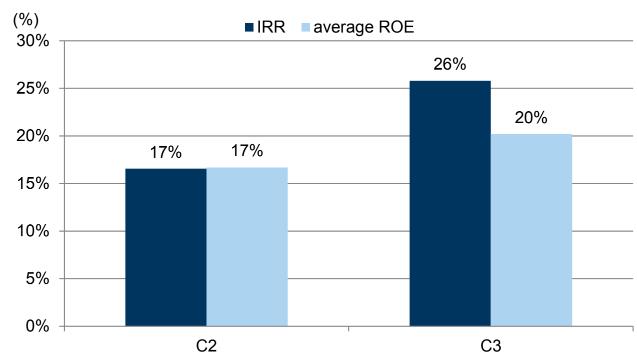
Feedstock for further specialty chemical application: We expect the completion of core petrochemical units could provide valuable ethylene/propylene derivatives as feedstock for the company's future specialty chemical and new material applications. Ethylene and propylene derivatives are important building blocks for a number of specialty chemicals (e.g., ethylene copolymer or high purified ethylene oxide).

图表 35: C2 and C3 price spread are both holding up quite well
Estimated price spread for C2 and C3 plants



资料来源：万得, 公司数据, 高华证券研究

图表 36: We believe Wanhua's C3 project has a higher return profile than its C2 project (due to generally higher propylene derivative prices)
Estimated IRR and ROE of Wanhua's C2 & C3 projects



资料来源：公司数据, 高华证券研究

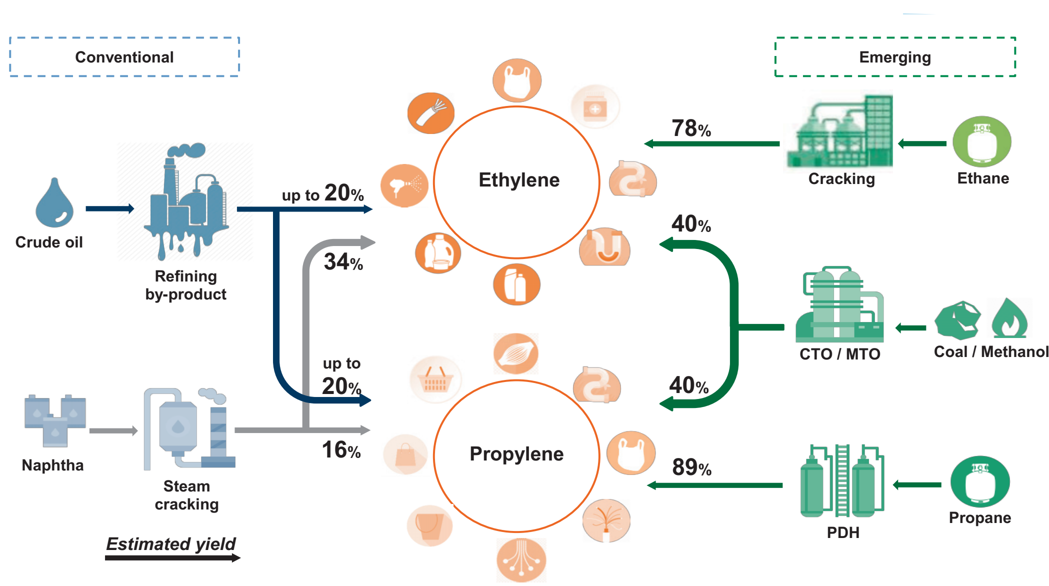
Wide range of applications with high import dependence

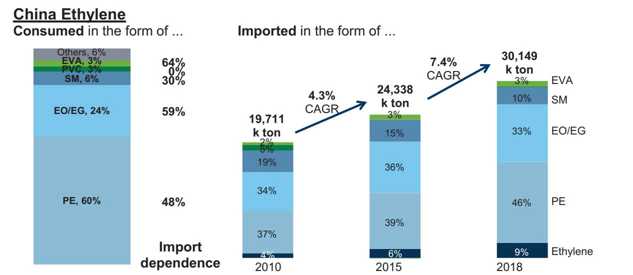
Import-dependent ethylene and propylene derivatives: China still requires a lot of ethylene and propylene derivatives. Multiple products along the value chains are still highly dependent on overseas suppliers (e.g., PE polyethylene 48%, ethylene glycol 58% as of 2018). The low chemical products' self-sufficiency rate was partly because much of these products have traditionally originated from refining (was slowly developed given the domination of Chinese oil majors and the generally oversupplied refining industry).

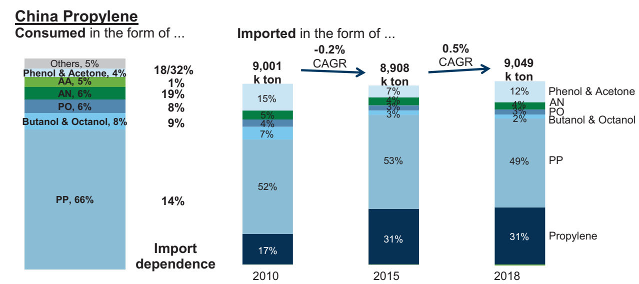
Diversifying production methods: The existing ethylene and propylene derivatives supply is still dominated by the traditional oil majors with naphtha and oil as the feedstock. The other chemical production methods (such as CTO/MTO, PDH and ethane cracker) has only become possible in recent few years after the economic conversion technology was developed and the increase availability of the feedstock supply, e.g. ethane supply from the US, propane supply from the Middle East and the US, etc. There are an increasing portion of private companies investing into this industry.

Wide range of applications that are still growing: There are a wide range of end-applications, including consumer plastics, coating materials, and adhesives. Most of the products are GDP-linked and are competitively priced globally. We generally believe China’s ethylene and propylene derivatives demand could grow at a rate higher than that of China GDP growth. The high rates of urbanization and the consumption upgrades are incentivizing more of this consumption growth. According to the recent plastic report and global plastic demand model, we expect global virgin plastics demand to grow 3.2% over next decade in our base case.

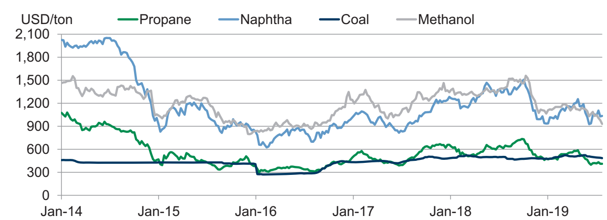
New ethylene plant commissioning a catalyst in 2H2020: Wanhua has made good construction progress for its new Yantai ethylene plant. Assuming the plant is commissioned without a material delay in ramp up, we expect Wanhua could grow petrochemical segment sales further. It could also benefit the specialty chemical and new material business as ethylene is one of the key building blocks (at least for the production of polyol).

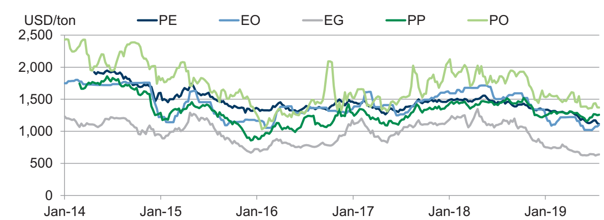






Method	Feedstock	Feedstock availability	Ethylene capacity %	Propylene capacity %	# projects in operation	# projects under construction/ planning
Propane dehydrogenation (PDH)	Propane	**Medium** (imports from Middle East & US)	-	14%	14	19
Ethane cracking	Ethane	**Low** (import from US)	0%	-	0	13
CTO/MTO	Coal/Methanol	**High** (rich coal resource)	20%	24%	30	14
Steam cracking	Naphtha	**Medium**	77%	29%		
Refining by-product	Crude oil	**Medium**	2%	31%		





Source: China Industry Information, CPCIA, Modern Chemical Industry, Kunlun Consulting, Gao Hua Securities Research

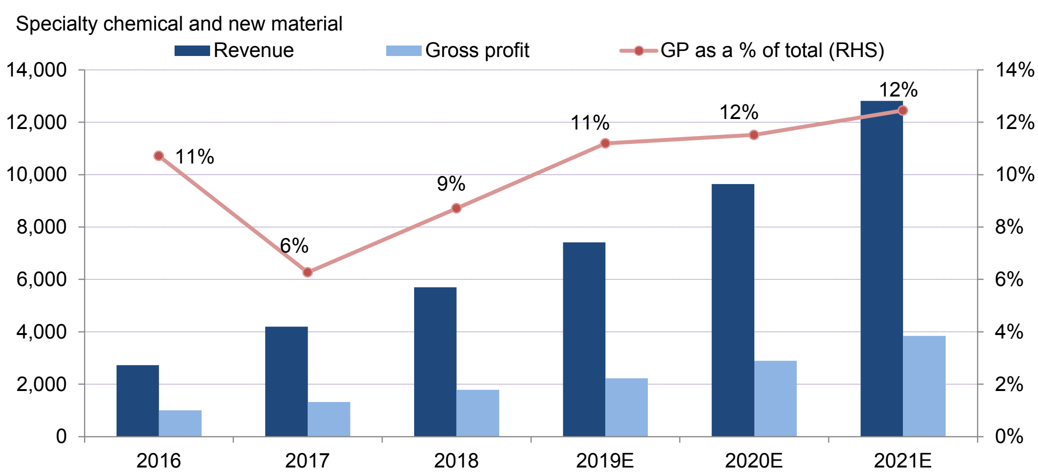
Specialty chemical capability still needs time to take off

Steadily growing specialty chemical and new materials: Wanhua has separately disclosed the financial performance of its specialty chemical and new material business segment starting in 2016. The segment revenue is growing rapidly (2016-2018 CAGR of 44%) but only contributed about 10% of Wanhua's gross profit as of FY2018. The gross profit margin during 2016-2018 stayed at around 30%-40%, slightly lower than that of polyurethane but much higher than petrochemicals.

Multiple chemical branches: According to Wanhua's latest reporting, the specialty chemical and new material segment includes surface material, TPU, SAP, PC, modified isocyanate, specialty amines, etc. Wanhua has set up relevant business units accordingly: 1) performance material (e.g., TPU); 2) performance chemicals (e.g. HDI, IPDI, HMDI, IPDA); and 3) surface material (e.g., coatings and adhesives, acrylic emulsion, waterbourne polyurethane dispersion). The company might set up PC and PMMA units after the completion of new plants.

Slow but sustainable high-quality earning growth: High-performance functional chemicals can take multiple years to develop, from R&D to commercial production and to application & penetration. Although we note that Wanhua is diversifying its products, we believe it is too early to count on the success of these efforts given that they are in the early stages of development. For instance, the new PC and PMMA capacity additions are good milestones as Wanhua moves to diversify its product offering, but those products would not be classified as real specialty chemicals if we compare them to other global chemical companies. By growing its functional chemical division, we expect Wanhua can earn a relatively high and stable return (compared to traditional commodity chemicals) with a high degree of specialization and low demand replacement.

图表 37: We expect the specialty chemical and new material contribution to total gross profit to increase further to 12% by 2021E

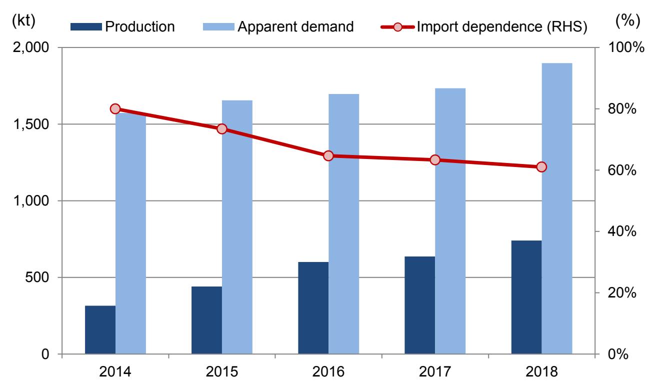


资料来源：公司数据, Gao Hua Securities Research

We briefly introduce the dynamics of some core products exposure in the charts below:

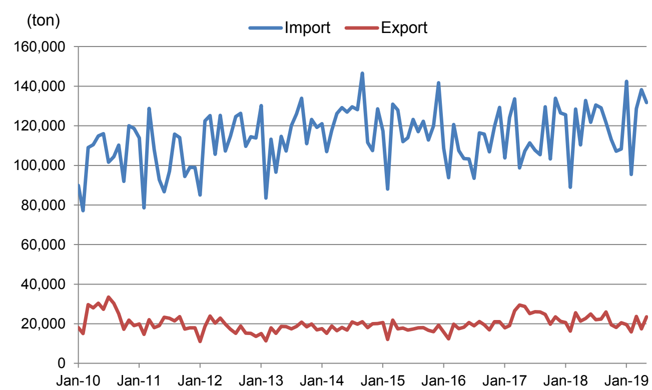
Polycarbonate (PC)

图表 38: PC is still highly dependent on imports; but domestic production is catching up
PC production, apparent demand and import dependence



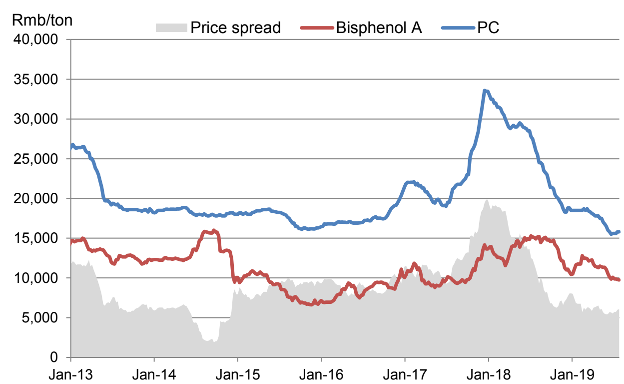
资料来源：CPCIA

图表 39: PC import volume is gradually increasing
PC import export data



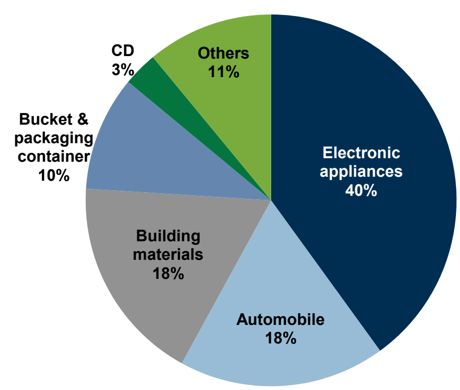
资料来源：China customs, 万得

图表 40: PC price spread vs. Bisphenol A (feedstock) has narrowed in recent months
PC and Bisphenol A prices and their price spread



资料来源：万得

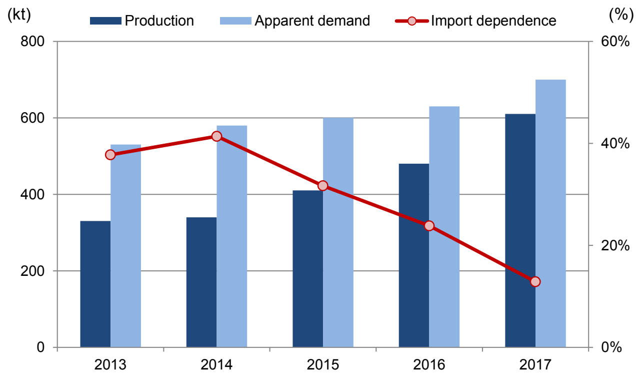
图表 41: PC is mainly used in electronic appliances, automobile and building materials
China PC demand application, 2017



资料来源：CPCIA

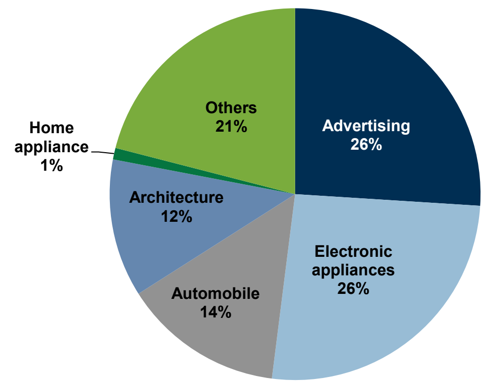
(Poly) methyl methacrylate (MMA and PMMA)

图表 42: Domestic PMMA is growing sharply, closing the gap with annual demand
PMMA production, apparent demand and its import dependence



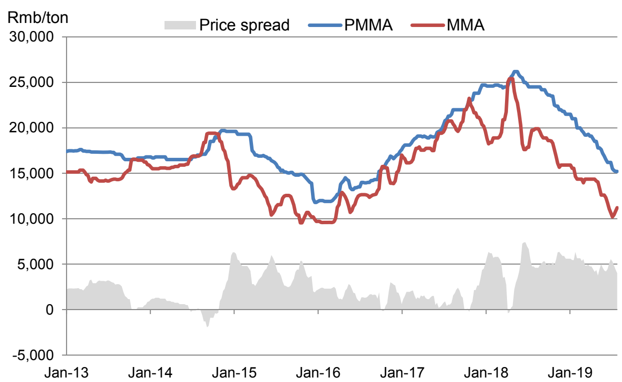
资料来源：CPCIA

图表 43: PMMA is mainly uses advertising and electronics in China
China PMMA demand application, 2017



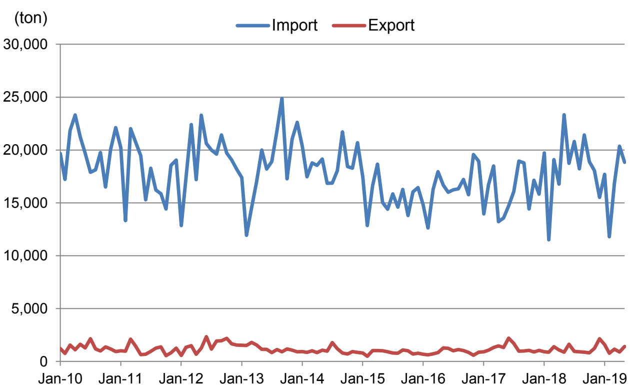
资料来源：CPCIA

图表 44: Healthy price spread between PMMA and MMA



资料来源：万得

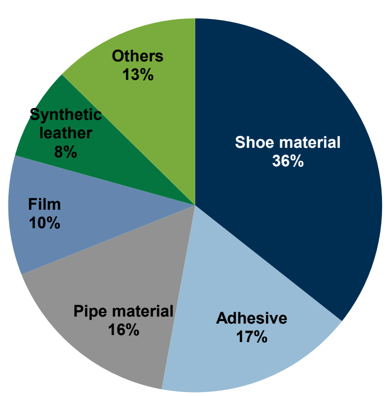
图表 45: A steady import volume; still much
PMMA import and export



资料来源：China Customs, 万得

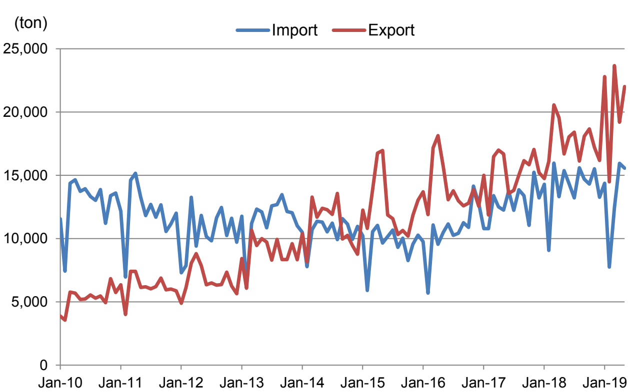
Thermoplastic polyurethane (TPU)

图表 46: Most TPU are used as shoe material and adhesive
TPU global demand application, 2017



资料来源：CPCIA

图表 47: China TPU export volume continues to grow
TPU import export data



资料来源：China customs, 万得

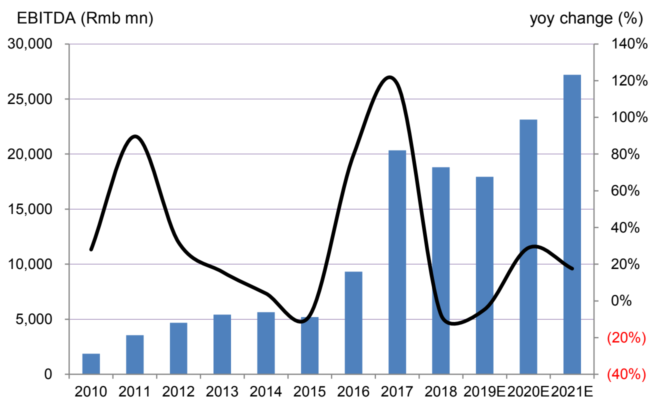
Financials and valuation

Income Statement

Growth: Wanhua has achieved impressive revenue and earnings growth in past decades thanks to its continuous capacity growth (not only in MDI but also in TDI and petrochemicals). We expect Wanhua will continue to be the market leader in polyurethane and expand MDI capacity at both its Yantai and Ningbo sites, based on the latest expansion in progress. We also expect Wanhua’s ethane project will be commissioned near end-2020 (construction began in December 2018), and start contributing to earnings in 2021. We forecast Wanhua to achieve a revenue CAGR of 17% in 2019-2021E.

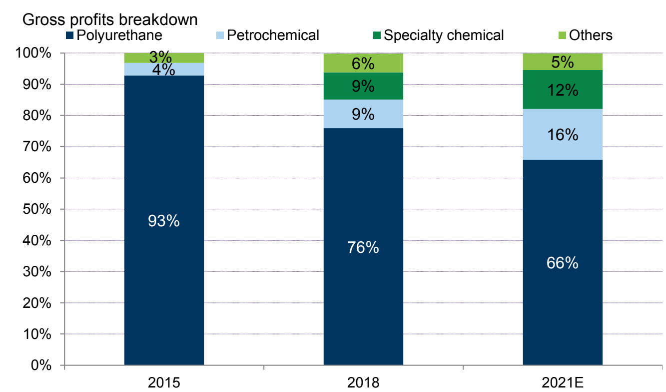
Margin: Wanhua’s 2019E margin is hit by the year-to-date weak MDI and TDI prices (partly due the to weak economic environment). We forecast gross profit margin to recover from 37% in 2019 to 41% in 2020E, mainly due to a higher contribution from high-margin polyurethane and specialty chemical businesses.

图表 48: Weak 2019E EBITDA to reflect the year-to-date MDI and TDI spread (partly due to the weak economic environment)



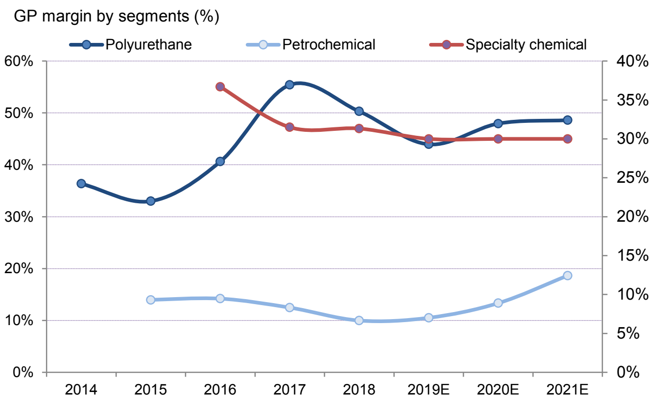
资料来源：公司数据, 高华证券研究

图表 49: We expect petrochemical and specialty chemical’s earnings contribution to increase further in 2021E



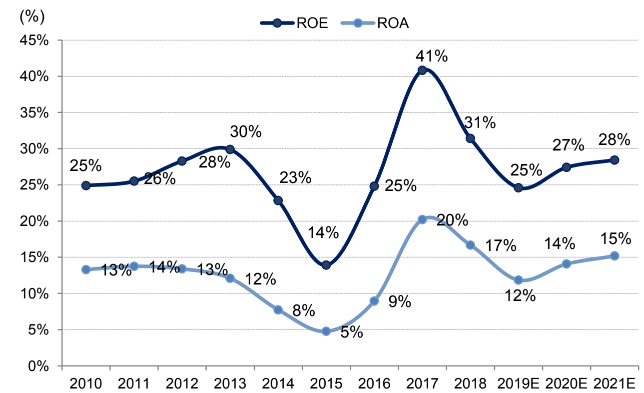
资料来源：公司数据, 高华证券研究

图表 50: We forecast polyurethane margins to fall in 2019



资料来源：公司数据, 高华证券研究

图表 51: We expect a gradual recovery in both ROE and ROA into 2020/2021E



资料来源：公司数据, 高华证券研究

Balance sheet

Gearing: We expect Wanhua’s net-debt-to-equity will increase to 63% in 2019E to fund the new ethylene project and the MDI expansions. That gearing will decline over time as the operating cash flow starts to increase.

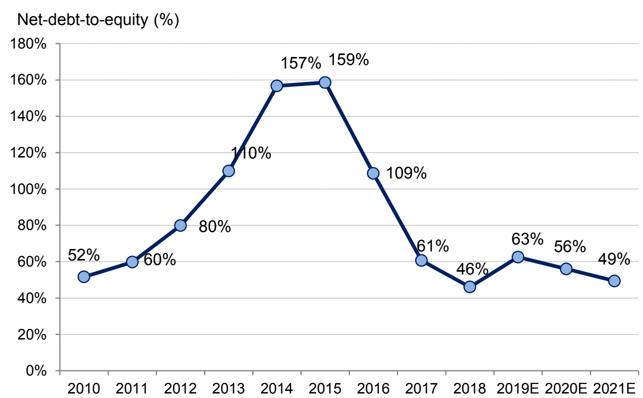
ROE: We forecast ROE and ROA to dip in 2019 (weak margins) and rebound in 2020E and 2021E (TDI, MDI and ethylene projects start to contribute to earnings).

Cash flow statement

Capex: We forecast higher capex in 2019-2020E, mainly for the Yantai ethylene project. We expect capex will start to decline in 2021E.

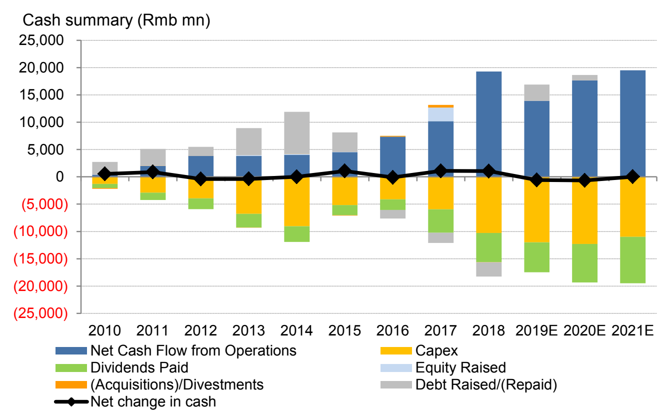
Dividend: We expect the heavy capex cycle and weak 2019E margin will not be supportive of a high dividend payout. We forecast Wanhua’s dividend payout to be maintained at 52% in 2019E-2021E.

图表 52: Wanhua saw financing pressure peak in 2014-2015



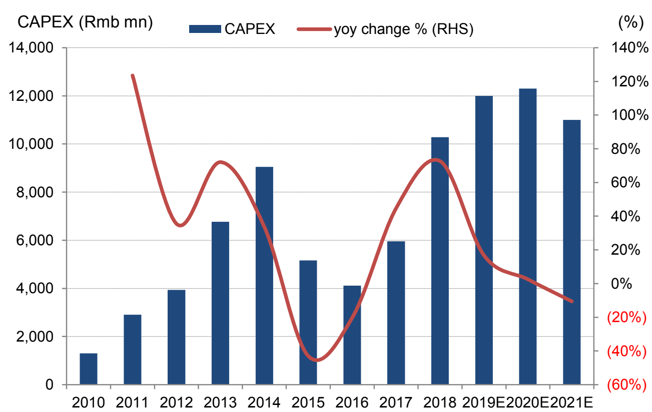
资料来源：公司数据, 高华证券研究

图表 53: Much stronger cash flow profile is enough to fund both capex and dividend



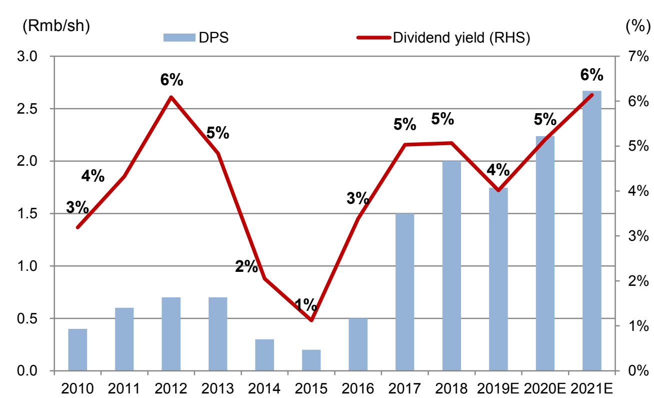
资料来源：公司数据, Gao Hua Securities Research

图表 54: We forecast higher 2019-2020E capex, mainly for the new ethylene project



资料来源：公司数据, Gao Hua Securities Research

图表 55: The heavy capex cycle is not supportive for a high dividend payout in 2019E

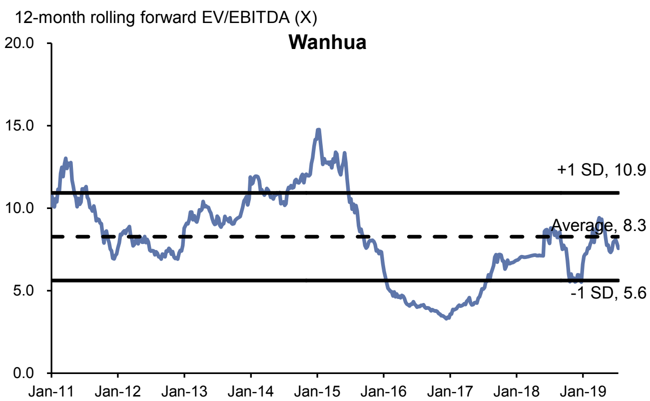


资料来源：公司数据, 高华证券研究

Valuation

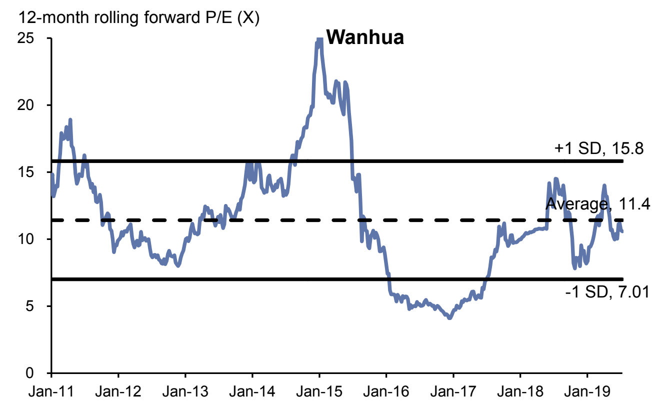
Our 12-month target price of Rmb47.0 is based on 7.0X forward EV/EBITDA (applied to a simple average of 2020E/21E EBITDA), discounted back using a discount rate of 10% (our estimate of Wanhua's weighted average cost of capital). We use EV/EBITDA as our primary valuation methodology as we view EBITDA as a better representation of cash-generating ability than earnings for established chemical companies, and this is consistent with the valuation approach we take both globally and regionally. The target multiple we used (7.0X) is the same as what we apply to global commodity chemical companies; which is below Wanhua's long-term historical average of 8.3X since listing, to factor in near-term weak MDI/TDI margins vs. the historical average.

图表 56: Wanhua is trading at its historical average EV/EBITDA



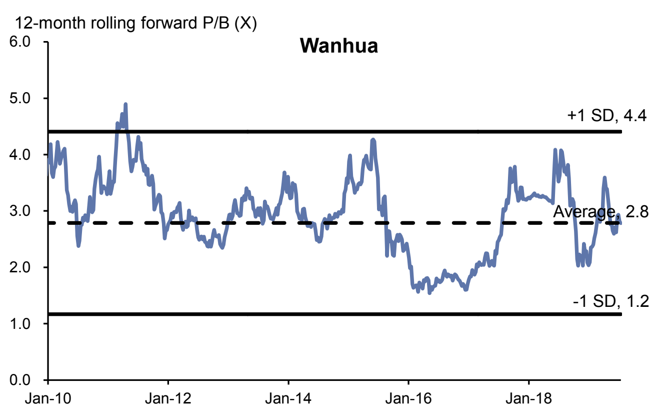
资料来源：公司数据, Datastream, 高华证券研究

图表 57: Wanhua is trading at its historical average P/E



资料来源：公司数据, Datastream, Gao Hua Securities Research

图表 58: Wanhua is trading at its historical average P/B



资料来源：公司数据, Datastream, Gao Hua Securities Research

图表 59: Wanhua valuation summary

Valuation

	2019E	2020E	2021E
EBITDA (Rmb mn)	17,946	23,178	27,161
Blended 20-21E EBITDA		25,169	
Target EV/EBITDA multiple (x)		**7.0**	
Implied EV (Nominal)		176,186	
Implied EV (Discounted)		160,169	
Implied EV/EBITDA multiple	8.9	6.9	5.9
Net debt / (cash) (as of end-2018)		18,067	
Minority interest (as of end-2018)		5,472	
Equity value (Rmb mn)		147,573	
Number of shares (mn)		3,140	
Target price (Rmb/sh)		**47.00**	

资料来源：公司数据, 高华证券研究

图表 60: Wanhua’s summary financial

Profit model (Rmb mn)	12/18	12/19E	12/20E	12/21E
Total revenue	60,621.2	64,374.5	73,147.6	89,419.2
Cost of goods sold	(36,929.6)	(40,377.3)	(42,874.1)	(53,056.4)
SG&A	(4,333.1)	(5,471.8)	(6,437.0)	(8,396.5)
R&D	--	--	--	--
Other operating profit/(expense)	(546.0)	(579.8)	(658.8)	(805.3)
EBITDA	18,812.5	17,945.5	23,177.7	27,161.0
Depreciation & amortization	(3,184.7)	(4,127.5)	(5,164.3)	(5,469.8)
EBIT	15,627.8	13,818.0	18,013.5	21,691.2
Interest income	58.2	96.9	86.1	72.9
Interest expense	(948.0)	(1,183.7)	(1,409.7)	(1,430.9)
Income/(loss) from uncons. subs.	93.5	93.5	93.5	93.5
Others	1,146.3	1,051.6	1,000.0	800.0
Pretax profits	15,977.8	13,876.2	17,783.3	21,226.8
Income tax	(3,148.1)	(2,618.7)	(3,361.1)	(4,015.3)
Minorities	(2,219.3)	(619.2)	(793.2)	(946.6)
Net income pre-preferred dividends	10,610.4	10,638.3	13,629.0	16,264.8
Preferred dividends	--	--	--	--
Net income (pre-exceptionals)	10,610.4	10,638.3	13,629.0	16,264.8
Post-tax exceptionals	--	--	--	--
Net income	10,610.4	10,638.3	13,629.0	16,264.8
EPS (basic, pre-except) (Rmb)	3.88	3.39	4.34	5.18
EPS (basic, post-except) (Rmb)	3.88	3.39	4.34	5.18
EPS (diluted, post-except) (Rmb)	3.88	3.39	4.34	5.18
DPS (Rmb)	2.00	1.75	2.24	2.67
Dividend payout ratio (%)	51.5	51.5	51.5	51.5
Free cash flow yield (%)	7.9	1.4	3.8	5.9

Balance sheet (Rmb mn)	12/18	12/19E	12/20E	12/21E
Cash & equivalents	5,096.0	4,529.3	3,838.3	3,763.4
Accounts receivable	12,081.6	13,345.8	14,028.3	17,148.9
Inventory	7,810.2	8,296.7	8,809.7	10,902.0
Other current assets	4,756.7	4,756.7	4,756.7	4,756.7
Total current assets	29,744.6	30,928.5	31,433.1	36,571.0
Net PP&E	39,370.9	55,015.6	62,334.5	68,047.8
Net intangibles	3,406.8	4,534.6	4,351.5	4,168.4
Total investments	662.8	756.2	849.7	943.2
Other long-term assets	3,727.6	3,827.6	3,827.6	3,827.6
Total assets	76,912.7	95,062.6	102,796.3	113,557.9
Accounts payable	7,835.3	9,296.7	8,809.7	10,902.0
Short-term debt	19,345.9	27,145.9	28,145.9	28,145.9
Other current liabilities	5,798.4	5,798.4	5,798.4	5,798.4
Total current liabilities	32,979.6	42,240.9	42,754.0	44,846.2
Long-term debt	3,817.5	5,717.5	5,717.5	5,717.5
Other long-term liabilities	865.2	1,778.7	1,600.8	1,440.7
Total long-term liabilities	4,682.7	7,496.2	7,318.3	7,158.2
Total liabilities	37,662.2	49,737.1	50,072.3	52,004.4
Preferred shares	--	--	--	--
Total common equity	33,778.7	43,234.6	49,840.0	57,722.8
Minority interest	5,471.7	2,090.8	2,884.1	3,830.7
Total liabilities & equity	76,912.7	95,062.6	102,796.3	113,557.9
BVPS (Rmb)	12.36	13.77	15.87	18.38

Growth & margins (%)	12/18	12/19E	12/20E	12/21E
Sales growth	14.1	6.2	13.6	22.2
EBITDA growth	(7.5)	(4.6)	29.2	17.2
EBIT growth	(8.9)	(11.6)	30.4	20.4
Net income growth	(4.7)	0.3	28.1	19.3
EPS growth	(4.7)	(12.7)	28.1	19.3
Gross margin	39.1	37.3	41.4	40.7
EBITDA margin	31.0	27.9	31.7	30.4
EBIT margin	25.8	21.5	24.6	24.3

Cash flow statement (Rmb mn)	12/18	12/19E	12/20E	12/21E
Net income pre-preferred dividends	10,610.4	10,638.3	13,629.0	16,264.8
D&A add-back	3,184.7	4,127.5	5,164.3	5,469.8
Minorities interests add-back	2,219.3	619.2	793.2	946.6
Net (inc)/dec working capital	2,167.2	(289.3)	(1,682.5)	(3,120.6)
Other operating cash flow	1,075.9	(1,180.0)	(271.3)	(253.6)
Cash flow from operations	19,257.5	13,915.7	17,632.6	19,307.1
Capital expenditures	(10,279.0)	(12,000.0)	(12,300.0)	(11,000.0)
Acquisitions	(145.7)	--	--	--
Divestitures	102.2	--	--	--
Others	4.5	--	--	--
Cash flow from investments	(10,318.0)	(12,000.0)	(12,300.0)	(11,000.0)
Dividends paid (common & pref)	(5,330.0)	(5,482.4)	(7,023.7)	(8,382.0)
Inc/(dec) in debt	(2,606.7)	3,000.0	1,000.0	--
Common stock issuance (repurchase)	--	--	--	--
Other financing cash flows	42.4	--	--	--
Cash flow from financing	(7,894.3)	(2,482.4)	(6,023.7)	(8,382.0)
Total cash flow	1,045.2	(566.7)	(691.0)	(74.9)

Note: Last actual year may include reported and estimated data.

Source: Company data, Goldman Sachs Research estimates.

图表 61: Wanhua’s global and regional comps

Company	Ticker	Rating	Price 2-Aug-2019		12-month target price	Market cap (US$ bn)	Avg. daily trading vol (3-m, US$mn)	EPS yoy change (%)		P/E (X)			EV/EBITDA (X)			P/B (X)	Net-debt-to-equity (%)	FCF yield (%)			Dividend yield (%)		
								2019E	2020E	2019E	2020E	2021E	2019E	2020E	2021E	2019E	2019E	2019E	2020E	2021E	2019E	2020E	2021E
China Chemical																							
Lomon Billions	002601.SZ	Buy	CNY	13.89	19.00	4.1	20	20	28	10	8	7	7.1	5.7	4.9	2.2	27	8.1	11.6	13.8	7.3	10.0	11.7
Daoming Optics & Chemical	002632.SZ	Buy	CNY	6.42	8.30	0.6	4	34	22	15	12	9	9.5	7.3	5.8	2.0	9	(7.3)	5.5	7.3	0.8	1.6	2.3
Wanhua Chemical	**600309.SS**	**Neutral**	**CNY**	**43.50**	**47.00**	**19.7**	**117**	**(13)**	**28**	**13**	**10**	**8**	**9.3**	**7.3**	**6.3**	**3.2**	**63**	**1.4**	**3.8**	**5.9**	**4.0**	**5.1**	**6.1**
Weihai Guangwei	300699.SZ	Neutral	CNY	37.50	37.50	2.8	28	38	30	37	29	23	32.1	23.8	18.5	6.2	(5)	(0.5)	0.9	2.3	1.3	1.7	2.2
Yantai Tayho	002254.SZ	Neutral	CNY	10.37	10.25	0.9	8	23	31	33	25	19	16.7	13.7	10.0	2.7	30	(16.6)	(21.1)	(5.8)	0.5	0.6	0.8
Zhejiang Satellite	002648.SZ	Neutral	CNY	13.75	14.00	2.1	41	21	21	13	11	6	11.4	13.7	8.8	1.6	88	(50.6)	(66.5)	(63.9)	0.8	1.0	1.7
Hengli Petrochemical	600346.SS	Buy	CNY	11.92	15.36	12.1	22	131	57	11	7	6	8.8	6.2	4.8	2.5	199	(15.6)	(0.6)	10.7	1.8	2.1	2.7
TongKun Group	601233.SS	Neutral	CNY	12.66	14.80	3.3	39	20	51	9	6	5	5.7	5.0	4.6	1.3	33	4.0	6.1	7.5	1.1	2.5	2.8
Sinopec Shanghai (A)	600688.SS	Neutral	CNY	4.62	4.70	7.2	5	(22)	13	12	11	11	7.1	6.1	6.2	1.6	(32)	5.6	8.7	7.8	4.5	5.2	5.2
Sinopec Shanghai (H)	0338.HK	Neutral	HKD	2.67	3.40	3.7	5	(22)	13	6	6	6	2.8	2.2	2.1	0.8	(32)	10.9	16.9	15.3	8.8	10.1	10.1
Rongsheng Petro Chemical	002493.SZ	Sell	CNY	11.53	10.30	10.4	9	135	82	19	11	8	15.1	6.9	5.9	3.1	196	(34.1)	1.4	2.6	1.3	1.9	2.4
Average (A-share listed)							**17**			**17**	**13**	**10**	**12.3**	**9.6**	**7.6**	**2.6**	**61**	**(10.6)**	**(5.0)**	**(1.2)**	**2.3**	**3.2**	**3.8**
Global peers																							
BASF SE	BASFn.DE	Neutral	EUR	58.21	66.00	59	904	59	(54)	6	13	11	7.5	6.4	5.6	1.3	43	2.5	6.0	6.9	5.7	5.8	6.0
Covestro	1COV.DE	Neutral	EUR	39.84	48.00	8	109	(66)	17	13	11	11	5.9	5.3	5.2	1.4	22	4.7	3.7	6.1	5.1	4.9	5.0
Huntsman	HUN	Buy	USD	19.12	30.00	4	50	(23)	12	7	7	5	5.7	5.3	4.8	1.5	59	9.2	9.5	14.0	3.4	3.4	3.4
Arkema	AKE.PA	Sell	EUR	80.14	80.00	7	27	(12)	0	10	10	9	6.1	6.0	5.7	1.1	41	6.8	6.5	8.3	3.2	3.3	3.4
Average							**273**			**9**	**10**	**9**	**6.3**	**5.7**	**5.3**	**1.3**	**41**	**5.8**	**6.4**	**8.8**	**4.3**	**4.4**	**4.4**

资料来源：公司数据, Datastream, 高华证券研究

What would make us more positive?

We could become more constructive on the shares if:

1) Street consensus turns more realistic (we are c.15% below Bloomberg consensus estimates for 2019).

2) The shares begin pricing in too much of an economic downturn and we start to expect potential for a recovery in macro data points (e.g., auto sales, property completion, white goods sales, etc.)

3) The volume growth story starts to come into sight (i.e., ethane cracker will be commissioned in 2H2020; MDI capacity expansion likely in mid-2020).

4) Any supply disruption occurs globally (it happens in 2017 when 2 overseas plants were shut down for 3-6 months)

Key risks

The key risks include:

Product margins (+/-): Better-/worse-than-expected product margins (particularly MDI, an easy-to-track pricing where Wanhua has the highest exposure) due to its respective demand/supply dynamics. For instance, better-than-expected product demand is positive for both prices and spreads and hence the company’s earnings.

Supply disruption (+): It is common to see supply disruptions for MDI plants globally. This can be due to unscheduled maintenance, operational accidents, bad weather, or feedstock shortages. A high portion of the MDI facilities are more than 20 years old, implying a higher chance of supply disruption. We see this as a temporary upside risk to prices, spreads and margins.

Project delays (-): Our estimates for Wanhua Chemical assume specific ramp-up/commissioning timelines for its new ethylene cracker. Any delay in the commission time and slower-than-expected pace of ramp-up could lead to lower-than-expected earnings. There are multiple reasons that could result in project delays (e.g., engineering/construction delay, failure in trial production run, etc.).

Feedstock cost volatility (+/-): While Wanhua is already benefiting from its highly integrated production flow, the company’s earnings are still affected by any material change in feedstock cost (e.g., LPG and benzene).

Operational risks (-): The chemical industry is a high-risk business that involves a lot of toxic and explosive materials. There are occasional accidents/explosions globally that can lead to plant suspension or compensation.

R&D success (+/-): R&D is a very important element behind the growth of the polyurethane and specialty chemical business. It is a time-consuming and expensive process that is difficult to time the success of. We believe any breakthrough will create step changes to our expectation to future earnings.

M&A score

Across our global coverage, we examine stocks using an M&A framework, considering both qualitative factors and quantitative factors (which may vary across sectors and regions) to incorporate the potential that certain companies could be acquired. We then assign an M&A rank as a means of scoring companies under our rated coverage from 1 to 3, with 1 representing high (30%-50%) probability of the company becoming an acquisition target, 2 representing medium (15%-30%) probability and 3 representing low (0%-15%) probability. For companies ranked 1 or 2, in line with our standard departmental guidelines we incorporate an M&A component into our target price. M&A rank of 3 is considered immaterial and therefore does not factor into our price target, and may or may not be discussed in research.

Under our M&A framework for the Asia Pacific Energy and Chemical sector, we recognize a myriad of factors could influence the probability of a deal, and our regional team sees the following as five key common denominators:

- Regulation on ownership that prohibits or discourages acquisitions, including by a foreign entity, on grounds of national security.
- Regulatory risks that discourage potential buyers from an acquisition and complicate realization of planned synergy and restructuring upside.
- Management stance in terms of its openness to a deal (e.g., being the target of an acquisition or management buyout), especially by government appointees.
- Strategic assets that offer the owners a strong competitive advantage due to a high entry barrier (e.g., monopoly) or a low cost structure.
- Industry attractiveness based on a growing profit pool as a function of asset expansion, revenue growth, or profitability improvement.

Within this context, we have ranked Wanhua Chemical a “3” and weight our M&A value by 0% (reflecting the probability implied by this ranking) within our target price methodology.

图表 62: Summary of M&A score

Company	Ticker	M&A Rank	Regulation on Ownership	Regulatory Risks	Management Stance	Strategic Assets	Industry Attractiveness
Wanhua Chemical	600309.SS	3	3	3	3	2	2

资料来源：高华证券研究

Appendix

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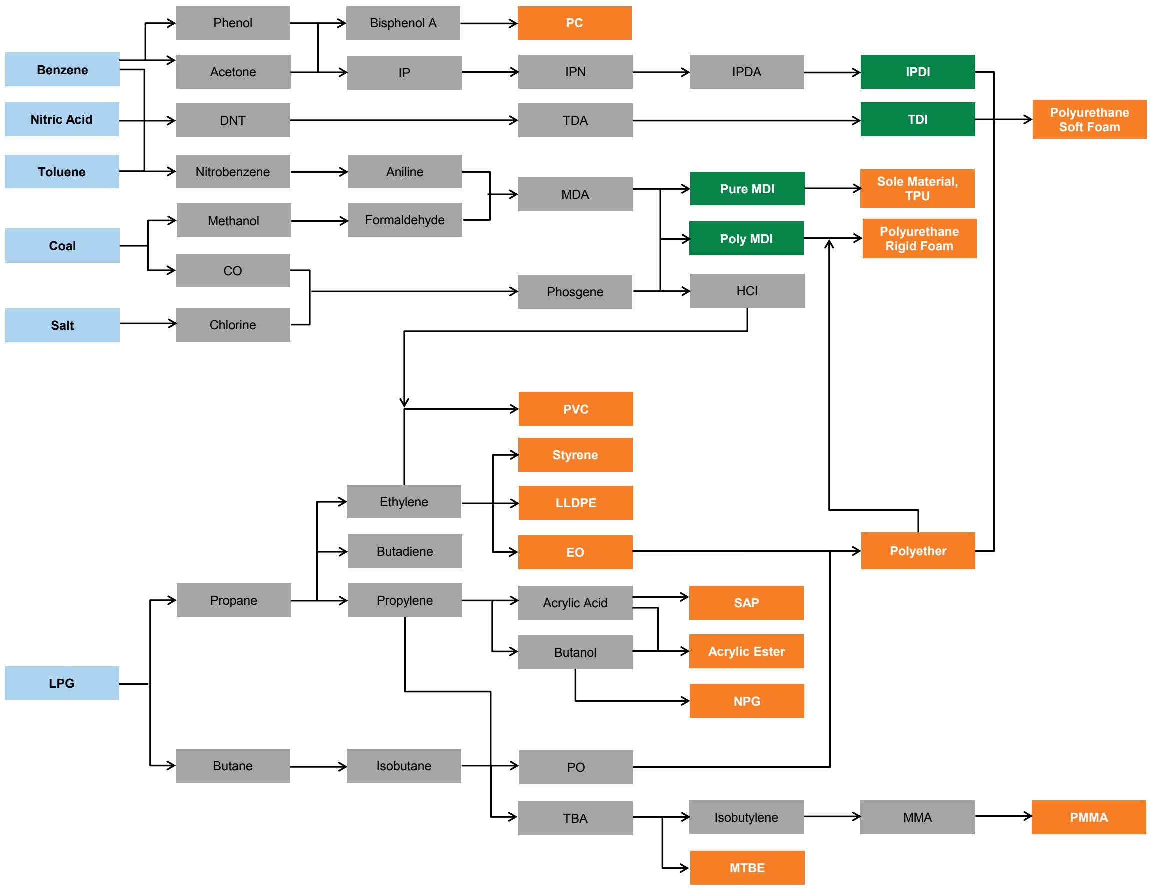
图表 63: Wanhua’s summary table

Wanhua Chemical (600309.SS)				**Before BC acquisition**				
Profit & Loss (Rmb mn)	**2014**	**2015**	**2016**	**2017**	**2018**	**2019E**	**2020E**	**2021E**
Sales	**22,088**	**19,492**	**30,100**	**53,123**	**60,621**	**64,374**	**73,148**	**89,419**
COGS	(14,281)	(12,074)	(17,982)	(28,848)	(36,930)	(40,377)	(42,874)	(53,056)
Operating Costs	(2,167)	(2,224)	(2,793)	(3,927)	(4,879)	(6,052)	(7,096)	(9,202)
EBITDA	**5,640**	**5,194**	**9,324**	**20,349**	**18,813**	**17,946**	**23,178**	**27,161**
DD&A	(989)	(1,546)	(2,762)	(3,186)	(3,185)	(4,128)	(5,164)	(5,470)
Operating profits	**4,652**	**3,648**	**6,562**	**17,163**	**15,628**	**13,818**	**18,013**	**21,691**
Net interest expenses	(403)	(552)	(971)	(869)	(890)	(1,087)	(1,324)	(1,358)
Others	(80)	(141)	62	456	1,240	1,145	1,093	893
Pre-tax profit	**4,169**	**2,954**	**5,653**	**16,750**	**15,978**	**13,876**	**17,783**	**21,227**
Income tax	(951)	(675)	(1,105)	(3,440)	(3,148)	(2,619)	(3,361)	(4,015)
Minorities	(798)	(670)	(869)	(2,175)	(2,219)	(619)	(793)	(947)
Net Income	**2,419**	**1,610**	**3,679**	**11,135**	**10,610**	**10,638**	**13,629**	**16,265**
EPS	1.12	0.74	1.70	4.07	3.88	3.39	4.34	5.18
Shares outstanding (mn)	2,162	2,162	2,162	2,734	2,734	3,140	3,140	3,140
DPS (US$)	0.30	0.20	0.50	1.50	2.00	1.75	2.24	2.67
Dividend payout ratio (%)	27%	27%	29%	37%	52%	52%	52%	52%
Total dividend	649	432	1,081	4,101	5,468	5,482	7,024	8,382
Balance Sheet (Rmb mn)	**2014**	**2015**	**2016**	**2017**	**2018**	**2019E**	**2020E**	**2021E**
Cash	1,025	2,066	1,987	3,063	5,096	4,529	3,838	3,763
Other Current Assets	8,732	8,960	11,249	22,137	24,649	26,399	27,595	32,808
Total current assets	**9,757**	**11,027**	**13,236**	**25,200**	**29,745**	**30,929**	**31,433**	**36,571**
Net fixed assets	28,571	32,744	33,167	34,916	39,371	55,016	62,334	68,048
Other long-term assets	1,375	1,504	1,473	2,913	4,390	4,584	4,677	4,771
Intangible assets	1,889	2,530	2,889	2,799	3,407	4,535	4,351	4,168
Total assets	**41,592**	**47,804**	**50,765**	**65,828**	**76,913**	**95,063**	**102,796**	**113,558**
Short term debt	7,008	12,151	12,547	15,385	19,346	27,146	28,146	28,146
Other Current Liabilities	6,226	7,123	10,055	12,435	13,634	15,095	14,608	16,700
Total current liabilities	**13,234**	**19,273**	**22,601**	**27,820**	**32,980**	**42,241**	**42,754**	**44,846**
Long term debt	14,838	13,420	9,333	6,322	3,818	5,718	5,718	5,718
Other long-term liabilities	235	288	496	932	865	1,779	1,601	1,441
Total liabilities	**28,306**	**32,981**	**32,431**	**35,074**	**37,662**	**49,737**	**50,072**	**52,004**
Total common equity	10,594	11,571	14,822	27,280	33,779	43,235	49,840	57,723
Minority interest	2,692	3,252	3,512	3,475	5,472	2,091	2,884	3,831
Total liabilities & equity	**41,592**	**47,804**	**50,765**	**65,828**	**76,913**	**95,063**	**102,796**	**113,558**
Cash Flow Analysis (Rmb mn)	**2014**	**2015**	**2016**	**2017**	**2018**	**2019E**	**2020E**	**2021E**
Cash flow from operations	4,021	4,602	7,349	10,212	19,257	13,916	17,633	19,307
Capex	(9,050)	(5,160)	(4,113)	(5,953)	(10,279)	(12,000)	(12,300)	(11,000)
Free cash flow	**(5,030)**	**(558)**	**3,235**	**4,259**	**8,978**	**1,916**	**5,333**	**8,307**
Others	5,035	1,626	(3,335)	(3,176)	(7,933)	(2,482)	(6,024)	(8,382)
Total cash flow	**6**	**1,068**	**(99)**	**1,083**	**1,045**	**(567)**	**(691)**	**(75)**
Gross profits by division (after DD&A, Rmb mn)	**2014**	**2015**	**2016**	**2017**	**2018**	**2019E**	**2020E**	**2021E**
Polyurethane	5,457	5,451	6,669	16,530	15,568	14,321	18,189	20,342
Petrochemical	0	236	1,173	1,910	1,886	1,932	2,496	5,020
Specialty chemical	0	0	1,002	1,322	1,787	2,224	2,891	3,846
Others	1,339	183	458	1,294	1,225	1,347	1,482	1,630
Other non-core business	23	3	53	34	41	46	50	55
Valuation and key ratios	**2014**	**2015**	**2016**	**2017**	**2018**	**2019E**	**2020E**	**2021E**
Equity value (Rmb mn)	31,627	38,665	31,934	81,525	107,867	136,579	136,579	136,579
EV/EBITDA (x)	9.8x	12.6x	5.9x	5.1x	7.0x	9.3x	7.3x	6.3x
P/E (x)	13.1x	24.0x	8.7x	7.3x	10.2x	12.8x	10.0x	8.4x
Sales growth (%)	9.1%	-11.8%	54.4%	76.5%	14.1%	6.2%	13.6%	22.2%
EBITDA growth (%)	4.0%	-7.9%	79.5%	118.2%	-7.5%	-4.6%	29.2%	17.2%
Net profit growth (%)	-16.3%	-33.5%	128.6%	202.6%	-4.7%	0.3%	28.1%	19.3%
Net Debt (Rmb mn)	20,821	23,505	19,893	18,644	18,067	28,334	30,025	30,100
Net debt/ EBITDA (x)	3.7x	4.5x	2.1x	0.9x	1.0x	1.6x	1.3x	1.1x

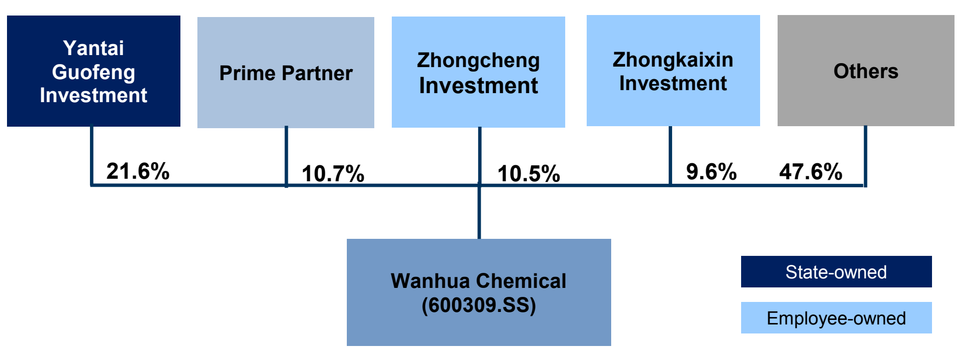
资料来源：公司数据, 高华证券研究

图表 64: Wanhua’s production workflow



资料来源：高华证券研究

图表 65: Wanhua’s ownership structure



资料来源：公司数据

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信息披露附录

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