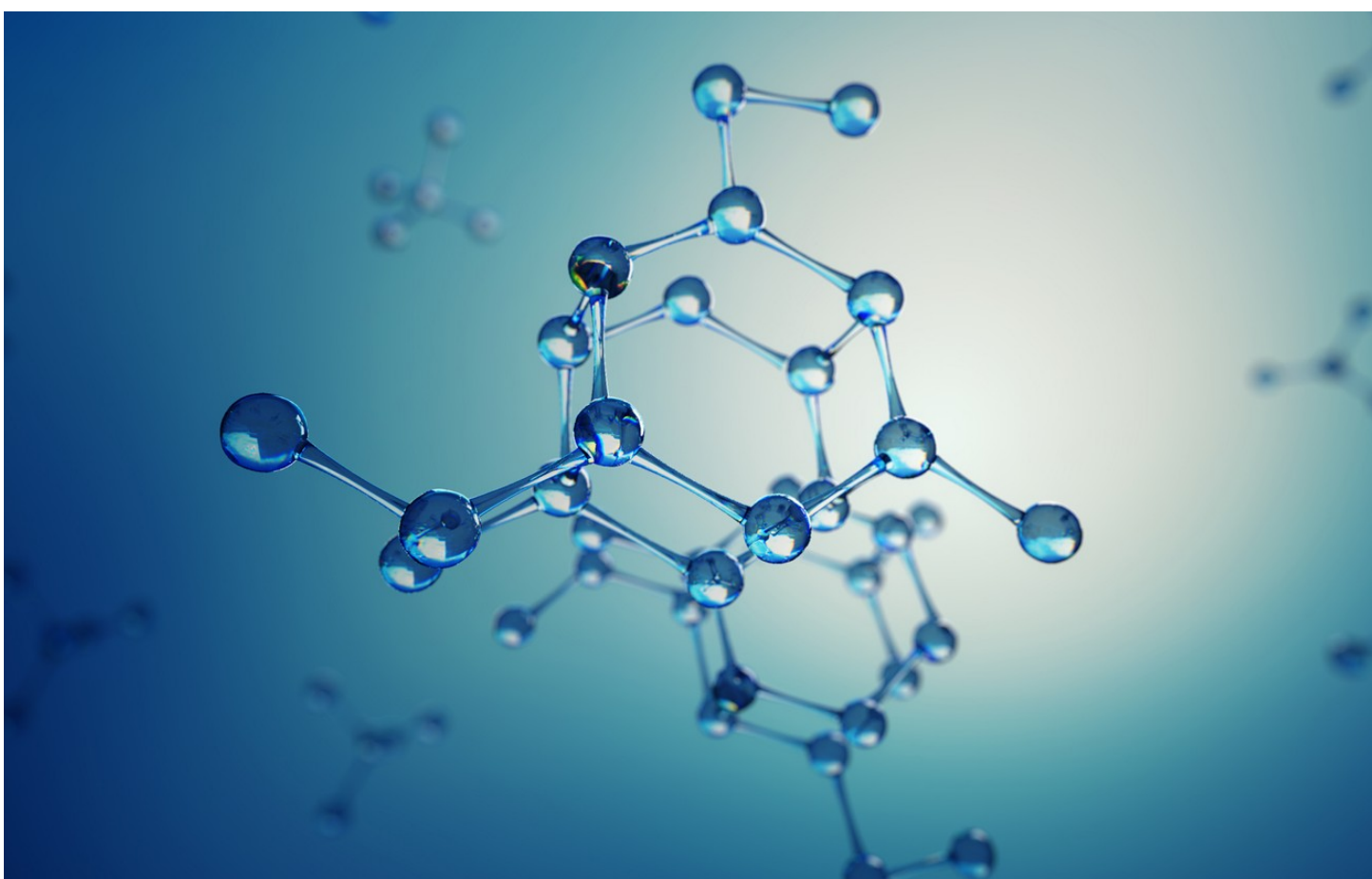


June 11, 2018 09:00 PM GMT

万华化学

股价五年内有望翻倍

万华化学的股价被低估，主要因为市场对其有以下三点担忧 1)MDI业务盈利波动风险；2)新产品的成长空间与盈利能力；3) .作为本土中国企业，跨 多国经营或受阻。然而我们认为，在未来3-5年内，万华有望在上述三个 要素上取得超预期的表现。



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股价有望五年内翻倍

股票评级
增持

行业展望
有吸引力的

目标价
Rmb58.79

万华化学的股价被低估，主要因为市场对其有以下三点担忧 1)MDI业务盈利波动风险；2)新产品的成长空间与盈利能力；3)作为本土中国企业，跨多国经营或受阻。然而我们认为，在未来3-5年内，万华有望在上述三个要素上取得超预期的表现。

WHAT'S CHANGED	Wanhua Chemical	From	To
	评级	中性	增持
	目标价	Rmb42.81	Rmb58.79

超预期点① -- MDI业务有望保持强劲的盈利能力： 鉴于中国未来几年新增产能有限，万华化学MDI价格将稳定在25,000 ¥水位，这将为公司带来至少60亿的利润。作为全球MDI最大供应商（全球份额>20%,国内份额>60%），万华在该产品上拥有强力的定价权。

超预期点②——新品投产带来可观回报： MDI业务是成为公司的现金奶牛，但万华并没有盲目的扩张MDI产能，而是拓展了其他包括TDI, SAP, MTBE, MMA, PC等化工产品业务。就目前而言，这些业务的盈利能力无法与MDI相媲美，但上述产品均有着较高的进入壁垒，同时存在着广阔的进口替代机会。简言之，业务的多元化不仅能够带来营收利润的增长，更重要的是由于化工产品周期性各不相同，公司的周期属性也会更加弱化。

超预期点③——全球化进程加快，推动估值修复： 万华此次资产重组完成后，将在亚、欧同时拥有生产装置，为公司全球化战略搭建了良好的平台。后期在美国开建的生产基地将进一步提升其国际化程度。我们认为此举将推动公司估值向其他国际竞争者看齐，估值折价有望修复。

对比国际同行估值较低，调整其评级至增持：

考虑到18年一季报超预期，未来新品量产贡献利润以及正在稳步推进的全球化战略，我们上调其盈利预期：18年128亿（+48%），19年139亿（+62%），20年170亿。并将股票评级调整为增持（目标价相应提高37%），预计2018 PE 12.6X（万华历史估值区间为10-18 PE，国际同行估值为13.9X，数据从2016年起算）

China Energy & Chemicals China

Stock Rating **Overweight**

Industry View **Attractive**

Price target Rmb58.79

Up/downside to price target (%)

Shr price, close (Jun 11, 2018)	Rmb49.30
52-Week Range	Rmb49.85-24.48
Sh out, dil, curr (mn)	2,734
Mkt cap, curr (mn)	Rmb134,787
EV, curr (mn)	Rmb143,111
Avg daily trading value (mn)	Rmb1,735

Fiscal Year Ending	12/17	12/18e	12/19e	12/20e
ModelWare EPS (Rmb)	4.26	4.67	5.08	6.22
Consensus EPS (Rmb)§	3.83	4.39	4.83	5.31
Revenue, net (Rmb mn)	53,123	54,672	63,154	76,235
EBITDA (Rmb mn)	20,341	19,562	21,177	25,129
ModelWare net inc (Rmb mn)	11,658	12,754	13,888	16,997
P/E	-	10.6	9.7	7.9
P/BV	-	2.8	2.4	2.0
RNOA (%)	42.1	34.2	34.1	37.0
ROE (%)	78.7	46.8	29.1	30.1
EV/EBITDA	-	6.4	5.8	4.6
Div yld (%)	-	3.5	3.8	4.6
FCF yld ratio (%)	-	6.9	6.5	8.8
Leverage (EOP) (%)	19.7	(24.4)	(27.3)	(31.4)

Unless otherwise noted, all metrics are based on Morgan Stanley ModelWare framework

§ = Consensus data is provided by Thomson Reuters Estimates

e = Morgan Stanley Research estimates

Exhibit 1:

Wanhua: Change in Net Profit and EPS Estimates

Source: Morgan Stanley Research estimates



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Financial Summary

Exhibit 2:

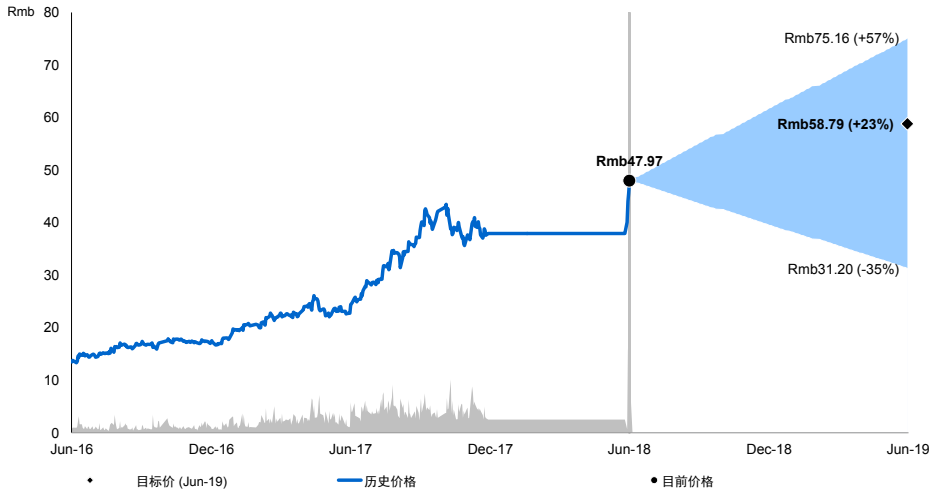
Wanhua Chemicals: Financial Summary

利润表	2015A	2016A	2017A	2018E	2019E	2020E	Ratio Analysis	2015A	2016A	2017A	2018E	2019E	2020E
Operating revenue	19,492	30,100	53,123	54,672	63,154	76,235	Growth (%)						
Operating costs	(13,620)	(20,745)	(32,033)	(34,881)	(41,448)	(49,787)	Turnover	-12%	54%	76%	3%	16%	21%
Business tax and surcharges	(96)	(204)	(475)	(219)	(253)	(305)	Gross Profit	-14%	58%	125%	-5%	10%	22%
Selling expenses	(847)	(1,166)	(1,417)	(1,640)	(1,895)	(2,287)	Operating profit	-22%	80%	162%	-5%	9%	22%
Administrative expense	(1,282)	(1,423)	(2,035)	(1,695)	(1,895)	(2,287)	PBT	-29%	91%	196%	-5%	9%	22%
Operating profit	3,648	6,562	17,163	16,238	17,664	21,569	Net profit	-33%	129%	203%	15%	9%	22%
Non operating income	302	88	922	355	386	411							
Finance costs	(1,075)	(1,046)	(865)	(800)	(839)	(881)	Margins (%)						
Interest income	12	29	28	28	28	28	Gross Margin	30%	30%	39%	36%	34%	34%
Profits of associates	(3)	23	105	105	105	105	Operating margin	19%	22%	32%	30%	28%	28%
Non operating income	4,020	6,647	17,482	16,610	18,066	21,995	PBT margin	15%	19%	32%	29%	27%	28%
Profit before tax	2,954	5,653	16,750	15,943	17,360	21,246	Net margin	8%	12%	21%	23%	22%	22%
Income tax	(675)	(1,105)	(3,440)	(3,189)	(3,472)	(4,249)							
Profit for the year	2,280	4,548	13,309	12,754	13,888	16,997	Returns (%)						
Minority interest income	(670)	(869)	(2,175)	-	-	-	ROE (BOP)	12%	25%	61%	41%	27%	28%
Net Profit	1,610	3,679	11,135	12,754	13,888	16,997	ROA (BOP)	4%	8%	22%	19%	16%	17%
EPS	0.59	1.35	4.07	4.67	5.08	6.22							
							Gearing (%)						
资产负债表	2015A	2016A	2017A	2018E	2019E	2020E	Net Debt/Equity	142%	86%	52%	-1%	-6%	-12%
Fixed asset	20,046	28,468	27,610	29,000	31,263	32,217	Total Debt/Equity	156%	97%	62%	39%	35%	31%
Construction in progress	12,409	4,245	6,420	6,706	6,129	7,027							
Intangible assets	2,252	2,612	2,521	2,879	3,144	3,305	估值	2015A	2016A	2017A	2018E	2019E	2020E
Long-term equity investment	186	363	526	651	777	902	P/E	25.3	13.3	9.3	10.3	9.4	7.7
Others	1,884	1,842	3,551	3,547	3,563	3,581	P/BV	2.7	2.7	3.4	2.6	2.2	1.9
Non-current assets	36,778	37,529	40,628	42,782	44,876	47,033	EV/EBITDA	11.9	6.9	5.9	6.6	6.0	4.8
Inventories	4,194	4,337	7,000	8,750	11,374	14,218	Dividend Yield	1.1%	2.8%	4.0%	3.6%	3.9%	4.8%
Trade & other receivables	1,356	1,841	3,079	3,787	4,673	5,336	FCF Yield	-1.4%	6.6%	4.1%	7.4%	7.0%	9.4%
Cash and cash equivalents	2,066	1,987	3,063	20,517	24,698	30,829							
Others	3,410	5,071	12,058	12,646	13,263	13,911	现金流量表	2015A	2016A	2017A	2018E	2019E	2020E
Current assets	11,027	13,236	25,200	45,701	54,008	64,294	Net profit	2,280	4,548	13,309	12,754	13,888	16,997
Trade & other payables	4,190	4,990	7,904	8,238	8,587	8,951	Adj for non-cash items	1,698	2,869	3,581	3,303	3,492	3,539
Short term borrowing	9,638	8,501	12,715	13,350	14,018	14,719	Changes in working capital	(69)	(1,044)	(7,515)	(1,756)	(3,514)	(3,516)
Others	5,445	9,110	7,202	7,474	7,754	8,046	Other operating cash flow	694	975	836	800	839	881
Current liabilities	19,273	22,601	27,820	29,062	30,359	31,716	Net operating cash flow	4,602	7,349	10,212	15,101	14,704	17,901
Long term borrowing	11,440	9,333	6,322	6,638	6,970	7,318	Payment for PP&E	(5,160)	(4,113)	(5,953)	(5,357)	(5,465)	(5,574)
Bond Payable	1980	0	0	0	0	0	Others	(64)	144	493	(85)	(105)	(105)
Long-term payables	4	3	1	1	1	1	Net investing cash flow	(5,225)	(3,970)	(5,460)	(5,442)	(5,569)	(5,678)
Other liabilities	284	494	931	1,630	1,630	1,630	Dividends	(1,727)	(1,457)	(2,058)	(4,697)	(5,115)	(6,260)
Non-current liabilities	13,708	9,830	7,254	8,269	8,601	8,949	Net proceeds from borrowings	(24,056)	(22,181)	(26,300)	-	-	-
Minority interest	3,252	3,512	3,475	3,475	3,475	3,475	Others	27,539	20,134	24,699	12,493	160	168
Shareholders' Equity	14,823	18,334	30,754	51,152	59,925	70,662	Net financing cash flow	1,756	(3,504)	(3,660)	7,796	(4,955)	(6,092)

Source: Company data, Morgan Stanley Research; In Rmb mn; Year ending December. E = Morgan Stanley Research estimates. Calculations may differ from ModelWare because of definitional differences. Note: Closing price as of June 7, 2018

风险回报

MDI业务持续盈利, 新品不断投产, 未来盈利可期 – 上调至 增持



Source: Thomson Reuters, Morgan Stanley Research estimates

目标价 Rmb58.79

现金流折现模型

牛市价格 Rmb75.16

预计18年PE 13X

MDI价格比预计高2000元/吨以上: 苯供应充足, MDI提价直接带来万华盈利提升。新品量产爬坡符合预期。

合理价格 Rmb58.79

预计18年PE 13X

MDI价格维持现有水平: 国际巨头倾向于控制产量, 维持价格。新品量产爬坡符合预期。

熊市价格 Rmb31.20

预计18年PE 13X

MDI价格比预计低1600元/吨以上: 部分寡头企图通过产能扩张来占领市场。新品量产爬坡符合预期。

增持理由

- 万华化学是全球领先的MDI生产商, 市场份额超过20%。
- MDI属于特种化学品, 由少数寡头把持, 行业竞争格局有序, 厂商策略由追求规模向追求边际效益转变。在不打破现有平衡的前提下, 对外扩张变得无利可图, 我们认为当前MDI定价体系被打破的可能性非常低。
- 万华化学在渗透新市场和多元化上有成熟的范例, 其即将上马的新产品线如甲苯异氰酸酯 (TDI), 高吸水性高分子 (SAP), 甲基叔丁基醚 (MTBE), 甲基丙烯酸甲酯 (MMA), and 聚碳酸酯 (PC)。均收益良好, 前景广阔。

核心价值驱动因子

- MDI价格与需求展望
- 新产品价格与收益
- PC/TDI 项目的量产爬坡进度

核心股价催化剂

- 18年中报盈利乐观
- MDI报价稳中有升
- 新项目开工建设

风险警示

- MDI价格大幅下滑
- 聚丙烯价格大幅下滑, PO/AE 项目盈利不及预期
- 新产品市场需求不及预期

讨论 – 股价何以五年内翻倍？

我们相信万华化学的股价有望在五年内翻倍，详情如图5所示，主要理由如下：

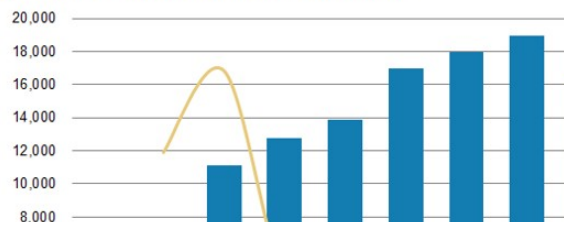
1. MDI业务利润坚挺 – 对提升估值有少许正向贡献；
2. 新品量产持续贡献盈利；
3. 多元化的营收利润来源；
4. 上述三点理由带来的价值重估。

我们对万华的新品--TDI充满信心，它将和MDI产生协同效应，增长前景广阔。另外，PC，精细化工与新材料等其他化工业务将带来444亿的市值增长。

Exhibit 3:

市场预期2017年的利润不可持续，相反，我们认为万华在未来五年内利润可维持高水位并持续增长。

Wanhua's earnings growth profile since 2015

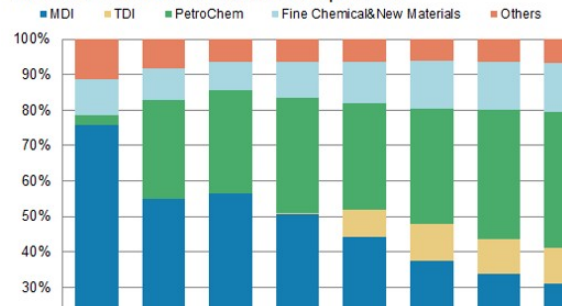


Source: Company data, Morgan Stanley Research and Estimates.

Exhibit 4:

万华在未来五年内对MDI的依赖度会越来越低，多元化的产品组合值得价值重估。

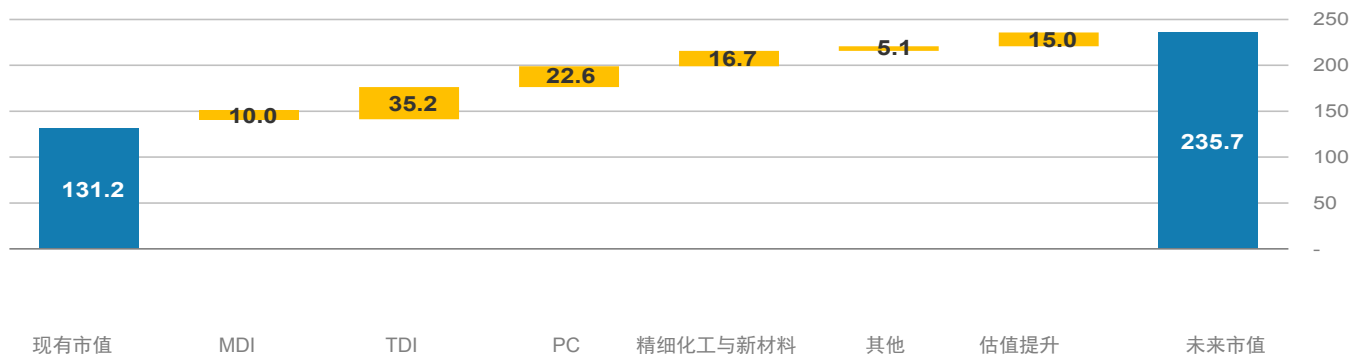
Wanhua's more diversified revenue portfolio



Source: Company data, Morgan Stanley Research and Estimates.

Exhibit 5:

万华化学市值增长示意图（预测）



Source: Morgan Stanley Research and estimates. Note: Market Cap as of June 7, 2018.



市场低估了万华化学MDI业务的盈利能力，给予其较低的估值乘数

作为全球领先的MDI制造商，市场份额高达20%以上，万华化学对于MDI拥有强力的定价权。未来新增产能有限，需求持续增长，现有寡头发起价格战的概率很低，从而为维持MDI健康价格体系提供了有利条件。更多详情，请查阅**核心争论①MDI高盈利水平能否持续？**

然而，市场对目前万华的估值包含了以下两个因素：

- 预计2018-2020年MDI业务盈利能力下滑，给予其较低的估值。
- 对2017年万华MDI的盈利估值打折扣。

这种估值方式实质上反映了投资者对于MDI市场周期性波动的担忧：但是，除非有证据表明现有寡头会打破市场定价平衡亦或是经济有衰退迹象（造成MDI需求下滑），否则MDI盈利下滑就是小概率事件。因此，我们相信一旦万华在未来两年内证明其坚挺的MDI盈利能力，其股价也会迎来一次重估。

新产品的绝大多数价值还未反映在公司目前的股价上:基于保守的

估值方法，投资者低估了万华新产品的价值。例如已经开工的部分新品-TDI, SAP, PC等，这些产品目前的盈利状况都一般。所以，基于目前盈利的估值自然不高，但我们对于其未来的盈利能力持乐观态度。

我们对万华的新产品充满信心。其进军的领域，行业壁垒高，盈利能力强，并且万华在MDI上的成功也证明了其在化工领域的品控能力与工艺改善能力。我们相信这些优势会同样反应在新产品上，从而为万华的利润做出贡献。

万华应被给予成长溢价（国际化）而非折价：仍有相当一部分投

资者将万华视为中国化工翘楚，却忽视了它的国际化增长潜力。在我们看来，这种观点在以下两点上对万华有所低估：

1. 随着经济衰退，万华在中国的增长速度放缓；
2. 万华的海外扩张计划或受阻

Those two issues have led to a discount in Wanhua's valuation. (和上段重复，懒得翻译了)

然而，正如我们在讨论三：万华能否成长为世界级化工巨头中所说，本次资产重组后，万华将会从控股股东--万华化工中获得欧亚大陆上所有生产装置的所有权。我们认为万华将在未来十年内从全球化战略中不断获利。因此，对比其国际同行，万华理应获得估值溢价。

未来一年的股票评级与目标价

尽管我们相信万华股价将会在五年内翻倍，但本研报的目标价及评级只涉及未来一年的预测。

公司的MDI业务在2017达到顶峰，2018利润即将下滑。然而，我们看好万华盈利的可持续性（2018年持平，2019-2020增长），它将成为全球股票市场中最佳的化工标的之一。

基于积极的2018-2020盈利预测，我们上调万华的评级至增持，目标价58.79，预计2018 PE 12.6X，2019 PE 11.6X。依据如下：

- 万华的历史估值区间（2016年起算，10-18x）
- 全球MDI厂商估值区间（2018年 3.8-16.6X；2019年6.3-13.8X）

我们的EPS估值高于市场预期（2018 +6%；2019 +5%），如图6所示，公司盈利增长预期与股价有密切联系。

即使采用保守的估值--2019/9.4X（对比国际特种化学品竞争社，取其低谷区间），只要公司盈利符合预期，股价上升空间依然可观。

我们认为万华成长性较好，理应给予估值溢价。2017.10.10-2017.12.04，万华股价下跌13%，同期上证指数下跌3%，紧接着公司发布资产重组公告，股票停牌（图47）。在我们看来，这反映了市场的一致性预期：

Exhibit 6:

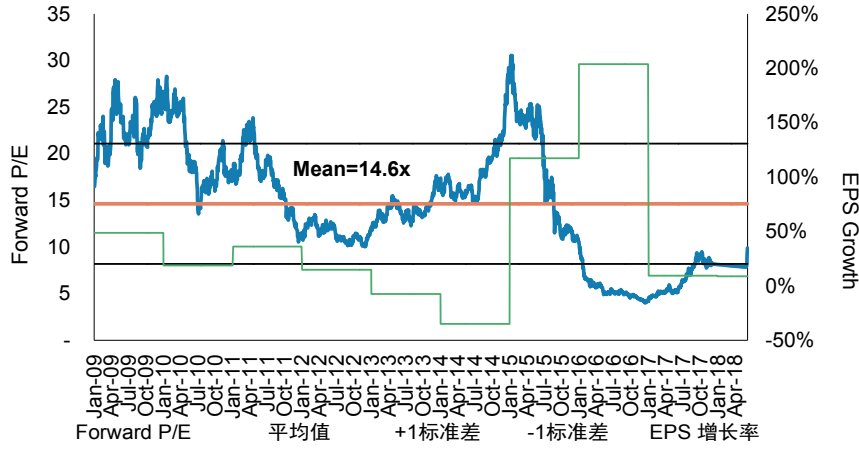
万华股价与利润走势对比（预期/实际）



Source: Thomson Reuters, Morgan Stanley Research.

图 7:

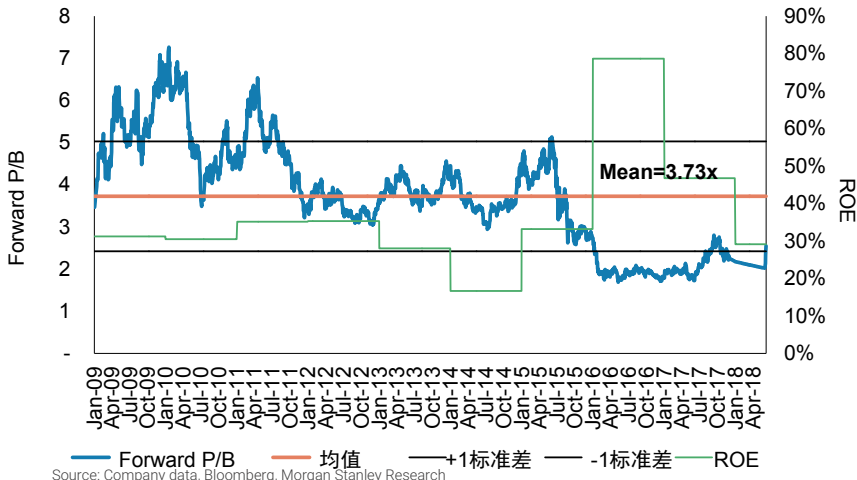
万华: P/E vs. EPS 增长率



Source: Company data, Bloomberg, Morgan Stanley Research

图 8:

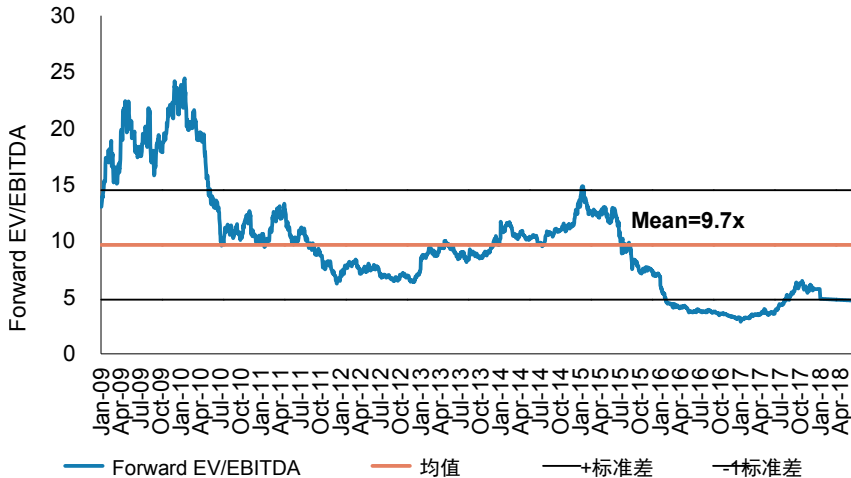
万华: P/B vs. ROE



Source: Company data, Bloomberg, Morgan Stanley Research

Exhibit 9:

万华: EV/EBITDA



Source: Company data, Bloomberg, Morgan Stanley Research

核心争论①: MDI业务高盈利水平是否可持续

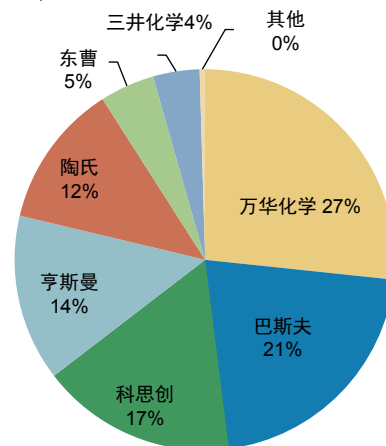
市场先生 – 否: 经历了2017年的快速上涨, MDI 价格在4季度时已显颓势, 目前仍在下跌中, 相对应的, 万华的MDI 业务利润也将在2018-2019年出现下滑。

摩根观点 – 是: MDI价格在2017年4Q的下滑主要是受中东装置产能增加所致。2018 1-5月价格已经回暖, 后续有望继续保持坚挺。万华目前拥有强力的MDI定价权, 高利润水平有强支撑, 这将为万华后续的投资项目带来源源不断的现金流。

Exhibit 11:

全球MDI 市场份额情况, 2018

Global MDI Market Share, 2018

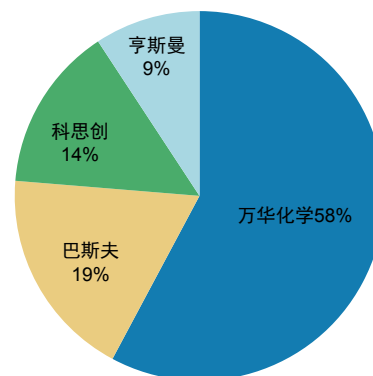


Source: Wind, Chyxx, Morgan Stanley Research.

图 12:

中国MDI 市场份额情况, 2018

China MDI Market Share, 2018



Source: Wind, Chyxx, Morgan Stanley Research.

行业竞争格局有序, 价格战难以发动

如图11所示, 全球仅有7个MDI主要生产商。绝大多数都是世界级化工巨头, 遵循利润导向原则。高行业壁垒使得低价竞争的可能性降到最低。因此, MDI利润将在整个经济周期中保持坚挺。

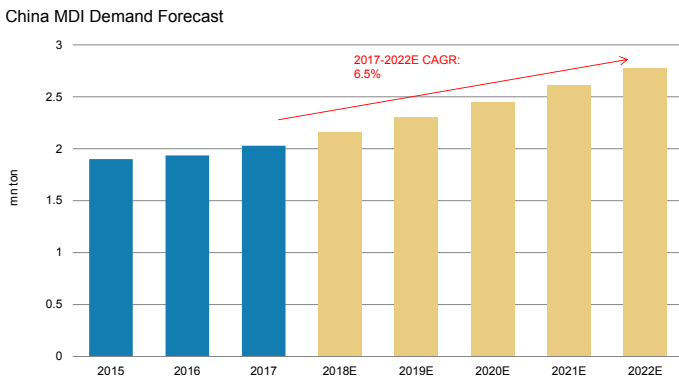


产能扩张有限，需求持续增长

如图13所示，我们预计218-2020年全球MDI产能增长有限（每年2%），与此同时，需求端增速有望维持年化6-7%。因此，MDI产能利用率将大概率维持在80%的水平上（2018-2020），这将对MDI的价格与利润形成强力支撑。

图 13:

MDI需求增长预测
中国MDI需求预测

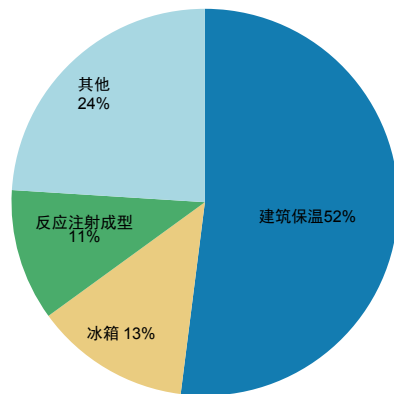


Source: Ministry of Industry and Information Technology (MIIT), Wind, Morgan Stanley Research, e=MIIT's target in Petrochemical and Chemical Industry Development Five-year Plan.

图 15:

全球 MDI 下游产品需求分类 2016

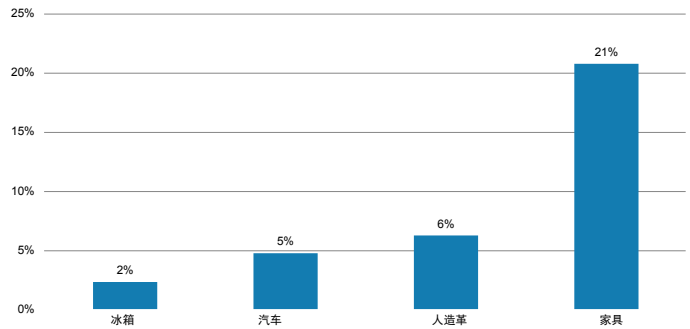
Global MDI downstream demand breakdown, 2016



Source: Wind, Sohu, Morgan Stanley Research.

图 14:

MDI - 主要下游产品
下游产品年化增长率 2010-2017

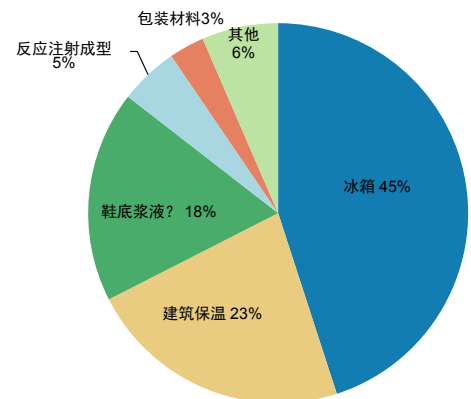


Source: Wind, CEIC, Morgan Stanley Research.

图 16:

中国 MDI 下游产品需求分类 2016

China MDI downstream demand breakdown, 2016

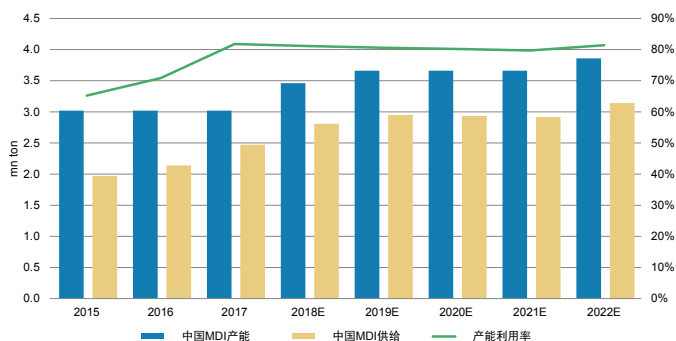


Source: Wind, Sohu, Morgan Stanley Research.

如下表所示,MDI近期新增产能有限, 2018年仅有一家增产。

图 17:

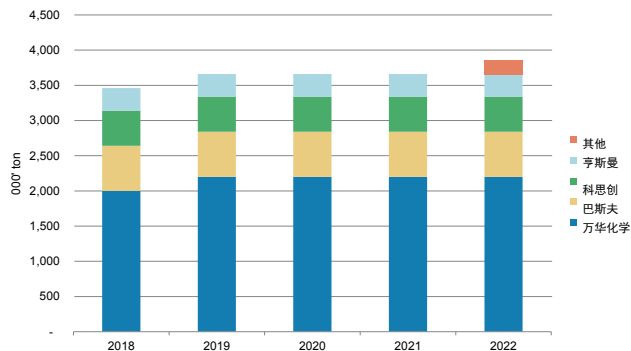
行业供给有限，产能利用率大概率维持高位 Level
中国 MDI 产品 & 产能 利用率趋势预测



Source: Wind, CEIC, Bloomberg, Morgan Stanley Research.

图 18:

中国主要MDI 厂商产能预测



Source: Morgan Stanley Estimates.

图 19:

万华MDI产能利用率 2017 vs. 2016
Wanhua MDI Utilization in 2017 vs. 2016

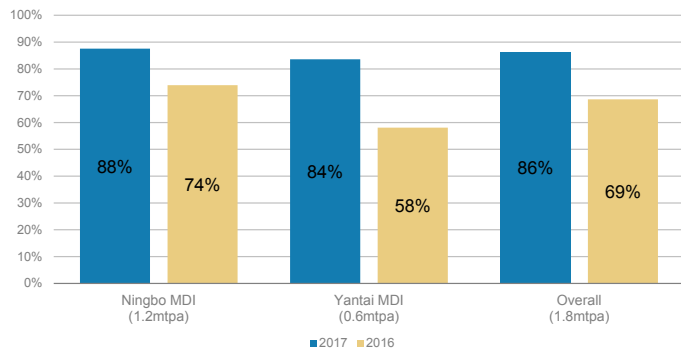


图 20:

唯一计划增产MDI项目 2018

公司	设计产能 (千吨)	简况
联恒	240	修建中

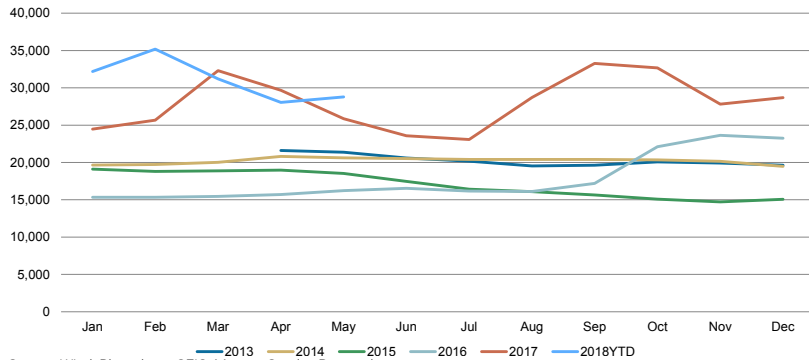
Source: Chyxx, Wind, Bloomberg, Morgan Stanley Research.

当油价上升时, 万华MDI的利润空间也随之上涨. 如下图所示.

图 21:

中国 MDI 价格趋势

China MDI Market Price Trend (Rmb/ton)

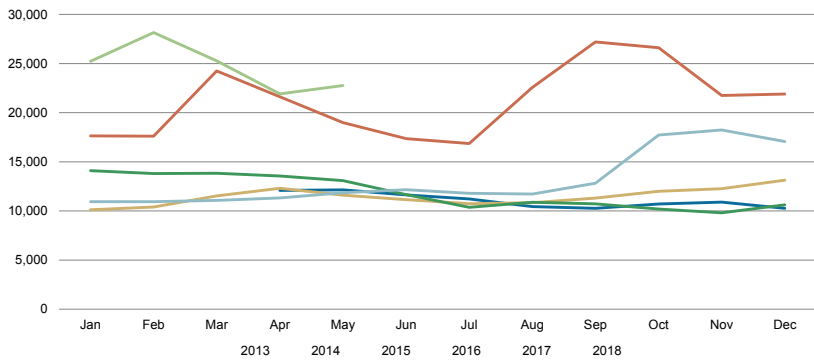


Source: Wind, Bloomberg, CEIC, Morgan Stanley Research.

图 22:

中国 纯 MDI-苯 价差

China Pure MDI-Benzene Spread (Rmb/ton)

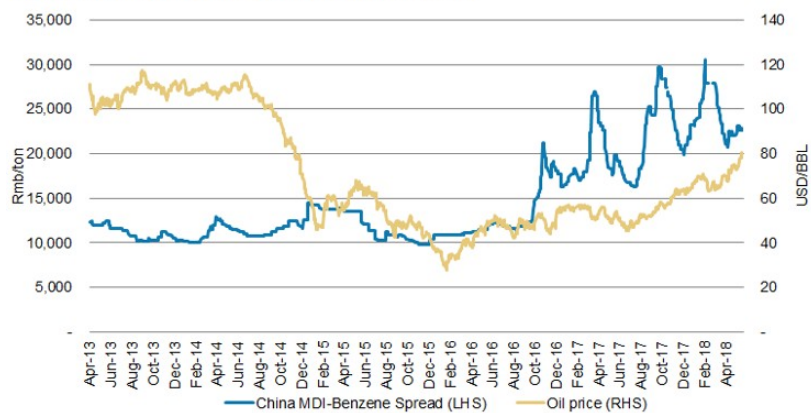


Source: Wind, CEIC, Morgan Stanley Research.

图23:

中国 MDI-苯 价差 vs. 布伦特原油

China MDI-Benzene Spread vs. Oil Price



Source: Wind, Thomson Reuters, Morgan Stanley Research.

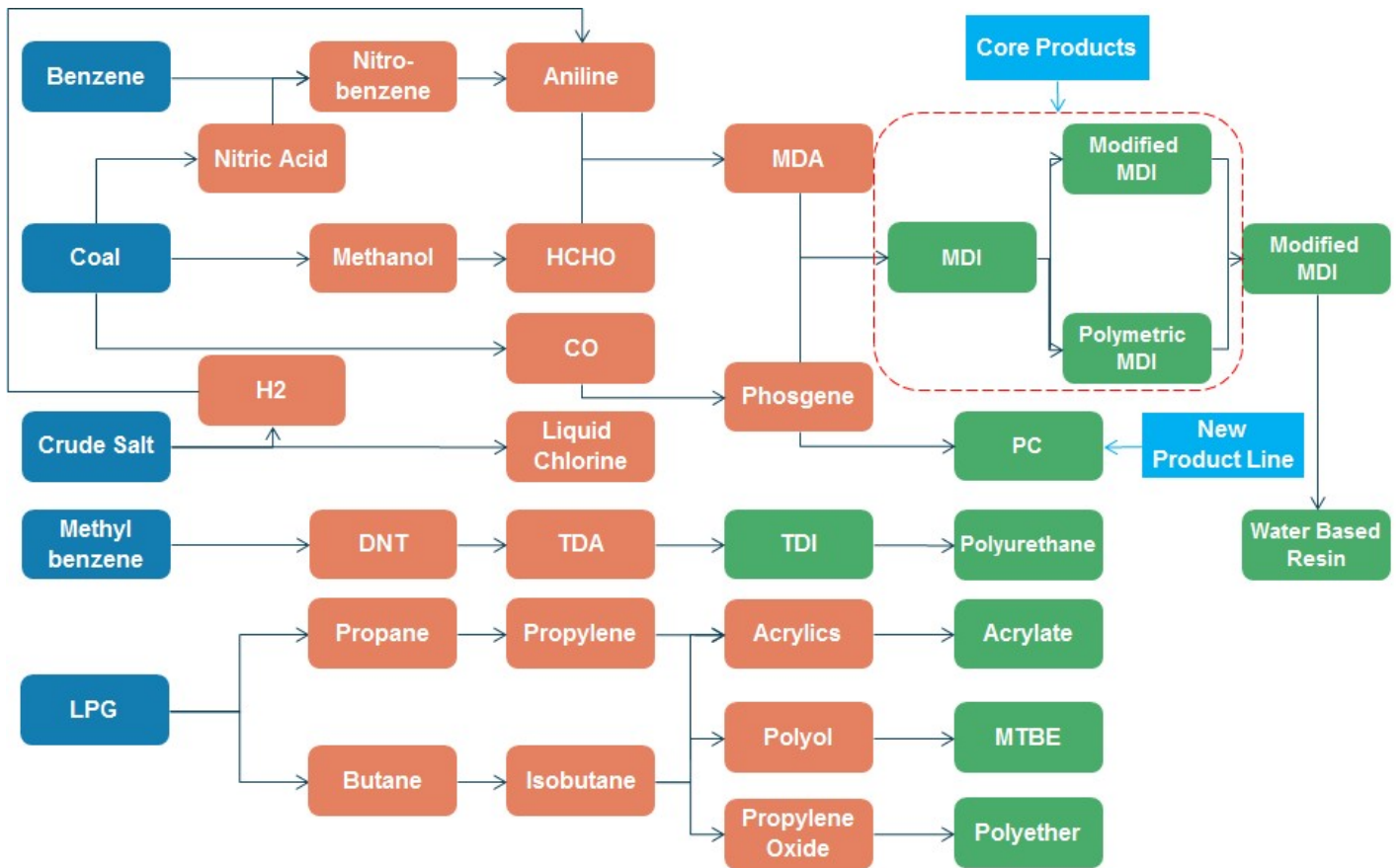
纵向一体化战略带来成本优势

总的来说，相比与其他竞争者，我们认为万华的一体化业务模式会在成本端上形成竞争优势。其他竞争者只涉及产业链上的某些环节，无法形成协同效应，而万华则可以同时出售中间产品和终端产品，这将有助于万华在产业链中灵活调整其产品结构，实现利润最大化。

同样的，我们认为万华的一体化战略有助于其更好的管控原材料成本。例如，由于其对于液化石油气(LPG)的巨额采购量，他已经成为亚洲LPG最大客户之一。因此其对于LPG供应商遍拥有了更大的议价权。

图 24:

万华: 新产业园一体化示意图



Source: Company data, Morgan Stanley Research.

盈利能力对比

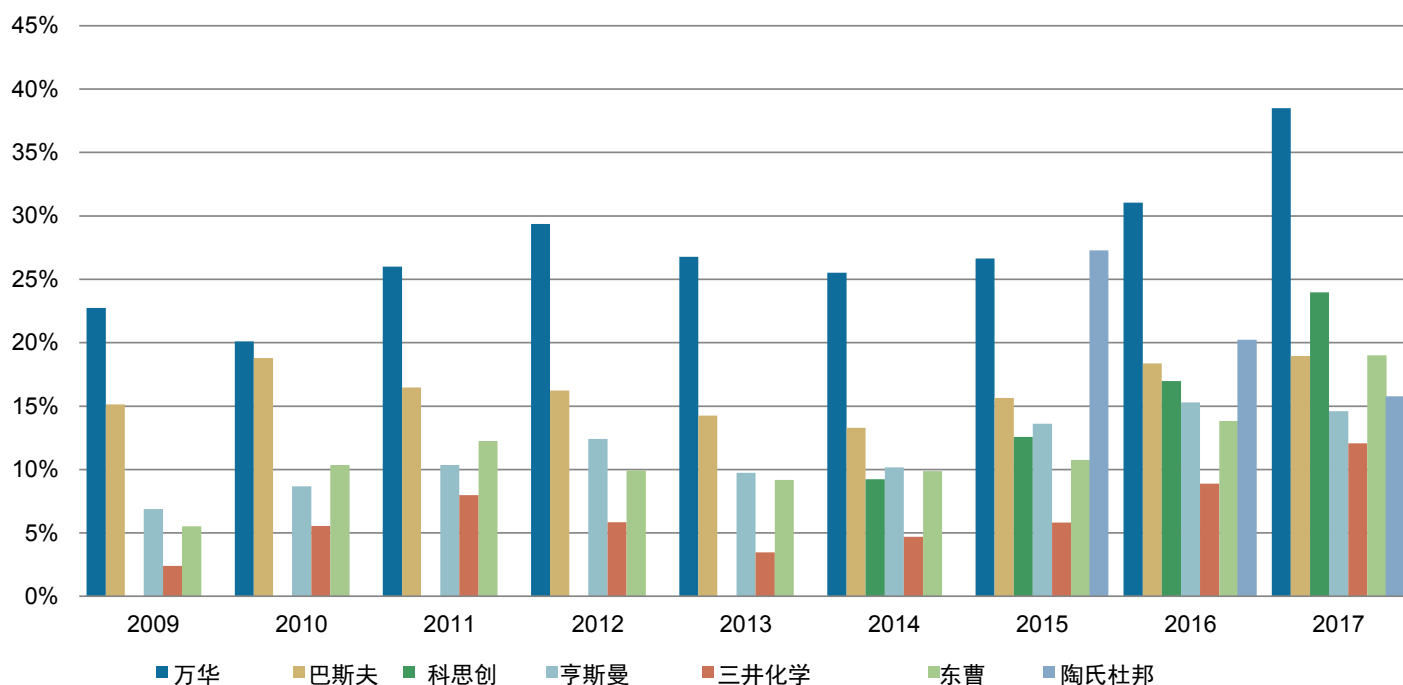
领先的行业地位，良好的规模效应，纵向一体化的商业模式另其盈利能力超越同侪。从2009年开始，万华的EBITDA已经超过其全球竞争对手。巴斯夫作为其中的佼佼者，其EBITDA在2010年和万华相近，但是，自从2011年起，万华的 EBITDA 已经超越巴斯夫。巴斯夫2012年报显示，其日益增长的原材料成本难以向下游传递，亚洲分部和美国分部的影响尤为严重，业绩增长承压。与此同时，万华在2012年以及2013年的收入增长分别为17%/27%，业绩表现出色。

受益于MDI景气度回升，从2015年起，万华的EBITDA表现远超同侪。不仅如此，万华EBITDA的复合增长率为27.4%（2009年至今）；因此，即使MDI价格下滑，万华的MDI利润仍然可以保持健康状态（2018-2020），公司整体盈利能力坚挺。

图 25:

万华 EBITDA 能力对比

Wanhua's EBITDA margin vs. international peers'



Source: Company data, Thomson Reuters, Morgan Stanley Research.

核心争论 2: 万华能否在新产品上取得突破

市场观点- 不能: 万华并无新产品的生产经验和销售网络, 如PC, SAP等。因此, 公司可能会陷入低利用率或低利润率的困境, 接下来的两到三年间, 公司利润或许不达预期。

摩根观点 - 能: 就目前而言, 新产品的表现可能不如MDI, 但是其进入壁垒高, 进口替代机会广阔。我们相信万华将会在新品上成功复制其在MDI上的成功经验。保守估计万华的非MDI新品将会带来32亿(2018)/95亿(2023)的收益(原文earnings, 一般指投资类收入, 这里应该是指税前利润)。这将有助于公司提高其多元化程度。

在过去的数年里, 万华一直致力于产品多元化。除MDI与TDI外, 已涉及产品包括1) 聚醚多元醇; 2) 热塑性聚氨酯(TPU); 3) 脂肪族二异氰酸酯(ADI); 4) 甲基二苯胺(MDA); 5) 涂料; 6) 聚氯乙烯(PVC) and 7) 环氧丙烷(PO)

图 27:

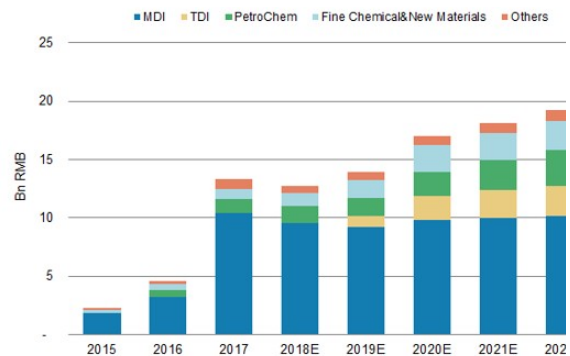
Wanhua: Capacities & Project Pipeline

	设计产能 (千吨)	2017 利用率	新增产能 (千吨)	预期启动时间
Ningbo MDI	1,200	88%		
Yantai MDI	600	84%		
Yantai 石化 PO/AE	1,790	98%		
Yantai SAP	30	53%	30	Dec-18
Yantai PC 一期			70	Jan-18
Yantai PC 二期			130	Feb-19
Yantai TDI			300	Oct-18
Yantai PMMA			80	Oct-18
Yantai MMA			50	Oct-18

在2017年, 这些新品贡献了27亿的利润, 占总利润的22%。如图27所示, 随着产能扩张与利用率提高, 万华的新产品将带来72亿的净利润, 占总利润的42%。

图26:

新产品利润贡献显著

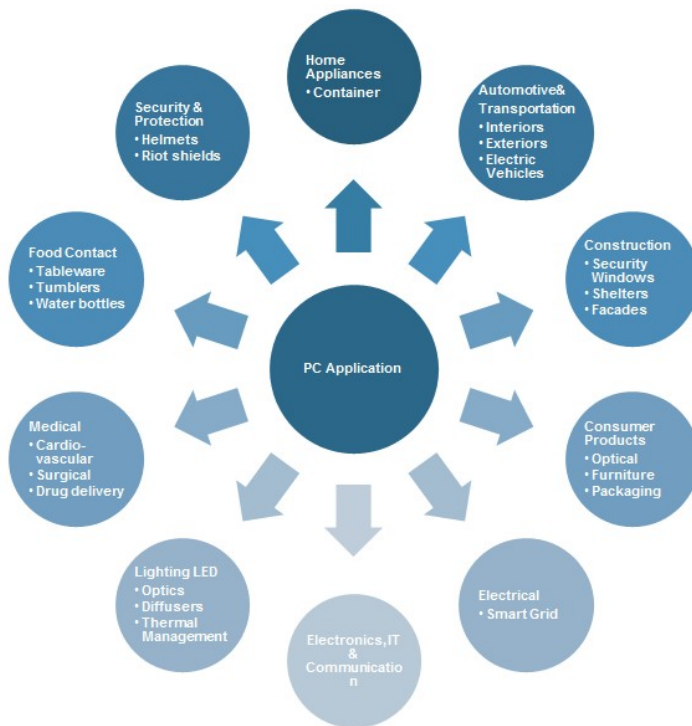


Source: Company data, Morgan Stanley Research and Estimates.

PC, SAP, 涂料需求前景乐观

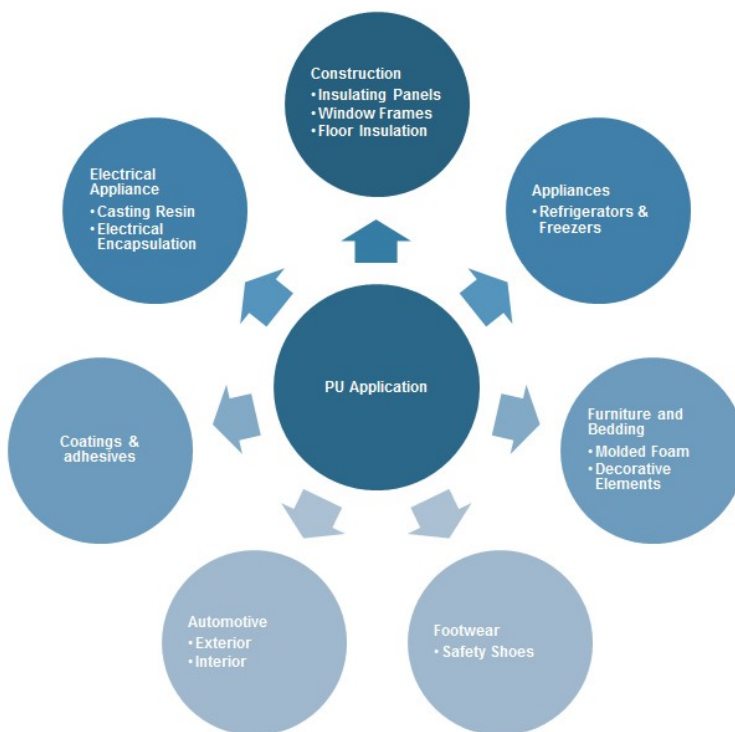
如下表所示，PC和PU 应用场景广阔。如建筑，家用电器，家具，汽车等...PC具有强度高，透光性好，耐冲击等特点，是绝佳的玻璃替代品，现已广泛应用于电子行业-例如，智能手机，电脑，LED照明等。PU的通用性更强，在家装弹性泡沫，屋顶隔热材料，航天器外表涂料，汽车弹性体材料等市场都有广泛应用。如此广阔的应用场景为未来的需求提供了强有力的保障。

图 28:
PC 应用场景



Source: Covestro, Wind, Morgan Stanley Research.

图 29:
PU应用场景



Source: BorsodChem, Morgan Stanley Research.

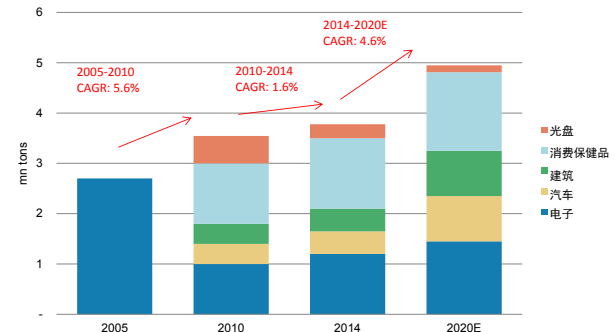
以PC为例，2010--2017，中国PC产能复合增长率为17%，63万吨，总的消费量为173万吨。2017年，国务院通过了一项决议--禁止垃圾进口以及整改固体废弃物进口管理系统。海关当局表示，此举将使得塑料进口量由2016年的735万吨降低至2017年的583万吨。而PC废弃物占到整个塑料废弃物进口量的13%左右，

这将为中国市场带来每年20万吨的PC需求。因此我们认为中国PC消费量增速将高于世界均值--4.6%。强劲的需求，有限的供给，这就是中国PC行业的写照，毫无疑问，PC将会是万华的下一个利润爆点。

图 30:
中国 PC 产量

Source: NBS, Wind, CEIC, Chyxx, Morgan Stanley Research.

图 31:
全球 PC 消费量及增长率
Global PC Consumption Trend



Source: MIT, NBS, Wind, Chyxx, CEIC, Morgan Stanley Research.

图 32:
中国 PC 净进口量 & 平均进/出口价格

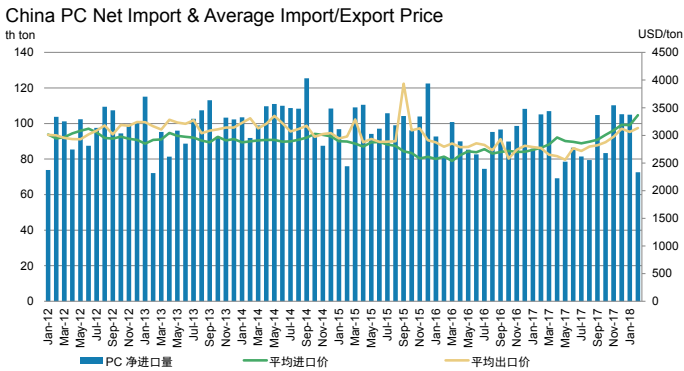
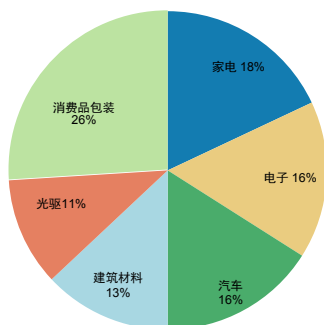
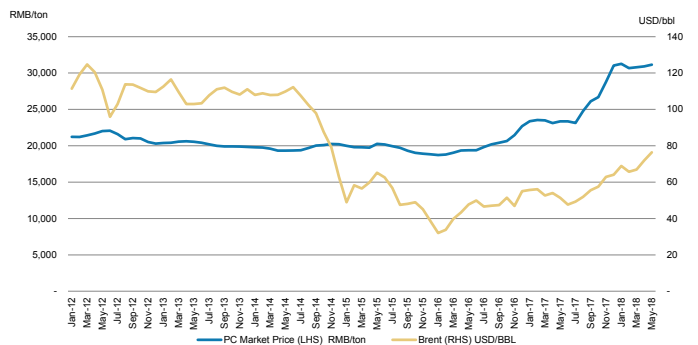


图 34:
全球 PC 下游需求分解, 2017
Global PC downstream demand breakdown, 2017



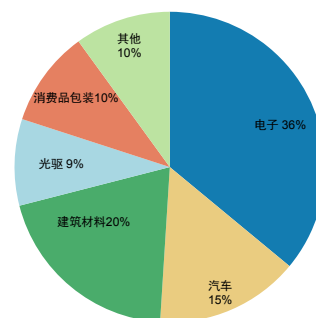
Source: Chyxx, Wind, Morgan Stanley Research.

图 33:
中国 PC 市场价 vs. 布伦特原油



Source: Wind, CEIC, Thomson Reuters, Morgan Stanley Research.

图35:
中国 PC 下游需求分解, 2017
China PC downstream demand breakdown, 2017



Source: Chyxx, Wind, Morgan Stanley Research.

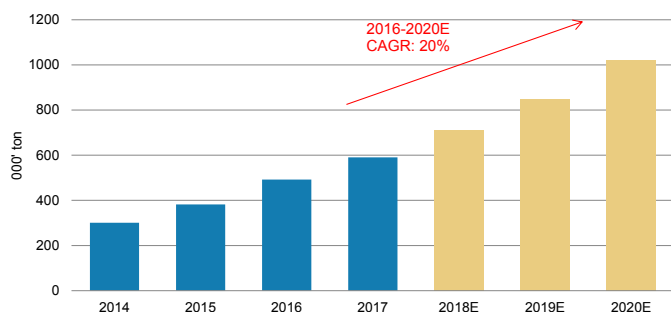


SAP与表面涂料的需求前景也同样广阔。

中国SAP市场的复合增长率为20%（2015-2017），鉴于放开二胎政策以及人口老龄化，后续增速有望继续保持。

图 36:

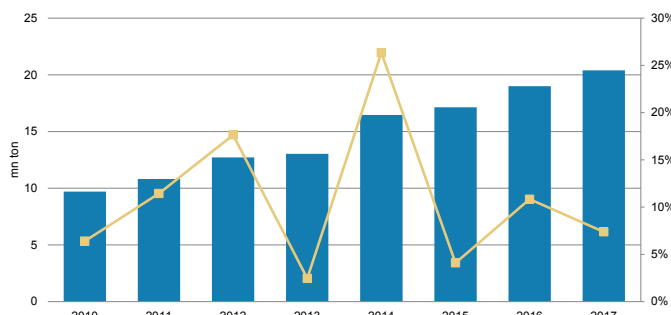
中国SAP复合增长率
China SAP Demand & CAGR



Source: Wind, Morgan Stanley Research and estimates.

图 38:

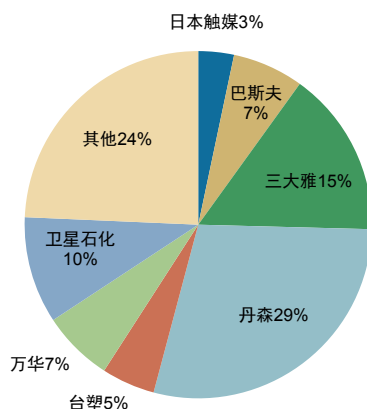
涂料 - 国内表观消费量及增速



Source: Wind, CEIC, Morgan Stanley Research.

图 40:

中国 SAP 市场份额, 2017

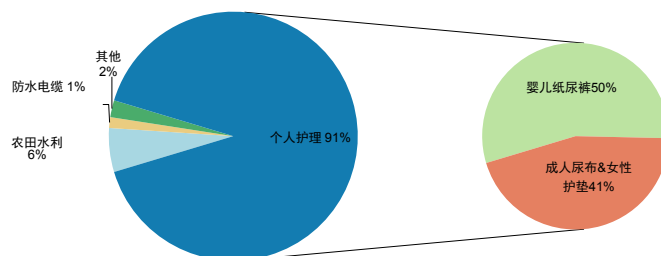


Source: Chyxx, Wind, Morgan Stanley Research.

中国涂料市场的复合增长率为11%（2011-2017），鉴于环保政策趋严，其中水性涂料市场的复合增长率有望达到13%（2018-2019）。

图 37:

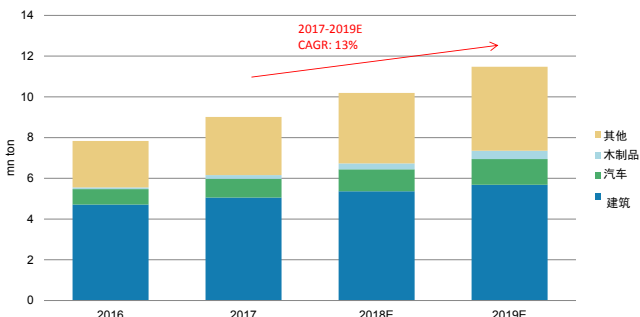
中国SAP下游需求分类, 2017
China SAP Downstream Demand Breakdown, 2017



Source: Chyxx, Wind, Morgan Stanley Research.

图 39:

水性涂料需求分解



Source: Wind, CEIC, Morgan Stanley Research and estimates.



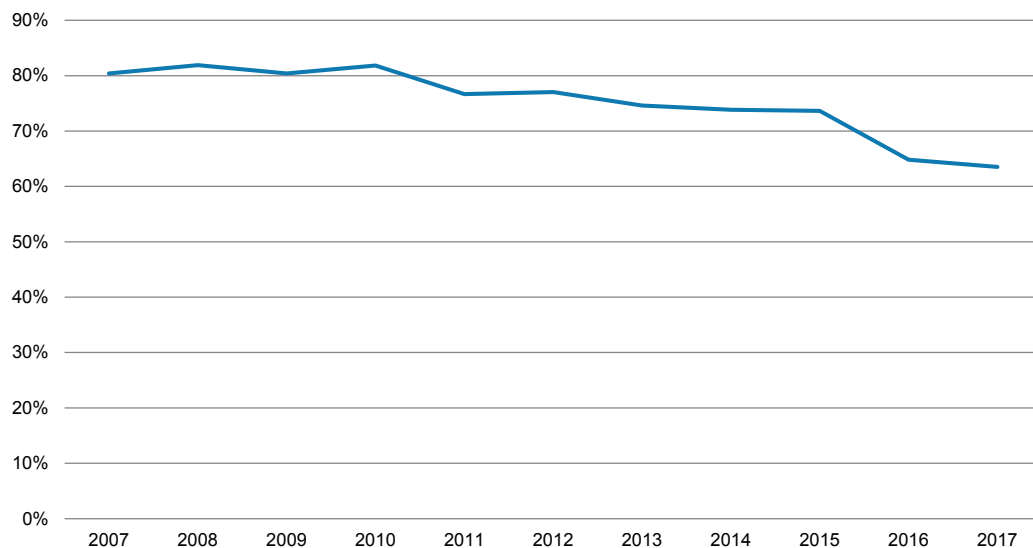
供给不足，新品利润率高:与MDI/TDI类似，万华将新品目光投注在那些具有高进入壁垒与进口依存度高的产业上。有效避免了与那些产能过剩行业的企业相厮杀。

正如图41所示，在过去的十年间，中国的PC进口依存度非常高，万华的出现必将改善这一局面，并为自己带来可观的利润增长。

图 41:

国内PC依存度走势

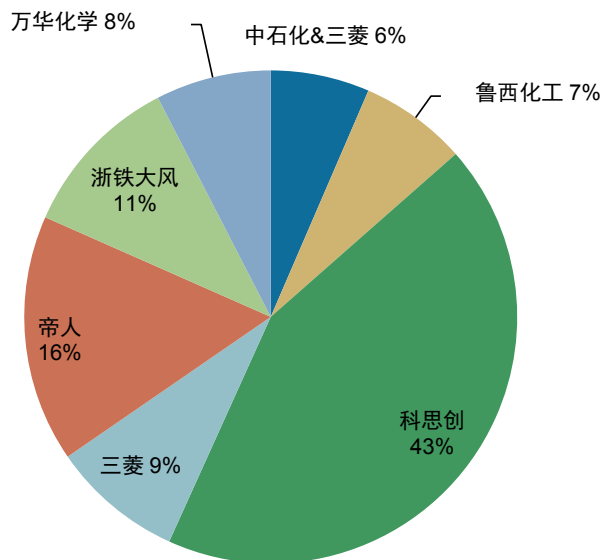
China Net Import Reliance on PC



Source: Wind, CEIC, Morgan Stanley Research.

图 42:

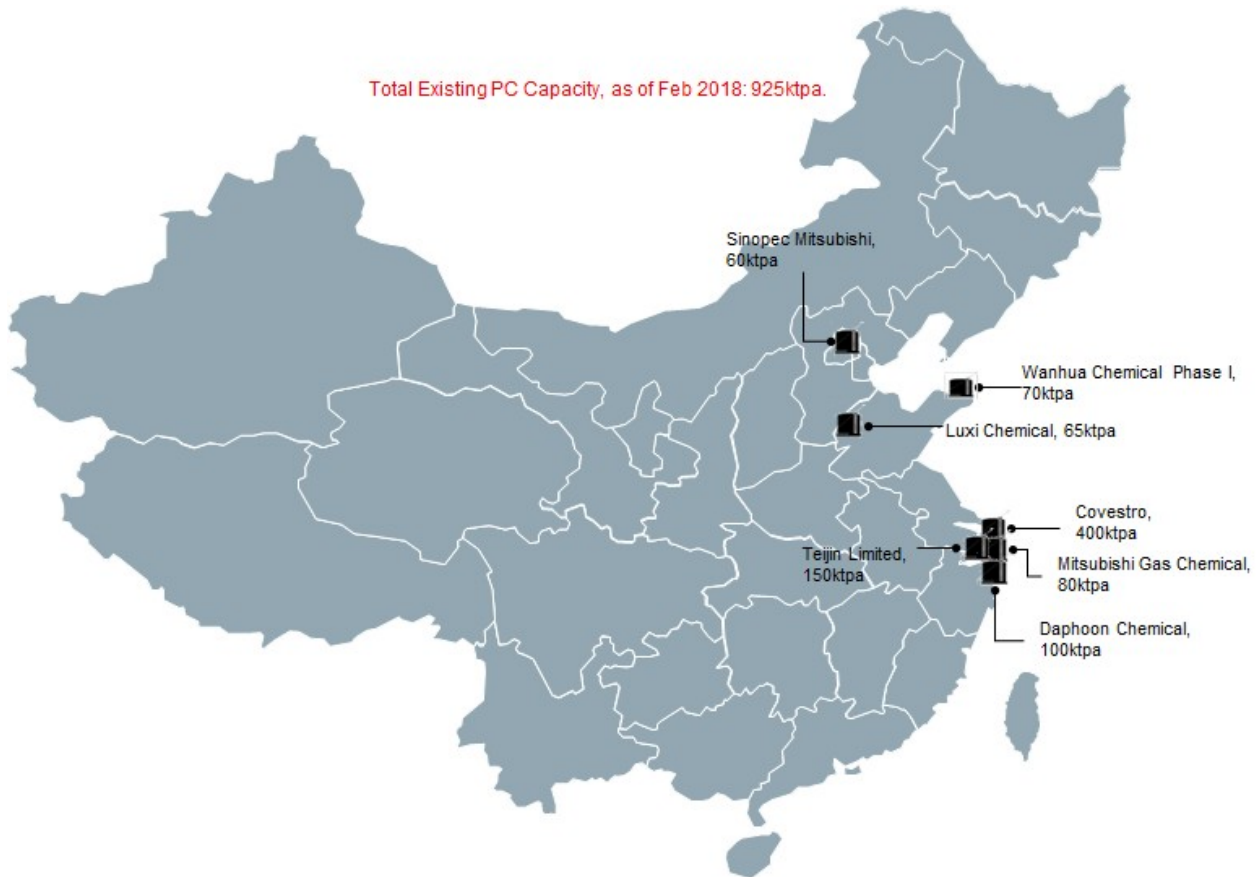
国内PC 市场份额, 2018



Source: Company data, Wind, Morgan Stanley Research.

图 43:

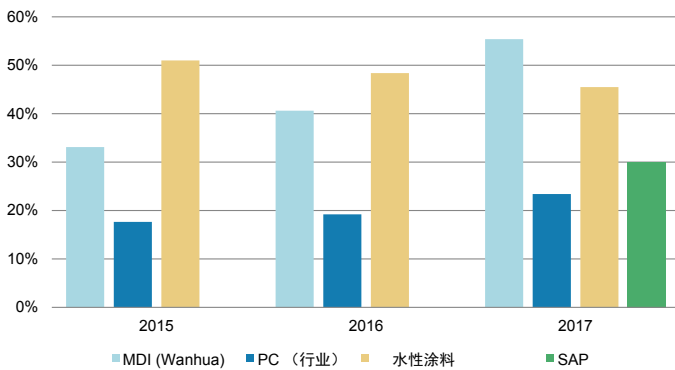
国内现有PC产能分布



Source: Company data, Wind, Morgan Stanley Research.

图 44:

新品利润率高, (PC, SAP, 水性涂料)



国内化工企业通过进军新产品来实现爆发式增长的成功范例很多。例如，2014年，浙江卫星石化成功开拓SAP业务，复合增长率高达31%（2014-2017）；同期，三棵树在涂料业务上取得突破性进展，在2017年实现了26.2亿的销售。他们都是国内化工企业锐意进取的典范。

万华一直致力于扩大其在石化领域的影响力。2017年，万华成为远东地区液化石油气大宗贸易标准合同制定委员会的首家中国成员，同时也是首家对沙特阿美拥有价格推荐权的中国企业。2016年，它已成功进入中东LPG价格委员会。万华同样注重研发创新，2017获批专利59个，在PC上，万华十年磨一剑，其产品质量令客户赞不绝口。在SAP上，万华已有能力涉足高端个人护理产品，这部分目前还处于市场空白期。鉴于万华在MDI上的卓越表现以及强大的工业能力，其新品开拓成功率非常可观。

基于我们对各产线的预测，万华的新产品将在2020年为公司带来72亿元净利润（2017年利润29亿），复合增长率36%，这将为万华未来3-5年的高增长带来强力支撑。

图 45: 万华大乙烯项目明细

Wanhua's New Cracker Investment Plan				
Project name	Status	Start-up	Location	Total Investment
Polyurethane Industry Chain Integration-Ethylene Project	Under construction	mid-2020	Yantai, Shandong	RMB17.67bn
Production Unit	Capacity (000' ton)	Feedstock		
		C3, Ethane		
PE Unit	1,000	(by-product from Wanhua PC Phase I)		
PVC Unit	400			
EO Unit	150	HCL		
LLDPE Unit	450	(by-product from Wanhua MDI project)		
PO/SM Unit	PO: 300; SM: 650			
BD Unit	50			

Source: Company data, ICIS, Sohu, Morgan Stanley Research.

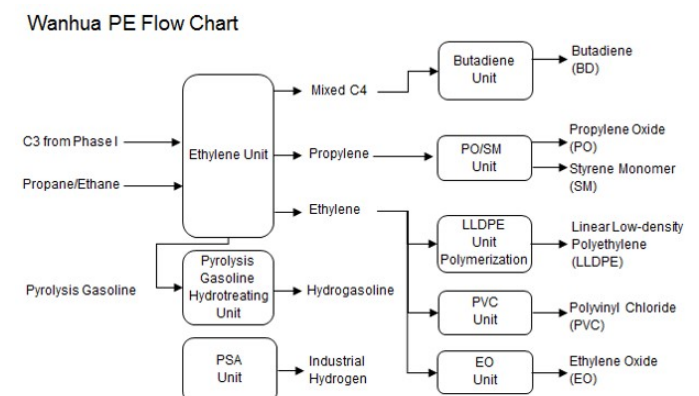
聚乙烯将在2020年成为新的利润增长点

至2020年，万华的大乙烯项目将成为其新的利润引擎，目前公司已在烟台开始建设初期环保装置。如图45所示，全部项目投资将高达170-180亿。假设其ROA水平和中石化上海分公司相齐，将在2020年带来28亿元的新增利润。

我们预期大乙烯项目利润巨大，理由有三：

1. 万华目前已有成熟的大乙烯工艺链，协同效应良好。
2. 万华大乙烯项目的原料为C3&C4，对比同行的原料--石脑油，有着巨大的成本优势。
3. 万华在其他新品上的研发创新优势以及其一体化的商务模式将会为大乙烯项目带来更高的边际利润。

图 46: 万华大乙烯项目产业链示意



Source: Zhuochuang, Sohu, Morgan Stanley Research.



核心争论 3: 万华能否成为世界化工巨头

市场观点- 希望渺茫: 万华目前还是中国本土企业，服务本土市场，没有国际化经验，成为世界巨头遥遥无期。

摩根观点 - 已经起航: 事实上，注入了BC后，万华实际上已经成为了国际企业。不仅如此，公司每年都要出口**24%**的MDI产品，其在美国本土开设工厂的计划也彰显了管理层的全球化野心

自从**2018年5月10日**，公司宣布其资产注入预案时，万华已经正式开始了其国际化进程：如图**48**所示，公司目前生产装置分布于烟台，宁波，珠海，匈牙利，并在日本，韩国，俄罗斯，美国，荷兰，迪拜，印度铺设了销售网络。

我们相信国际化对于万华益处多多 - 国际化意味着公司盈利波动性降低，并且其在欧洲的生产装置已经平稳运行了5年之久，为公司之后的国际化进程提供了借鉴，进一步降低了全球化风险。

图 47:

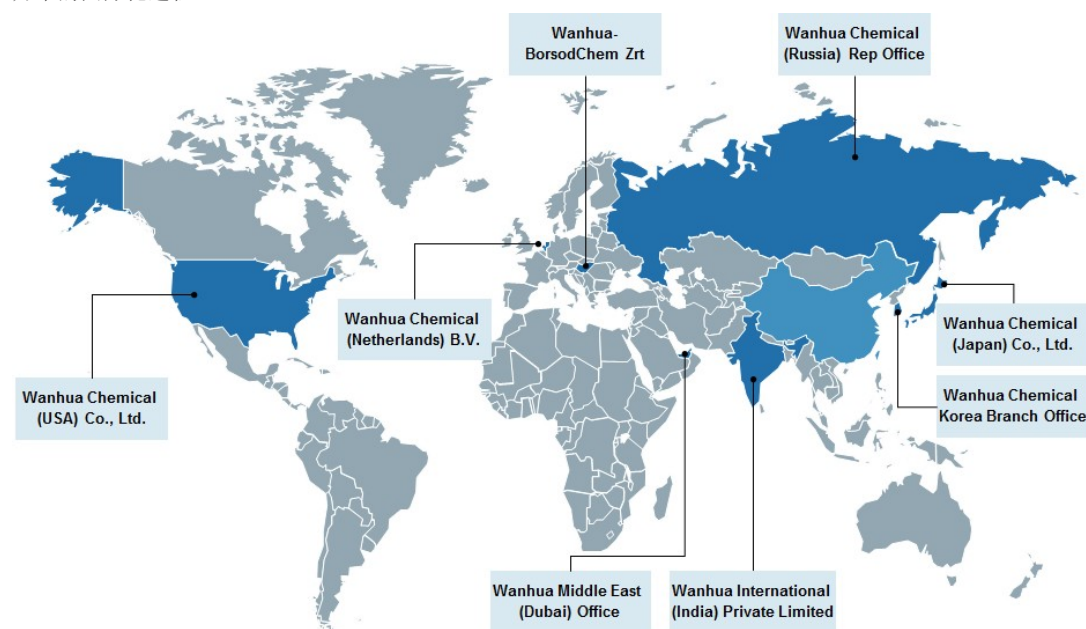
万华资产注入明细

注入前股本	注入后股本	实际新增股本	转增股本对价	新增股本实际价格 (单位: 十亿元)	注入资产估值 (单位: 十亿元)	预估市盈率
2,734,012,800	3,139,565,565	405,552,765	30.43	12.34	> 3	< 5

Source: Company data, Morgan Stanley Research.

图 48:

万华的国际化进程



Source: Company data, Wind, Bloomberg, Morgan Stanley Research.



美国MDI工厂彰显公司野心：如图49所示，万华计划在美国路易斯安那州开建新MDI厂，设计产能40万吨。这彰显出公司在海外扩张的前瞻性。一旦美国的新工厂建设完成，万华将在全球所有主要终端市场上都有生产装置布局，真正意义上成为三大市场--亚洲，欧洲，北美的大玩家。

如下表所示，美国预计在2017-2022年间，MDI处于供不应求状态，这是万华建厂的基础逻辑，但由于亨斯曼计划在2020年前在美国新增40万吨产能，万华将会谨慎评估行业前景并选择合适机会扩张。

图 49:

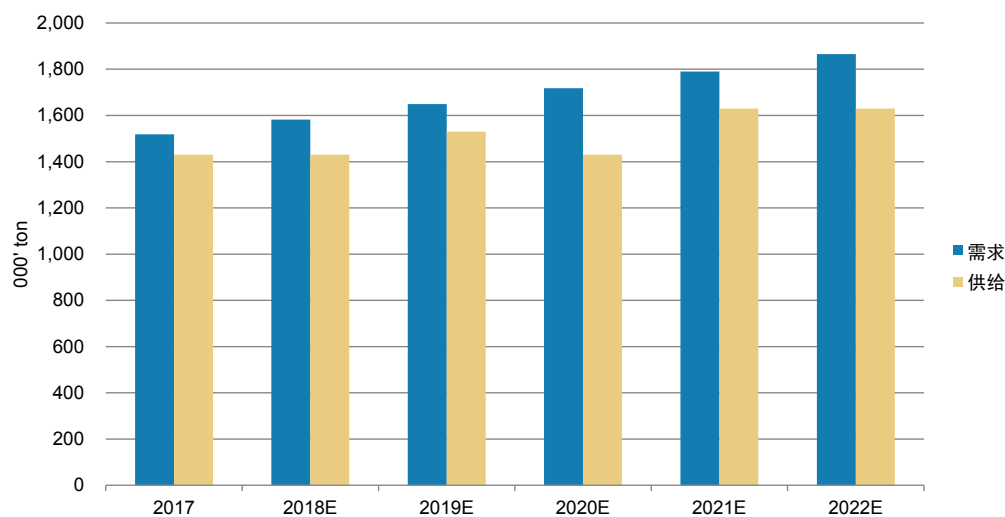
万华美国新工厂明细

项目	产能	预计完工日期	地点	出资比例
MDI facility	400 kt/per year	2020	Louisiana, US	Total Investment: USD1.12bn; Wanhua: USD954mn, 85%; Project Partner: USD166mn, 15%.

Source: Mofcom, Morgan Stanley Research.

图 50:

美国MDI供求预测

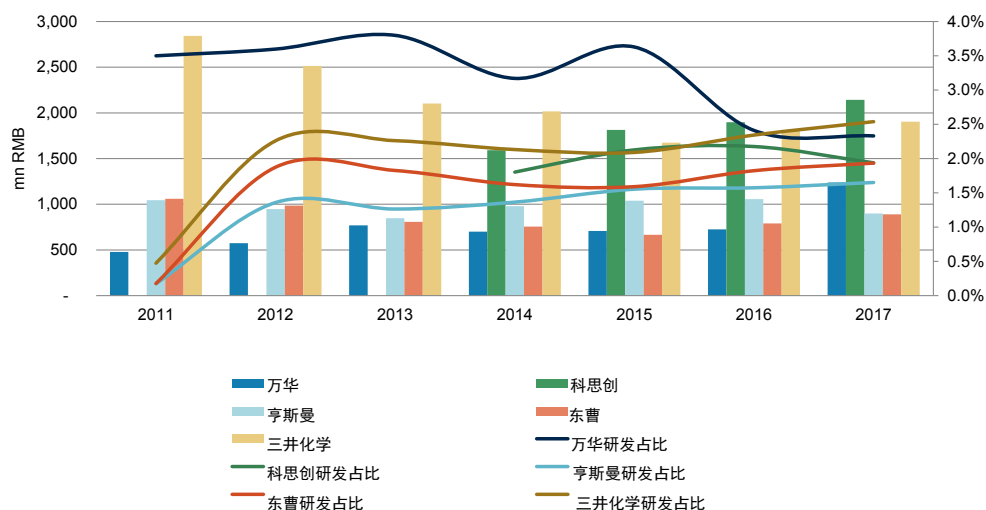


Source: Morgan Stanley Research and Estimates.

持续的研发投入于欣平开发同样至关重要：国际化工巨头区别于普通化工企业的一点就是拥有不断开发新品以满足消费者需求的能力。如图51所示，万华每年将其营收的3%用于研发，是中国化工行业中最重视研发的企业之一。2017年，其研发支出高达10亿

正是由于持续不断的研发投入，公司才能持续创新，改善工艺流程，这将极大增强公司的成本优势和新品研发能力。

图 51:
万华研发支出占比（对比同行）



Source: Company data, Morgan Stanley Research.

图 52:
万华研发成果总览

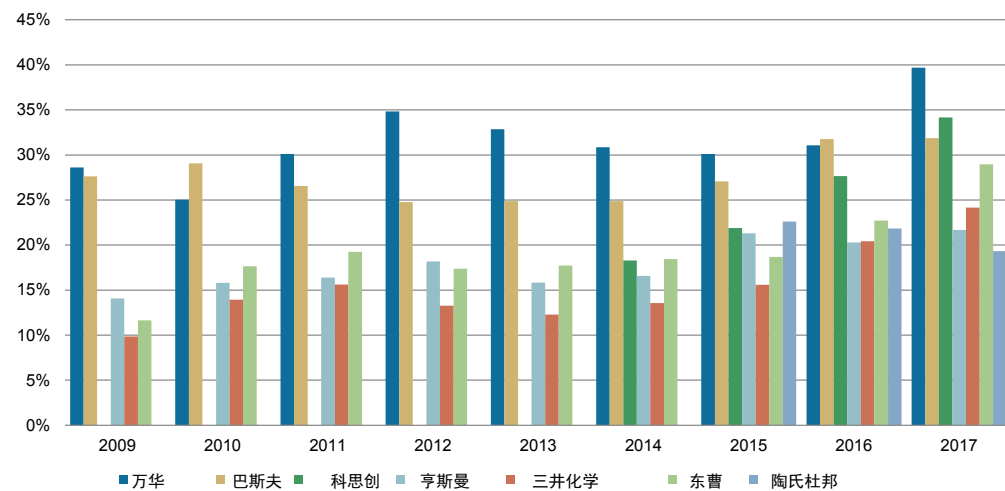
时间	聚氨酯	石化	新材料&精细化工
2015	MDI核心工艺——液相光气法升级成功	万华自主研发的NPG装置成功运行	万华 HMDA 装置及自主研发的混合性有机挥发物消除装置成功运行，成功成为首个能够生产低挥发性丙烯酸乳液的企业。
2016	1. 宁波装置改造，HDI质量跃居世界前列 2. 高端聚氨酯产品研发成功，受到客户一致好评。	HEMA及CDT量产测试通过	1. 全新IPDI生产装置的成功投产,万华化学成为全球少数拥有"IP-IPN-IPDA-IPDI"全产业链核心技术的企业之一 2. 万华SAP及聚醚多元醇的高端产品成功量产
2017	TDI及其化合物研发进入正轨	通过工艺改善及系统优化 PDH 及其他石化装置稼动率大为提升，能耗显著降低	万华成为首家拥有自主知识产权的界面光气法聚碳酸酯装置成功运行

Source: Company data, Morgan Stanley Research.



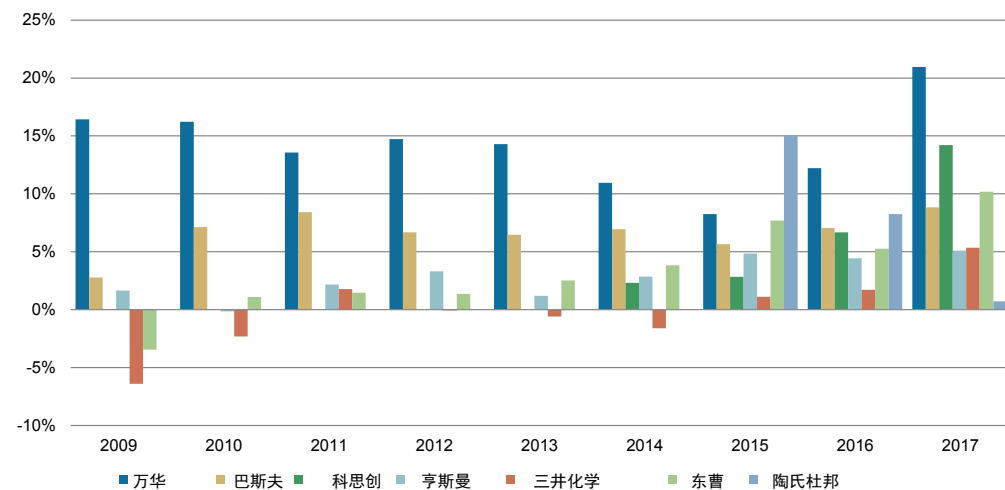
相较于其他国内化工企业，万华的研发努力将会迅速缩短其余世界化工巨头的差距，支撑其在成为世界一流化工企业的路上越走越远。

图 53:
万华毛利率走势（对比国际同行）



Source: Company data, Thomson Reuters, Morgan Stanley Research.

图 54:
万华净利率走势（对比国际同行）



Source: Company data, Thomson Reuters, Morgan Stanley Research.



2018-2020盈利预测修正

我们认为万华的高盈利能力是可持续的，对其未来三年的利润预测修正如下：

- MDI-TDI：利润148亿-185亿（2018-2020），主要受TDI新增产能所致。
- 石化产品：2018-2020利润分别为23亿/24亿/31亿，复合增长率17%

- 新材料： 预计2020年利润36亿（PC, MMA, PMMA, SAP, 水性涂料）

受中东新增产能影响，MDI利润在2018-2019预计承压，随着产能利用率提升，利润将会在2020年回升。考虑到原材料价格上涨因素，对于其他产品，下修齐利润率预测38%（2017）-25%（2018-2020）。

图 55:

万华盈利预测

(Rmb mn)	2018E			2019E			2020E		
	New Est	Org Est	% Diff	New Est	Org Est	% Diff	New Est	Org Est	% Diff
营业收入	54,672	52,248	5%	63,154	52,539	20%	76,235	n.a.	n.a.
营业利润	16,238	13,984	16%	17,664	14,032	26%	21,569	n.a.	n.a.
息税前利润	15,943	13,427	19%	17,360	13,434	29%	21,246	n.a.	n.a.
净利润	12,754	8,593	48%	13,888	8,598	62%	16,997	n.a.	n.a.
EPS	4.67	3.14	48%	5.08	3.14	62%	6.22	n.a.	n.a.

Ratio Analysis	2018E			2019E			2020E		
	New Est	Org Est	Ppts Chg	New Est	Org Est	Ppts Chg	New Est	Org Est	Ppts Chg
毛利率	36%	33%	3	34%	33%	1	34%	n.a.	n.a.
营运利润率	30%	27%	3	28%	27%	1	28%	n.a.	n.a.
净利率	23%	16%	7	22%	16%	6	22%	n.a.	n.a.

Source: Morgan Stanley Research estimates

Exhibit 56:

Gross Margin Breakdown

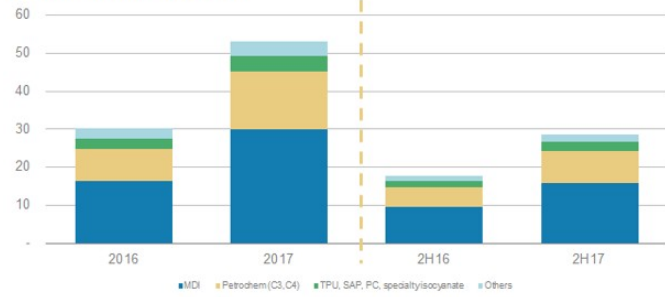
Gross Margin Breakdown	2018	2019	2020
MDI	54%	52%	54%
TDI	10%	30%	40%
石化	13%	13%	13%
新材料&精细化工	32%	33%	35%
Others	25%	25%	25%

Source: Morgan Stanley Research and Estimates.

图 57:

万华-营收

Wanhua Revenue (Rmb bn)

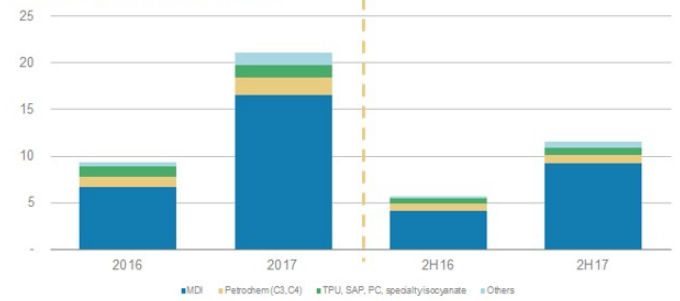


Source: Company data, Morgan Stanley Research

图 58:

万华-净利润

Wanhua Gross Profit (Rmb bn)



Source: Company data, Morgan Stanley Research

图 59:

万华: 各分部营运数据

	2016	1Q17	2Q17	3Q17	4Q17	1Q18	QoQ
Production (ktons)							
Polyurethane (MDI)	1,435	349	524	500	446	421	-6%
Petrochem (C3,C4)	1,346	377	491	479	248	384	55%
TPU, SAP, PC, specialty isocyanate	163	55	57	69	74	83	13%
销量 (ktons)							
Polyurethane (MDI)	1,439	401	468	514	420	442	5%
Petrochem (C3,C4, LPG trading)	1,278	671	845	1,016	784	720	-8%
TPU, SAP, PC, specialty isocyanate	159	43	53	77	67	56	-16%
营收 (Rmb mn)							
Polyurethane (MDI)	16,417	6,080	7,900	8,446	7,409	8,148	10%
Petrochem (C3,C4, LPG trading)	8,261	3,316	3,601	3,842	4,548	3,477	-24%
TPU, SAP, PC, specialty isocyanate	2,732	811	956	1,253	1,176	1,081	-8%
均价 (Rmb/ton)							
Polyurethane (MDI)	11,406	15,168	16,895	16,444	17,630	18,434	5%
Petrochem (C3,C4, LPG trading)	6,462	4,945	4,260	3,781	5,800	4,829	-17%
TPU, SAP, PC, specialty isocyanate	17,204	18,836	18,032	16,359	17,594	19,304	10%

Source: Company data, Morgan Stanley Research

图 60:

万华: 各分部营收利润预计

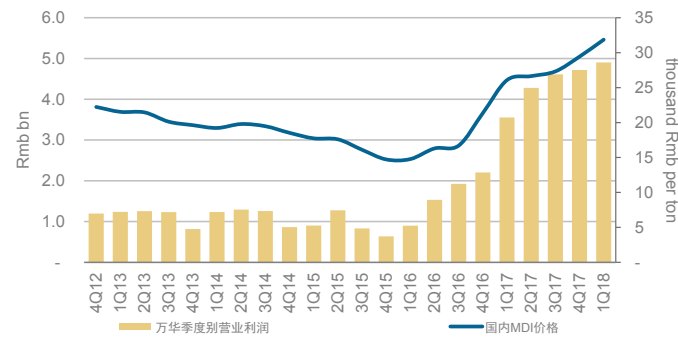
	2016	1Q17	2Q17	3Q17	4Q17	1Q18	
营收 (Rmb mn)							
Isocyanate (MDI-TDI)	14,540	16,417	29,834	27,684	32,497	36,358	
Petrochem (C3,C4, LPG trading)	539	8,261	15,307	17,680	18,917	24,592	
Fine Chemical&New Materials	1,982	2,732	4,197	5,457	7,366	10,313	
Others	2,149	2,415	3,402	3,470	3,990	4,589	
成本 (Rmb mn)							
Isocyanate (MDI-TDI)	(9,725)	(9,749)	(13,304)	(12,838)	(16,638)	(17,849)	
Petrochem (C3,C4, LPG trading)	(535)	(7,088)	(13,397)	(15,381)	(16,534)	(21,444)	
Fine Chemical&New Materials	(1,346)	(1,346)	(1,346)	(1,346)	(1,346)	(1,346)	
Others	(1,733)	(1,956)	(2,108)	(2,602)	(2,993)	(3,442)	
毛利润 (Rmb mn)							
Isocyanate (MDI-TDI)	4,815	6,669	16,530	14,845	15,859	18,509	
Petrochem (C3,C4, LPG trading)	4	1,173	1,910	2,298	2,384	3,148	
Fine Chemical&New Materials	636	1,385	2,851	4,110	6,020	8,967	
Others	416	458	1,294	867	998	1,147	

Source: Company data, Morgan Stanley Research

图 61:

万华: 季度别营业利润 vs. MDI 价格

Wanhua Quarterly Operating Profit vs MDI Price



Source: Wind, Company data, Morgan Stanley Research

图 62:

万华: 季度别营业利润 vs. MDI-苯 价差

Wanhua Quarterly Operating Profit vs MDI-Benzene Spread

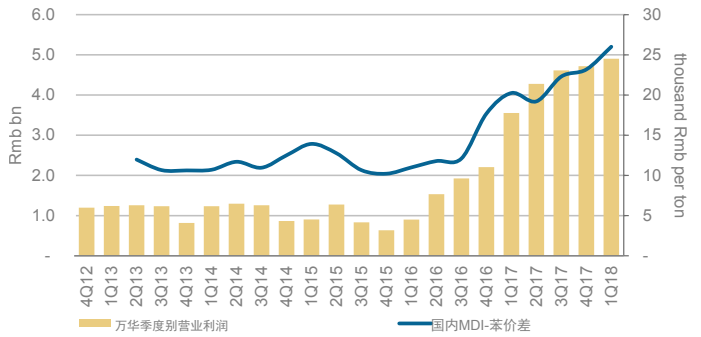
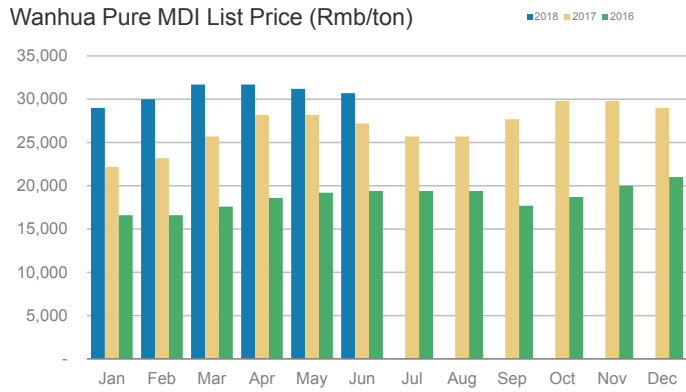


图 63:

万华纯MDI挂牌价2016 - 2018

Wanhua Pure MDI List Price (Rmb/ton)

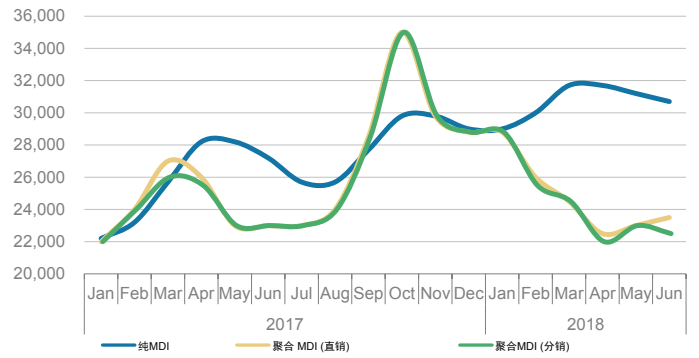


Source: Company data, Morgan Stanley Research

图 64:

万华MDI挂牌价走势-纯MDI&聚合MDI (直销& 分销)

Wanhua MDI List Price in 2017 & 1Q18 (Rmb/ton)



估值方法与目标价

根据现金流折现法，我们估计出万华目标价¥58.79，并将β值由0.9提升至1.1（参考万得1.3X, 彭博0.9X）；加权平均资本成本（这里应该是用作折现率估计了）则由7.4%上升至8.2%。同时，由于万华盈利暴涨导致基数升高（2016/37亿--2017/111亿），我们下修了长期增长率（0.5%--0.1%）。

这些因素将分别降低万华估值10%与2%，尽管如此，我们仍旧上调其目标价的37%，因为我们相信在2018--2020年，万华MDI稳中向好，新产品多点开花，盈利可期。

图 65:

万华化学: DCF估值

Wanhua Chemical Group - DCF Valuation

加权平均资本成本计算

无风险利率	3.5%
风险溢价	6.5%
Beta	1.10
权益成本	10.7%
税前债务成本	6.0%
负债率	25%
税后债务成本	4.5%
权益比率	0.60
加权平均资本成本	8.2%
长期增长率 (g)	0.1%

	明确预计				模糊预计												
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14		
<i>Unit: RMB bn</i>	2017A	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E	
息税前利润	17.3	16.3	17.8	21.7	22.8	23.9	20.8	19.8	19.6	19.6	19.6	19.6	19.6	19.6	19.6	18.2	
<i>Growth of EBIT</i>	162%	-5%	9%	22%	5%	5%	-13%	-5%	-1%	0%	0%	0%	0%	0%	0%	-7%	
+ 折旧 & 摊销	3.2	3.3	3.5	3.6	3.6	4.0	4.3	4.6	5.0	5.3	5.7	6.0	6.4	6.8	7.2	7.6	
- 税	3.4	3.2	3.5	4.2	4.5	4.7	4.1	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.7	
- 净营运资本	6.9	2.5	3.5	3.5	1.9	2.2	2.2	1.2	1.3	1.4	1.4	1.5	1.4	1.4	1.5	1.6	
- 资本性支出	6.0	5.4	5.5	5.6	5.7	5.8	5.9	6.0	6.2	6.3	6.4	6.5	6.7	6.8	6.9	7.1	
自由现金流折现 (FCFF)	4.1	8.7	8.8	11.9	14.3	15.1	12.9	13.2	13.1	13.3	13.5	13.7	14.0	14.2	14.4	13.5	167
现值	4.1	8.7	8.2	10.2	11.3	11.1	8.7	8.2	7.6	7.1	6.6	6.2	5.9	5.5	5.2	4.5	55
求和		170															
净现金/债务		(9)															
股权总价值		161															
总股本 (bn)		2.7															
每股价值(RMB)		58.79															

Source: Company data, Morgan Stanley Research. E= Morgan Stanley Research estimates.



情景分析法

图 66:

万华股价关键假设（牛市，正常，熊市）

Key Assumption

Revenue Growth rate				Revenue Growth rate				Revenue Growth rate			
PetroChem	16%	7%	30%	PetroChem	20%	13%	35%	PetroChem	11%	2%	15%
Fine Chemical & New Materials	30%	35%	40%	Fine Chemical	35%	40%	45%	Fine Chemical	17%	16%	19%
Others	2%	15%	15%	Others	7%	20%	20%	Others	0%	10%	10%
Gross Margin				Gross Margin				Gross Margin			
MDI	54%	52%	54%	MDI	55%	53%	55%	MDI	44%	42%	44%
TDI	10%	30%	40%	TDI	15%	35%	45%	TDI	5%	25%	35%
PetroChem	13%	13%	13%	PetroChem	18%	18%	18%	PetroChem	8%	8%	8%
Fine Chemical & New Materials	32%	33%	35%	Fine Chemical	37%	38%	40%	Fine Chemical	22%	23%	25%
Others	25%	25%	25%	Others	30%	30%	30%	Others	15%	15%	15%
Price YoY Change				Price YoY Change				Price YoY Change			
MDI	-8%	0%	0%	MDI	5%	5%	5%	MDI	-18%	-18%	-18%
TDI	0%	0%	0%	TDI	4%	4%	4%	TDI	-10%	-10%	-10%

Source: Morgan Stanley Research Estimates.

风险提示

MDI价格是2018-2019年万华利润的关键变量

我们的估值是基于MDI价格在2018-2019维持坚挺的假设下做出的，逻辑是新增产能有限，寡头厂商以利润最大化为战略导向，但MDI价格回落风险仍不容忽视。

如图67及图68所示，2017年万华的MDI产能利用率大于80%，接近国际乙烯装置利用率（中石化上海分部的利用率接近100%）。这意味着如果万华或者任何一个MDI厂商改变其竞争策略--由利润最大化变为销量最大化，MDI供给将会在短期内猛增，MDI价格将承受巨大压力。

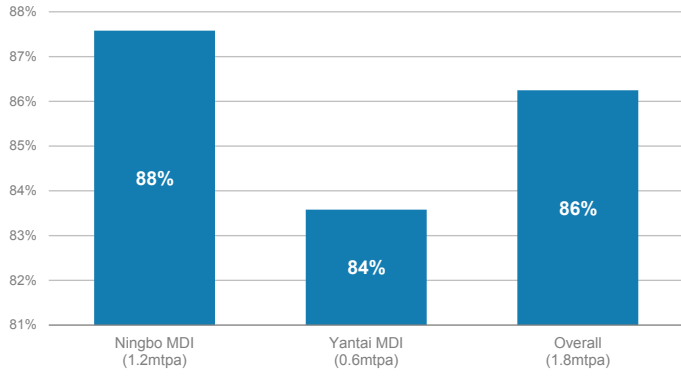
然而，这种情况发生的可能性极低。与普通日化品（本土厂商，分散化）市场不同，MDI市场是国际化，寡头化的，万华是唯一的中国玩家，只要万华自己不患失心疯死命打价格战，其他巨头非常乐意维持现状。并且由于市场准入门槛极高，没有外来者打破平衡，MDI价格将长期在可控区间内稳定运行。

如果这一场景真的出现，万华的利润将面临下滑风险，股价也随之承压，如图70所示，如果MDI价格下跌2000元/吨，万华利润将下滑23%，PE将会提高至13.3x。

图 67:

万华MDI利用率 2017: >80%

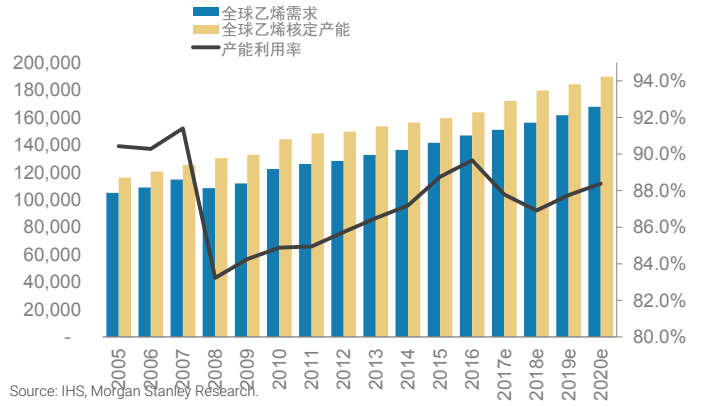
Wanhua MDI Utilization in 2017



Source: Company data, Morgan Stanley Research

图 68:

全球乙烯装置利用率>85%

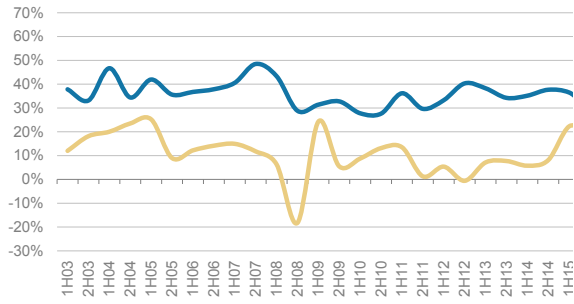


Source: IHS, Morgan Stanley Research.

图 69:

毛利润对比: 万华 MDI vs. 上海石化

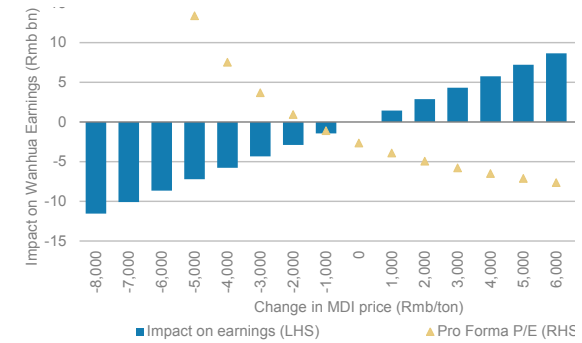
Gross Margin Comparison



Source: Company data, Morgan Stanley Research

图 70:

万华: 利润& P/E 敏感性测试 (MDI 价格)



Source: Company data, Morgan Stanley Research. Note: Closing price as of June 7, 2018

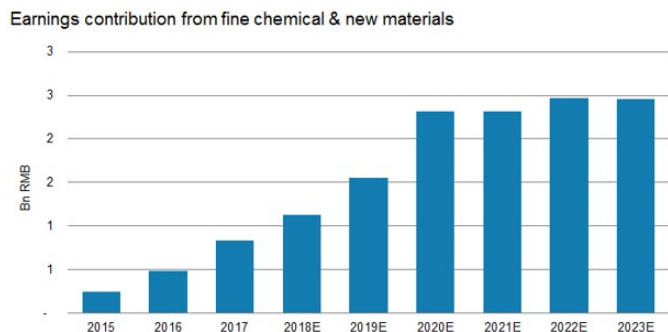


其他风险因素

1. 新产品量产推迟: 如果万华不能及时推出新品, (主要是 PC, SAP, 水性涂料, 如图72所示), 将会对盈利造成打击。
2. 欧洲生产装置一体化整合失败:如果整合失败, 对万华利润同样有负面影响, 当然, 这种情况概率不高, 毕竟欧洲工厂运行一直很稳定。

图 71:

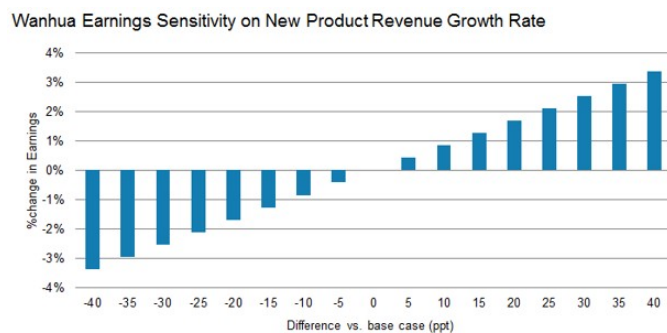
万华: 新品利润示意图



Source: Company data, Morgan Stanley Research and Estimates.

Exhibit 72:

万华 2018 新材料&精细化工盈利能力敏感性测试



Source: Morgan Stanley Research and Estimates.



附录

缩写

PU: Polyurethane is a plastic material composed of organic units joined by urethane links and has versatile applications based on its components.

MDI: Methylene diphenyl diisocyanate is an aromatic diisocyanate. There are two forms of MDI: pure MDI and polymeric MDI. Pure MDI, also known as monomeric MDI, is widely used in the production of polyurethane products, such as sealants, coatings, and elastomers. Polymeric MDI (PMDI) comprises mixed monomeric MDI and higher molecular weight types and can be used to produce different types of polyisocyanurate and thermoset foams, from rigid to flexible.

TDI: Toluene diisocyanate, is also an aromatic diisocyanate and is used in the production of flexible polyurethane foams for furniture, bedding as well as coatings. It can also help to reduce automobile parts' weight and thus improve fuel efficiency in transportation applications.

PC: Polycarbonate is one of the most widely used engineering thermoplastics. It has extraordinary characteristics in transparency, toughness, and thermal stability.

PE: Polyethylene is a thermoplastic polymer. It has a wide range of types with variable crystalline structure and applications. High Density Polyethylene (HDPE) is a strong, moderately stiff, much more crystalline material with higher density. Low Density Polyethylene, by contrast, has high ductility, low tensile strength, and unique flow properties.

SAP: Superabsorbent polymer is a material that can absorb and retain extremely large volumes of water and aqueous matter relative to its own mass.

Water-based Coating Materials: There are different types of coating materials based on the binder or resin from which they are made. Water-based coating materials have fewer odors and either no or less solvents, and thus lower VOCs outputs during production.

C3/C4: Propane (C3) and butane (C4), are two main components in light hydrocarbons. Both are extracted from petroleum and used for industrial and household purposes.

Polyether polyols: Polyether polyols are usually polyethers or polyesters. They react with isocyanates to produce different kinds of polyurethanes with various properties.

TPU: Thermoplastic polyurethanes, are high-tech materials which combine different excellent properties, including high elongation, tensile strength, elasticity, and good resistance to oil, grease solvents, chemicals, and abrasion.

ADI: Aliphatic diisocyanates are specialty intermediate chemicals, mainly used to make resins that used in paint and surface coating. They give excellent resistance to chemicals and abrasion to coatings prepared with ADIs.

MDA: 4,4'-Methylenedianiline is primarily used as a precursor to 4,4'-methylenediphenyl diisocyanate (pure MDI) and other polymeric isocyanates.

PVC: Polyvinyl chloride is a very durable and long lasting material which can be widely applied in construction, healthcare, electronics, automotive, and coated fabrics.

PO: Propylene oxide is a highly reactive organic compound, mainly used as an intermediate in the production of many other chemical materials, such as polyether polyols, propylene glycol and propylene glycol ethers.

MMA: Methyl methacrylate is an organic compound used for manufacture of many other acrylate polymers, resins, and plastics.

PMMA: Polymethyl methacrylate, also known as acrylic glass, is formed by MMA monomer. It is a transparent, strong and lightweight material, and can be an economical alternative to polycarbonate in some circumstances.

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Stock Rating Category	Coverage Universe		Investment Banking Clients (IBC)			Other Material Investment Services Clients (MISC)	
	Count	% of Total	Count	% of Total IBC	% of Rating Category	Count	% of Total Other MISC
Overweight/Buy	1172	38%	289	40%	25%	551	39%
Equal-weight/Hold	1338	43%	354	49%	26%	639	46%
Not-Rated/Hold	53	2%	5	1%	9%	7	0%
Underweight/Sell	533	17%	77	11%	14%	207	15%
Total	3,096		725			1404	

Data include common stock and ADRs currently assigned ratings. Investment Banking Clients are companies from whom Morgan Stanley received investment banking compensation in the last 12 months. Due to rounding off of decimals, the percentages provided in the "% of total" column may not add up to exactly 100 percent.

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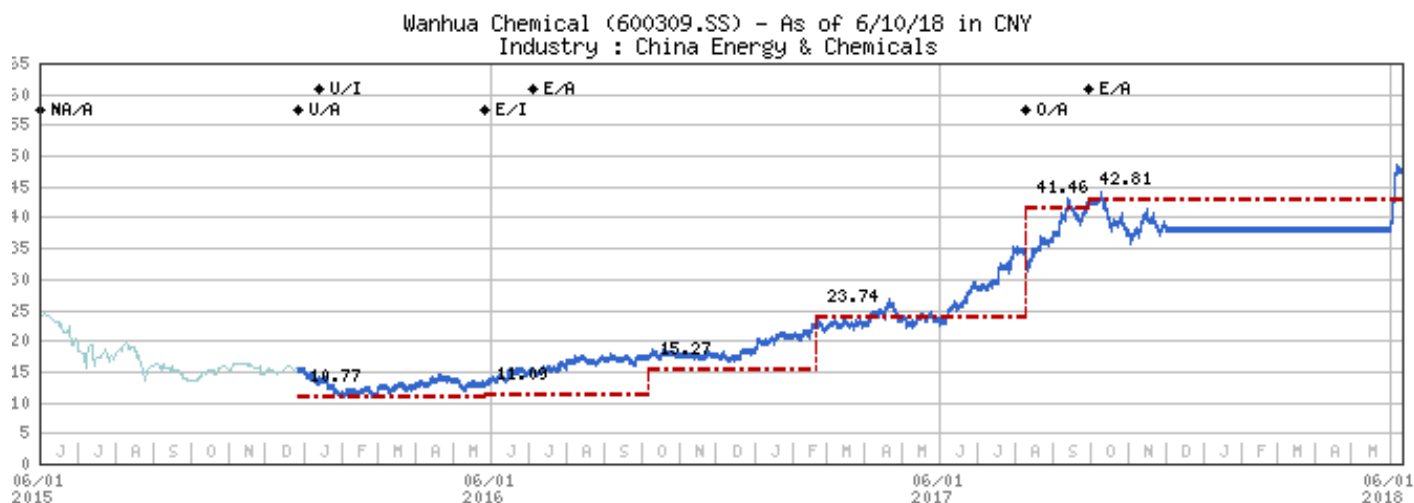
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9/29/17 : E/A

Price Target History: 12/28/15 : 10.77; 5/27/16 : 11.09; 10/7/16 : 15.27; 2/20/17 : 23.74; 8/10/17 : 41.46;
9/29/17 : 42.81

Source: Morgan Stanley Research Date Format : MM/DD/YY Price Target --- No Price Target Assigned (NA)
Stock Price (Not Covered by Current Analyst) --- Stock Price (Covered by Current Analyst) ■
Stock and Industry Ratings (abbreviations below) appear as ♦ Stock Rating/Industry View
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China BlueChemical (3983.HK)	O (01/11/2017)	HK\$2.63
China Oilfield Services Ltd. (2883.HK)	E (05/29/2017)	HK\$7.98
China Oilfield Services Ltd. (601808.SS)	U (12/11/2014)	Rmb10.39
China Petroleum & Chemical Corp. (600028.SS)	E (01/02/2018)	Rmb6.34
China Petroleum & Chemical Corp. (0386.HK)	O (10/29/2014)	HK\$7.47
CNOOC (0883.HK)	O (07/05/2016)	HK\$13.20
Guanghui Energy (600256.SS)	O (02/20/2017)	Rmb4.08
Hainan Rubber (601118.SS)	U (04/20/2018)	Rmb6.62
Hilong Holding Limited (1623.HK)	O (03/13/2017)	HK\$1.24
Honghua Group Ltd. (0196.HK)	O (01/04/2018)	HK\$0.79
Inner Mongolia Junzheng (601216.SS)	U (04/20/2018)	Rmb4.01
Offshore Oil Engineering (600583.SS)	O (01/04/2018)	Rmb5.61
PetroChina (601857.SS)	U (04/24/2017)	Rmb7.77
PetroChina (0857.HK)	O (02/22/2018)	HK\$6.55
Qinghai Salt Lake (000792.SZ)	E (04/20/2018)	Rmb12.12
Sinofert Holdings (0297.HK)	O (01/11/2017)	HK\$1.02
Sinopec Kantons (0934.HK)	O (10/03/2016)	HK\$4.12
Sinopec Oilfield Equipment Corporation (000852.SZ)	E (01/04/2018)	Rmb7.84
Sinopec Oilfield Service Corp (1033.HK)	O (11/15/2016)	HK\$1.23
Sinopec Oilfield Service Corp (600871.SS)	U (10/05/2015)	Rmb2.03
Sinopec Shanghai Petrochemical Co Ltd (0338.HK)	E (01/11/2017)	HK\$5.61
Sinopec Shanghai Petrochemical Co Ltd (600688.SS)	U (06/09/2015)	Rmb5.71
SPT Energy Group Inc (1251.HK)	O (01/04/2018)	HK\$0.96
Wanhua Chemical (600309.SS)	O (06/11/2018)	Rmb49.30
Yantai Jereh Oilfield Services Group (002353.SZ)	O (01/04/2018)	Rmb16.30



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Beijing Easpring Material Technology Co (300073.SZ)	O (05/04/2018)	Rmb31.70
Cangzhou Mingzhu Plastic Co. (002108.SZ)	O (10/31/2016)	Rmb5.34
Chaowei Power Holdings Ltd. (0951.HK)	E (11/30/2016)	HK\$4.40
China Jushi (600176.SS)	O (09/21/2015)	Rmb11.84
Guoxuan High-Tech (002074.SZ)	O (06/29/2017)	Rmb16.32
Jiangsu Yangnong Chemical (600486.SS)	U (01/12/2017)	Rmb57.01
Kingenta Ecological Engineering Group (002470.SZ)	O (12/14/2015)	Rmb7.77
Ningbo Shanshan Co. Ltd. (600884.SS)	E (05/04/2018)	Rmb22.32
Sinopec Engineering Group Co Ltd (2386.HK)	O (02/17/2017)	HK\$7.91
Stanley Fertilizer (002588.SZ)	O (11/14/2017)	Rmb5.62
Tianneng Power International Ltd. (0819.HK)	O (11/30/2016)	HK\$12.36
Yuan Longping High-tech Agricultural (000998.SZ)	U (12/14/2015)	Rmb20.90
Yunnan Chuangxin New Material Co Ltd (002812.SZ)	O (05/04/2018)	Rmb50.31
Zhejiang Longsheng Group (600352.SS)	O (03/01/2018)	Rmb12.38
Zhejiang Runtu (002440.SZ)	O (03/01/2018)	Rmb20.74

Stock Ratings are subject to change. Please see latest research for each company.

* Historical prices are not split adjusted.

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