

“ The M&A momentum from an exceptionally strong first half is expected to carry through to the rest of 2015. ”

VIR LAKSHMAN | HEAD OF CHEMICALS & PHARMACEUTICALS, KPMG IN GERMANY

HIGHLIGHTS

- M&A activity accelerated further in 2015 with deal value for HY1 2015 already exceeding the 2014 full year value. Total deal value for the pharmaceutical sector was three times higher for Q2 2015 (versus Q2 2014) as well as HY1 2015 (versus HY1 2014) while deal numbers stayed relatively flat.
- Oncology is the key therapy area of interest, with patent expirations being the primary growth driver. Deals in oncology amounted to 50% of the value of the top 10 completed deals in Q2 2015.
- Generics consolidation continues, accounting for two of the top 10 announced deals during Q2 2015 and the largest deal, valued at \$43 billion.
- There was a 20% increase in the completed chemical deals in HY1 2015 (versus HY1 2014). The value of the top 10 announced deal at \$58.5 billion was four times higher than HY1 2014.
- Chemical deals continue to be driven by non-core disposals and the desire to acquire assets further up the chemicals value chain to bring further differentiation or application know-how.
- KPMG's Deal Thermometer indicates that the environment for M&A activity will remain 'Hot' in pharmaceuticals and 'Moderate' in chemicals.

FIGURE 1: NUMBER OF DEALS BY SECTOR 2012-2015

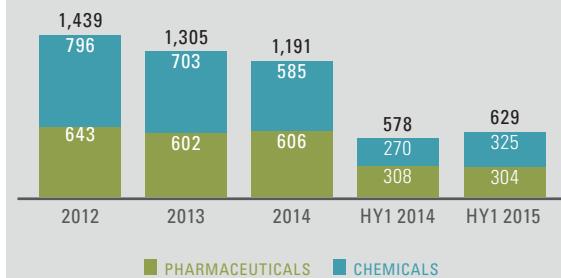
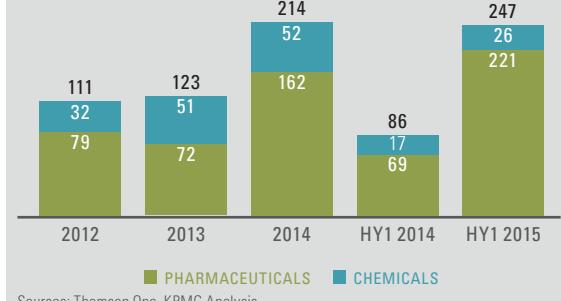
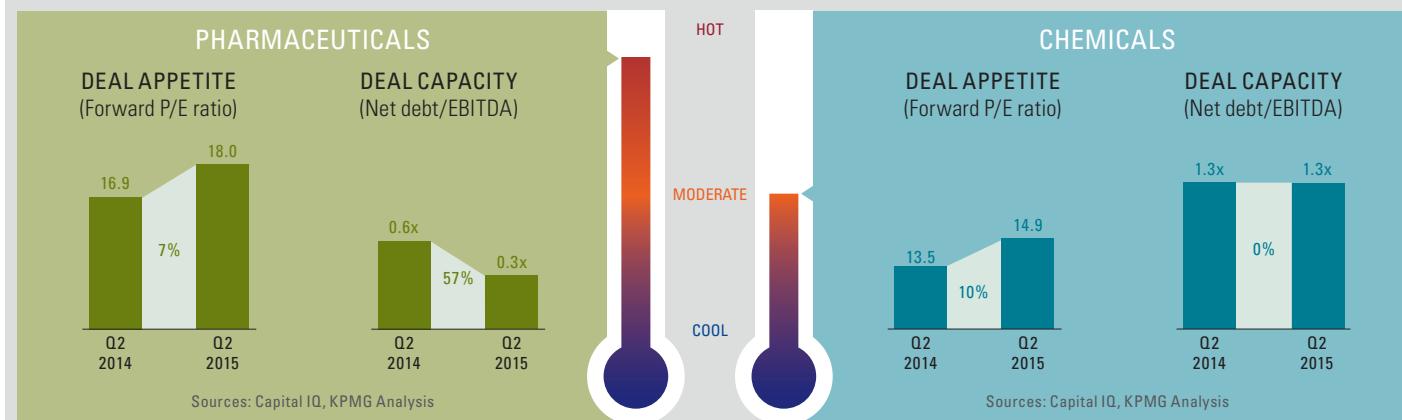


FIGURE 2: DEAL VALUE BY SECTOR 2012-2015 (\$ Billion)



DEAL THERMOMETER Q2 2015

KPMG's Deal Thermometer signals the environment for M&A deals in chemicals and pharmaceuticals. It combines the appetite for deals (changes in forward P/E ratios) with the capacity to fund deals (changes in Net Debt/EBITDA multiples). 'Hot' signifies an environment conducive to deal-making.



PHARMACEUTICALS

In HY1 2015, the value of completed deals reached \$221 billion, three times greater than HY1 2014. In Q2 2015, the value of the top 10 completed deals amounted to \$56.4 billion. Strategic repositioning is a key driver for the pharmaceutical M&A. Oncology and generics are areas of particular interest. US remains the most active country followed by China.

DEAL FOCUS AREAS

Patent expirations drive investments in oncology

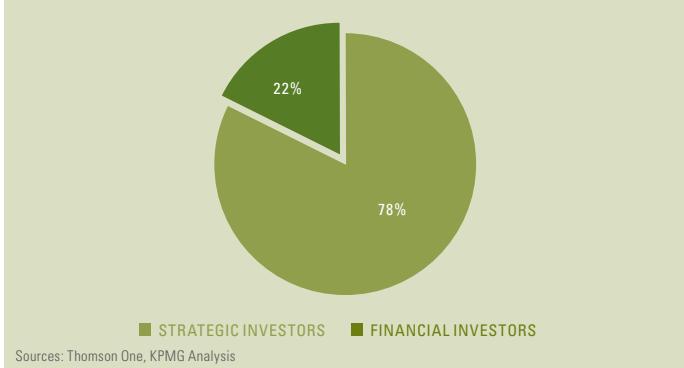
In 2015, the pharmaceutical industry is at risk of losing \$44 billion in sales due to patent expirations. Many firms have undertaken value-enhancing M&A to diversify and reinforce their drug pipelines, in the light of a potential loss of market exclusivity. With global annual spending of \$100 billion on cancer drugs in 2014, and an expected compound annual growth rate of 6-8% during 2015-18, the oncology sector is a key focus area.

In Q2 2015, through the \$21 billion acquisition of Pharmacyclics Inc., AbbVie Inc. gains access to clinical and commercial assets in hematological oncology such as Imbruvica. The acquisition would reduce AbbVie's dependence on Humira, its \$11 billion blockbuster drug for rheumatoid arthritis, accounting for 63% of the revenue. Humira faces US patent expiration in 2016.

Bristol-Myers Squibb Co. strengthened its position in immuno oncology through the acquisition of Flexus Biosciences Inc. for \$1.3 billion. Bristol-Myers Squibb gains access to Flexus'

lead preclinical small molecule inhibitor and a broad discovery program. Bristol-Myers Squibb's upcoming patent expirations include Brafetinib with \$1.4 billion and Erbitux with \$700 million revenue in 2014, respectively.

FIGURE 4: NUMBER OF PHARMACEUTICAL DEALS BY INVESTOR Q2 2015



Generics consolidation continues

The consolidation in generics is ongoing with Teva Pharmaceutical Industries leading the way. Teva acquired Auspex Pharmaceuticals Inc. for \$3.5 billion, paying a 42% premium to Auspex's closing price on March 27 in order to strengthen its position in the movement disorder market. With Auspex achieving FDA-approved orphan drug status on its lead compound, it is an attractive addition to Teva's portfolio.

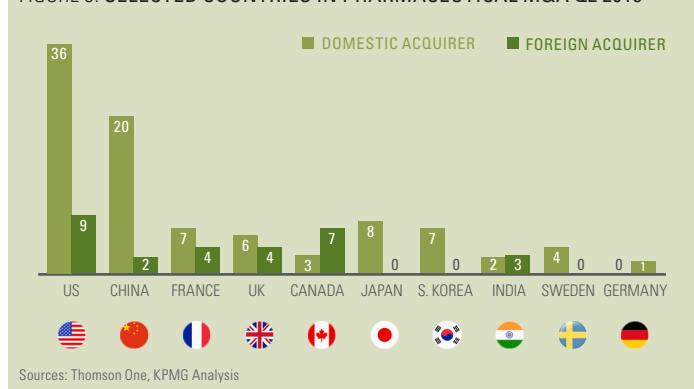
Teva also proposed the takeover of Mylan NV for \$43 billion, a 48.3% premium to the unaffected stock price of Mylan on March 10. Mylan rejected the offer, itself announcing the \$34.1 billion acquisition of Perrigo Company PLC.

An investment consortium comprising CVC Capital Partners, Temasek, Vatera Healthcare Partners bought a controlling stake in Alvogen Lux Holding S.à.r.l for \$2 billion, a generics pharmaceutical manufacturer.

Orphan drugs remain attractive targets

Orphan drugs remained attractive during Q2 2015, with Alexion Pharmaceuticals Inc. announcing the acquisition of Synageva BioPharma Corp. for \$8.4 billion, a premium of 139% over the closing price on May 5, and expects to create a strong rare disease pipeline in biotech. Further, through the \$1.1 billion acquisition of Hyperion Therapeutics Inc., Horizon Pharma PLC adds two medicines in the area of urea cycle disorders, now offering seven orphan drugs in total.

FIGURE 3: SELECTED COUNTRIES IN PHARMACEUTICAL M&A Q2 2015



PE involvement in Pharmaceuticals

PE continues to show interest in the pharmaceutical sector and has contributed to the top 10 deals of Q2 2015. In China, several financial groups have announced their intention to buy pharmaceutical companies. For example, Ally Bridge Group Capital Partner is interested in acquiring a stake in WuXi PharmaTech Inc. as WuXi proposes to go private.

CAPITAL INDEX

The pharma indices continue to outperform the MSCI world index, with Europe and Asia Pacific in particular still performing strongly. Nevertheless the gap is shrinking slightly.

FIGURE 5: DEVELOPMENT OF PHARMA SHARE PRICES HY1 2015

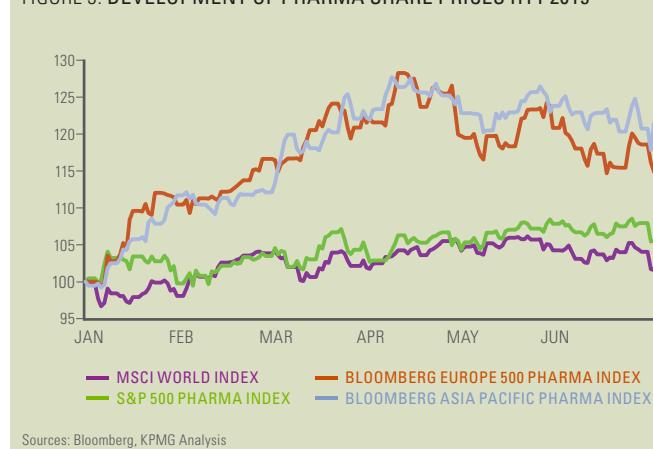


FIGURE 6: DEAL ACTIVITY BY TARGET'S MAIN THERAPY AREA FOR THE LAST 12 MONTHS

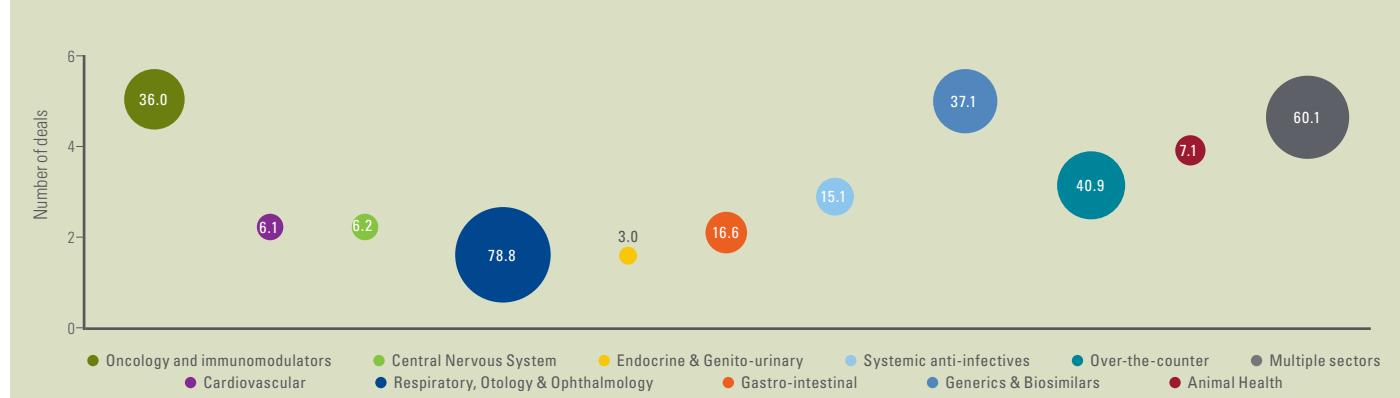
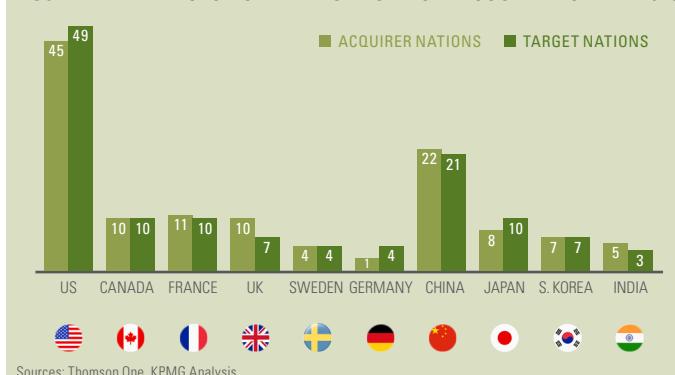


FIGURE 7: PHARMACEUTICAL DEALS IN SELECTED COUNTRIES IN Q2 2015



CHINA

China has risen to being the second-most active country in pharmaceutical M&A following the US. However, the vast majority of deals are still domestic, with 20 out of 22 completed transactions in Q2 2015 undertaken by domestic acquirers.

WuXi PharmaTech Inc., the biggest China-based CRO, has a diverse portfolio in gene sequencing, e-commerce and cell therapies. Dr. Ge Li, the Chairman and CEO, along with Ally Bridge Group Capital Partners will take the company private following its lackluster performance on the NYSE. In fact, its subsidiary, SynTheAll Pharmaceutical Co., Ltd., listed on the New 3rd Board (the OTC market in China) almost reached WuXi's current NYSE market cap.

Back-door listings continue to be a means to gain access to the Chinese capital market and avoid the stringent domestic IPO requirements. For example, Bicon Inc., a large scale pharmaceutical company that manufactures and sells APIs, TCM, and chemical medicines, has transacted with Jiangsu Jiujiujiu, a publicly listed chemicals company. This will allow it to benefit from the high trading multiples that many pharma companies currently enjoy.

PHARMACEUTICALS

The deal value of the global top 10 **completed** deals in Q2 2015 was

\$56.4 billion

TABLE 1: GLOBAL TOP DEALS COMPLETED IN Q2 2015

BIDDER	TARGET	THERAPY AREA	VALUE ¹	CONTINGENT PAYMENTS ¹	TOTAL VALUE ¹
AbbVie Inc.	Pharmacyclics Inc.	Cancer and immune mediated diseases			21.0
Valeant Pharmaceuticals International Inc.	Salix Pharmaceuticals Ltd.	Gastrointestinal disease			14.5
Alexion Pharmaceuticals Inc.	Synageva BioPharma Corp.	Rare diseases			8.4
Teva Pharmaceutical Industries Ltd.	Auspex Pharmaceuticals Inc.	Hyperkinetic movement disorders and other rare diseases			3.5
Mallinckrodt PLC	Ikaria Inc.	Critical care therapeutics			2.3
<i>CVC Capital Partners Ltd., Temasek Holdings (Private) Ltd., and Vatera Healthcare Partners</i>	Alvogen Lux Holdings S.à.r.l (controlling stake)	Generics			2.0
Bristol-Myers Squibb Co.	Flexus Biosciences Inc.	Anti-cancer therapeutics	0.8	0.5	1.3
Concordia Healthcare Corp.	Commercial assets of Covis Pharma S.à.r.l and Covis Injectables, S.à.r.l	Generics, chronic diseases and injectables			1.2
Patterson Companies Inc.	Animal Health International Inc.	Animal Health			1.1
Depomed Inc.	Janssen Pharmaceuticals Inc. – US-rights to Nucynta & Nucynta ER	Acute and severe pain management			1.1

The deal value of the global top 10 **announced** deals in HY1 2015 was

\$126.7 billion

TABLE 2: GLOBAL TOP DEALS ANNOUNCED IN HY1 2015, YET TO CLOSE

BIDDER	TARGET	THERAPY AREA	DEAL STATUS	TOTAL VALUE ¹
Teva Pharmaceutical Industries Ltd.	Mylan N.V.	Generics and specialty / Central nervous system and respiratory diseases	Tender offer contingent on Mylan not completing its proposed acquisition of Perrigo	43.0
Mylan N.V.	Perrigo Company PLC	OTC and generics	Pending shareholder and antitrust approval	34.1
Pfizer Inc.	Hospira Inc.	Injectable drugs, infusion technologies, and biosimilars	Pending antitrust approval; additional information requested by US FTC	17.0
Endo International PLC	Salix Pharmaceuticals Ltd.	Gastrointestinal disease	Withdrawn	14.6
Endo International PLC	Par Pharmaceutical Holdings	Generics	Pending antitrust approval	8.1
<i>Investor Group including Ge Li and Ally Bridge Group Capital Partners</i>	WuXi PharmaTech(Cayman)Inc.	R&D services for pharmaceuticals, biotech	Pending approval from the Special Committee	3.2
Allergan Inc.	KYTHERA Biopharmaceuticals Inc.	Biopharmaceuticals	Pending shareholder and antitrust approval	2.1
<i>Investor Group including Xinliyi Group Co., Ltd.</i>	Hubei Biocause Pharm Co., Ltd. (68%)	Eye care, neurosciences, dermatology, and urology	Pending shareholder and antitrust approval	1.6
Jiuzhitang Co., Ltd.	Mudanjiang Youbo Pharmaceutical Co., Ltd.	Drug development and manufacturing	Pending	1.5
<i>Investor Group including Yunfeng Capital</i>	Guangzhou Baiyunshan Pharmaceutical Holdings Co., Ltd. (22%)	Neuroscience, gastrointestinal, internal medicine	Pending	1.5

¹ All numbers are in US\$ billion *Financial investors are italicized* *Figures in blue are estimated values*

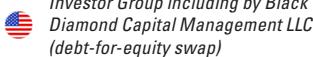
Sources: Thomson One, KPMG Analysis

CHEMICALS

The deal value of the global top 10 **completed** deals in Q2 2015 was

\$7.9 billion

TABLE 3: GLOBAL TOP DEALS COMPLETED IN Q2 2015

BIDDER	TARGET	BUSINESS AREA	TOTAL VALUE ¹
 FMC Corp.	 Cheminova A/S (a part of Auriga Industries A/S)	Crop protein products	1.8
 Tronox Ltd.	 FMC Corp. – Alkali business	Soda ash	1.6
 Hanwha Group	 Samsung General Chemicals Co., Ltd.	Polyethylene and polypropylene	1.0
 A. Schulman Inc.	 Citadel Plastics Holdings Inc.	Thermoplastic and thermoset resins	0.8
 New Mountain Capital LLC	 Zep Inc.	High performance chemicals	0.7
 UGI Corp.	 Totalgaz SNC	Liquefied petroleum gas	0.6
 Berkshire Hathaway Inc.	 Axalta Coating Systems Ltd. (8.7%)	Transportation coating	0.6
 Investor Group including by Black Diamond Capital Management LLC (debt-for-equity swap)	 Reichhold Inc. – US business	Polyester and coating resins	0.4
 Kemira Oyj	 AkzoNobel N.V.– Paper Chemicals business	Paper chemicals	0.2
 Tianqi HK Co., Ltd.	 Galaxy Lithium International Ltd.	Lithium carbonate production	0.2

The deal value of the global top 10 **announced** deals in HY1 2015 was

\$58.5 billion

TABLE 4: GLOBAL TOP DEALS ANNOUNCED IN HY1 2015, YET TO CLOSE

BIDDER	TARGET	BUSINESS AREA	DEAL STATUS	TOTAL VALUE ¹
 Monsanto Co.	 Syngenta AG	Agriculture and animal biotechnology	Offer rejected, pending	45.0
 Olin Corp.	 The Dow Chemical Co. – Chlor-Alkali business	Chlor-alkali and derivatives	Pending shareholder approval	5.0
 Asahi Kasei Corp.	 Polypore International Inc.	Lithium and lead-acid battery separators , OEM membranes, etc.	Pending antitrust approval	2.2
 Investor Group including Xu Gang	 Henan Billions Chemicals Co., Ltd. (58%)	Titanium and zirconium fine powder materials	Pending	1.5
 Henan Billions Chemicals Co., Ltd.	 SiChuan LOMON Titanium Industries Co., Ltd.	Titanium oxids and pigments	Pending antitrust approval	1.5
 3M Co.	 Polypore International Inc.– Separations Media business	Microporous membranes and modules for filtration	Pending shareholder and antitrust approval	1.0
 Boulevard Acquisition Corp.	 AgroFresh Inc.	Methylcyclopropene technology	Pending shareholder and antitrust approval	0.8
 Investor Group including Zheng Suzhen and Liu Qiuuhua	 Letong Chemical Co., Ltd. (58%)	Ink products	Pending	0.6
 Investor Group including Yuan Yonggang	 Suzhou Hesheng Special Material Co., Ltd. (50%)	Manmade organic fibers	Pending shareholder approval	0.5
 Investor Group including Shanghai Longhuaihui Investment and Management Co., Ltd.	 Shandong Polymer Bio-chemicals Co., Ltd. (32%)	Acrylamide, polyacrylamide etc.	Pending shareholder and antitrust approval	0.4

¹ All numbers are in US\$ billion Financial investors are italicized Figures in blue are estimated values

Sources: Thomson One, KPMG Analysis

CHEMICALS

M&A activity in HY1 2015 aggregated to a value of \$26 billion with Q2 2015 top 10 completed deals amounting to a total of \$7.9 billion. The sector continues to consolidate. US dominates the global top 10 completed deals although several deals involving European and Asian companies as well. With a value of \$58.5 billion, deal announcements almost quadrupled compared to HY1 2014. One deal announcement could result in the largest cross-border Chinese deal since 2012.

DEAL FOCUS AREAS

Consolidation

The consolidation trend continued in Q2 2015. Companies invested in businesses with high growth potential and spun off the ones with less synergies to sharpen their portfolios.

The Dow Chemical Co. has set a divestment target of \$7 to \$8.5 billion in non-strategic assets and businesses. In Q2 2015, they were able to exceed this target by agreeing to sell its chlor-alkali and derivatives business to Olin Corp. for \$5 billion. This business was in cyclical commodities chemicals with low market growth.

BASF AG agreed to sell its global paper hydrous kaolin business to France-based Imerys SA, to focus on industrial segments.

The agrochemical sector also experienced M&A activity with Monsanto Co.'s takeover bid for Syngenta AG in Q2

2015. Syngenta, however, rejected the \$45 billion offer from Monsanto as it was considered to under-value the business.

At the time of writing, Potash Corporation of Saskatchewan Inc. made a bid for German potash competitor, K+S AG on 26 June 2015 for \$8.6 billion. K+S considered the price undervalued. The German firm was also concerned about the potential reduction/elimination of its operations. Potash continues to show interest and plans to hold collaborative discussions to address the concerns.

Automotive: forward and backward integration

Specialty chemicals support the growing automotive industry. A range of chemical products offer several benefits including reduced vehicle weight for better mileage, enhanced performance and improved manufacturing quality. Companies from the two complementary sectors are integrating vertically.

For example, building on their existing collaboration on e-petroleum, Audi AG has expressed interest in purchasing a stake in French Global Bioenergies SA. This will foster renewable solutions for its future mid and long distance hybrid cars.

At the other end of the integration spectrum, ChemChina Corp. intends to buy a 26% stake in the Italian tire maker, Pirelli & C.S.p.A., for \$7.7 billion to integrate forward. This would be the largest Chinese cross border acquisition since 2012, giving ChemChina access to superior technology and helping Pirelli strengthen presence in high growth Asian markets.

PE involvement in chemical M&A

PE firms continue to be active in chemical M&A. For example, New Mountain Capital LLC, focused on specialty chemicals and materials industries, has acquired Zep Inc. for \$0.7 billion.

FIGURE 9: NUMBER OF CHEMICAL DEALS BY INVESTOR Q2 2015

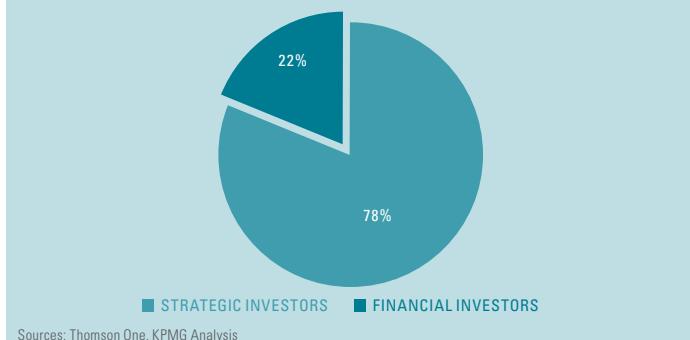
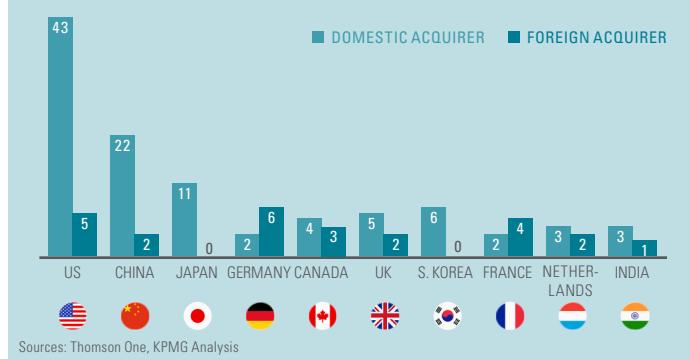


FIGURE 8: SELECTED COUNTRIES IN CHEMICAL M&A IN Q2 2015



CVC Capital Partners LLC continued its gradual exit from the German chemicals group, Evonik Industries AG, by divesting a 4.7% stake for \$800 million, thereby reducing its stake to 9.3%.

FIGURE 10: DEVELOPMENT OF CHEMICAL SHARE PRICES HY1 2015

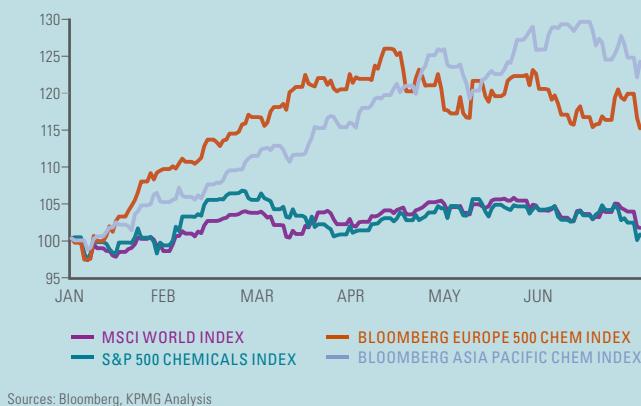
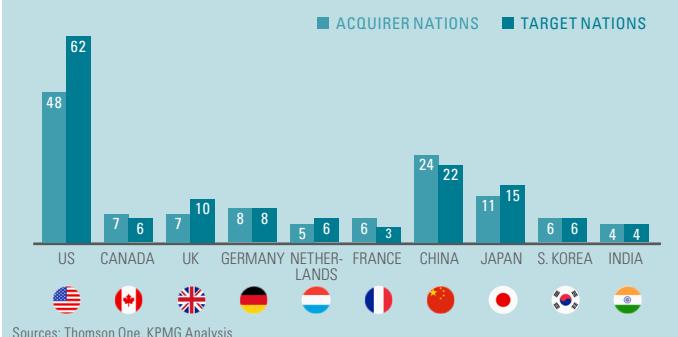


FIGURE 12: TOP COUNTRIES IN CHEMICAL M&A Q2 2015



acquisition of lithium and lead-acid battery separators and OEM membranes from Polypore International Inc. Similarly, 3M Co. acquired Polypore International's Separations Media business focused on specialty polymer-based membranes.

CHINA

Henan Billions Chemicals Co., Ltd. acquired SiChuan LOMON Titanium Industries Co., Ltd., the top Asian manufacturer of titanium dioxide, for \$1.5 billion. It aims to be the largest supplier of the chemical in Asia with an aggregate annual production capacity reaching 560 thousands tons for a 20% domestic market share. With greater access to chemical resources, Henan Billions will also benefit from the positive market outlook of titanium dioxide and become the fourth largest global producer.

Henan Billions' acquisition of LOMON echoes the industry's trend. With the ongoing consolidation and integration in titanium dioxide market, smaller players will likely be squeezed out due to strict environmental requirements and the inability to compete with the scale offered by the larger players.

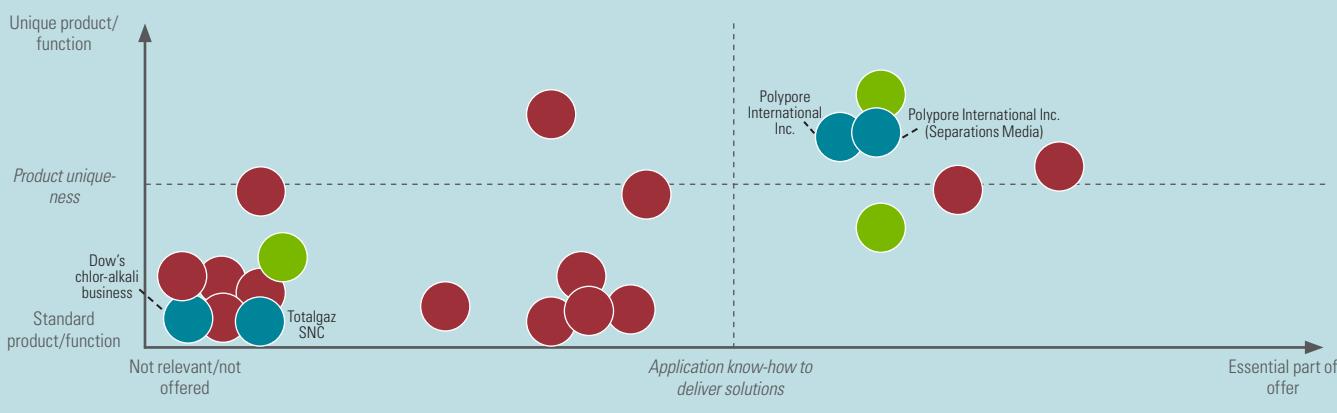
CAPITAL INDEX

Share prices of chemical firms listed in the Bloomberg Europe 500 and Asia Pacific indices still outperform the market. S&P 500 Chemical Index has broadly followed the MSCI world index since the beginning of 2015.

ACQUIRING ALONG THE VALUE CHAIN

Many chemical deals this year were focused on consolidation of standard products in order to further cost optimization and rationalization efforts to drive scale as Olin has done in acquiring Dow's chlor-alkali business. Similarly, Totalgaz SNC was acquired by UGI Corp. to strengthen UGI's market leading position in liquefied petroleum gas outside the US market. At the other end of the spectrum, acquirers are also interested in companies that offer differentiation and specialized application know-how such as Asahi Kasei Corp.'s

FIGURE 11: ACQUISITIONS ALONG THE VALUE CHAIN (COMPLETED OR ANNOUNCED IN HY1 2015 AND GREATER THAN \$0.5 BILLION)



BASIS OF DATA PREPARATION

Values and volumes used throughout the report are based on completion date as provided by Thomson Reuters' database Thomson One as of 2 July 2015, and supplemented by additional independent research. This report includes disclosed and undisclosed values for M&A transactions including minority stake purchases, acquisitions of remaining interest, and recapitalizations and it explicitly excludes self-tenders and spinoffs. The published numbers of deals and deal values are based on the analysis of target companies which operate in the following subsectors:

Pharmaceuticals

- Medicinal chemicals & botanical products
- Pharmaceutical preparations
- In vivo and in vivo diagnostic substances
- Biotechnology – biological products, except diagnostic substances
- Pharmaceutical wholesale (added starting in Q2 2014)

Chemicals

- Clay, kaolin, ceramic & refractory minerals
- Chemical and non-metallic mineral mining, except fuels
- Fertilizers and agricultural chemicals
- Industrial gases
- Specialty chemicals
- Chemical wholesale
- Plastics and rubber components

KPMG's Deal Thermometer is based on financial data as provided by S&P Capital IQ of public companies in the same sector as noted above with a market capitalization at quarter end of at least a \$1 billion. For the pharmaceutical sector, this comprises 193 public companies. For the chemical sector, this comprises 187 public companies.

All figures in this report are shown in US Dollars (\$).

Sources

Online databases:

- Thomson One (Thomson Reuters)
- Mergermarket
- S&P Capital IQ
- Bloomberg
- EvaluatePharma

Publications

- Various companies' press releases

www.kpmg.de

The information contained herein is of a general nature and is not intended to address the circumstances of any particular individual or entity. Although we endeavor to provide accurate and timely information, there can be no guarantee that such information is accurate as of the date it is received or that it will continue to be accurate in the future. No one should act on such information without appropriate professional advice after a thorough examination of the particular situation. Our services are provided subject to our verification whether a provision of the specific services is permissible in the individual case.

© 2015 KPMG AG Wirtschaftsprüfungsgesellschaft, a member firm of the KPMG network of independent member firms affiliated with KPMG International Cooperative ("KPMG International"), a Swiss entity. All rights reserved. Printed in Germany. The KPMG name, logo and "cutting through complexity" are registered trademarks of KPMG International.

Imprint

Publisher

KPMG AG Wirtschaftsprüfungsgesellschaft
Tersteegenstrasse 19-31
40474 Dusseldorf
Germany

Contact



Vir Lakshman*

Partner, Deal Advisory
Head of Chemicals & Pharmaceuticals,
Germany
T +49 211 475 6666
vlakshman@kpmg.com

Christian Klingbeil

Partner, Deal Advisory – Valuation
T +49 89 9282 1284
cklingbeil@kpmg.com

Christian Specht

Partner, Deal Advisory – M&A
T +49 69 9587 2240
cspecht@kpmg.com

Authors

Rita Duran

Senior Manager, Deal Advisory
Chemicals & Pharmaceuticals, KPMG in Germany

Helen Christmann

Chemicals & Pharmaceuticals, KPMG in Germany

Sebastian Heinisch

Chemicals & Pharmaceuticals, KPMG in Germany

Contributors

Till Knorr

Partner, Deal Advisory, KPMG in Germany

Andy Qiu

Partner, KPMG in China

Axel Spamann

Partner, Deal Advisory, KPMG in Germany

Ellen Zhang

Manager, KPMG in China

* Responsible according to German Law (§ 7 (2) Berliner PresseG)

