

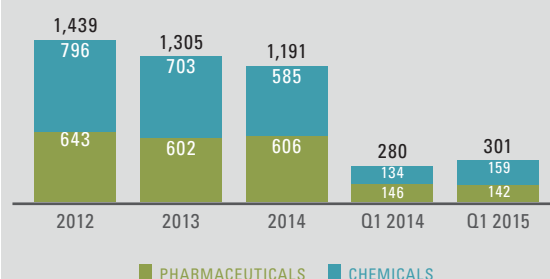
“ Chemical and pharmaceutical M&A activity jump-starts the year 2015 with several mega deals dominating the deal landscape. ”

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

HIGHLIGHTS

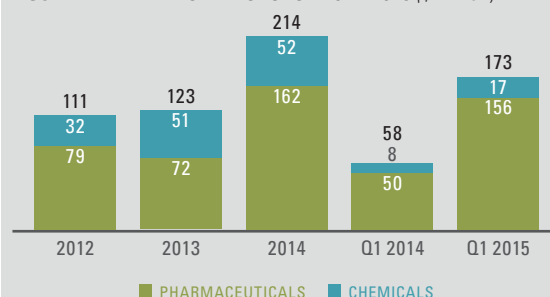
- M&A market for the pharmaceutical sector continued at a frenzied pace during Q1 2015. Total completed deal value at €156 billion not only tripled in comparison to Q1 2014 but also surpassed 2012 and 2013.
- All of the top 10 pharmaceutical deals (completed as well as announced) are each over € 1 billion. Key therapy areas for pharmaceutical M&A include oncology, gastro-intestinal and anti-infectives. Renewed interest in antibiotics coincides with governmental incentives offered. The FDA approval of biosimilar pathways will spur M&A interest in the US biosimilars market.
- In Q1 2015, the chemical sector showed higher levels of M&A activity as compared to Q1 2014. Four of the top 10 completed as well as announced deals were valued above \$1 billion.
- Specialization continues to be the driving force for M&A.
- US followed by China are consistently the most active M&A countries in both sectors. Other markets where M&A activity increased in Q1 2015 included Japan (outbound) and South Korea (domestic) for the chemicals sector and France for both sectors.
- KPMG's Deal Thermometer suggests 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



Sources: Thomson One, KPMG Analysis

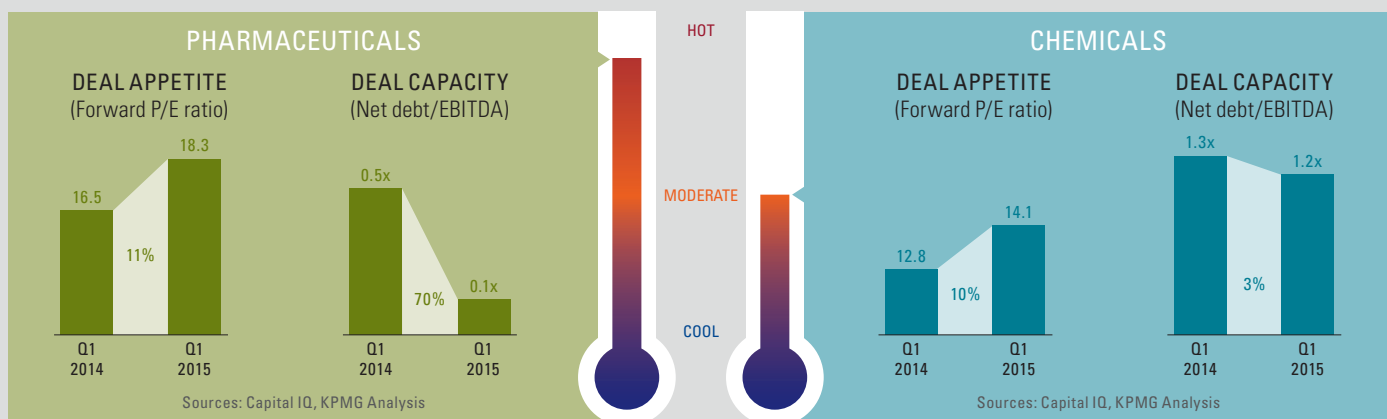
FIGURE 2: DEAL VALUE BY SECTOR 2012-2015 (\$ Billion)



Sources: Thomson One, KPMG Analysis

DEAL THERMOMETER Q1 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 Q1 2015, top 10 completed deals amount to a total value of \$134 billion with the largest completed deal valued at \$70.5 billion, indicating that the wave of mega deals is continuing well into 2015. Half of the top deals in the sector involve US targets, the other half targets European countries. Strategic investors are showing keen interest in orphan drugs, antibiotics and biosimilars.

DEAL FOCUS AREAS

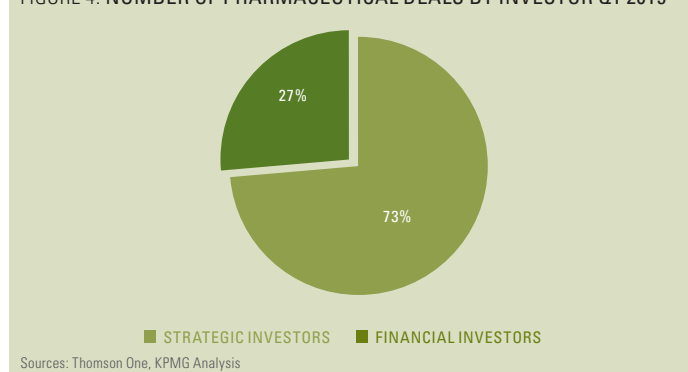
Orphan drugs

Since the Orphan Drug Act of 1983, the US fosters orphan drug development by granting seven years of exclusivity beyond patent expiry, a waiver for US Food and Drug Administration (FDA) fees and tax credits. The passage of the FDA Safety Innovation Act in 2013 made it easier to get them through clinical trials. Medications for rare diseases can be priced high enough to cover R&D costs, insurance companies reimburse most patient costs.

Shire PLC's acquisition of NPS Pharmaceuticals Inc. brought with it various gastrointestinal and orphan drugs including the rights to Natpara, an orphan drug awaiting FDA approval. If approved, Shire would be the only provider of bioengineered hormone replacement therapy treating hypoparathyroidism. Shire will also add Gattex/Revesitive, a drug treatment for a rare gastrointestinal condition.

Aegerion Pharmaceuticals Inc., too, is interested in orphan drugs by acquiring Myalept from AstraZeneca PLC for \$325 million. Myalept treats complications of leptin deficiency in patients with generalized lipodystrophy.

FIGURE 4: NUMBER OF PHARMACEUTICAL DEALS BY INVESTOR Q1 2015



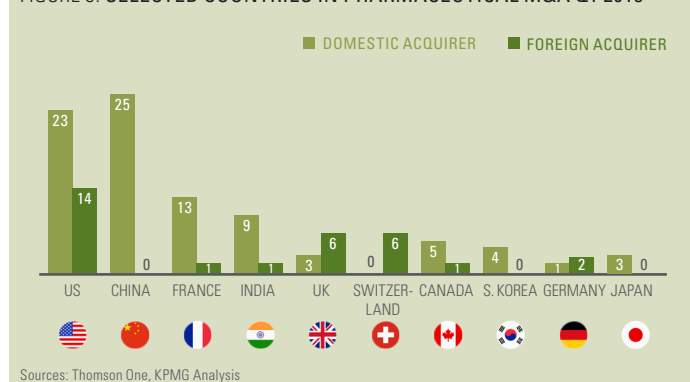
Interest in antibiotics renewed: Cubist leads the way

Deal activity in antibiotics has been limited in the past, due to lower margins as compared with other lucrative segments such as cancer medicines. However, an uptick in deal activity is expected, driven by government incentives and increasing health concerns. For example, in Q1 2015, US President Barack Obama's 2016 budget has proposed a historic investment of \$1.2 billion to combat antibiotic-resistant bacteria. In the US, at least two million illnesses and 23,000 deaths are caused by antibiotic-resistant bacteria each year.

Merck & Co. Inc. acquired Cubist Pharmaceuticals Inc., a global leader in antibiotics with an annual research budget for antibiotics of \$400 million. Merck gains access to Cubist's primary revenue generator, Cubicin. It also adds Zerbaxa and Sivextro, two of the four antibacterial drugs approved by the FDA in 2014, both designated 'Qualified Infectious Disease Products' treating a serious or life threatening infection. The deal is expected to contribute over \$1 billion in revenue in 2015.

AstraZeneca announced the carve-out of its early stage antibiotic research in order to focus on core areas such as cancer and diabetes. AstraZeneca will create a standalone company in which it plans to invest \$40 million, while exploring potential partnerships. AstraZeneca has one of the strongest antibiotic pipelines in the industry including a Phase II clinical trial drug for gonorrhoea. The new structure would not impact already marketed and late-stage medicines.

FIGURE 3: SELECTED COUNTRIES IN PHARMACEUTICAL M&A Q1 2015

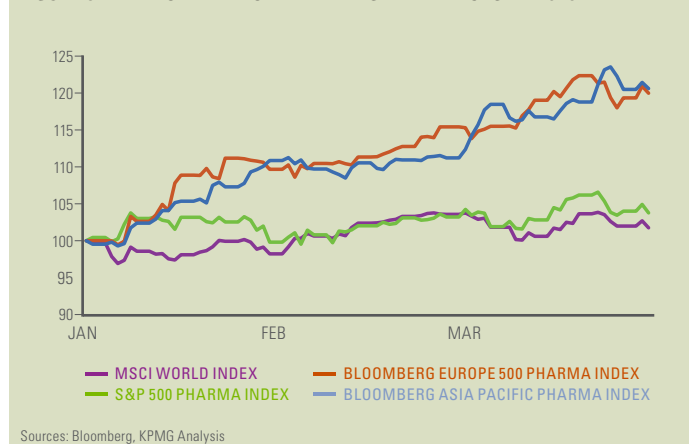


Biosimilars

In March 2015, Novartis AG's Sandoz announced that the FDA approved Zarxio. This makes Sandoz the first firm to receive approval of a biosimilar through the new FDA biosimilars pathway established under the Biologics Price Competition and Innovation Act. Unlike Europe, biosimilars have been unavailable in the US as these were excluded in the landmark 1984 Hatch-Waxman law, prohibiting cheaper generic copies derived from biotechnology. The approval is likely to open the gates for further investments.

In Q1 2015, Pfizer Inc. announced the \$17 billion acquisition of Hospira Inc., the leading global provider of injectable drugs and infusion technologies as well as a leader in biosimilars. Pfizer expects to bolster its biosimilars business with Hospira's marketed and late-stage pipeline candidates, expecting a global marketplace for biosimilars of approximately \$20 billion in 2020. Beyond biosimilars, the deal would align complementary product portfolios and product pipelines. Pfizer expects annual cost savings up to \$800 million by 2018.

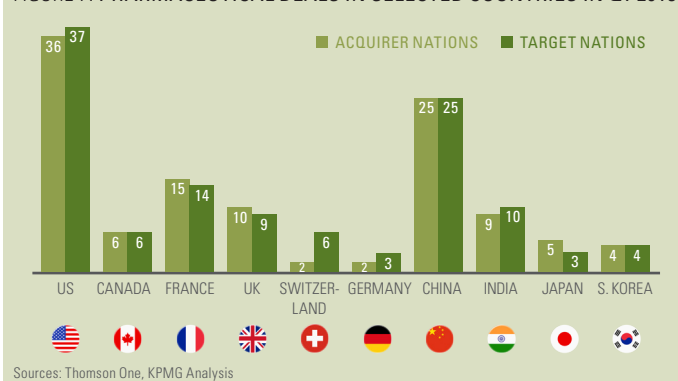
FIGURE 5: DEVELOPMENT OF PHARMA SHARE PRICES Q1 2015



CAPITAL INDEX

The pharma indices continue to outperform the MSCI world index, with Europe and Asia Pacific in particular performing strongly and widening the gap to US indices.

FIGURE 7: PHARMACEUTICAL DEALS IN SELECTED COUNTRIES IN Q1 2015



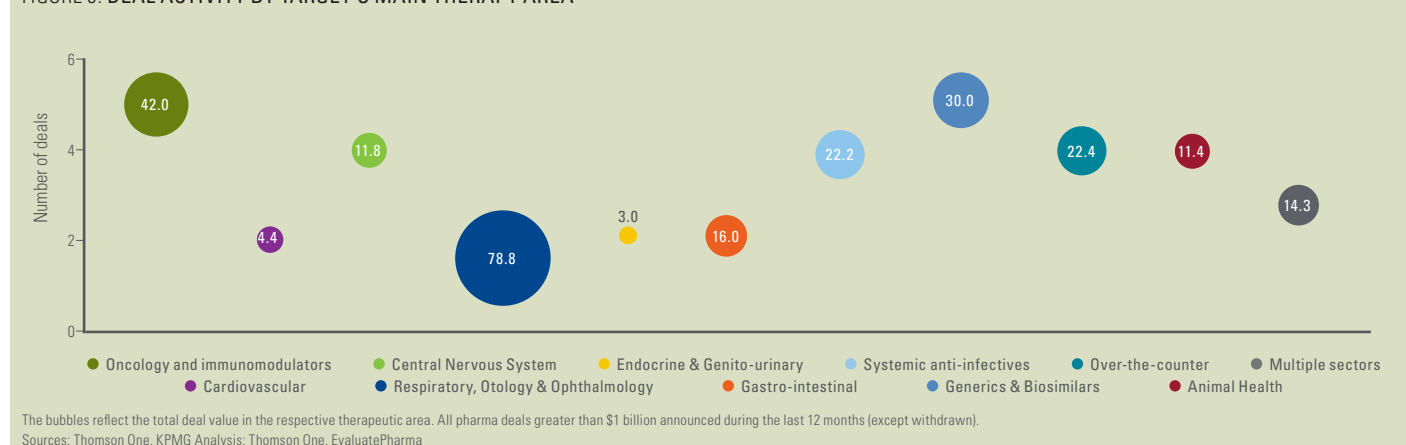
CHINA

In Q1 2015, a total of 31 listed pharmaceutical companies completed or announced new share issuance amounting to \$6.5 billion for acquisitions or capital investments.

Many of the Chinese deals focused on specific therapy areas such as cardiovascular, anti-virus and anti-tumor products as well as geographic expansion within China. For example, in Q1 2015, Huapont-Nutrichem Co., Ltd. acquired Tibet Linzhi Baisheng Pharmaceutical Co., Ltd. for \$300 million investing in cardiovascular medicine and allowing for expansion into the Northeast Chinese market.

The online pharmacy market is also attracting investments. For example, in January 2015, an investor group including Alibaba Group founder Jack Ma's PE firm Yunfeng Capital announced to invest \$1.6 billion in Guangzhou Baiyunshan Pharmaceutical Holdings Co., Ltd., to establish a medical e-commerce platform. While OTC drugs, health products and home medical can already be sold online, China FDA plans to relax regulations of prescription drugs, which would result in an online pharmacy market worth close to \$161 billion.

FIGURE 6: DEAL ACTIVITY BY TARGET'S MAIN THERAPY AREA























PHARMACEUTICALS

The deal value of the global top 10
completed deals in Q1 2015 was

\$134.0 billion

TABLE 1: GLOBAL TOP DEALS COMPLETED IN Q1 2015

BIDDER	TARGET	THERAPY AREA	VALUE ¹	CONTINGENT PAYMENTS ¹	TOTAL VALUE ¹
 Actavis PLC	 Allergan Inc.	Ophthalmology, neurosciences, dermatology, cosmetics and urology			70.5
 Novartis AG	 GlaxoSmithKline PLC – Oncology Business	Oncology	14.5	1.5	16.0
 Merck & Co. Inc.	 Cubist Pharmaceuticals Inc.	Anti-infective therapies for the acute care environment			9.5
 GlaxoSmithKline PLC	 Novartis AG – Vaccine Business	Vaccines	5.3	1.8	7.1
 Mylan Inc.	 Abbott Laboratories – Non-US generics business	Cardio/metabolic, gastrointestinal medicine etc.			6.3
 Laboratory Corporation of America Holdings	 Covance Inc.	CRO providing drug development			6.2
 Eli Lilly & Co.	 Novartis AG – Animal Health Division	Animal health			5.4
 Shire PLC	 NPS Pharmaceuticals Inc.	Bone and mineral, gastrointestinal and central nervous system disorders			5.2
 Sun Pharmaceutical Industries Ltd.	 Ranbaxy Laboratories Ltd.	Generics			4.0
 Perrigo Co. PLC	 Omega Pharma N.V.	OTC			3.8

The deal value of the global top 10
announced deals in Q1 2015 was

\$66.4 billion

TABLE 2: GLOBAL TOP DEALS ANNOUNCED IN Q1 2015, YET TO CLOSE

BIDDER	TARGET	THERAPY AREA	DEAL STATUS	TOTAL VALUE ¹
 AbbVie Inc.	 Pharmacyclics Inc.	Cancer and immune mediated diseases	Tender offer subject to customary closing conditions, antitrust approval	21.0
 Pfizer Inc.	 Hospira Inc.	Injectable drugs, infusion technologies, and biosimilars	Pending shareholder and antitrust approval	17.0
 Valeant Pharmaceuticals International Inc.	 Salix Pharmaceuticals Ltd.	Gastrointestinal disease	Completed on 01 April 2015	15.8
 Teva Pharmaceutical Industries Ltd.	 Auspex Pharmaceuticals Inc.	Hyperkinetic movement disorders and other rare diseases	Pending shareholder and antitrust approval	3.5
 Mallinckrodt PLC	 Ikaria Inc.	Cancer and immune diseases	Pending antitrust approval	2.3
 Investor Group including Xinliyi Group Co., Ltd.	 Hubei Biocause Pharm Co., Ltd.	Eye care, neurosciences, dermatology, and urology	Pending shareholder and antitrust approval	1.6
 Investor Group including Yunfeng Capital	 Guangzhou Baiyunshan Pharmaceutical Holdings Co., Ltd.	Neuroscience, gastrointestinal, internal medicine	Pending	1.6
 Bristol-Myers Squibb Co.	 Flexus Biosciences Inc.	Anti-cancer therapeutics	Completed 08 April 2015	1.3
 Concordia Healthcare Corp.	 Commercial assets of Covis Pharma S.à.r.l and Covis Injectables, S.à.r.l	Generics	Board of Directors approval, pending antitrust approval	1.2
 Depomed Inc.	 Janssen Pharmaceuticals Inc. – US-rights to Nucynta & Nucynta ER	Acute and severe pain management	Completed 02 April 2015	1.1

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 Q1 2015 was

\$14.9 billion





















TABLE 3: GLOBAL TOP DEALS COMPLETED IN Q1 2015

BIDDER	TARGET	BUSINESS AREA	TOTAL VALUE ¹
 Albemarle Corp.	 Rockwood Holdings Inc.	Lithium, catalysts, bromine and surface treatment	6.2
 Platform Specialty Products Corp.	 Arysta LifeScience Ltd.	Agrochemical and biological products	3.5
 Arkema SA	 Bostik SA (a part of Total S.A.)	Adhesives	2.2
 Golden Gate Capital	 ANGUS Chemical Company (part of Dow Chemical)	Nitroalkanes and their derivatives	1.2
 Blackstone Group LP	 Orica Ltd. – Chemicals Business	Industrial and mining chemicals	0.6
 Ingredion Inc.	 Penford Corp.	Modification technologies, proprietary processing, custom manufacturing, etc.	0.3
 Kurita Water Industries Ltd	 BK Guilini GmbH – water, paper, alumine business	Water treatment and paper chemicals, alumina compounds	0.3
 Al Othman Holding Co.	 Savola Packaging Systems Ltd.	Plastics	0.2
 CITIC Trust Co., Ltd.	 Jiangsu Kangde Xin Composite Material Co., Ltd. (6.3 %)	Polypropylene film, polyester film and precoated laminating machines	0.2
 HB Fuller Co.	 Tonsan Adhesive Inc. (95%)	Adhesives	0.2

The deal value of the global top 10
announced deals in Q1 2015 was

\$12.5 billion

TABLE 4: GLOBAL TOP DEALS ANNOUNCED IN Q1 2015, YET TO CLOSE

BIDDER	TARGET	BUSINESS AREA	DEAL STATUS	TOTAL VALUE ¹
 Olin Corp.	 The Dow Chemical Co. – Chlor-Alkali business	Chlor-alkali and derivatives	Pending shareholder and antitrust approval	5.0
 Asahi Kasei Corp.	 Polypore International Inc.	Lithium and lead-acid battery separators, OEM membranes, etc.	Pending shareholder and antitrust approval	2.2
 Tronox Ltd.	 FMC Corp. – Alkali business	Soda ash	Completed 01 April 2015	1.6
 3M Co.	 Polypore International Inc. – Separations Media business	Microporous membranes and modules for filtration	Pending shareholder and antitrust approval	1.0
 A Schulman Inc.	 Citadel Plastics Holdings Inc.	Thermoplastic and thermoset resins	Subject to standard closing conditions	0.8
 Investor Group including Xu Gang	 Henan Billions Chemicals Co., Ltd.	Titanium and zirconium fine powder materials	Pending	0.6
 Qinghai Jinrui Mineral Development Co., Ltd.	 Guangxi Mingli Chem Co., Ltd.	Phosphoric acids and phosphate products	Pending	0.4
 OAO TAIF-NK	 Nizhnekamskneftekhim OAO (50%)	Monomers, synthetic rubber, plastics, petrochemical products	Pending	0.4
 Investor Group including Shenzhen Huitong Zhengyuan	 Shenzhen Rainbow Fine Chemical Industry Co., Ltd.	Aerosol series products	Shareholder approval, pending antitrust approval	0.3
 China Zhenhua Oil Co., Ltd.	 North Huajin Chemical Industries Co., Ltd.	Fertilizers, petrochemical products	Pending	0.2

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

Sources: Thomson One, KPMG Analysis

CHEMICALS

In Q1 2015, top 10 completed deals amount to a total value of \$14.9 billion, a significant increase compared to \$7.1 billion in Q1 2014. The US has been the most active country in chemical M&A activity. Specialization was the key deal driver behind the majority of top 10 completed deals. Financial investors are also showing keen interest in the sector. Deal announcements indicate a wave of domestic deals in the chemical sector in 2015.

DEAL FOCUS AREAS

Specialization

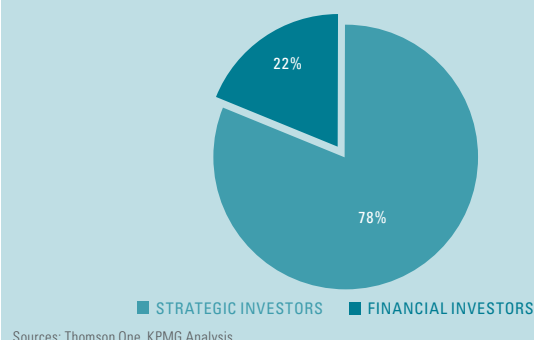
Investors are showing continued interest in specialty chemicals companies with eight of the top 10 completed deals in the specialty area. This is driven by attractive growth prospects and higher margins.

The largest deal in Q1 2015 represents Albermale Corp.'s acquisition of Rockwood Holdings Inc. for \$6.2 billion. This will enable Albermale to align complementary specialty chemicals portfolios, leveraging Rockwood's market-leading positions across lithium, catalysts, bromine and surface treatment.

By acquiring Arysta LifeScience Ltd. for \$3.5 billion, Platform Specialty Products gains a leading provider of a broad range of crop solutions, e.g. insecticides, fungicides, herbicides, biostimulants and value-added nutrients. Arysta has a flexible supply chain sourcing active ingredients from more than 100 suppliers to develop highly-specialized formulations and product applications.

Arkema SA's acquisition of oil and gas giant Total's Bostik SA, one of the largest adhesive and sealant companies globally, aims at reinforcing Arkema's position in specialty chemicals and advancing its high performance materials.

FIGURE 8: NUMBER OF CHEMICAL DEALS BY INVESTOR Q1 2015



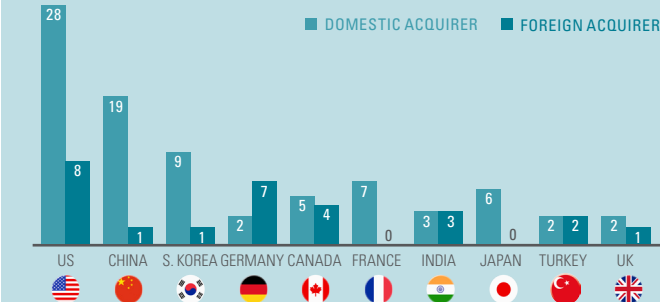
PE involvement in chemical M&A

In Q1 2015, PE continues to show keen interest in the sector. Since 2008, PE involvement in global chemical M&A has averaged around 15%, typically driven by opportunities in specialties, strong valuation metrics, diversification, strong margins and a positive industry outlook.

In Q1 2015, Golden Gate Capital bought Angus Chemical Company, the world's sole manufacturer and distributor of nitroalkanes and their derivatives with high growth potential. Angus was sold as part of The Dow Chemical Company's strategic disposal plan to divest up to \$6 billion of non-strategic assets and businesses.

Blackstone Group LP completed the acquisition of Orica Ltd.'s chemical business in Q1 2015. Orica's chemical business provides a wide range of chemical products and services to sectors such as agriculture, building and construction and is the largest supplier of industrial chemicals in Australia and New Zealand. It is also present in North America, Europe, China and Latin America.

FIGURE 9: SELECTED COUNTRIES IN CHEMICAL M&A IN Q1 2015



CHINA

Chinese chemical M&A continues to remain local with almost 95% of deals being domestic in nature. Most transactions are driven by the intention of domestic consolidation, horizontally or vertically, as China's chemical industry is still comparatively diversified with quite a few small to mid cap enterprises. The largest domestic deal is CITIC Trust Co., Ltd.'s privately negotiated acquisition of 6.3% of Jiangsu Kangde Xin Composite Material Co., Ltd. for \$0.2 billion.

Inbound, only HB Fuller Co. acquired a Chinese target, Tonsan Adhesive Inc., investing in the specialty segment of adhesives. The Chinese adhesives market is attractive for foreign investors as Chinese end-user industry demand remains high. Industry experts expect a CAGR of 10.2% during 2014-2019. Tonsan is the largest engineering adhesive supplier in China.

CAPITAL INDEX

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

FIGURE 10: DEVELOPMENT OF CHEMICAL SHARE PRICES Q1 2015

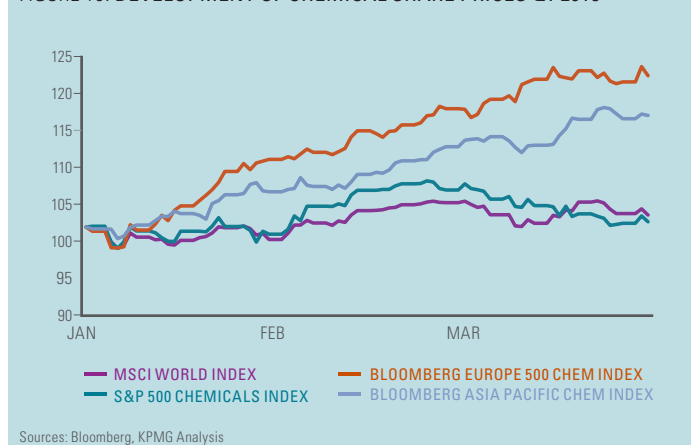
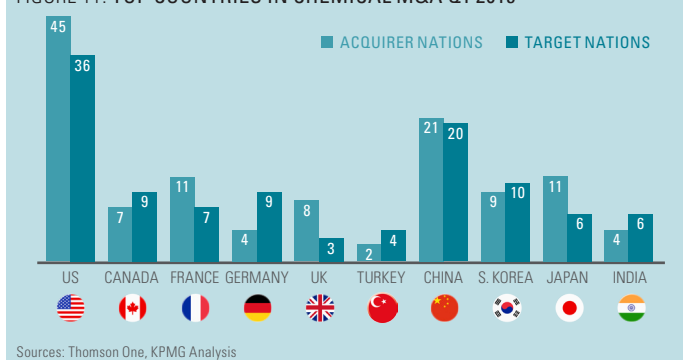


FIGURE 11: TOP COUNTRIES IN CHEMICAL M&A Q1 2015



SOUTH KOREA

The South Korean ethylene vinyl acetate (EVA) market is further consolidating with Hanwha Group's \$1 billion acquisition of Samsung General Chemicals Co. decreasing the number of competitors from four to three. South Korea's Fair Trade Commission's approval requires Hanwha to adhere to an EVA pricing strategy attractively tailored to the local market. With the acquisition, Hanwha becomes the leader in defense and petrochemicals in South Korea.

JAPAN

In Q1 2015, Japanese chemical firms made 11 cross-border deals, far more than in previous quarters. Despite a weaker Yen, the chemical sector already was one of the top two in terms of outbound M&A activity due to weak economic growth prospects in the domestic market. Searching for new growth opportunities, Japanese firms mainly target North America, Southeast Asia and Europe. For example, by acquiring BK Guilini GmbH's water solutions, paper solutions and alumina compounds, Kurita Water Industries Ltd. expects European sales to contribute 10% of total sales.

Domestic M&A activity is driven by a weaker Yen, an increase in sales taxes and government supported market restructuring in the form of consolidations or divestitures.

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 April 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 180 public companies. For the chemical sector, this comprises 181 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

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