2014 marked the return of the big deal. The wave of consolidation is likely to continue well into 2015.

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

HIGHLIGHTS

- The total value of global chemicals and pharmaceuticals deals increased to $214 billion in 2014, driven by a number of large pharmaceuticals deals.
- Pharmaceuticals deal values were the highest in the last five years. Bids in excess of $50 billion each were made for 3 targets, two of which were withdrawn.
- Chemicals deals were driven by non-core disposals and the desire to acquire attractive assets further up the chemicals value chain.

MARKET OUTLOOK

(based on a survey conducted by KPMG in collaboration with Mergers & Acquisitions magazine)

- Healthcare, pharmaceuticals and life sciences are expected to be most active industries ahead of technology, media and telecom.
- Average deal value is expected to climb, with 50% of respondents anticipating an average deal value above $250 million.
- Most active markets will be US, Western Europe, North America and China.
- KPMG’s Deal Thermometer indicates that the environment for M&A activity will remain ‘Hot’ in pharmaceuticals and ‘Moderate’ in chemicals.

DEAL THERMOMETER

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.
Consolidation was underway in many subsectors in 2014 including oncology, animal health, consumer healthcare and generics. Due to the heightened competition for assets, global pharmaceuticals are using innovative deal structures to help gain strategic assets. US dominated the pharmaceuticals landscape.

DEAL FOCUS AREAS

Oncology
The oncology market is highly consolidated with the top five players accounting for over 60% of the market by sales in 2013. Market concentration further increased during 2014 with acquisitions focused on creating a more robust pipeline. Roche acquired US-based breast cancer specialist, Seragon, for $1.7 billion, gaining access to its oral drugs under development. Novartis announced the acquisition of GSK’s oncology division, in an asset swap transaction for $14.5 billion in cash and up to $1.5 billion in contingent payments for the company’s oncology R&D pipeline. Consolidation is expected to continue as market players face weaker pipelines and patent expirations, in view of expectations of doubling of cancer burdens by 2030.

Generics
The market share of the top 10 generic players was over 65% by sales in 2013. This trend will continue in 2015 as businesses continue to expand in emerging markets amidst increasing demand for cheaper medicines. Several deals in 2014 illustrate the ongoing consolidation including: Sun Pharmaceuticals’ acquisition of Ranbaxy Laboratories Ltd for $3.2 billion, Mylan’s announcement of its $5.3 billion acquisition of Abbott Laboratories’ non-US generics business and Mallinckrodt’s purchase of the generics player, Cadence Pharmaceuticals for $1.5 billion.

Animal Health
The gap between the leading players and the rest has widened following Eli Lilly’s announced acquisition of Novartis’ animal health business. Further consolidation can be expected.

Consumer Healthcare
In 2014, major players sought to strengthen their consumer healthcare positioning. In April 2014, Novartis, as part of its announced three-way deal with GlaxoSmithKline PLC (GSK) and Eli Lilly & Co. entered into a JV with GSK to bring their complementary healthcare portfolios together. The JV will have leading category positions and brands in wellness, oral health, nutrition and skin health.

Bayer’s acquisition of Merck’s consumer care business enhances its market position in dermatology, gastrointestinal treatments, cold, allergy, sinus and flu categories. The deal makes Bayer the OTC leader in North and Latin America.

Both the above deals have something in common – assets were swapped as part of the overall transaction. This enabled the acquirer to increase the attractiveness of its bid while both parties could further develop their strategic growth areas.
EMERGING MARKETS

Emerging markets continued to witness strong M&A activity in 2014, with China, South Korea and India being the most active deal markets.

GSK increased its stakes in its Indian and Indonesian subsidiaries, with an investment of about $1.1 billion, to strengthen market presence.

Both Sanofi and GSK have announced plans to invest in Africa. In addition to continuing investment in China, GSK plans an investment up to £130 million in Africa within the next five years, with the aim of expanding manufacturing in Nigeria and Kenya, while entering new markets such as Ethiopia, Rwanda and Ghana.

In addition to the acquisition of Russian pharmaceutical manufacturer, GardenHills, Abbott Laboratories also acquired Chile’s CFR Pharmaceutical in a $3.3 billion deal, which was the largest completed deal in emerging markets. Among other prominent deals was Bayer’s acquisition of Dihon Pharmaceutical Group Co., Ltd in China.

**Traditional Chinese Medicine (TCM) – a local remedy**

TCM was identified as one of China’s seven strategic industries under the 12th Five-Year Plan. TCM offers potential as it is viewed as a Chinese heritage and regarded as effective in certain areas such as chronic diseases. TCM remedies now account for 203 of 502 drugs on the government’s essential drug list. In 2014, Bayer bought Dihon Pharmaceutical Group Co., Ltd, an OTC and TCM manufacturer based in Yunnan province further strengthening its OTC position in China in dermatology and TCM for women’s health.

**CAPITAL INDEX**

The pharma indices continue to outperform the market, granting pharmaceutical companies the fire power to execute more transactions.

**FIGURE 5: DEVELOPMENT OF PHARMA SHARE PRICES 2014**

Sources: Bloomberg, KPMG Analysis

**FIGURE 6: TOP COUNTRIES IN PHARMACEUTICAL M&A 2014**

Sources: Thomas Ode, KPMG Analysis

**TAX CLAMPDOWN**

National tax policy has a major impact on competitiveness and market valuation of life sciences businesses. To avoid relatively high corporate tax rates, many pharmaceutical companies have carried out tax inversion acquisitions relocating their headquarters to lower taxed jurisdictions.

The U.S. Treasury Department issued in September 2014 a notice of intent to issue regulations limiting tax inversion focused deals. At an international level, the OECD, tasked by the G20, is considering the issue of Base Erosion and Profit Shifting (BEPS) and has developed a 15 point action plan and will issue their final recommendations by the end of 2015.

**OUTLOOK**

Sector outlook remains positive due to the following factors in the:

**short term:** Strong growth in emerging markets driven by shifting economic power and growing affluent middle classes in the BRICs, Africa and Latin America

**medium term:** Ageing and growing global population is increasing the burden of disease and demand for innovative medicines.

**long term:** Scientific revolution with genomics, cell therapies, immunotherapies, will advance our understanding of disease pathology and potential treatments.
## TABLE 1: GLOBAL TOP DEALS COMPLETED IN 2014

<table>
<thead>
<tr>
<th>BIDDER</th>
<th>TARGET</th>
<th>THERAPY AREA</th>
<th>VALUE</th>
<th>CONTINGENT PAYMENTS</th>
<th>TOTAL VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actavis PLC</td>
<td>Forest Laboratories LLC</td>
<td>CNS, gastroenterology, women’s health, urology, etc.</td>
<td>28.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thermo Fisher Scientific Inc</td>
<td>Life Technologies Corp.</td>
<td>Consumables, instruments, diagnostic tests</td>
<td>15.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bayer AG</td>
<td>Merck &amp; Co. Inc. – Consumer Care Business</td>
<td>Consumer healthcare</td>
<td>14.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roche Holding AG</td>
<td>InterMune Inc.</td>
<td>Pulmonology and orphan fibrotic diseases</td>
<td>8.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>McKesson Corp.</td>
<td>Celesio AG</td>
<td>Wholesaler of pharmaceutical and healthcare products and services</td>
<td>6.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mallinckrodt PLC</td>
<td>Questcor Pharmaceuticals Inc.</td>
<td>Autoimmune and inflammatory disorders</td>
<td>5.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AstraZeneca PLC</td>
<td>Diabetes business unit from Bristol-Myers Squibb</td>
<td>Diabetes</td>
<td>4.3</td>
<td>2.7</td>
<td>1.6</td>
</tr>
<tr>
<td>Shire PLC</td>
<td>ViroPharma Inc.</td>
<td>Viral diseases</td>
<td>4.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The Carlyle Group LLC</td>
<td>Johnson &amp; Johnson – Ortho-Clinical Diagnostics unit</td>
<td>Transfusion medicine including donor screening and blood typing products</td>
<td>4.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Merck &amp; Co. Inc.</td>
<td>Idenix Pharmaceuticals Inc.</td>
<td>Human viral diseases</td>
<td>3.8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The deal value of the global top 10 **completed** deals in 2014 was **$94.5 billion**

## TABLE 2: GLOBAL TOP DEALS ANNOUNCED IN 2014, YET TO CLOSE

<table>
<thead>
<tr>
<th>BIDDER</th>
<th>TARGET</th>
<th>THERAPY AREA</th>
<th>DEAL STATUS</th>
<th>TOTAL VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pfizer Inc.</td>
<td>AstraZeneca PLC</td>
<td>Biopharmaceuticals</td>
<td>Withdrawn</td>
<td>117.1</td>
</tr>
<tr>
<td>Actavis PLC</td>
<td>Allergan Inc.</td>
<td>Eye care, neurosciences, dermatology, urologies</td>
<td>Pending</td>
<td>68.4</td>
</tr>
<tr>
<td>Valeant Pharmaceuticals International Inc.</td>
<td>Allergan Inc.</td>
<td>Eye care, neurosciences, dermatology, urologies</td>
<td>Withdrawn</td>
<td>57.6</td>
</tr>
<tr>
<td>AbbVie Inc.</td>
<td>Shire PLC</td>
<td>Neuroscience, gastrointestinal, internal medicine</td>
<td>Withdrawn</td>
<td>54.8</td>
</tr>
<tr>
<td>Novartis AG</td>
<td>GlaxoSmithKline PLC – Oncology Business</td>
<td>Oncology</td>
<td>Pending shareholder and antitrust approval</td>
<td>16.0</td>
</tr>
<tr>
<td>Merck &amp; Co., Inc.</td>
<td>Cubist Pharmaceuticals Inc.</td>
<td>Antibiotics</td>
<td>Antitrust approval, pending second-step merger</td>
<td>9.5</td>
</tr>
<tr>
<td>Mylan Inc.</td>
<td>Meda AB</td>
<td>Respiratory, dermatology, OTC</td>
<td>Withdrawn</td>
<td>9.0</td>
</tr>
<tr>
<td>GlaxoSmithKline PLC</td>
<td>Novartis AG – Vaccine Business</td>
<td>Vaccines</td>
<td>Pending shareholder and antitrust approval</td>
<td>7.1</td>
</tr>
<tr>
<td>Eli Lilly &amp; Co.</td>
<td>Novartis AG – Animal Health Division</td>
<td>Animal health</td>
<td>Antitrust approval, merger pending</td>
<td>5.4</td>
</tr>
<tr>
<td>Mylan Inc.</td>
<td>Abbott Laboratories – Non-US generics business</td>
<td>Cardio/metabolic, gastrointestinal medicine etc.</td>
<td>Pending shareholder and antitrust approval</td>
<td>5.3</td>
</tr>
</tbody>
</table>

1 All numbers are in US$ billion  
2 Financial investor  
Figures in blue are estimated values

The deal value of the global top 10 **announced** deals in 2014 was **$350.2 billion**
**TABLE 3: GLOBAL TOP DEALS COMPLETED IN 2014**

<table>
<thead>
<tr>
<th>BIDDER</th>
<th>TARGET</th>
<th>BUSINESS AREA</th>
<th>TOTAL VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Samsung SDI Co., Ltd</td>
<td>Cheil Industries Inc.</td>
<td>Scratch resistant resins, semiconductor materials</td>
<td>3.5</td>
</tr>
<tr>
<td>Eastman Chemical Company</td>
<td>Taminco Corporation</td>
<td>Alkylamines, acids and derivatives</td>
<td>2.8</td>
</tr>
<tr>
<td>Merck KGaA</td>
<td>AZ Electronic Materials S.A.</td>
<td>Premium segment high-tech materials, functional specialty chemicals</td>
<td>2.5</td>
</tr>
<tr>
<td>PPG Industries Inc.</td>
<td>Consorcio Comex, S.A. de C.V.</td>
<td>Coatings and related products</td>
<td>2.3</td>
</tr>
<tr>
<td>Darling International Inc.</td>
<td>VION Ingredients Nederland BV</td>
<td>Gelatine, proteins and fats</td>
<td>2.2</td>
</tr>
<tr>
<td>Koch Industries Inc.</td>
<td>PetroLogistics LP and PetroLogistics GP LLC</td>
<td>Propane dehydrogenation</td>
<td>2.1</td>
</tr>
<tr>
<td>Clayton Dubilier &amp; Rice LLC</td>
<td>Ashland Inc. – Water Treatment Business</td>
<td>Specialty chemicals for water treatment</td>
<td>1.8</td>
</tr>
<tr>
<td>Huafang Textile Co., Ltd.</td>
<td>Zhejiang Jiahua Energy Chemical Industry Co., Ltd.</td>
<td>Sulfuric and fatty acids, chlor-alkalis</td>
<td>1.6</td>
</tr>
<tr>
<td>Ineos Industries Holdings Ltd.</td>
<td>Styrolution Group GmbH (50%)</td>
<td>Styrenics</td>
<td>1.5</td>
</tr>
<tr>
<td>Minerals Technologies Inc.</td>
<td>Amcol International Corp.</td>
<td>Specialty materials with a core expertise in minerals and polymer science</td>
<td>1.5</td>
</tr>
</tbody>
</table>

**TABLE 4: GLOBAL TOP DEALS ANNOUNCED IN 2014, YET TO CLOSE**

<table>
<thead>
<tr>
<th>BIDDER</th>
<th>TARGET</th>
<th>BUSINESS AREA</th>
<th>DEAL STATUS</th>
<th>TOTAL VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Merck KGaA</td>
<td>Sigma-Aldrich Co. LLC</td>
<td>Biochemicals, organic chemicals and lab equipment</td>
<td>Pending antitrust approval</td>
<td>17.0</td>
</tr>
<tr>
<td>Albemarle Corp.</td>
<td>Rockwood Holdings, Inc.</td>
<td>Lithium production, products and services for metal processing</td>
<td>Pending shareholder and antitrust approval</td>
<td>6.2</td>
</tr>
<tr>
<td>Platform Specialty Products Corp.</td>
<td>Arysta LifeScience Ltd.</td>
<td>Agrochemical and biological products</td>
<td>Pending antitrust approval</td>
<td>3.5</td>
</tr>
<tr>
<td>Cie de Saint-Gobain SA</td>
<td>Sika AG (52.4% of stock voting rights through Schenker-Winkler Holding AG)</td>
<td>Construction chemicals</td>
<td>Pending antitrust approval</td>
<td>2.8</td>
</tr>
<tr>
<td>Arkema SA</td>
<td>Bostik SA (a part of Total S.A.)</td>
<td>Adhesives</td>
<td>Pending shareholder and antitrust approval</td>
<td>2.2</td>
</tr>
<tr>
<td>FMC Corporation</td>
<td>Cheminova A/S (a part of Auriga Industries A/S)</td>
<td>Crop protein products</td>
<td>Pending antitrust approval</td>
<td>1.8</td>
</tr>
<tr>
<td>Jinguyuan Holding Co., Ltd.</td>
<td>Golmud Possession Grid Potash Co., Ltd.</td>
<td>Potash</td>
<td>Pending</td>
<td>1.6</td>
</tr>
<tr>
<td>Golden Gate Capital²</td>
<td>ANGUS Chemical Company (part of Dow Chemical)</td>
<td>Nitroalkanes and their derivatives</td>
<td>Pending antitrust approval</td>
<td>1.2</td>
</tr>
<tr>
<td>Hanwha Group</td>
<td>Samsung General Chemicals Co., Ltd. (56%)</td>
<td>Polyethylene and polypropylene</td>
<td>Pending</td>
<td>1.0</td>
</tr>
<tr>
<td>Meihua Holdings Group Co., Ltd.</td>
<td>Ningxia Eppen Biotech Co., Ltd.</td>
<td>Amino acids, monosodium glutamate, corn by-products and fertilizers</td>
<td>Pending</td>
<td>0.7</td>
</tr>
</tbody>
</table>

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1 All numbers are in US$ billion
2 Financial investor

The deal value of the global top 10 **completed** deals in 2014 was **$21.8 billion**

The deal value of the global top 10 **announced** deals in 2014 was **$38 billion**
Transactions have been influenced by a low interest rate environment and the chemical industry adjusting structurally to new regional and raw material dynamics. The US has been the most active country in chemical M&A activity in 2014. Shale gas has moved the US from a high-cost petrochemicals and resins producer to among the lowest-cost producers. Transaction volumes have continued at a high level with companies optimizing their portfolios and their supply chains, as well as expanding geographically to sustain competitiveness.

**DEAL FOCUS AREAS**

The largest completed deal in 2014 was Samsung SDI Co., Ltd.’s acquisition of Cheil Industries Inc. for $3.5 billion which will leverage complementary supply chains and lead to market synergies in the automotive and lighting sectors. Similarly, the largest announced deal in 2014, Merck KGaA’s acquisition of Sigma-Aldrich Co. LLC for $17 billion expects to generate synergies of approximately $340 million based on broader but complementary products and services and an improved supply chain.

Merck KGaA’s acquisition of AZ Electronic Materials S.A. for $2.5 billion aimed to foster geographic expansion, particularly in Asia. Similarly, PPG Industries Inc.’s $2.3 billion acquisition of Consorcio Comex, S.A. de C.V. aimed to enlarge the acquirer’s geographic presence, particularly in Mexico and Latin America.

**EMERGING MARKETS**

With increasing living standards and the relentless push of urbanization, China is a rapidly expanding market for chemical products.

The Chinese market is highly complex with unique local features and makes M&A an efficient means of accessing the local market. Examples include investments by Croda International (UK) in Sichuan Sipo Chemical for $58.6 million and a $22.1 million investment by Koninklijke DSM (Netherlands) in Yantai Andre Pectin Co., Ltd..

Outbound deals are mainly driven by large state-owned companies. One recent deal is the acquisition of Norway’s REC Solar by Bluestar, a subsidiary of the ChemChina group. Some private companies have also resorted to outbound M&A, e.g. Zhejiang Longsheng’s successful acquisition of Dystar’s dyestuff business.
CAPITAL INDEX
Share prices of chemical firms listed in the S&P 500 improved by 8.4% and beat the MSCI World Index by 5.4% in 2014. European and Asian chemical companies underperformed the global market.

OUTLOOK - ACQUIRING HIGHER UP THE VALUE CHAIN
Continued M&A activity in the chemical sector in 2015 will be driven by the following factors:

- structural changes taking place
- expanding middle class in emerging markets spurring demand for chemical products
- record low interest rates and availability of cash reserves

The trend to acquire further up the value chain as witnessed in 2014 will continue in 2015. More deals will continue to fall higher up the value chain towards later stage chemical processing and application.

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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 5 January 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 174 public companies. For the chemical sector, this comprises 180 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

**Publications**
- Various companies’ press releases

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