2013 Global chemical industry mergers and acquisitions outlook

March 2013

Contents

Overview

The global chemical industry continues to face a number of trends that will challenge the sector and drive new opportunities for organic and inorganic growth. New markets, shale gas discoveries, and Advanced Materials Systems[1] are among the trends driving organic growth and stimulating activity in mergers and acquisitions (M&A) and alliances. The industry is witnessing portfolio realignment as companies take steps to strengthen balance sheets, pursue consolidation strategies, and establish footholds in new markets. Although recent M&A activity levels have been lower than the levels seen in 2007 and 2008, significant M&A activity is still underway and an important element of today's chemical industry (see Figure 1).

To address the trends in M&A activity within the global chemical industry, Deloitte Touche Tohmatsu Limited's (DTTL) Global Manufacturing Industry group convened a panel of leaders from Deloitte member firms in North America, Europe, and China to consider the developments in the sector across these markets and their likely impact on M&A activity into 2013. This chemical industry M&A outlook is the first in a series that focuses on three of the geographic regions which is believed to be top-of-mind to global chemical M&A participants. Subsequent outlooks will highlight other trends and geographic regions.

1 Deloitte Touche Tohmatsu Limited (DTTL) Global Manufacturing Industry group, *Reigniting growth: Advanced Materials Systems*, 11 December 2012, www.deloitte.com/reignitinggrowth.

Sector valuations

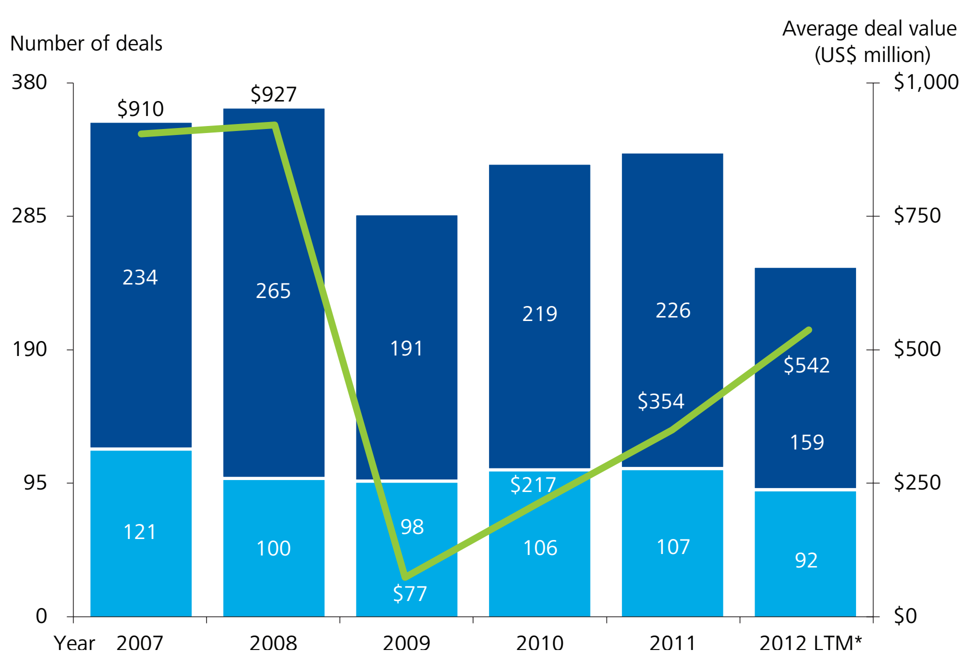
Since the second quarter of 2007, valuations within the sub-sectors of the global chemical industry have tended to correlate closely with each other. However, there were two sub-sectors that stood apart - fertilizers and agricultural chemicals sector and the industrial gases (see Figure 2). Fertilizers and agricultural chemicals companies tended to be valued at sharply higher multiples through much of the period, a reflection of strong prices for agricultural commodities and fertilizer products.[2] The EV/LTM EBITDA multiple[3] for the agricultural chemicals sector declined significantly from the second quarter of 2011 through to the fourth quarter of 2011 as fertilizer prices, such as urea/nitrogen, potash, and phosphate, were weak while agricultural commodity prices also dropped.[4] Though agricultural chemical commodity prices have recently rebounded, the historic drought in the U.S. Corn

2 Bloomberg, "Chicago Board of Trade," accessed on 18 December 2012.

3 Defined as the enterprise value (EV) divided by the last twelve months (LTM) of earnings before interest, taxes, depreciation, and amortization (EBITDA).

4 Bloomberg, "Chicago Board of Trade," accessed on 18 December 2012.

Figure 1: Global chemical industry M&A activity announced deals



* LTM: Last twelve months

Source: Deloitte Touche Tohmatsu Limited (DTTL) Global Manufacturing Industry group analysis of Thomson Financial data, accessed on 26 December 2012.

Belt[5] has continued to put pressure on the multiples of global agricultural chemicals in 2012. However, as will be discussed later in this outlook (see section titled "North America"), acquisitions of agricultural chemical companies that focus on yield-enhancing[6] innovative products are commanding a multiple premium.[7]

Industrial gases also tended to trade at higher-than-average levels over the last five year and even surpasses the fertilizers and agricultural chemicals sector the fourth quarter of 2011 (See Figure 2). This strength is likely attributable to growing economic activity and consequent greater demand for industrial gases that are used to support manufacturing processes. Additionally, as shown in Figure 2, industrial gas companies have tended to trade at higher multiples over the historical period when compared to other chemical subsectors due to less cyclicality (i.e. greater end market diversity) and more durable business models. In 2012, industrial gases have continued to trade at higher multiples and the multiples of other chemical sub-sectors have consistently increased. The exception is fertilizers and agricultural chemicals, which has remained flat through 2012.

5 U.S. Corn Belt is defined as the Midwestern region in the United States.

6 Yield enhancing is defined as a process that enhances the yields a farmer gets from his field

7 DTTL Global Manufacturing Industry group observation, December 2012.

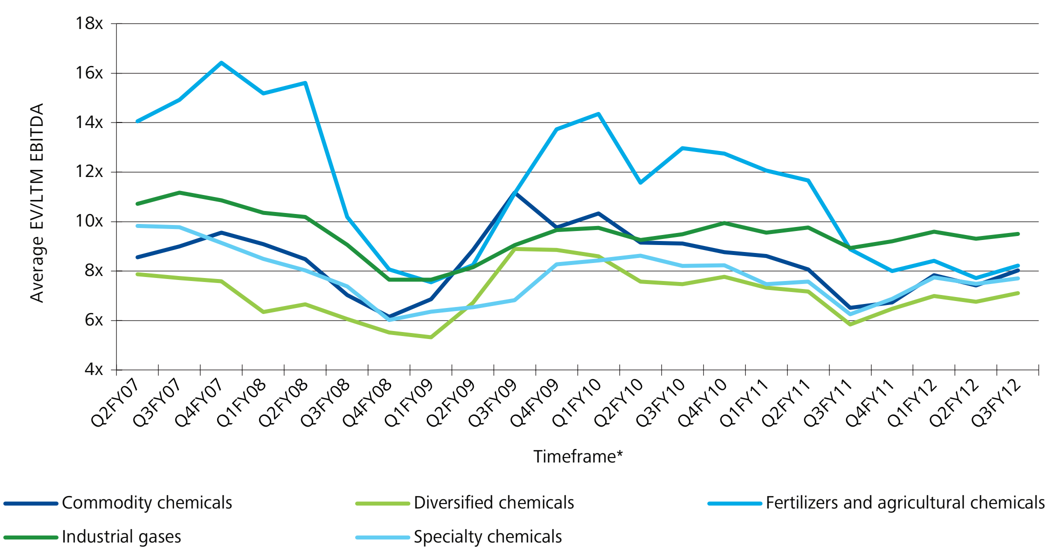
North America

In the United States, increased M&A activity in the chemicals sector is expected with the recovery of the construction market in 2013. The paints and coatings, adhesives, sealants, and additives businesses all experienced upswings in M&A activity in 2012, in a scenario reminiscent of M&A activity among styrenics businesses in 2009 and 2010. Notable coatings disposals announced this year include DuPont and Cytec Industries, which both moved to divest their coatings businesses to private equity firms.[8] DuPont agreed to sell its automotive coatings business to Carlyle Group for US$4.9 billion, while Cytec sold its coatings resins unit to Advent International for US$1.03 billion.[9]

8 ICIS News, "Chemical Activity to Rebound in 2013 — U.S. Banker," 5 November 2012.

9 Ibid.

Figure 2: Enterprise value (EV) divided by last twelve months of earnings before interest, taxes, depreciation, and amortization (LTM EBITDA)

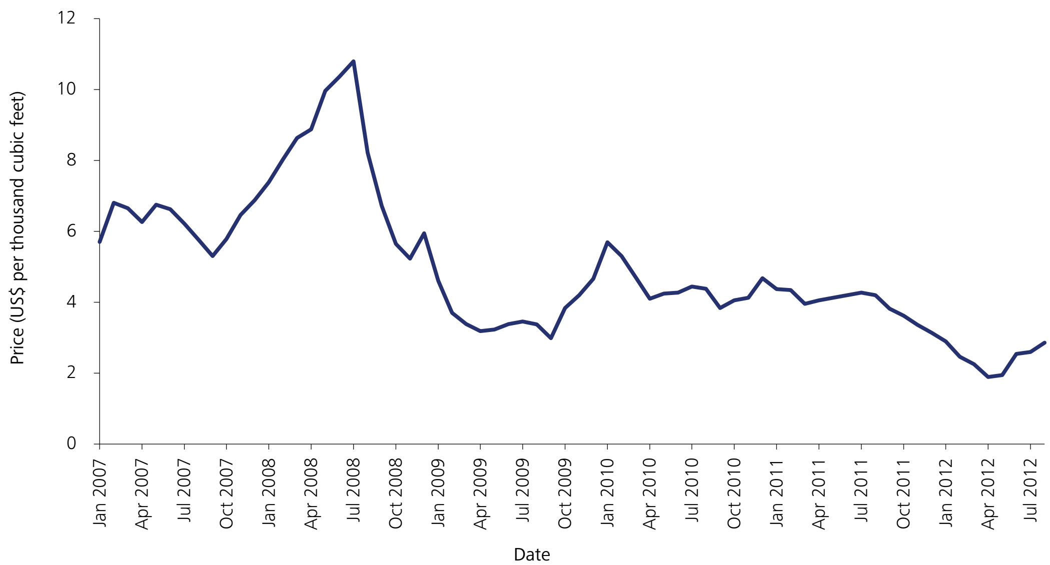


Note: EV/LTM EBITDA is calculated based on the weighted average for each sector.

*The timeframe is represented by quarter (Q) and fiscal year (FY).

Source: DTTL Global Manufacturing Industry group analysis of Capital IQ data, accessed on 26 November 2012.

Figure 3: Monthly U.S. wellhead natural gas prices (2007 to 2012)

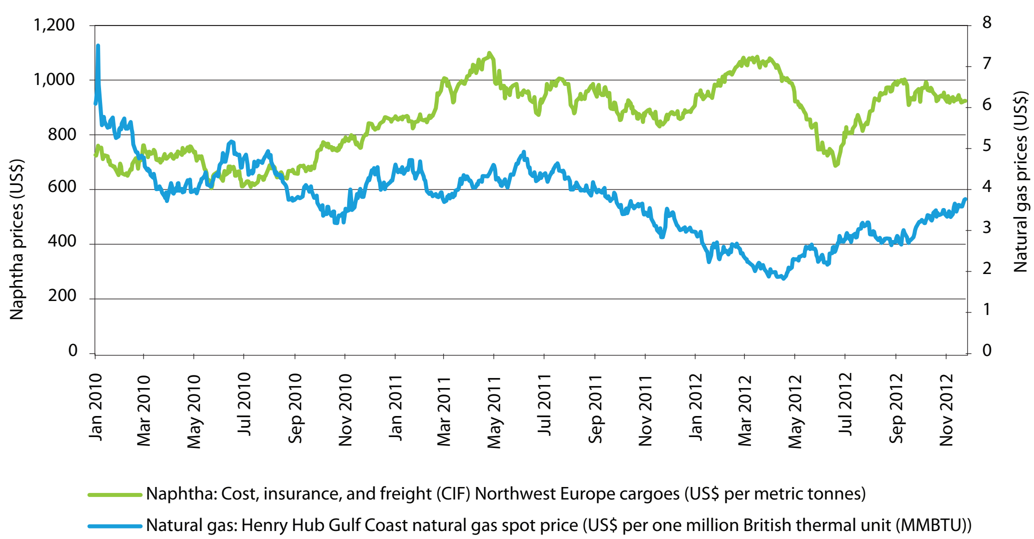


Source: DTTL Global Manufacturing Industry group analysis, December 2012 with data from Energy Information Administration (EIA) website, accessed in November 2012.

The discovery and use of shale gas continues to have a profound impact on North American chemical companies. Because of these new supplies, natural gas prices fell steadily from 2008 through the end of the first quarter in 2012, then reflected a modest increase (see Figure 3).

Chemical companies in North America are reaping the benefits with lower utility cost and cheaper feedstocks, which have in turn led to lower manufacturing costs, improved margins, and a renewed ability to deliver price-competitive products to the global marketplace.

Figure 4: Naphtha prices versus natural gas prices (January 2012 through 27 November 2012)



Source: DTTL Global Manufacturing Industry group analysis of U.S. Energy Information Administration data, accessed on 27 November 2012.

Additionally, oil and gas prices no longer run in tandem (see Figure 4), allowing North America petrochemical companies to have cost-advantaged feedstocks. As a result, the M&A outlook for the North American chemical industry has changed dramatically. Only a few years ago, companies were looking elsewhere for expansion while chemical investment funds focused on low-cost feedstock countries in the Middle East and Asia. Commodity producer are now reconsidering either facility expansion or restarting mothballed facilities in North America. Over US$40 billion of investment has been announced for the next several years.[10] Among the highlights:

- Dow Chemical plans to open new U.S. ethylene and propylene plants later this decade and to restart a Louisiana ethylene cracker closed in 2009.[11]

- Royal Dutch Shell has announced plans for a chemical plant in the gas-rich Appalachian mountain region to make ethylene and petrochemicals.[12]

- Formosa Plastics plans to invest more than US$1.7 billion to expand production at its site in Point Comfort, Texas.[13]

- Westlake Chemicals is expanding its Lake Charles, Louisiana, ethane-based ethylene crackers. The company is also evaluating conversion from propane to ethane feedstock at its Calvert City, Kentucky, ethylene production facility.[14]

- Sasol Ltd., a South African technology-driven alternative fuels and chemicals company, has announced that it intends to build America's first commercial plant to convert natural gas to diesel and other liquid fuels at Lake Charles, Louisiana. The facility will include a gas processing plant, a chemical plant, and a refinery that will cost US$11 billion to US$14 billion to build. The Sasol project also includes a separate US$5 billion ethane cracker to produce plastics and solvents.[15]
- Methanex Corporation has announced the relocation of a one-million-ton methanol plant from its current site in Chile to Geismar, Louisiana. The targeted operational date is the end of 2014.[16]

While the development of North America's shale gas industry may spur M&A among acquirers hoping to take advantage of lower-cost production opportunities, shale gas discoveries may also result in the diversion of funds previously earmarked for M&A into more organic growth opportunities. Still, chemical companies that stand to benefit greatly through being linked to the shale value chain have become attractive targets due to their growth attributes.

It is important to note that the key beneficiaries of access to cheaper U.S. natural gas are likely the petrochemical producers. Downstream chemicals subsectors that are more closely linked to the general economy are not faring as well. These include elastomers and rubber, electronic materials, basic chemicals, and commodity polymer manufacturers.[17]

With the increased demand for food and rising crop prices, agricultural chemicals are driving not only growth, but also global M&A activity among industry leaders such as Dow, BASF, and Syngenta. Especially bio-based chemicals are increasingly attractive and becoming a target even for traditional chemical and agricultural chemicals in many M&A transactions because of their renewable features, the alternative they offer in times of high oil prices, and their chemical versatility.[18] Prospects of top-line growth and further easing of the U.S. debt markets in 2013 could increase the appetite for M&A opportunities both in North America and elsewhere, as pressure mounts to build a greater presence in Latin America and the Asia-Pacific region.

10 Houston Chronicle, "Industry leaders: Domestic oil, gas are driving U.S. manufacturing resurgence," 2 November 2012, http://www.mywesttexas.com/business/oil/article_aa1aaeed-5bd6-585f-ab94-e301a5116721.html.

11 ICIS.com, "Dow Chemical to build new U.S. cracker for start-up in 2017," 21 April 2011, http://www.icis.com/Articles/2011/04/21/9454636/dow-chemical-to-build-new-us-cracker-for-start-up-in-2017.html.

12 Financial Times, "Shale gas boosts U.S. manufacturing," 19 September 2011, http://www.ft.com/cms/s/0/dbfeaa42-e2d2-11e0-93d9-00144feabdc0.h#axzz2E16rXUjj.

13 PlasticNews.com, "Formosa investing $1.7 billion to expand Point Comfort plant," 27 February 2012, http://www.plasticsnews.com/headlines2.html?id=24614.

14 Westlake Chemical, News release, "Westlake Announces Ethylene Capacity Expansion Plans," 5 April 2011, http://www.westlake.com/fw/main/default.asp?DocID=68&reqid=1546634&PrintLayoutID=39&SetUsersGridState=.

15 International Business Times, "Sasol Plans $3.5-$4.5 Billion Ethane Cracker, Ethylene Project in Lake Charles, Louisiana," 1 December 2011, http://www.ibtimes.com/sasol-plans-35-45-billion-ethane-cracker-ethylene-project-lake-charles-louisiana-377358.

16 Methanex Corporation, News release, "Methanex Proceeds With Louisiana Project," 25 July 2012, http://cnrp.marketwire.com/client/methanex/release.jsp?actionFor=1645248&releaseSeq=10.

17 ICIS News, "Chemical Activity to Rebound in 2013," 5 November 2012.

18 Ibid.

Europe

In Europe, the chemical industry continues to be among the more active in terms of M&A. This is likely being driven by:

- Strong balance sheets of many corporations which are cautiously eager to build market positions in core areas of focus.
- Continued portfolio realignment through non-core asset disposals (estimated to be a factor in about 25 percent of current M&A activity levels).[19]
- Increased focus and investment in overseas markets, particularly the higher-growth emerging markets.
- Financing considerations that continue to plague some players and have an impact on private equity's (PE) approach to investment in the sector. Given the uncertain economic conditions and persistent European sovereign debt issues, PE portfolio companies are focused on servicing debt and meeting covenants.

With strong demand for chemical products in the consumer goods, industrial manufacturing, and construction sectors, Latin American countries and other emerging markets in Southeast Asia and the Middle East, have been showing attractive end-market growth. European companies want to invest in these end markets but are conservative in their approach, aiming to minimize M&A risk. For example, some European chemical companies have established a presence in China through joint ventures or investments in specialty markets, while Latin America continues to be a target for many European chemical players.

From a sell-side perspective, there has been increased

and non-profitable assets in order to enhance shareholder value and generate cash flow. Other companies are challenged by a downturn in end-market demand, which is driving consolidation to address excess capacity and facility rationalization. Struggling companies have been focused on improving operational processes to improve financial performance and disposing of non-core assets to raise cash, while companies with liquidity are making acquisitions to transform their companies and execute growth strategies. Many are focusing on higher-added-value products and less cyclical businesses in order to be more competitive for the future and create prospects for a sustainable business. Relevant examples include:

- BASF's continued deals, both buying and striving for assets aligned with the core strategy of building its specialty portfolio (e.g., Cognis, the specialty chemicals company in 2010,[21] and Becker Underwood;[22] Novolyte Technologies;[23] and Pronova BioPharma ASA[24] in 2012) and disposing of non-core assets (e.g., businesses in the styrene value chain in 2009[25] and its fertilizer business in 2011[26]).
- Solvay's sale of its pharmaceutical business to Abbott Laboratories in 2010[27] and acquisition of Rhodia in 2011[28].
- Cytec Industries' sale of its coatings resins business to Advent[29] and acquisition of Umeco in 2012[30].

---

21 Deal Book, "BASF Acquires Cognis in $3.8 Billion Deal," 23 June 2010, http://dealbook.nytimes.com/2010/06/23/basf-acquires-cognis-in-3-8-billion-deal/.

22 BASF, "BASF completes acquisition of Becker Underwood," 28 November 2012, http://www.basf.com/group/pressrelease/P-12-526.

23 Finanzen.net, "BASF acquires Novolyte Technologies," 26 April 2012, http://www.finanzen.net/nachricht/aktien/BASF-acquires-Novolyte-Technologies-2128170.