

WHITE PAPER

# Macro Trends Shaping Mergers and Acquisitions in Chemicals

September 2023

By Adam Rothman, Jan Friese, Arun Rajamani, Hubert Schönberger, Julia Meisel, and Patrick Sykes

# Macro Trends Shaping Mergers and Acquisitions in Chemicals

How has deal activity in the chemical industry continued to develop since the historic slump during the pandemic? What are the main drivers of current activity, and which underlying strategies can be deduced from them? This report traces the chemical industry's mergers and acquisitions (M&A) strategies during the last five years and sheds light on the key reasons for transactions and their results.

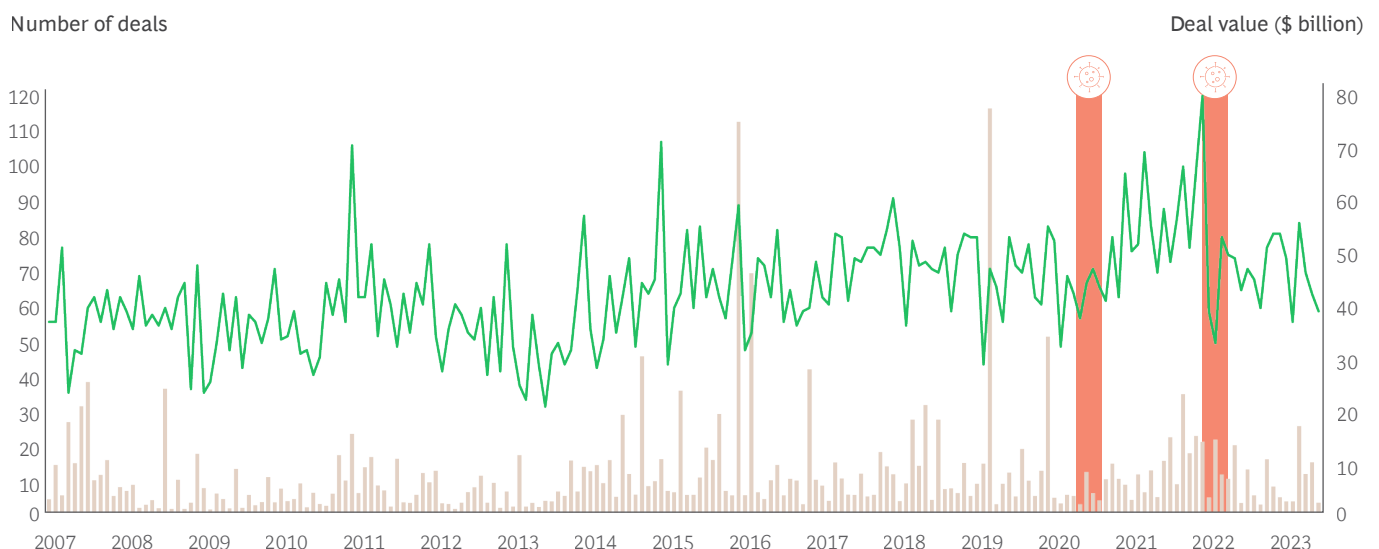
## M&A activity post COVID-19 and beyond

The chemical industry experienced a rapid recovery from the pandemic slump in 2020 with a surprisingly strong year in 2021. Since then, however, it has been confronted with a decrease in both deal volumes and value due to a significant slowdown in M&A activity. (See Exhibit 1.)

High inflation and rising interest rates around the world coupled with rising energy prices in regions such as Europe have increased the cost of production, contributing to this decline. Additional ongoing destocking and slower-than-expected growth of the Chinese GDP have together culminated in a series of profit warnings.

To combat the slowdown in the post-pandemic environment, companies have shifted their M&A strategies toward more sustainable businesses to reach leading positions in profitable niche markets and participate in major trends in the global energy transition.

## Exhibit 1 - M&A activity rebounded quickly after the pandemic shock, however, did not return to previous levels



Sources: Refinitiv; BCG Analysis.

Note: M&A transactions include pending, partly completed, and completed deals announced globally between January 1, 2007 and June 30, 2023. Deal values are not disclosed for all deals considered in the total number of deals.

Apart from COVID, government-backed deals of large companies are on the rise, particularly in mature markets, allowing them to acquire downstream businesses to expand their value chains and enter established markets. For example, Saudi Aramco's acquisition of LANXESS's interest in ARLANXEO, SABIC's strategic stake in Clariant, ADNOC's attempted acquisition of Covestro, and the bidding for Brazilian petrochemical maker Braskem. In China, state-owned entities are subject to consolidation as well, as the merger of Sinochem and ChemChina demonstrates.

## Segment-specific activity

Before the COVID-19 pandemic, petrochemical deals in the oil and gas downstream sector dominated in terms of value. Notable examples include the SABIC-Saudi Aramco deal valued at \$69.1 billion and the Sipchem-Sahara deal valued at \$2.2 billion. Post COVID however, the M&A landscape has witnessed a shift toward large specialty chemicals deals in various segments.

In the specialty ingredients, flavors and fragrances segment, significant deals have taken place, highlighting the growing importance and robust margins of this niche market. For instance, the DSM-Firmenich deal was valued at \$20.7 billion, demonstrating the strategic focus on achieving a leading position in an industry segment. The Novozymes-Chr. Hansen deal valued at \$9.6 billion was also notable. Furthermore, after merging with DuPont's Nutrition & Biosciences division in a \$26.2 billion transaction in 2020, International Flavors & Fragrances (IFF) recently announced the sale of its savory solutions business to private equity (PE) firm PAI Partners for \$0.9 billion, emphasizing the dynamic nature of M&A in this segment. Flavors and fragrances has been the segment with the most extreme consolidation during the last five years with nearly \$50 billion spent across several transactions. The pace of portfolio turnover continues with, for example, IFF divesting its Savory Solutions business unit to PAI Partners.

In the paints and coatings segment, major M&A deals have shaped the industry landscape. The Nippon Paint-Wuthelam deal stood out with a value of \$12.2 billion, underscoring the consolidation efforts in this industry. Additionally, in the specialty materials segment, several large and even mega deals have taken place. Examples include Celanese's acquisition of DuPont's Mobility & Materials business, including polymer products like nylons, polyesters, and elastomers valued at \$11 billion; the LANXESS-Advent joint acquisition of DSM's engineering polymers business valued at \$4 billion; the ABS-HDPE joint venture between Sinopec and Ineos; the acquisition of Iljin, a South Korean producer of battery materials, by Lotte Chemical valued at \$1.8 billion; and the UHMWPE business acquisition of DSM by Avient, valued at \$1.6 billion.

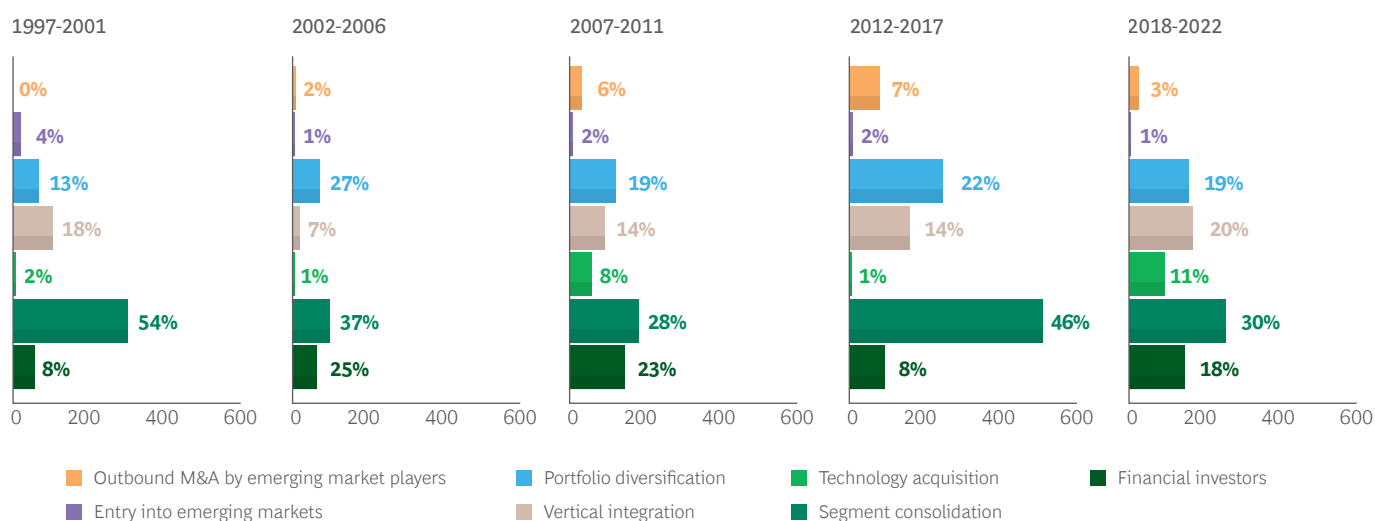
## New players driving M&A

The rationales behind the M&A deals mentioned are manifold. While segment consolidation had been the leading reason for M&A in the past two decades, deals done against the backdrop of financial investments, in particular driven by PE firms, are gaining increasing relevance. (See Exhibit 2.)

## Exhibit 2 - Consolidation is the main driver for M&A for over 20 years

### Announced M&A worldwide deals (\$ billion)

Bars show deal value in \$ billion



Sources: BCG analysis.

Note: Percentages may not total 100 because of rounding.

### Outbound M&A by emerging market players

Most recently, in the first half of 2023, commodity players from emerging markets, backed by their governments, increasingly embraced the opportunity for expansion. By acquiring stakes in European and North American companies dealing with a challenging economic environment, they are expanding their regional footprint while extending their value chains. Players from the Middle East, in particular, enjoy the backing of their governments.

In one example, SABIC acquired a 31.5% stake in Clariant. The purpose of this acquisition was to improve SABIC's access to the specialty chemicals industry and to establish closer proximity to European end-markets. Swiss regulations require investors to make an offer for a takeover at an ownership share of 33.3% or more—SABIC's acquisition was just short of this level.

Another example of a government-backed acquisition is the purchase by the United Arab Emirates' state-owned energy group ADNOC of a 24% interest in OMV, the Austrian multinational oil, gas, and petrochemical company. Since OMV holds a 75% ownership in Vienna-based Borealis, this acquisition indirectly increases ADNOC's share in both Borealis and Abu Dhabi-based Borouge. Borouge is a joint venture between ADNOC and Borealis.

In June 2023, ADNOC and OMV announced discussions regarding the merger of Borealis and Borouge into a single entity. OMV is predominantly owned by private stockholders, while ADNOC is a state-owned company. In the same month, ADNOC had made an offer of \$11 billion to acquire Covestro, a German polymer producer. However, the offer was rejected, reportedly as it was deemed too low. And previously, in May 2023, ADNOC had expressed an interest in acquiring Braskem, a major petrochemicals and polymer producer in Brazil.

The primarily state-owned oil producer Saudi Aramco purchased Valvoline Inc.'s global products business (Valvoline Global Operations) for \$2.7 billion. The acquisition was completed in March 2023 and is expected to provide Saudi Aramco with advantages such as Valvoline's manufacturing and distribution network as well as its research and development capabilities. These additions will complement Aramco's existing lubricant portfolio.

Middle East companies are not the only ones seeking access to Western markets via geographic expansion. Companies from Southeast Asia are also moving more toward this type of acquisition. In May 2022, Malaysian-based PETRONAS Chemicals Group acquired the Swedish specialty chemicals company Perstorp from the PE firm PAI Partners for a total of \$2.4 billion. The acquisition aims to enable Perstorp to contribute approximately 30% of PETRONAS revenues from non-traditional businesses by the year 2030.

## Portfolio diversification

At the same time, companies are diversifying their portfolios through acquisitions to expand into new markets and product segments. Some companies are applying the diversification logic to the extreme—continuously turning over their portfolios for decades.

For global chemicals producer Indorama, a key acquisition in 2020 marked its entry into the chemical intermediates business, a strategic move aimed at expanding its operations and diversifying its product portfolio. Indorama acquired Huntsman's integrated ethylene oxide and propylene oxide (EO & PO) assets for \$2 billion, which provide an entry into global markets for surfactants and care chemicals.

One prominent example of how a company has continuously shifted its business focus over decades is DSM. Starting as the Dutch State Mines (DSM) in 1902, DSM has transformed itself via a series of acquisitions, carve-outs, and mergers from a company producing basic petrochemicals and fertilizers, to one producing polymers and performance materials, to its present incarnation as a life science company focused on nutrition, health, and beauty. (See Exhibit 3.) This transformational M&A strategy seems to have worked out for DSM. Based on a long-term total shareholder return (TSR) analysis, the company has outperformed its industry benchmark for 20 out of the last 25 years—one of only five players across all industries globally.

## Vertical integration

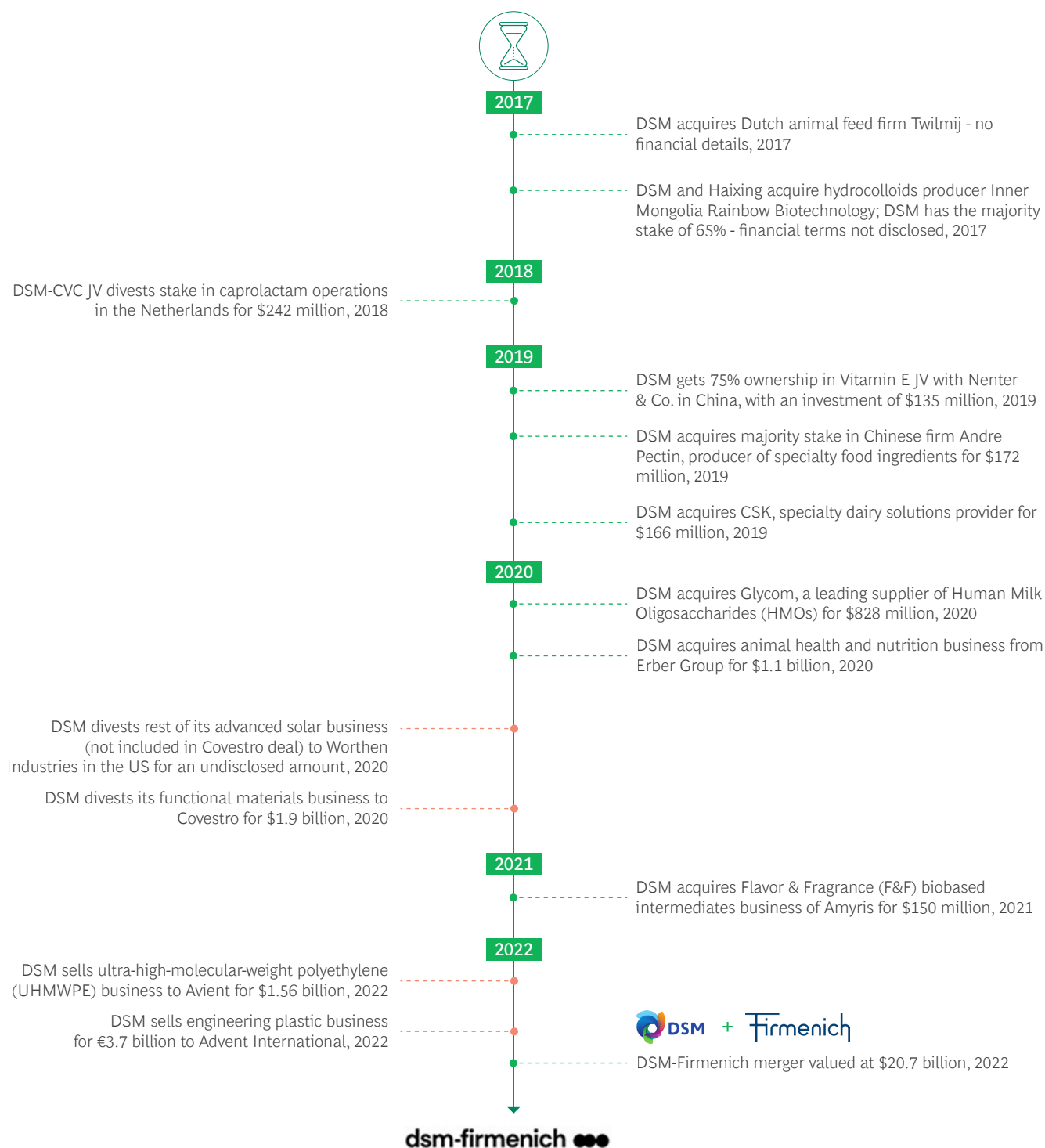
Traditionally acquisitions targeting feedstock access were common in the chemical industry. However, with a growing emphasis on sustainability, companies are increasingly redirecting their strategies toward diversification of petrochemical value chains—focusing on lower volume but higher margin and less cyclical businesses.

The growing focus on specialties has fueled the trend of vertical integration into downstream segments of the chemical industry. Major acquisitions by large petrochemical players like SABIC, PTT, PETRONAS, and Saudi Aramco exemplify this trend.

In 2022, SABIC increased its stake in Clariant from 24.99% to 31.5%, enabling SABIC to expand its presence in downstream markets. In the same year, Clariant also divested 50% of its stake in the joint venture of catalyst producer Scientific Design to SABIC.

In another strategic move to leverage the advantages of vertical integration, PTT Global Chemical (PTTGC) completed the acquisition of Allnex, a global industry leader in the production of industrial coating resins, crosslinkers, and additives, for a total of \$4.7 billion in 2021.

## Exhibit 3 - DSM



**Sources:** Refinitiv; Chemical Week; BCG Analysis.

**Note:** Based on date of announcement.

PETRONAS Chemicals Group (PCG) acquired oxo chemical producer Perstorp from PE firm PAI Partners for \$2.4 billion. This acquisition strengthens PCG's presence in the specialty chemicals market and in Europe.

Saudi Aramco's acquisition of Valvoline's global products business for \$2.7 billion is yet another example of the strategic focus on downstream integration, specifically in the lubricant sector.

## Technology acquisition

Gaining or retaining technology leadership is generally a strong driver for M&A activity, as in the case of LG Chem. Acquisitions and the formation of joint ventures play a strong role in positioning a company as a major chemical supplier to the e-mobility segment and the associated electronic chemicals and battery industry. (See Exhibit 4.)

As the demand for sustainable solutions picks up, many companies are recognizing the potential of e-mobility. With strategic M&A moves such as technology acquisitions and investments in research and development (R&D), companies seek to gain or foster competitive advantages in this fast-growing market segment.

A large number of examples confirm this trend. Umicore has invested in a US-based solid-state battery startup, acquiring a minority stake in Blue Current. This investment complements a joint development agreement between the two companies. With a new solid-state battery development facility in Belgium, Umicore is dedicated to advancing the capabilities and efficiency of these sustainable energy storage solutions.

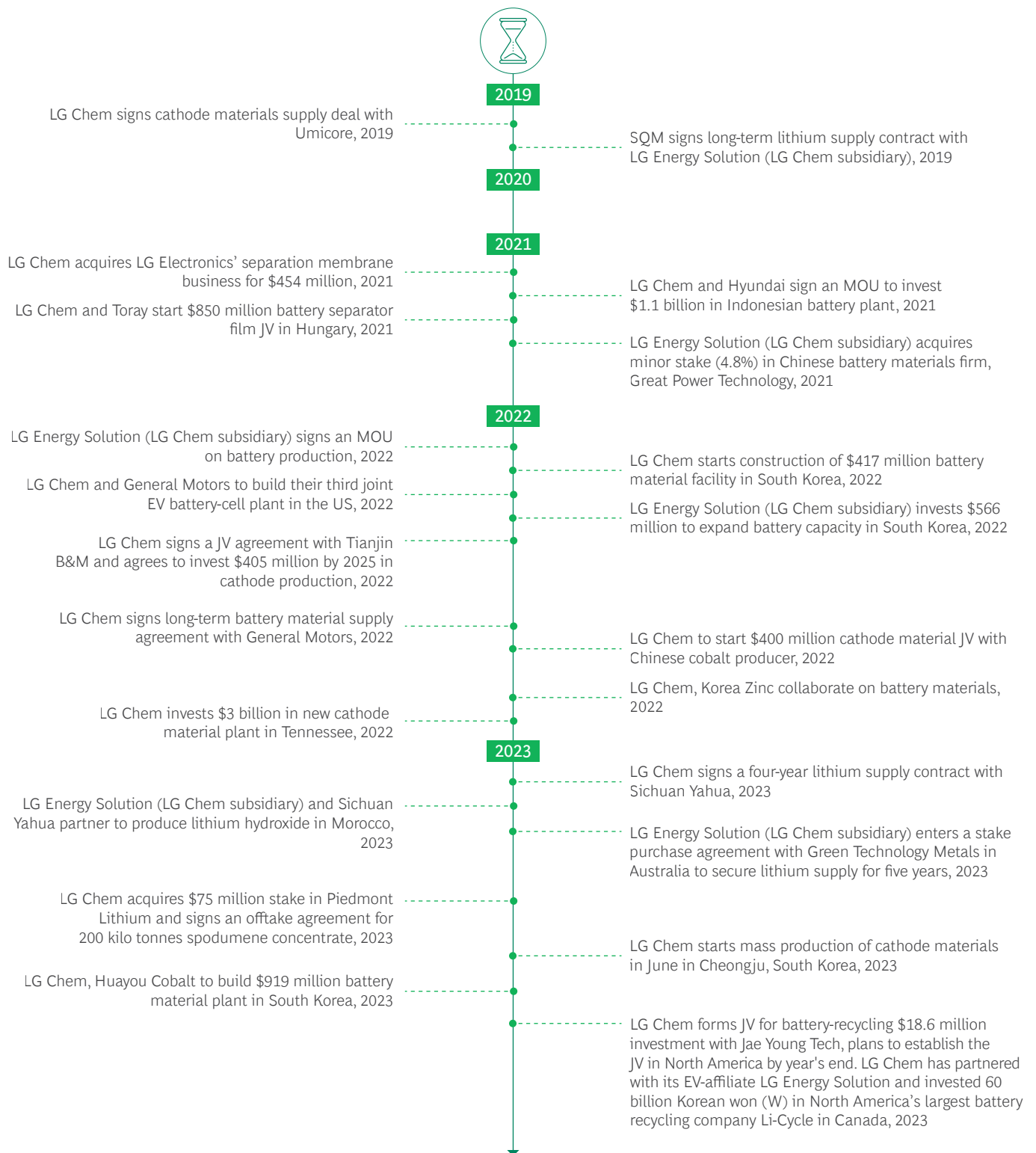
In a bidding competition with Entegris, Merck KGaA succeeded in acquiring Versum Materials for \$5.8 billion in 2019, representing a significant investment in a leading player in the highly attractive electronic and semiconductor chemicals and materials segment. Entegris later acquired semiconductor producer CMC Materials in 2021 in a \$5.7 billion transaction.

Celanese acquired DuPont's Mobility & Materials division, including nylon, polyesters, elastomers, and other polymers in 2022 for \$11 billion, complementing Celanese's plastics portfolio and enhancing its position as a specialty materials producer.

In an effort to strengthen its presence in the e-mobility market, Arkema has made several significant technology acquisitions. In May 2023, the company acquired Polytec PT, a German manufacturer of adhesives for batteries. Furthermore, in June 2023, Arkema purchased a controlling stake in PI Advanced Materials, a leading global producer of polyimide films used in flexible printed circuit boards for mobile devices and electric vehicles. The acquisition valued at €728 million solidifies Arkema's position in the e-mobility supply chain and reinforces its position as a provider of innovative solutions for the Electric Vehicle (EV) industry.

In October 2022, Solvay acquired the remaining 33% in its joint venture Solvay Special Chem Japan (SSCJ) from Santoku Corporation. While financial details were not disclosed, this acquisition highlights Solvay's commitment to securing essential materials and advancing sustainable solutions by playing a key role in mobility, connectivity, and electrification.

## Exhibit 4 - LG Chem



**Sources:** Refinitiv; Chemical Week; BCG Analysis.

**Note:** Based on date of announcement.



## Sustainability/green transformation

The European plastic recycling industry has witnessed significant consolidation in recent years, driven by fierce competition with virgin material imports and changing market dynamics. This consolidation trend is further fueled by regulatory measures, including mandatory shares of recycled plastic in the European Union (EU) and other countries and regions.

There are numerous examples of leveraging market position and innovative technology in M&A, such as in plastic recycling. While the financial terms of many key acquisitions remain undisclosed, they point to companies striving to achieve circular goals. For example, Lyondell-Basell (LYB) acquired the remaining stake in Quality Circular Polymers (QCP) from its joint venture partner SUEZ Veolia in its effort to build a profitable, circular, and low-carbon solutions business. LYB also completed the acquisition of the Mepol Group, an Italian manufacturer of recycled plastic compounds, and a 50% stake in Dutch household waste recycling firm Stiphout in July 2023, to establish a leadership position in the circular polymers business. However, LYB does not only rely on M&A. The company broke ground for an advanced recycling plant at its Wesseling site in Germany in November 2022. Other polymer producers, such as Indorama, are following a similar strategy with a long series of acquisitions of recycling companies in different geographies.

Combining recycling know-how and polymers expertise to increase circular polymers in plastics production was a key driver for another significant merger. French oil and gas giant TotalEnergies acquired Iber Resinas, a Spanish recycling specialist, to expand its activities in Europe.

As one of the world's leading providers of circular polyolefin solutions, Vienna-based Borealis has acquired a majority stake in Renasci, a Belgian-based provider of innovative recycling solutions. Borealis raised its initial stake from 10% to 50.01%, although the financial value of the transaction remains undisclosed.

## Segment consolidation

A whole series of deals demonstrate the consolidation and strategic realignment of companies to optimize their portfolios and enhance their competitive positions.

In 2022, the Celanese-DuPont acquisition took place, with Celanese acquiring DuPont's Mobility & Materials division for a substantial \$11 billion, doubling Celanese's plastics portfolio and enhancing its position as a specialty materials producer in many polymers. The DowDuPont merger/demerger is a unique example that resulted in the consolidation of commodity chemicals, specialty chemicals, and agrichemicals. This complex process transformed DowDuPont into three individual companies with distinct focuses. The merger/demerger allowed the companies to streamline operations, eliminate portfolio overlaps, and create specialized entities to better serve their respective markets.

In 2020, PolyOne, a leading plastic compounding company, completed the acquisition of Clariant Masterbatches for \$1.5 billion, thereby creating a leadership position in the color masterbatch business. The merger of two global leaders resulted in the formation of the company Avient. In 2018, Taiyo Nippon Sanso Corp, a unit of Mitsubishi Chemical, acquired the European industrial gas business of Praxair for \$5.8 billion. The transaction was conditioned upon the completion of the merger of Praxair with Linde and exemplifies the ongoing consolidation in the industrial gases segment.



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**Government-backed emerging-market players are expanding their footprint in mature markets via acquisitions.**

Gaining access to a strong distribution network to drive growth was behind PPG's move to acquire Tikkurila Oyj, a leading Nordic paints and coatings company for \$1.8 billion. This acquisition, in 2021, enhanced PPG's position in Europe, particularly in environmentally friendly decorative paints and industrial coatings.

Arkema's acquisition of Ashland's Performance Adhesives business was finalized in 2022 for \$1.7 billion. The deal marked a major step in Arkema's strategy to become a pure specialty materials player by 2024.

The desire to expand its portfolio in the market for coating resins moved Covestro to acquire DSM's Resins & Functional Materials business in 2020 for \$1.9 billion. It was also a key step in consolidating the resins and polymers market.

Such transactions also serve as strategic complements to existing businesses and assets—for example, the 2018 BASF acquisition of Bayer's Seeds and Crop Protection business for \$2.1 billion.

Industrial biotech giant Novozymes acquired Chr. Hansen for \$9.6 billion in 2022. This merger created a powerhouse in the field of biological solutions, combining Novozymes's expertise in enzymes with Chr. Hansen's microbial solutions.

## Financial investors

The relatively small number of deals completed in early 2023 has been made up for in part by their large values, primarily due to the involvement of PE firms. While PE firms used to focus on underrated smaller companies or individual business units, this recent activity shows they are increasingly involved in large and mega deals, boosting deal volumes in chemicals M&A. For example in 2018, the PE firm The Carlyle Group acquired Nouryon, the spin-off of AkzoNobel's specialty chemicals business for \$12.6 billion. In 2022 Lanxess partnered with PE firm Advent International, forming an engineering plastics joint venture (JV) via the acquisition of DSM's engineering plastics business for \$4 billion.

Also in May 2023, DuPont announced that it had entered into an agreement to acquire Spectrum Plastics from global PE firm AEA Investors for \$1.8 billion. The transaction is expected to close by the end of the third quarter.

In June 2023, Chemours agreed to sell its glycolic acid business to PureTech Scientific Inc., a company backed by PE firm Iron Path Capital, for \$137 million.

In the M&A history of specialty chemicals producer Solenis, Private Equity (PE) firms have been strongly involved ever since: PE firm Clayton, Dubilier & Rice (CD&R) bought a minority share in the former water treatment business of Ashland in 2014 and merged the company with BASF's paper and water chemicals business in 2019. In 2021, PE firm Platinum Equity acquired Solenis for \$5.3 billion from CD&R and BASF and merged it with Sigura Water, an existing Platinum Equity portfolio company. Effective in July 2023 producer Solenis acquired Diversey Holdings, a company specialized in chemicals and equipment for cleaning and hygiene in a deal valued at \$4.6 billion from Bain Capital, the majority shareholder of Diversey.

PE firms were also markedly involved in the chemical distribution segment, both in the form of large deals such as Apollo-Univar at \$8.1 billion or H.I.G. Capital-Avient's distribution business (\$950 million), and due to the fact that most leading chemical distributors have been under PE ownership since the early 2000s. For instance, Bain Capital acquired Brenntag in 2004, selling it to BC Partners in 2006. Bain also acquired a majority in IMCD in 2010. Azelis was established by Permira in 2001, and its latest owner EQT Partners priced its IPO in 2021.

There are multiple reasons why the chemical distribution business has become so attractive to PE firms—among them, the rapid growth of the chemical distribution business and its consistent above-GDP growth. While global GDP growth forecast in 2023 is 2.7%, chemical distribution is expected to grow at 3.4%. Another reason is the highly fragmented structure of the market. With the top five players claiming only 16% of the \$365 billion global chemical distribution market in 2023, there is ample potential for expansion and consolidation through M&A. This is reflected in, among other things, the very brisk deal activity in the chemical distribution sector, with more than 130 deals by the major players since 2018.

When looking back over the last six years, very vigorous M&A activity could be observed within the chemical distribution segment. Since 2016, Azelis has announced more than 50 acquisitions in the specialty chemicals and food ingredients industry, indicating a robust growth strategy and an active approach to expanding its business operations. Similarly, IMCD has announced more than 40 announced acquisitions since 2016, demonstrating a proactive approach to enhancing its global portfolio and market presence.

Brenntag has also been active in M&A, with more than 30 announced acquisitions since 2016. This highlights Brenntag's commitment to expanding its reach and strengthening its position in the chemicals and ingredients distribution industry.

Univar, on the other hand, has announced only ten acquisitions since 2016. While fewer in number compared with the other companies mentioned, these acquisitions still indicate Univar's pursuit of growth opportunities and strategic expansion as a global chemicals and ingredients distributor.

## Strategic positioning for the future

In 2023, the chemical industry has been experiencing a slowdown in M&A activity compared with 2022. However, this is unlikely to be a long-term trend, as emerging market players, PE firms, and companies focusing on sustainability and technology are driving major M&A deals.

Players from the Middle East and Southeast Asia are looking to expand geographically via acquisitions of stakes in European and North American companies, often with government backing. The shift toward electromobility, low-carbon feedstocks, and circularity is a significant trend observed in the industry.

A series of deals clearly demonstrates how consolidation, diversification, and strategic realignment can optimize company portfolios and enhance competitiveness for the future. As the industry continues to evolve, companies must position themselves more strategically to capture growth opportunities and secure competitive advantage.

#### **THINK THROUGH MACRO EXPOSURES TO SUSTAINABILITY TRENDS**

- Be aware of regulation, circularity, low-carbon products, emphasis on bio-based materials, and electrification. These trends will have implications on the industry's demand outlook.
- Proactively position your portfolio for opportunities like access to new materials, new feed-stocks, and circular technologies.

#### **CONSIDER M&A TO MITIGATE RISKS FROM SUPPLY CHAIN DISRUPTIONS**

- Secure feedstock supply for critical inputs to become independent of geopolitics and black swan events.
- Ensure supply for critical inputs always provides strategic value – via direct financial synergies or cost avoidance in the event of disruption.

#### **BE EXTREMELY RIGOROUS ON SYNERGIES IN DUE DILIGENCE AND INTEGRATION PROCESS**

- Keep in mind, it is not what you buy, it is what you make of it.
- Thoroughly evaluate revenue and cost synergies including cross-selling, procurement, and general and administrative (G&A).
- Always assess channel synergies, dyssynergies, and inventory stocking levels.
- Run best-in-class integration process including rigorous top-down and bottom-up synergy planning and execution tracking.

#### **INDUSTRIALIZE YOUR M&A PROCESS**

- Consistently screen the market for good portfolio fits—both whole companies and specific assets
- Be prepared to proactively manage M&A processes, including auctions.
- Understand the value creation thesis for the different potential moves.
- Remember that direct consolidation remains the top value creation lever due to meaningful hard synergies. Many companies look to access growth in adjacent markets but find lack of synergy.

# About the Authors

**Adam Rothman** is a managing director and senior partner in the Chicago office of Boston Consulting Group and the global leader for chemicals. You may contact him by email at [rothman.adam@bcg.com](mailto:rothman.adam@bcg.com).

**Jan Friese** is a managing director and senior partner in the Frankfurt office of Boston Consulting Group and the EMESA leader for chemicals. You may contact him by email at [friese.jan@bcg.com](mailto:friese.jan@bcg.com).

**Arun Rajamani** is a managing director and partner in the firm's Singapore office and the Asia Pacific leader for chemicals. You may contact him by email at [rajamani.arun@bcg.com](mailto:rajamani.arun@bcg.com).

**Hubert Schönberger** is a knowledge senior director in BCG's Munich office. You may contact him by email at [schoenberger.hubert@bcg.com](mailto:schoenberger.hubert@bcg.com).

**Julia Meisel** is a lead knowledge analyst in the Düsseldorf office of Boston Consulting Group. You may contact her by email at [meisel.julia@bcg.com](mailto:meisel.julia@bcg.com).

**Patrick Sykes** is a managing director and partner in the firm's Chicago office. You may contact him by email at [sykes.patrick@bcg.com](mailto:sykes.patrick@bcg.com).

## For Further Contact

If you would like to discuss this report, please contact the authors.

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