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# Chemicals Insights Rethinking Plastic Recycling

In the winter 2024/2025 issue of our Chemicals Insights, we take a closer look at the challenges of plastic recycling and how chemical depolymerization offers an ideal complement to mechanical recycling. We also explore the most recent M&A deals in the chemical industry, the increasing relevance of ESG due diligence as part of the deal process and the economic sentiment statistics from our latest CFO survey.



#### Hot topics in the market -**Rethinking recycling**

As global awareness of plastic pollution grows, so does the challenge of plastic recycling, with regulations in Europe in particular calling for action. The Single-Use Plastics Directive (SUPD) and the Packaging and Packaging Waste Regulation (PPWR) are just two examples of the European Union's push for sustainable plastic management. Under the SUPD, plastic bottles made of polyethylene terephthalate (PET) must include at least 25% recycled content by 2025 and at least 30% by 2030, in an effort to reduce the use of virgin plastic.<sup>1</sup> The PPWR goes even further, setting a target of 50% recycled PET (rPET) in plastic bottles by 2040. It also puts additional requirements on the amount of recycled content in takeaway packaging, with a 10% target by 2030 and an ambitious 50% target by 2040.2

The EU Plastic Tax is another measure placing financial pressure on member states, with a mandated €0.80 per kilogram of non-recycled plastic packaging waste designed to incentivize both producers and consumers to reduce plastic waste.<sup>3</sup>

Only about 20% of plastic was recycled in the EU in 2022. The majority of that comes from more established mechanical recycling methods, with only a fraction of 1% from chemical recycling.<sup>4</sup>

Not all plastic waste is suitable for mechanical recycling, however, due to contamination and composite materials, as well as the degradation and loss of quality from cycle to cycle. There is broad consensus in the industry that we need more than just mechanical recycling to comply with future regulations. Chemical processes, in particular depolymerization, offer a promising alternative to convert difficult-to-recycle plastics back into valuable raw materials and support a circular economy.

Today's companies are looking for sustainable solutions to meet increasing regulatory standards and their own environmental goals. We view depolymerization as a critical and inevitable technology for not only reducing waste but also stimulating production of premium recycled materials that can be reintroduced into the supply chain.

#### Depolymerization for a sustainable future

When it comes to plastic recycling, both mechanical and chemical recycling methods have their pros and cons. Mechanical recycling, the more traditional method, uses mechanical processes such as cleaning, shredding and re-granulating to process plastic waste into secondary raw material for new products. This method is cost-effective and energyefficient for materials that can retain quality after repeated recycling, such as PET and high-density polyethylene (HDPE). However, there are also significant limitations to mechanical recycling. The quality of many plastics degrades with every cycle, making them unsuitable for repeated use, while contamination in the waste stream can make the process even less effective.

#### Fig. 1 – European circular plastic production<sup>4</sup>

Despite regulatory pressure, achieving high levels of plastic recycling remains a significant challenge.

- Mechanically recycled (post-consumer)
- Mechanically recycled (pre-consumer)
- Bio-based and bio-attributed
- Chemically recycled (post-consumer)

1 European Union (2024), Single-use plastics - European Commission, accessed 05.12.2024.

- 2 European Union (2020), Verpackungen und Verpackungsabfälle EUR-Lex, accessed 05.12.2024.
- 3 European Union (2021), Plastics own resource European Commission, accessed 05.12.2024.
- 4 Plastic Europe AISBL (March 2024), The Circular Economy for Plastics A European Analysis 2024, pg. 5.

<sup>5.4% 1.0%</sup> 0.1% 13.2% -Circular 58.8 MT in 2022 80.3%

Chemical recycling, by contrast, uses methods such as depolymerization to break plastics down to the molecular level. Depolymerization is particularly effective with polymers such as PET and polyamides, as it reverses the polymerization process. This produces monomers that can be used to create high-quality, virgin-equivalent materials in a virtually endless number of recycling cycles. There is no quality loss in chemical recycling, which is a significant advantage over mechanical recycling, but it is generally more complex, costly and energy-intensive.

We have to look at depolymerization as a complementary technology to mechanical recycling, particularly for those plastics that are unsuitable for mechanical recycling due to degradation, contamination and/or composite materials. The high-quality monomers produced with this method can be reused to maximize overall recycling rates and provide superior material quality in a circular economy.

#### Major investments to solve cost and scalability challenges

Given the urgent need for more viable solutions, chemical recycling is gaining momentum, especially by methods such as depolymerization. European plastics manufacturers intend to more than triple their investments in chemical recycling, up from €2.6 billion in 2025 to €8 billion in 2030.<sup>5</sup> Despite this growing support, high costs and the need for scalable, environmentally-friendly processes make chemical recycling a challenge. Streamlining costs will be key to staying competitive over the long term.

#### Innovations and challenges for different types of polymers – a few examples

Example 1 – PET: Commonly used for beverage bottles and food containers, PET plays a huge role in the packaging sector. About 70% of rPET is reusable, including for food-grade applications. PET bottles in Europe contain 24% rPET on average, with some brands using 100% rPET in their bottles.<sup>6</sup> And in part because it is collected separately, we see positive results in mechanical recycling for PET and expect significant improvements in chemical recycling technology here.

With today's advanced depolymerization methods, we can break used PET down into monomers that can be repolymerized into high-quality PET. It doesn't matter for this process—unlike mechanical recycling—if the PET is contaminated, colored or part of a composite material. We have also seen promising results in enzymatic recycling, which uses specialized enzymes to break down PET, as an environmentally friendly alternative to standard depolymerization.

Example 2 – HDPE: Found in products like milk jugs, detergent bottles and plastic bags, HDPE is highly recyclable, though only 10-15% of HDPE is recycled in Europe today. The low rate is due in part to the difficulty of separating HDPE from other plastic fractions.<sup>7</sup> Most HDPE recycling is mechanical, involving collection, sorting, and reprocessing into new containers, piping and engineered wood. The focus here is on enhancing mechanical recycling processes to improve the quality of recycled HDPE. Innovations in sorting technologies, such as Al-enhanced near-infrared (NIR) spectroscopy, helps separate HDPE better from mixed plastic waste streams. Chemical recycling methods such as pyrolysis and gasification are also currently under development, part of the effort to convert HDPE waste into valuable chemicals and fuels.

Example 3 – LDPE: low-density polyethylene (LDPE) is commonly used in plastic bags, shrink wraps and squeeze bottles. Many products with significant recycled content in Europe use LDPE, e.g., carrier bags have about 90% recycled LDPE, garbage bags around 70% and building foils around 55%.<sup>6</sup> Chemical





5 Plastic Europe AISBL (March 2024), The Circular Economy for Plastics - A European Analysis 2024, pg. 69.

6 Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH (2021), Recycled content in plastic material with focus on PET, HDPE, LDPE, PP, pg. 3. 7 EuRIC AISBL (June 2020), Recycling: Bridging Circular Economy & Climate Policy, pg. 4. recycling also comes into play here. In October 2024, a large chemicals company acquired a solutions-based recycling company for LDPE recycling in an effort to increase recycling rates of difficult-torecycle flexible plastic waste. There are promising advances in both mechanical and chemical recycling technology that will improve LDPE recycling. We also believe that better collection and sorting systems will enhance the recycling rates here. Various companies are currently refining chemical recycling methods such as solvent-based technologies or pyrolysis, aiming to convert LDPE waste into valuable products like waxes, oils and new plastics.

Example 4 – PP: Yogurt containers, bottle caps and automotive parts are frequently made from polypropylene (PP). Collection of PP recycling has its challenges due to contamination and mixture with colorants and other materials.<sup>7</sup> PP recycling tends to rely on mechanical methods, from collection and sorting to cleaning and melting. With its versatility and high melting point, PP is a valuable material for various recycled products. The future of PP recycling looks promising: a range of advanced mechanical recycling processes that produce high-quality recycled PP are currently under development. Researchers are also exploring catalytic cracking, pyrolysis and other chemical recycling methods designed to convert PP waste into monomers and other valuable chemicals.

#### High-standard applications for chemically recycled plastics

We have seen an increase in the use of chemically recycled plastics in applications with high standards of safety and quality. One of the primary areas of application is the pharmaceutical industry, where the strict requirements for purity and safety make chemically recycled plastics an ideal choice. This material is ideal for drug packaging as it is able to maintain the integrity and safety of the contents.

Another key application is in the food and beverage segment. Chemically recycled plastics in food packaging are subject to rigorous regulations to ensure that they do not pose any risk to human health. These plastics are designed to meet high food safety standards, i.e., rules for packaging that comes into direct contact with products intended for human consumption.

In the high-end cosmetics industry, chemically recycled plastics are also gaining traction. The demand for sustainable packaging solutions in this area is growing, and recycled plastics offer an eco-friendly alternative that does not compromise on quality. Often, the materials in this segment must not only be safe and durable but also aesthetically pleasing. Chemically recycled plastics can meet these criteria, providing a sustainable option for luxury brands.

The more technology advances and regulations evolve, the greater the opportunities for expansion in chemically recycled plastics with innovative solutions for a range of high-demand applications.

# Early investment in chemical recycling for a competitive edge

In the evolving landscape of depolymerization, we see two distinct investment opportunities emerging. Understanding these opportunities will give sustainability-focused investors a key advantage.

The first opportunity is in investment projects focused on industrial-scale chemical recycling plants. Requiring significant capital and a well-defined business plan, these ventures have huge potential for large-scale impact and profitability. Building state-of-the-art industrial-scale facilities will give investors the opportunity to support the circular economy, reduce plastic waste and create a valuable secondary raw material market from recycled plastics. This option has a clear roadmap and tangible outcomes that make it attractive for investors looking for concrete, long-term returns.

There are also projects involving novel plastics designed to facilitate or simplify recycling processes. Many of these are still early-stage innovations, but they also require considerably less capital. The focus here is on creating new classes of plastics that are easier to recycle and likely to revolutionize the industry in the long run. While the immediate returns might not be as obvious, the lower barriers to entry and major potential for groundbreaking advances make this an intriguing option for investors willing to take on more speculative ventures.

We expect rapid growth in the market for chemical recycling as future regulations, particularly the PPWR, take effect in 2030 and beyond. The technologies are at various stages of development today, though very few are at or near market ready. A diverse range of players, from innovative start-ups to established incumbents, are actively engaged in this field.

As this new market unfolds, there are major business opportunities for early investors willing to take calculated risks. However, it is important to select your partners carefully to successfully navigate this rapidly evolving landscape.

For anyone interested in seizing the opportunities in this sector, Deloitte is offering a specific set of advisory services with dedicated industry and subject-matter experts, including:

- Strategic advice building on a deep understanding of both the status quo and the future prospects, including the market/competitive environment, regulatory framework and technologies
- M&A life cycle services, including identification and assessment of investment opportunities, financial and commercial due diligence, and deal support
- Post-acquisition services supporting business integration, growth perspectives, operational performance and SG&A related topics

Do these sound like services you are looking for? For more information, please contact the chemical experts at Deloitte.

#### Recent multiple developments – Cautious M&A activities

Impacted by various macroeconomic factors and market conditions, global chemical companies in 2024 have been facing increasing margin pressure, raising the urgency to reduce costs, gain market share and become more competitive. Acquisitions and divestitures play an important role in achieving these performance improvement ambitions.

#### **Decline in trading multiples**

Table 1 provides trading multiples, including enterprise value EV/EBITDA multiples and price-to-earnings (P/E) ratios, for 28 publicly traded chemical companies across a range of sub-sectors and geographies. The multiples are based on the latest reported financial data and stock prices.

Globally, average EBITDA multiples for chemical companies have been impacted by a challenging environment. The average EV/EBITDA multiple for the chemical sector in 2024 is 11.7x, compared to a peak of 13.2x in 2023. For the year 2025, a further decline in the average multiple is forecast to reach 10.4x. Several interrelated factors may be at play, including fears of recession and high interest rates, ongoing conflicts, and supply chain disruptions.

Special focus will be on highly attractive, growth-driven segments. Companies operating in the Consumer Chemicals sector have the highest valuation multiple at 18.1x EV/EBITDA, followed by Industrial Gases at 15.9x and Polymers at 13.9x. Companies operating in the Specialty Chemicals and Diversified sectors are valued at the lowest multiples, with EV/ EBITDA valuations of 8.2x and 6.3x, respectively.

#### **Transaction multiples converge**

Due to economic uncertainty in many regions, the chemical industry as a whole has experienced a challenging year in terms of M&A activity, particularly in early 2024, with only a limited number of transactions. In the second half of the year, the industry experienced a degree of stability with an increase in number of transactions while the value of the transactions decreased. Table 2 provides an overview of transaction multiples in the chemical industry over the past two years.

Strategic acquisition activity in the chemical market has seen a significant

decline in multiples through 2024. Factors such as destocking, rising energy and feedstock cost challenges, and supply/ demand imbalances are all impacting the profitability and perceived risk of investing in chemical companies, leading to lower valuations. There are slightly higher multiples observed for strategic buyers compared to financial buyers, but the difference is rather small and closes the gap of the median valuation multiple from the previous year, when strategic transactions reached almost twice the value of financial transactions.

#### Outlook

Overall, there is cautious optimism for a rebound in chemical M&A activity in 2025, as companies continue to experience margin pressure while liquidity begins to recover. In particular, strategic acquisitions are expected to pick up, driven by companies looking to expand their portfolios and capabilities. In order to drive efficiency and growth, the chemical industry is expected to focus on innovation, sustainability and resilience. Further consolidation and specialization in the chemical sectors is also expected.

Company	Country	, Share price	Market Cap		EV/Revenue				EV/E	BITDA		EV/EBIT				Price-to-Earnings (P/E)				Price-to-Book-Value (P/BV)			
				LTM	2023 2	2024E	2025E	LTM	2023	2024E	2025E	LTM	2023	2024E	2025E	LTM	2023	2024E	2025E	LTM	2023 2	2024E 2	2025E
		EURm	EURm	(x)	(x)	(×)	(x)	(x)	(×)	(x)	(×)	(x)	(x)	(x)	(x)	(×)	(x)	(x)	(x)	(x)	(×)	(x)	(X)
Consumer	Chemica	ls																					
Croda Interna- tional	UK	41.0	5,728	3.3	3.3	3.2	3.1	18.7	17.1	14.1	12.4	25.6	21.8	19.0	16.7	41.8	33.9	24.9	21.4	2.1	2.1	2.0	2.0
Givaudan	CH	4,195.5	38,713	5.9	5.9	5.5	5.3	27.9	29.8	23.0	21.9	33.4	36.5	28.9	27.2	50.2	57.7	30.7	29.9	8.6	9.0	8.2	7.4
Novozymes	DK	55.3	25,713	9.0	11.4	7.0	6.5	41.1	36.3	19.2	17.3	52.3	45.8	24.6	21.8	51.6	43.3	34.8	29.4	1.4	8.2	2.3	2.2
Symrise	DE	102.3	14,292	3.4	3.5	3.3	3.1	18.5	20.9	16.2	14.9	26.8	31.0	23.2	20.6	42.1	49.8	30.8	26.8	3.8	3.9	3.6	3.3
			Median	4.7	4.7	4.4	4.2	23.3	25.4	17.7	16.1	30.1	33.7	23.9	21.2	46.2	46.6	30.8	28.1	2.9	6.1	2.9	2.8
			Average	5.4	6.0	4.8	4.5	26.6	26.0	18.1	16.6	34.5	33.8	23.9	21.6	46.4	46.2	30.3	26.9	4.0	5.8	4.0	3.7
Fertilisers																							
Grupa Azoty	PL	4.4	440	1.0	1.0	1.0	0.8	NM	NM	NM	11.7	NM	NM	NM	61.8	NM	NM	NM	12.3	0.4	0.3	0.0	0.0
K+S	DE	11.0	1,965	0.6	0.6	0.6	0.6	4.0	2.8	4.0	4.0	23.9	5.9	36.1	26.4	60.7	10.5	45.8	46.8	0.3	0.3	0.3	0.3
OCI	NL	11.1	2,341	3.0	3.0	2.8	2.6	NM	NM	28.6	17.5	NM	NM	483.2	46.3	NM	NM	NM	65.4	2.7	2.8	0.7	0.7
Yara Interna- tional	NO	27.4	6,978	0.8	0.7	0.8	0.7	7.0	9.1	5.3	5.2	14.3	27.4	11.3	10.5	16.7	35.9	14.0	11.1	1.0	1.0	0.9	0.9
			Median	0.9	0.9	0.9	0.8	5.5	6.0	5.3	8.4	19.1	16.7	36.1	36.3	38.7	23.2	29.9	29.6	0.7	0.7	0.5	0.5
			Average	1.3	1.3	1.3	1.2	5.5	6.0	12.6	9.6	19.1	16.7	176.9	36.2	38.7	23.2	29.9	33.9	1.1	1.1	0.5	0.5

#### Tab. 1 – Public Company Valuation Statistics

Sources: S&P Capital IQ, Deloitte analysis; priced as of 03 December 2024.

Company	Country	Share price	Market Cap		EV/Revenue				EV/EBITDA			EV/EBIT				Price-to-Earnings (P/E)				Price-to-Book-Value (P/BV)			
			-	LTM	2023 2	2024E	2025E	LTM	2023	2024E	2025E	LTM	2023	2024E	2025E	LTM	2023	2024E	2025E	LTM	2023	2024E 2	2025E
		EURm	EURm	(x)	(X)	(x)	(X)	(x)	(x)	(X)	(x)	(×)	(x)	(x)	(X)	(×)	(x)	(x)	(x)	(x)	(x)	(X)	(x)
Specialty C	hemicals																						
AkzoNobel	NL	58.1	9,922	1.3	1.3	1.3	1.3	10.9	10.8	9.6	9.0	13.8	13.4	12.6	11.5	19.8	20.7	14.3	12.8	2.2	2.3	2.1	2.0
Arkema	FR	73.8	5,574	0.9	0.9	0.9	0.8	6.1	6.2	5.3	4.9	12.4	11.3	8.9	8.0	15.2	13.5	8.5	7.6	0.8	0.8	0.7	0.7
Clariant	CH	11.4	3,756	1.3	1.2	1.3	1.2	9.5	8.7	7.7	6.9	14.1	12.6	11.9	9.9	17.4	17.0	12.5	10.9	1.7	1.7	1.7	1.5
Evonik Industries	DE	17.6	8,190	0.8	0.8	0.8	0.8	6.1	6.5	5.6	5.4	7.6	19.4	10.9	10.2	10.2	33.1	10.4	10.3	0.9	0.9	0.9	0.9
Fuchs Petrolub	DE	41.9	4,868	1.4	1.4	1.4	1.3	9.5	9.9	9.3	8.7	11.3	11.9	11.2	10.3	NM	22.3	18.0	16.3	NM	3.1	2.9	2.6
Johnson Matthey	UK	16.7	2,853	0.3	0.2	0.8	0.9	6.5	5.4	5.4	5.4	9.0	7.0	7.9	8.0	13.6	10.4	9.6	8.1	1.0	1.1	0.0	1.0
LANXESS	DE	26.4	2,280	0.8	0.7	0.8	0.7	9.8	11.6	8.3	7.1	4875.5	NM	143.3	32.0	NM	NM	29.1	15.6	0.5	0.5	0.5	0.5
Sika	CH	253.1	40,612	3.8	3.9	3.7	3.6	18.9	20.6	19.3	17.8	23.3	24.9	25.2	22.8	NM	38.2	29.7	27.2	6.0	6.4	5.6	5.0
Umicore	BE	10.7	2,566	0.3	0.2	1.1	1.1	6.6	4.4	5.2	5.1	11.9	6.1	8.5	8.2	13.2	7.5	9.8	9.6	1.3	0.7	1.1	1.0
Wacker Chemie	DE	70.5	3,503	0.8	0.7	0.8	0.7	8.9	6.5	5.9	4.6	48.6	14.6	14.9	9.0	56.2	16.3	15.4	10.3	0.8	0.8	0.8	0.8
			Median	0.8	0.8	1.0	1.0	9.2	7.6	6.8	6.1	13.1	12.6	11.5	10.1	15.2	17.0	13.4	10.6	1.0	1.0	1.0	1.0
			Average	1.2	1.1	1.3	1.2	9.3	9.1	8.2	7.5	502.8	13.5	25.5	13.0	20.8	19.9	15.7	12.9	1.7	1.8	1.6	1.6
Polymers																							
Covestro	DE	57.9	10,921	1.0	1.0	1.0	0.9	18.9	17.3	12.7	9.8	183.8	104.3	60.7	24.1	1985.6	403.7	NM	31.8	1.6	1.7	1.7	1.6
Ems- Chemie	СН	671.5	15,706	7.0	6.5	6.8	6.4	26.8	26.6	24.3	21.6	29.3	29.0	26.7	23.6	49.0	48.1	32.5	28.6	7.6	8.4	8.0	7.6
Lyondell- Basell Industries	US	76.8	24,956	1.0	0.9	0.9	1.1	8.8	7.8	7.9	7.0	12.9	10.8	11.7	9.6	17.1	14.1	11.6	9.4	2.0	2.1	1.9	1.9
Victrex	UK	12.1	1,052	3.1	3.0	3.1	2.9	14.1	8.8	10.7	9.1	22.1	10.6	14.8	12.8	54.5	18.0	15.2	12.9	1.9	1.8	0.0	1.8
			Median	2.0	2.0	2.0	2.0	16.5	13.1	11.7	9.5	25.7	19.9	20.8	18.2	51.8	33.0	15.2	20.8	2.0	2.0	1.8	1.9
			Average	3.0	2.9	3.0	2.8	17.1	15.1	13.9	11.9	62.0	38.7	28.5	17.5	526.6	121.0	19.8	20.7	3.3	3.5	2.9	3.2
Industrial (	Gases																						
Air Liquide	FR	160.0	92,239	3.9	3.8	3.9	3.7	14.2	14.3	13.3	12.3	21.4	21.8	19.4	17.8	33.3	33.8	25.5	23.2	3.7	3.8	3.5	3.3
Linde	UK	435.8	207,514	7.6	7.6	7.1	6.8	20.0	20.6	18.5	17.3	28.8	30.1	24.6	22.6	44.9	47.2	29.6	27.0	5.9	5.9	5.4	5.4
			Median	5.7	5.7	5.5	5.2	17.1	17.5	15.9	14.8	25.1	25.9	22.0	20.2	39.1	40.5	27.5	25.1	4.8	4.8	4.5	4.3
			Average	5.7	5.7	5.5	5.2	17.1	17.5	15.9	14.8	25.1	25.9	22.0	20.2	39.1	40.5	27.5	25.1	4.8	4.8	4.5	4.3
Diversified																							
BASF	DE	43.9	39,222	0.9	0.9	0.9	0.9	11.1	10.0	7.9	7.2	29.2	21.6	15.7	13.7	33.4	33.7	13.1	12.3	1.1	1.1	1.1	1.1
Solvay	BE	31.1	3,241	0.9	0.8	1.0	1.0	5.7	3.2	4.8	4.7	8.2	6.2	6.8	6.6	10.3	6.8	8.0	7.6	2.6	2.6	2.4	2.2
			Median	0.9	0.9	1.0	1.0	8.4	6.6	6.3	6.0	18.7	13.9	11.3	10.2	21.8	20.2	10.5	9.9	1.8	1.8	1.8	1.7
			Average	0.9	0.9	1.0	1.0	8.4	6.6	6.3	6.0	18.7	13.9	11.3	10.2	21.8	20.2	10.5	9.9	1.8	1.8	1.8	1.7
Chemical [	Distributio	n																					
Brenntag	DE	60.9	8,796	0.7	0.7	0.7	0.7	10.1	8.8	7.9	7.2	13.1	10.7	11.2	9.8	19.6	15.5	13.1	11.4	2.0	2.1	1.9	1.8
IMCD	NL	143.0	8,141	2.1	2.2	2.1	1.9	18.9	18.7	17.1	15.6	23.6	22.5	21.7	19.6	36.7	34.4	23.3	21.2	4.7	4.7	4.3	3.9
			Median	1.4	1.4	1.4	1.3	14.5	13.7	12.5	11.4	18.4	16.6	16.5	14.7	28.2	24.9	18.2	16.3	3.3	3.4	3.1	2.9
			Average	1.4	1.4	1.4	1.3	14.5	13.7	12.5	11.4	18.4	16.6	16.5	14.7	28.2	24.9	18.2	16.3	3.3	3.4	3.1	2.9
Chemical S	Sector	_	Median	1.2	1.1	1.2	1.2	10.5	9.9	9.3	8.8	22.7	19.4	15.7	15.2	33.4	33.1	15.4	14.3	1.9	2.1	1.8	1.8
				21	21	23	22	13.8	122	117	10/	21/15	223	106	186	1171	126	20.4	10 0	25	20	23	23

#### Tab. 1 – Public Company Valuation Statistics (Continued)

Sources: S&P Capital IQ, Deloitte analysis; priced as of 03 December 2024.

#### Fig. 3 - EV/Revenue, 2025e



#### Fig. 4 - EV/EBITDA, 2025e



Sources: S&P Capital IQ, Deloitte analysis.

#### Tab. 2 – Chemicals M&A Activity (Selected Transactions)

St	trategic Bu	uyer	Median Strategic Buyer 10.6x	) 🔳 Fii	nancial Buyer Median Financi	ial Buyer 7.5x
	Date	EV (\$m)	Target Company	Country	Bidder Company	EV/EBITDA (reported
	Nov-24	16,468	Hanwha Corp (6.09%)		Hanwha Aerospace Co Ltd; Hanwha Energy Corp	5.4x
	Oct-24	4,350	AOC LLC		Nippon Paint Holdings Co Ltd	8.2x
	Oct-24	2,912	Alpek SAB de CV (82.09%)		Existing Shareholders	6.0x
	Oct-24	6,624	Arcadium Lithium plc		Rio Tinto Plc	21.1x
	Sep-24	2,292	Sumitomo Bakelite Co., Ltd. (7.02%)		GIC Pte Ltd	7.5x
	Sep-24	957	Ningbo Changhong Polymer Scientific & Technical Inc. (11.3%)	۲	Shenzhen Hanmo Tiancheng Investment Management Co Ltd, etc.	30.5x
	Sep-24	13,054	Qinghai Salt Lake Industry Co Ltd (12.54%)	۲	China Salt Lake Industry Group Co Ltd	13.1x
4	Aug-24	594	CI Takiron Corp (44.31%)		Itochu Corp; API LLC	7.2x
202	Jul-24	2,252	Asia-Potash International Investment Co Ltd (9.01%)	۲	Huineng Holding Group Co Ltd	x0.01
	Jul-24	10,841	Qinghai Salt Lake Industry Co Ltd (5.73%)	۲	Sinochem Corp	11.1x 2 2
	Jul-24	1,444	Xinjiang Xuefeng Sci-Tech (Group) Co Ltd (21%)	٢	Guangdong Hongda Holdings Group	7.8x
	Jun-24	16,685	Covestro AG		Abu Dhabi National Oil Co	16.3x
	Jun-24	3,416	Lenzing AG (15%)	$\bigcirc$	Suzano SA	11.2x
	May-24	1,042	Xi'an Manareco New Materials Co., Ltd. (11.74%)	۲	Qingdao Development Zone Investment Construction Group	8.2x
	Feb-24	1,580	Saras SpA	0	Vitol Holding BV; Vitol Netherlands Cooeperatief UA	2.2x
	Jan-24	2,248	Chambal Fertilisers & Chemicals Ltd (3.74%)	۲	Chambal Fertilisers & Chemicals Ltd	8.9x
	Dec-23	561	Shanghai Nar Industrial Co., Ltd. (7.07%)	6	Keyuan Holding Group Co Ltd	31.4x
	Dec-23	7,302	Fertiglobe PLC (50%)		Abu Dhabi National Oil Company for Distribution PJSC	6.3x
	Sep-23	1,015	Ciech SA (22.3%)		Kulczyk Investments SA	4.3x
	Aug-23	6,214	Clariant AG (1.9%)	0	40 North Management LLC	7.0x
	Aug-23	1,428	Nanjing Red Sun Co Ltd (23.71%)	٢	Goho Asset Management Co Ltd, etc.	9.8x
	Jul-23	1,308	Chase Corp		KKR & Co Inc	13.9x
	Jun-23	6,926	JSR Corp	$\bigcirc$	JIC Capital Ltd	28.9x
	Jun-23	766	Flex Composite Group SA		Compagnie Generale des Etablissements Michelin SA	3.5x
	Jun-23	14,159	Braskem SA (34.37%)	$\bigcirc$	Unipar Carbocloro SA	4.5x <b>4</b> 4
023	May-23	2,936	RHI Magnesita NV (19.99%)	$\bigcirc$	Rhone Group LLC	5.7x 2
7	Apr-23	3,014	Vilmorin & Cie SA (28.78%)		Groupe Limagrain Holding SA, etc.	21.8x
	Apr-23	1,209	Blackmores Ltd	5	Kirin Holdings Company, Ltd.	22.8x
	Apr-23	1,162	Enchem Co., Ltd. (9.36%)	<b>*</b> •*	JungKang Oh (Private Individual)	33.1x
	Mar-23	54,431	Rongsheng Petro Chemical Co., Ltd. (10.66%)	٢	Saudi Arabian Oil Co; Aramco Overseas Company B.V.	12.5x
	Mar-23	8,170	Univar Solutions Inc		Abu Dhabi Investment Authority Ltd- ADIA, etc.	7.8x
	Feb-23	936	Ciech SA (48.86%)		Kulczyk Investments SA	5.7x
	Feb-23	975	Fuso Chemical Co Ltd. (5.92%)		Kunpusha Co Ltd	5.7x
	Feb-23	545	Thai Central Chemical pcl (16.55%)		Sojitz Corporation; ISTS (Thailand) Co Ltd	14.4x
	Feb-23	10,645	Hengyi Petrochemical		Zhejiang Hengyi Group Co Ltd	17.4x

Note: Selected transactions with target company's enterprise value over \$500 million. Sources: Mergermarket, Deloitte analysis.

# Sustainability update – ESG due diligence

Sustainability is rapidly becoming a key factor in M&A deals. ESG due diligence (ESG DD)—evaluating a target's environmental, social and governance practices—is key to identifying risks early on and crucial to a deal's success. Many of the sustainability standards and ratings in place today are overly general, which calls for specific KPIs and expert knowledge. "Buyer beware" applies here as well: Purchasers should be aware of ESG risks to prevent costly mistakes and reputational damage.

#### **Challenges and benefits**

You need specific knowledge to properly conduct the complex ESG DD process. Much more than a standardized service, ESG DD requires key metrics that have been adapted for a specific target and aligned with the relevant in-house data. We cannot understate the significance of ESG DD, as sustainability analyses not only boost commercial value, but also play a key role in the deal's success.

Surveys show that 94% of institutional investors conduct an ESG analysis as part of the due diligence process. While 30% changed their decision to invest after the ESG analysis, 54% reduced the offered price based on the results.<sup>8</sup>

There are a number of tools used to assess sustainability, each with its own depth, data basis, method of analysis and objective. ESG DD is tailored to the specific requirements of the deal and the potential target. With access to internal data, investors can quickly evaluate specific ESG aspects and how they impact the deal.

#### Drivers of the full M&A cycle

Whether it is acquisitions, mergers, divestitures or private equity deals, ESG issues remain relevant throughout the entire M&A cycle, from strategy development to integration. Even before the actual deal process starts, you need a comprehensive M&A strategy that incorporates ESG factors to address specific sustainability risks. Companies may benefit from a targeted acquisition to improve their ESG profile, depending on the situation. Even at this early stage, it is vital to establish ESG corporate governance and align the ESG priorities with your business goals.

Once an appropriate target has been identified, the next step is to conduct ESG DD, which starts with defining the scope of the ESG analysis, identifying relevant metrics, assessing ESG risk exposure and collecting as well as evaluating the actual data. ESG plays an important role in subsequent phases as well. For instance, issues such as future value creation, synergy planning and target integration need to reflect your ESG data governance and defined ESG target metrics. ESG factors remain relevant even after a deal is complete, from setting up a framework for ESG monitoring to optimizing supply chains and processes.

In the context of private equity (PE) transactions, ESG issues play a special role in incorporating existing portfolios, preparing PE business, executing the deal and integrating the new targets. ESG criteria can unlock new financing sources such as green bonds and support long-term performance. This requires appropriate risk management and ESG compliance, including reporting and standards.

### ESG due diligence: the Deloitte approach

ESG DD is a key factor in prioritizing potential targets, an advanced stage of the investment funnel. While you can consult sustainability reports and external ESG ratings early on, ESG DD requires direct access to the target's internal data. Investors use customized KPIs based on general standards to evaluate this data. The challenge lies in adapting these standards to the specific needs of the organization. When it comes to customized ESG DD, Deloitte relies on internationally recognized frameworks such as the Global Reporting Initiative (GRI), the OECD Due Diligence Guidance for Responsible Business Conduct and

the World Bank's Environmental, Health, and Safety (EHS) Guidelines. These standards along with Deloitte's sectorspecific experience form the foundation for the due diligence criteria. They are also useful for the ESG risk and opportunity assessment, which identifies the potential impact on business valuation and provides recommendations for future value creation and enhancement, for instance. On this basis, investors can develop an ESG action plan.

#### Practical implementation challenges

Investors often face different challenges when it comes to implementing an ESG DD strategy in practice, whether it is finding the focal area for the analysis or ensuring there is enough data available. Complications can also arise when assessing certain business units that have not yet been subject to a separate analysis or that the investor intends to divest or acquire. To complete the assessment, you need to carefully weigh the scope of collected data and facts. On one hand, this is not about conducting an in-depth sustainability assessment, but rather evaluating information that is relevant to the transaction. On the other hand, you need to ensure that the level of detail is adequate for your purposes. Defining key metrics, collecting data in a timely manner and striking the right balance here may turn out to be challenging—particularly when each transaction presents new complexities.

#### **Comprehensive support pre-deal**

The success of a deal largely depends on getting the due diligence right. In terms of ESG, Deloitte's experts have the ideal mix of comprehensive sustainability expertise and sector-specific market know-how. We can also bring experts in consulting, tax and legal issues on board as well as technology specialists, to provide crossfunctional support during data collection. Deloitte's experience and expertise in ESG DD, along with the Deloitte framework for ESG standards and KPIs, form a reliable basis for a swift and results-oriented execution.

8 Deloitte (July 2024), ESG Due Diligence as an Incremental Component of M&A Deals, pg. 3.

#### Economic update – challenges remain as demand stagnates

What looked like a promising economic recovery in the spring has not materialized, according to the findings of Deloitte's CFO study from fall 2024. In fact, the study shows the opposite: Compared to the results six months ago, the prospects for German companies look even gloomier. The disparity between the positive and negative responses fell dramatically in the fall, down 26 points to -17.

Our survey, conducted between September 12 and October 2, offers insights from 185 CFOs of large German companies. More than a third of the CFOs rate the current prospects as worse than three months ago. Predictably, discrepancies persist from industry to industry. Representatives of the core German industries-automotive, industrial manufacturing and chemicalssee conditions taking a drastic turn for the worse. The outlook for the consumer goods and retails sectors shows a similar downward trend. The service sector is the only bright spot, with a slight increase in sentiment.

Risks remain the key driver behind the challenging economic situation. Weak domestic demand is still the biggest risk factor for companies, followed by more regulation and geopolitical risks. The latter has an outsized impact on large-scale, export-oriented companies.

This puts cost-cutting high on the agenda for most companies once again. Despite the bleak outlook, on average we expect investments and employment to stagnate. Plans to increase investment and headcount in the services sector in particular are pushing up the average. By contrast, staffing levels and investment in the manufacturing industry are likely to decline. Companies in the chemical sector plan to scale back their investments over the next twelve months and intent to reduce headcount.

# Foreign investments aim to reduce costs and tap into new markets

Given the economic uncertainties in Germany, we see an increasing number of companies looking to invest abroad. 82% of respondents still see their investment focus in Germany, while this figure drops to only 63% when asked what they expect in five years' time. With the exception of China, more and more investment activity will move offshore, especially to other parts of Europe and North America. The shift toward North America is particularly strong in the manufacturing industry.

Access to export markets and more costeffective manufacturing are the primary drivers for investing outside Germany. Diversifying risk is another motive for large companies. In the services sector, foreign direct investment helps companies find strategic partners with better access to export markets.

However, CFOs also see risks in their investments abroad, chief among them regulatory and compliance risks, followed by trade risks. Investments in exportdriven industries such as chemicals and industrial manufacturing face new trade barriers in the form of tariffs or sanctions. Large companies also see an aboveaverage risk that local companies may receive preferential treatment for political reasons.

As a result, these CFOs have very different strategies for investing abroad. While

almost 40% of the respondents plan to expand production abroad, the majority intend to keep their IT and R&D investments in Germany. The services sector in general, and the financial sector in particular, are cautious about their foreign direct investments, electing to keep activities that involve large amounts of data in Germany.

#### GenAl: potential for productivity gains

Investing in new technologies is another priority for German companies looking to secure a competitive edge. The majority of our respondents say they have already adopted generative AI (GenAI) in their innovation cycle. However, most are still very cautious when it comes to funding for new technology, with more than half allocating less than one per cent of their budget to GenAI.

And yet more than a quarter of CFOs in our survey say they expect AI technology to deliver productivity gains of over 10%. Seen as the way forward, GenAI is particularly strong in areas such as reporting, planning and budgeting. Large companies are leading the way here, relying on in-house expertise, with more and more SMEs turning to third-party services to build the skills they need.

If you want to learn more about the latest economic trends or the study itself, click here Deloitte CFO Survey Fall 2024.

Fig. 5 – Current challenges in the chemical industry

	01 High energy and raw material costs
	<b>02</b> Persistently weak demand
Five current challenges in the	<b>03</b> Increasing international competition
chemical industry	<b>04</b> Sustainability transformation
	<b>05</b> Structural pressure on profitability

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