

Chemicals Practice

# Chemicals and capital markets: Refocusing on the fundamentals

The sector has lagged behind the market over the past five years. Our research shows that the basics—ROIC performance and revenue growth—are the metrics investors reward most.

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**By the end of 2019**, the global chemical sector had delivered \$550 for every \$100 invested in 2001, outperforming the broader market by about \$200. But during the past five years, its performance has faltered, despite a short-lived rebound in 2017. To help chemical companies regain traction in capital markets around the world, we conducted extensive new research to identify what investors really value. Our findings show that CEOs should focus on ROIC and growth, which—as corporate-finance theory teaches, and our research bears out—remain the fundamentals of value creation.

In this article, we explain what separates outperformers from underperformers across chemical subsectors as well as the best-rewarded aspects of performance. In addition, we detail how management teams should navigate this year's challenges—including COVID-19 and oil-market discontinuities—to maximize the capital-market performance of their companies.

## A glance back at the golden age

From 2000 to 2019, the chemical sector outperformed capital markets as a whole by about

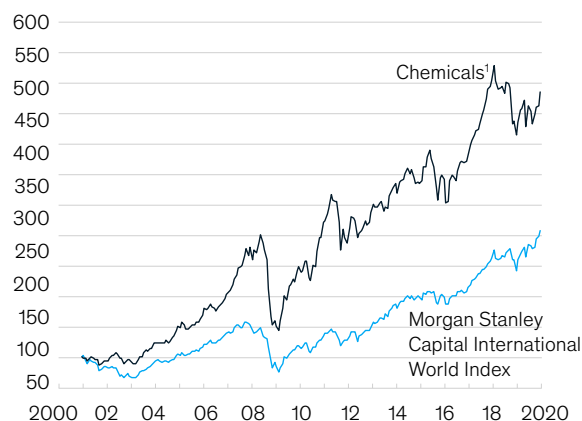
three percentage points a year (Exhibit 1). Three factors explain this success. The first is the massive growth of chemical demand in emerging markets, particularly China, which created tailwinds both for established global players and local companies trying to reach scale. The second is a substantial ROIC improvement among specialty-chemical companies from 2000 to 2011, resulting from their disciplined work on functional excellence and moves to maintain and strengthen their position in the value chain. Finally, the new availability of low-cost and unconventional feedstocks, particularly shale gas in the United States, helped raise margins significantly from 2009 to 2014.

Over that same period, the sector's valuation, as measured by the multiple of enterprise value to earnings before interest, taxes, depreciation, and amortization (EV/EBITDA), increased faster than the broader market's valuation. The gap narrowed from approximately 10 percent at the start of the millennium to near parity at the end of 2019. Despite these positive long-term trends, the sector's momentum in capital markets has faltered: from 2015 to 2019, it underperformed by 2.5 percentage points a year.

Exhibit 1

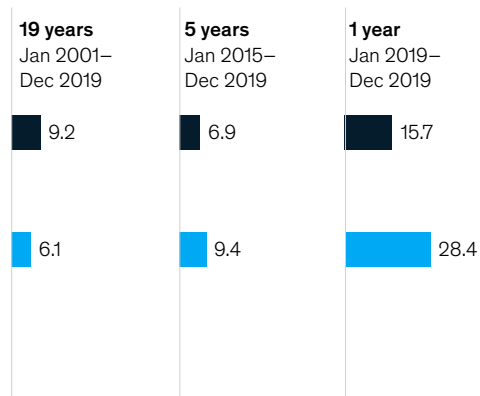
**The chemical sector has outperformed the world index in the long run, but not during the most recent five- and one-year periods.**

**Total returns to shareholders (TRS),**  
\$, indexed (100 = Jan 1, 2001)



<sup>1</sup>Excludes Bunge Fertilizantes and Saudi Basic Industries Corporation.  
Source: Capital IQ

**Total returns to shareholders (TRS),**  
Compound annual growth rate, %



## Which aspects of chemical-company performance do capital markets most reward?

To understand this reversal of fortune, we analyzed the drivers of value creation to identify what investors want most. Our research used a statistical approach to analyze the financial data of some 450 chemical companies around the world over the past 20 years (see sidebar, “Our methodology”).

Corporate-finance theory predicts that higher ROIC and faster growth will drive higher total returns to shareholders (TRS). The chemical sector is no exception. What might surprise many observers is the factors that did *not* show up as significant. After accounting for the differences arising from ROIC and growth, we found that many factors typically regarded as important for investors—such as a company’s specialty-versus-commodity profile and geographic regions of activity—did not significantly affect shareholder value. Thus, chemical leaders should focus on how these factors drive ROIC and growth, not as ends in themselves.

Most observers of the sector know that the upward trend in its ROIC has contributed to its strong capital-market performance earlier in this century. Our multivariate regression model for ROIC and TRS shows that during the time frame we studied, a company that had a one-percentage-point advantage in ROIC over another company with similar

performance in all other respects had the same advantage in TRS.

The effects compound every year as long as this difference persists: a company with a one-percentage-point-higher ROIC performance compared with another company would have a one-percentage-point-higher TRS performance. Although that difference may seem minor, the math of compounding means that the first company would deliver returns almost 20 percent higher over a decade (comparing companies with 7 versus 6 percent annual returns). The same model shows that a chemical company with a one-percentage-point-higher growth rate compared with another company would have an approximately 0.2 percent higher TRS (Exhibit 2). Again, the company with the higher growth rate would widen the difference in TRS performance every year.

This analysis suggests that improving the ROIC of chemical companies has a bigger impact on their value than faster revenue growth. The reason is the sector’s relatively low average ROIC, approximately 9 percent, compared with a weighted cost of capital in the high single digits. At such a low spread for the cost of capital, higher ROIC has a larger impact on value than growth at low returns, both in theory and in our data set. In fact, investors distinguish between the value of growth at high and low ROIC levels. As theory predicts, at around 20 percent ROIC, investors

## Our methodology

As the chemical sector has continued to evolve, so has our approach to evaluating its capital-market performance. In 2020, we expanded our database to some 450 public companies with revenues greater than \$500 million, up from about 200 in previous years. Our new data set includes chemical companies with revenues of about \$1.8 trillion in 2019—slightly less than half of the global sector’s total in that

year. Our company set has also shifted eastward: companies based in Asia racked up about half of its sales.

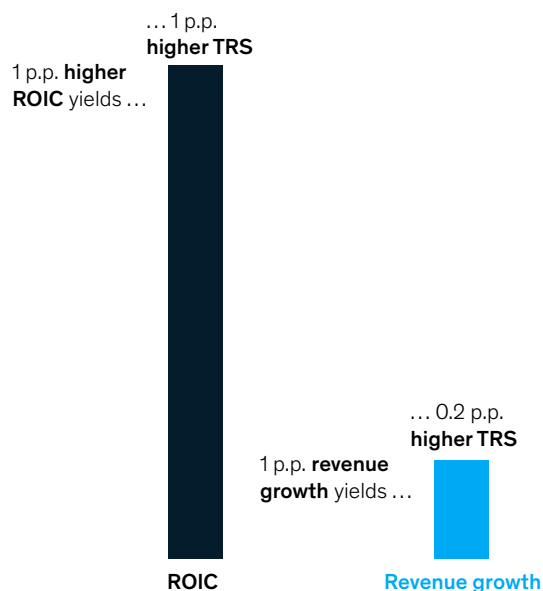
We have also upgraded our statistical approach by using multiple linear-regression analysis (controlling for market beta) to estimate the relationship between annual total returns to shareholders (TRS) and contemporaneous operating metrics.

Our models have explanatory variables that are either statistically significant at a confidence level of 95 percent (for numeric variables) or meet a similar threshold in analysis-of-variance (ANOVA) comparisons (for categorical variables).

Exhibit 2

## As valuation theory predicts, ROIC and growth have the biggest impact of the TRS of chemical companies.

**Additional annual total return to shareholders (TRS) resulting from higher ROIC or growth,<sup>1</sup> p.p.<sup>2</sup> annual TRS**



<sup>1</sup>Based on a linear-regression statistical analysis of different input factors. ROIC is post-tax, including intangibles or goodwill, and revenue growth is based on local currency.

<sup>2</sup>Percentage points.

in chemical companies recognize that growth creates value and start to expect rising growth rates from strong performers. At this high ROIC level, a one-percentage-point increase in growth yields an annual TRS improvement of 0.6 percentage points. By contrast, higher ROIC no longer significantly raises value (Exhibit 3).

Investors in chemical companies could also have a number of other reasons for valuing ROIC more than growth. Long-established research<sup>1</sup> shows that a strong competitive advantage tends to drive ROIC in a durable way, though revenue growth tends to be less defensible. But there is a complication for the chemical sector: revenue growth can vary significantly as a result of fluctuations in input costs—for example, variation in the price of crude oil, which much of the petrochemical sector relies on as feedstock. Furthermore, our analysis does not differentiate between organic and inorganic revenue growth.

We also found that ROIC was a better indicator of value creation than EBITDA margins alone, since investors notice how capital is used. When we divided ROIC into its components—earnings over capital—we saw that EBITDA margins drove TRS less significantly than ROIC does and that higher capital intensity<sup>2</sup> was a drag on TRS. Finally, investors cast a more critical eye on investments in M&A. The TRS drag from acquisitions-related increases in capital intensity<sup>3</sup> was even stronger.

<sup>1</sup> See Tim Koller, Martin Goedhart, and David Wessels, *Valuation: Measuring and Managing the Value of Companies*, seventh edition, Hoboken, NJ: John Wiley, 2020.

<sup>2</sup> Defined by the tangible invested capital-to-sales ratio, typically net working capital plus the fixed assets to run the business.

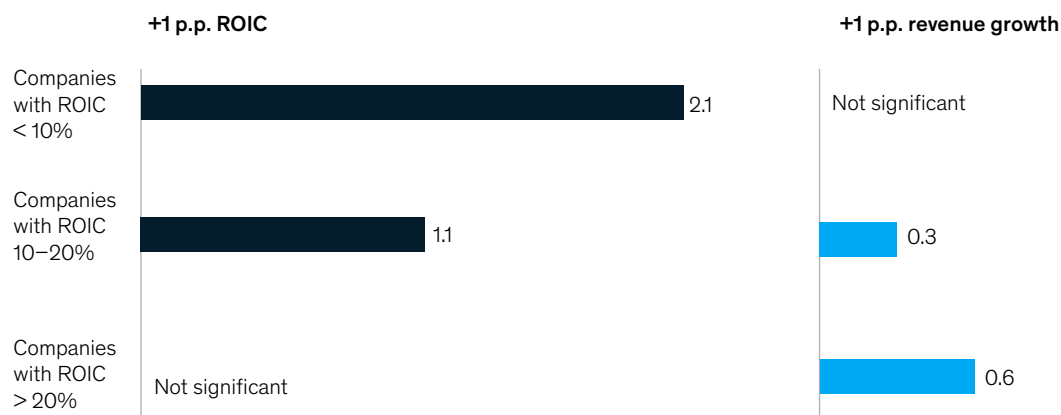
<sup>3</sup> Defined by the intangible invested-capital-to-sales ratio, which is usually higher as a result of goodwill.

## Investors in chemical companies could also have a number of other reasons for valuing ROIC more than growth.

Exhibit 3

## Low-ROIC companies create value mostly by increasing their ROIC, but high-ROIC companies create it by growing more quickly.

**Additional annual total return to shareholders (TRS) resulting from higher ROIC or growth,<sup>1</sup>**  
p.p.<sup>2</sup> annual TRS



<sup>1</sup>ROIC is post-tax, including intangibles or goodwill. Revenue growth is based on local currency.

<sup>2</sup>Percentage points.

### What investors value: Lessons for management teams

After a strong run from 2001 to 2014, the chemical sector's TRS has underperformed the broader market since 2015. Over the earlier period, the sector's key value driver, ROIC, increased faster than that of the broader market (Exhibit 4). Revenue growth was also slightly faster for chemicals. Since 2015, however, the sector's ROIC has declined while the broader market's ROIC continued to increase. Meanwhile, growth slowed in the sector, and these deteriorating metrics led its TRS to underperform.

Yet over the past two years, some companies in certain chemical subsectors have done markedly better than other companies in those same subsectors: for instance, we see a seven-percentage-point difference in the ROIC of top- and bottom-quartile performers in specialty chemicals, an eight-percentage-point difference in base chemicals, and a nine-percentage-point difference in diversified chemicals. As for revenue growth, the spread between the top- and bottom-quartile

performers in these three subsectors is ten, 12, and eight percentage points, respectively.

What differentiates the outperformers in each subsector? Clearly, many factors drive ROIC improvements and revenue growth. Some, such as oil prices or currency developments, are beyond the control of chemical companies. But they *can* position themselves in growing, profitable markets by managing their portfolios actively and using levers such as operational excellence, operating models, and talent to establish winning positions.

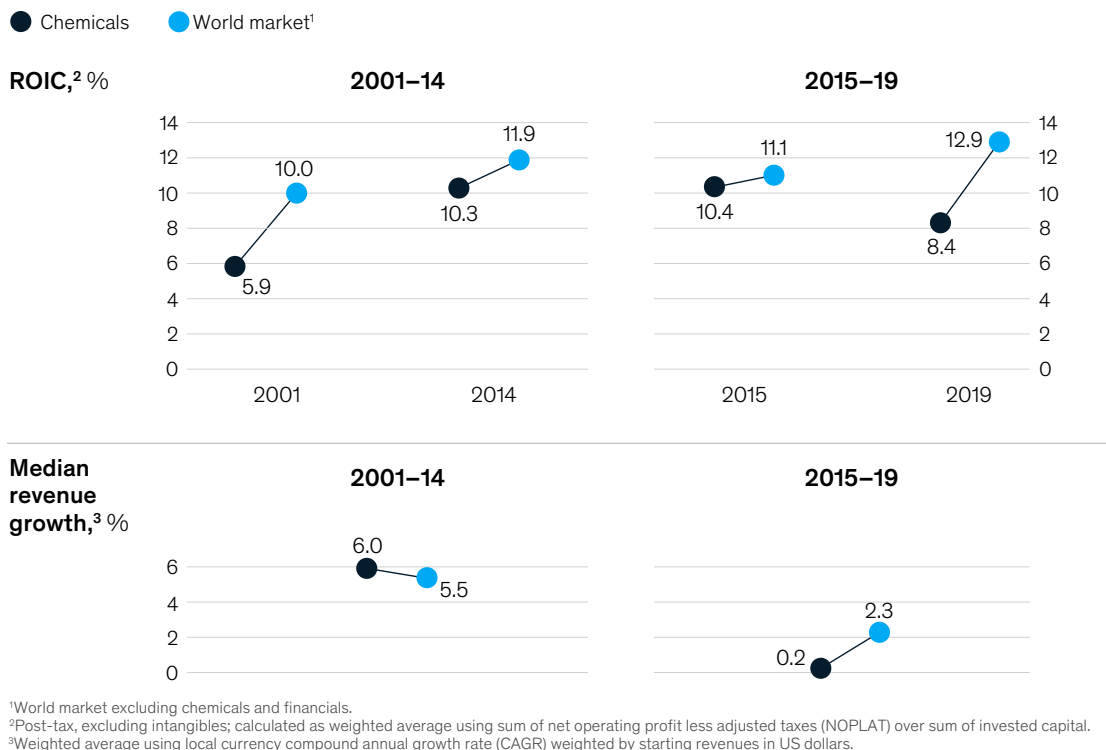
Endowment effects can be important as well: in base chemicals, for instance, winners had strong exposure to emerging markets or access to advantaged feedstocks.<sup>4</sup> But poor execution can squander these benefits, so management teams cannot ignore functional excellence. In general, they should focus primarily on assuring a healthy balance between supply and demand, increasing their companies' exposure to growing markets, and accessing the most advantaged feedstocks in value

<sup>4</sup> Obi Ezekoye, Andjelka Milutinovic, and Theo Jan Simons, "Chemicals and capital markets: Back at the top," May 10, 2018, McKinsey.com.



Exhibit 4

## The chemical sector's performance on fundamentals has not kept up with the world market's over the past five years.



chains. Companies that boosted their ROIC and revenue growth by riding these positive tailwinds outperformed their less effective peers—again showing that the chemical sector's experience confirms the fundamentals of value creation. Likewise, endowment effects mattered a great deal in specialty chemicals: the most successful players were active in particularly attractive subsegments, such as agriculture or paints and coatings, and focused on ROIC.

Innovative business models, including capital-efficient growth, have been another model for success. A number of successful specialty players, for example, pushed the more capital-intensive synthesis steps to upstream suppliers and focused on formulation and distribution in their respective subsectors, which helped their ROIC performance.

For some observers, the basic rule of value in chemical subsectors is encapsulated by the long-

established adage that “specialty chemicals make money, basic chemicals make money, but diversified companies struggle.” Yet underperformance by diversified companies is no law of nature: they too show a wide distribution in performance. The strongest of these companies provide valuable lessons: they reshaped their portfolios over time, improved their ROIC, and oriented themselves toward faster-growing end markets and geographies. As the wide variation in performance shows, the type of chemical company—base or specialty—matters less than its ability to execute.

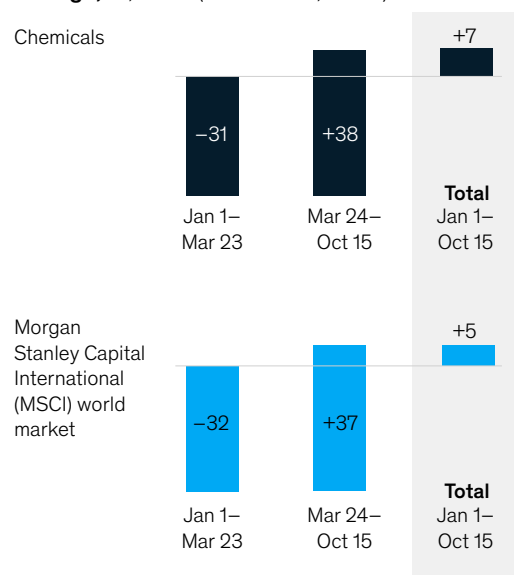
### How should management teams think about COVID-19 and other challenges of 2020?

The chemical sector has delivered about 7 percent TRS year to date and fully recovered from its March 2020 lows (Exhibit 5). Here again, it is important to take a granular view at the subsector level. Overall

Exhibit 5

## The chemical sector has slightly outperformed the broader market in 2020.

Change, %, index (100 = Jan 1, 2020)



growth in demand for chemicals has been muted, but some applications (such as biocides) grew at record rates. What's more, we cannot ignore the impact of capital structure on TRS during a major downturn: in our data set, the TRS of companies with the highest debt-to-equity ratios fell hardest because of debt's amplifying nature on TRS and liquidity concerns.

As economies start to reopen from the COVID-19 pandemic, management teams should focus on a number of insights from this and previous crises.<sup>5</sup> First and foremost, they must act appropriately to keep their employees, vendors, suppliers, and other stakeholders safe. Second, they should pressure-test their business-continuity plans. Third, they ought to prepare a number of scenarios to understand how performance might unfold and which moves each of them will require. Fourth, companies with a relatively strong cash position might use the crisis to seize opportunities: our research shows that the companies that proved resilient in the 2009–11 global financial crisis acted boldly and decisively to turbocharge their strategies and improve their functional performance.<sup>6</sup>

Our deep dive into the drivers of performance in capital markets shows once again that strategic moves must improve the fundamentals of a business to be recognized by investors. To create value, chemical companies should therefore return to the basics—ROIC and revenue growth—since other common metrics do not provide true guidance. Higher multiples, for example, do not really show that a company has created value: they merely indicate the value investors expect it to create. What investors in chemical companies really want to see is better ROIC, and only when it is at a high level do they also focus on growth. They simply do not care, for example, about rebalancing portfolios to emphasize specialties unless that strategy increases ROIC and growth. This is the lesson not only of theory but also of our recent research.

<sup>5</sup>Martin Hirt, Sven Smit, Chris Bradley, Robert Uhlener, Mihir Mysore, Yuval Atsmon, and Nicholas Northcote, "Getting ahead of the next stage of the coronavirus crisis," April 2, 2020, McKinsey.com.

<sup>6</sup>Obi Ezekoye, Avinash Goyal, Chantal Lorbeer, Laura Millroy, Georg Winkler, and Eliane Wolf, "Resilience in chemicals: How to prepare for the next downturn," November 7, 2019, McKinsey.com.

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