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**Crisis in Chemicals**  
*How to Emerge as a  
Winner from this  
Economic Downturn*



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## EXECUTIVE SUMMARY

*When major chemical companies made dramatic cuts in production – with volume declines of as much as 30 percent – instituted job cuts, and released warnings of reduced profits, the economic crisis officially hit the chemical industry. As the recession grinds on, some companies in this fragmented industry will be hit harder than others. Chemicals for automotive, for example, are under much more pressure than agrochemicals. This crisis will accelerate the progress of trends already under way in the industry. These include increasing margin pressure in basic chemicals and petrochemicals thanks to an increase in overcapacity, as well as a reshaping of the specialty chemical landscape through quicker commoditization and consolidation. Companies must meet the challenges of this crisis with a strategic approach. Immediate action to stop the bleeding of cash is essential, but even more important, companies need to secure value in their profitable businesses and then aim to create a solid position in the industry landscape of the future.*

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## CURRENT ECONOMIC ENVIRONMENT

The current economic downturn should not have come as a very big surprise to any executive, particularly those in the chemical industry. In 2007, construction had slowed and the subprime crisis had already revealed a fragile credit system in 2007. But when the crisis finally took hold in September 2008, it became clear that this downturn would be more complex and difficult than most prior slumps.

As the crisis was developing, the chemical industry was also rocked by volatile swings in raw material prices. Oil rose to nearly US\$150 per barrel, then dropped back to US\$50 per barrel within weeks. Falling home prices and tight credit reduced all consumer spending, especially in sectors such as automotive and construction, on which the demand for chemicals is highly dependent. Companies have been unable to pass on increased input costs as discretionary consumer spending dries up. Meanwhile, classic economic policy measures, such as lowering interest rates, no longer seem like effective options. In the United States, growth has slowed along with a rise in inflation; in Europe, the stock markets actually fell when cuts in interest rates were announced.

Chemical companies are currently subject to varied degrees of financial weakness, but the industry as a whole will eventually face enormous challenges. Construction, automotive,

industrials, and consumer durables were the first to fall, dragging chemicals down with them. More than half of the chemical industry is dependent on these industries for sales and earnings. The other half, which relies on sectors including pharmaceuticals, agriculture, and basic consumables such as personal care products, has held up better thus far. But if the global economy follows the U.S. into recession, these companies are also likely to suffer, due to the indirect effect on consumer demand.

## THE CRISIS AND THE CHEMICAL VALUE CHAIN

Customer-industry dynamics have different impacts along the chemical value chain. Upstream, in the asset-driven petrochemical industry, we expect the current economic contraction to worsen the already weakening chemical cycle. Even before the recession began, petrochemicals were expected to face difficulty in the upcoming years; petrochemicals capacity is expected to double until 2011<sup>1</sup>, clearly outstripping demand growth, which is broadly in line with GDP growth. Therefore, a global shakeout was already expected sometime beyond 2012 – but the crisis will quicken this process. European and American companies will most strongly feel the effects of increased margin pressure and low utilization in 2009 and 2010. Demand growth may fall to 1 percent or may even be negative. But even if it is, planned increases in capacity will still take place, since major capital expansion projects cannot be stopped immediately.

A case in point is ethylene. Before the crisis, capacity was expected to increase by 25 percent between 2008 and 2012, with demand only growing 3 percent per annum. This was expected to reduce the operating rate from 92 percent today to 84 percent in 2012. The current crisis will lead to a reduction in demand that's in line with the overall development of the

world economy, as well as a postponement of selected projects.

The Middle East plays a key role in these developments and is also likely to continue its current level of upstream investment, for a number of reasons. Despite the current setback of lower oil and gas prices and the temporary shortage of liquidity, the Middle East remains an important source of funding for industrial investments. Financial-services companies that are compliant with Islamic law have demonstrated a much stronger resistance to the current financial crisis, because of specific restrictions in Islamic finance, such as the prohibition of interest, speculation, and high leverage. Thus, Islamic investors are likely among the few remaining players in the market that are still able to provide capital for new ventures. Furthermore, the chemical industry is a strategic industry for the Middle East, supported by policies and industrialization initiatives. Finally, due to their access to cheap feedstock, petrochemical companies in the Middle East have a better cost position than their Western competitors, with total costs that are less than half those of European and U.S. companies.

Moving downstream in the value chain, specialty chemical makers also face a bleak outlook. Competition and margin pressure have increased since

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2000 as the cost of raw materials jumped and customers gained bargaining power through consolidation, increased sophistication in procurement, and more effective supply chain management. Specialty chemical firms also confront new entrants into the market from India and China, where it is often easier to move directly into specialty chemicals because capital requirements are lower. At the same time, specialty chemical companies are launching fewer innovative products that can command premium prices. Again, customers have examined their sourcing networks, changed product specifications, or found substitutions for high-end chemicals, reducing demand for new specialty products. As chemical customers face their own business pressures, they are less interested in using high-priced innovative chemicals if they are unable to pass along the cost. In addition to these market challenges, the European Registration, Evaluation, Authorisation and Restriction of Chemical Substances (REACH) law enacted in June 2007 is a new regula-

tory hurdle to product innovation. For a time, as oil prices peaked in 2008, some chemical manufacturers were able to convince customers that price hikes were necessary to cover dramatically higher material costs. As oil prices drop back, however, that argument is harder to make even though raw material prices remain substantially higher than they were before the spike. As specialty players are forced to cut prices while demand slows down, the margin squeeze will only worsen. Pricing pressure will speed commoditization of products, and true specialties will be even more difficult to come by. Going forward, specialty chemical companies must increasingly differentiate themselves with innovative service offerings or increased support for application technology.

We expect these challenges to lead to an accelerated reshaping of the specialty chemicals industry. The new environment is characterized by the introduction of new business models, such as Dow Corning's use of

Xiameter, a web-based portal, to sell directly to customers, or Clariant's service-driven positioning. Private equity firms active in the industry are using "buy and build" strategies to merge existing companies and thus actively consolidate industry segments. Apollo Management created Hexion Specialty Chemicals, a leader in thermoset resins, and CVC Capital Partners assembled the Flint Group, which specializes in printing inks.

Strategic investors are also watching out for chemical targets, to either complement existing strengths or move downstream in the value chain toward more high-margin products. BASF has done both, adding Degussa's construction chemicals business to its own construction business while also acquiring Ciba Specialty Chemicals and Orgamol SA to enhance its specialty portfolio. Dow Chemical Company's acquisition of Rohm and Haas is also an example of a diversified firm shifting downstream.

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## RIDING OUT THE CRISIS

Chemical companies are braced for the worst. Since the beginning of the financial crisis, they have been quick to order spending freezes on everything from selected capital expenditure projects to corporate travel and expenses. Production cutbacks have been extended and announced, and although some are expected to be temporary, others will be permanent. BASF is closing 80 plants and will make significant cuts at 100 others. Dow announced that it will cut 11 percent of its global workforce. However, the corporate actions taken so far seem to be intended to salvage short-term results. We currently see only a limited number of companies initiating structural changes or actively seeking out opportunities in this recession.

Chemical companies, particularly those that are diversified across the chemical value chain or customer industries, must approach this recession with a rigorous portfolio perspective. Businesses in different sectors will face their own chal-

lenges. In construction chemicals, for example, volume is the issue. For other segments, such as surfactants, the challenge will be price pressure or increased share of lower value-added products. In today's harsh business climate, companies may need to reallocate internal resources to accommodate their strategic approaches to different segments facing specific threats.

Overall, there are three primary strategic approaches to facing the crisis and emerging afterward in a stronger position:

### *Prevent cash drain.*

The key to short-term survival is liquidity. Chemical companies must maximize their cash positions immediately if they are to have any chance at restructuring to survive and profit once the recession subsides. Companies need to launch measures to stop the drain on cash: They must optimize and protect working capital while ensuring their supply of raw materials. Management should also

***Chemical companies must approach this recession with a rigorous portfolio perspective.***

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take a close look at its customer base to protect against potential defaults and bankruptcies, which are likely to increase as the recession continues. Similarly, companies must scrutinize the viability of all investment and growth-oriented projects, postponing those that do not provide exceptional and certain returns.

Finally, companies need to leverage their flexibility in operations and supply chains wherever possible. This could mean temporary plant shutdowns, as BASF and Dow have announced, or bringing forward large maintenance turnaround programs.

*Enhance the value of existing businesses.*

Due to the fragmented nature of the chemical industry, different trends along the value chain, and variations

in its customer industries, there is no simple answer as to how companies can secure and enhance value. Instead, a disciplined portfolio approach is necessary to find the adequate answer for each business in this recession. Management must rigorously restructure those businesses that are most affected by the crisis. Simultaneously, management must secure the profitability of those businesses and value chains that will be key contributors to profitability in the future. These may include real specialty segments, or products geared toward industries such as food, which are less likely to feel the effects of the crisis. Thus, to ensure high profitability even in the current crisis, management needs to focus on two key levers: Overall cost improvement and margin management.

Overall cost improvement programs should look at making the most of functional costs, whether by streamlining overhead functions or by increasing sales force effectiveness. More important, managers need to find ways to restructure operations networks or try to further increase asset effectiveness. For example, companies should rigorously review their portfolio segmentation regarding commodities and specialties to ensure a setup that appropriately reflects the value and complexity of their businesses, covering sales, marketing, technical support, and the supply chain and operations.

In terms of margin management, chemical companies should investigate opportunities for pricing within their businesses to improve returns in both basic and specialty segments.

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A Booz & Company study on smart customization, which entails customizing only those products and services that most add value, shows that both specialty and basic chemical businesses can benefit from optimizing products and services and tailoring pricing structures to suit individual customers<sup>2</sup>.

Another lever in margin management is finding the ideal tradeoff between price and volume. Getting these elements to the best levels will help chemical companies discover new ways to restructure and enhance their current businesses. In some segments of the industry, raw materials make up the bulk of costs – up to 80 percent. In these businesses, it might be prudent to halt production when raw material prices peak and try to hold firm on price, because fixed costs make up a smaller percentage of the overall price. This strategy may be especially valuable in specialty businesses, such as formulation, with low fixed costs and the opportunity to command high margins. On the other hand, in asset-based segments with high fixed costs in plants or labor, it might be best to continue to produce through downturns, sacrificing price in exchange for volume.

*Reshape the industry landscape.*

The economic crisis will produce winners and losers, largely through consolidation in the industry sectors that are already suffering. Companies must

develop an understanding of which industry segments will be attractive in the future and use this analysis as a basis for considering acquisition or divestiture opportunities. Additionally, small companies or startups with unique technology positions are likely to be the first to run into liquidity problems, making them good targets for chemical majors. Degussa (today Evonik Industries) successfully pursued such a strategy in the last economic downturn, following 9/11, when it divested significant parts of its noncore segments, as did Bayer, which purchased Aventis CropScience to strengthen its agrochemicals division.

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## THE CHEMICAL INDUSTRY AFTER THE STORM

In order to not only make it through the current slump but succeed once the crisis recedes, companies must manage the value chain as a whole and create a unique position for themselves within it.

In basic chemicals, companies should either concentrate on true cost leadership or extend their value chains further downstream into specialty segments to leverage the advantages and synergies that come from superior access to key feedstock. Companies like SABIC, with its acquisition of GE Plastics, are already making moves in this direction. Another way to sustain value would be to leverage performance-based service offerings, for example by linking the performance of a chemical in a customer's process to its price.

Further downstream, specialty chemical companies have limited potential to leverage synergies across raw materials and technologies. For the past 10 to 20 years, this segment has focused on developing new products, but breakthroughs are harder to come by and real product innovation is declining. Nor is consolidation an option, since merging specialty products across different markets frequently leads to the creation of conglomerates that have trouble

moving quickly enough to respond to market challenges and remain competitive. Most specialty chemical firms are, essentially, an amalgam of hundreds of different market and technology solutions that are not necessarily linked to one another, apart from having similar properties and serving the same or similar industries. In the current economic climate, companies must invest intensively in new technology to outperform within their markets. Most would be better off concentrating on fewer markets with higher vertical integration, leveraging value chain opportunities.

All in all we expect the crisis to speed the market cycles and trends that were already in place, changing the chemical industry fundamentally in some segments. We foresee a more extreme shakeout and consolidation than in past cycles, especially in specialty chemicals. Only some chemical business models will succeed. Others will disappear.

## Endnotes

<sup>1</sup> Petrochemicals considered are HDPE, LLDPE, LDPE, polypropylene, PVC, polystyrene, ethylene glycol, PET, nylon/polyamide, and styrene butadiene rubber. Expected capacity in 2011 is 41 million tons, versus less than 20 million tons today.

<sup>2</sup> Matthew Egol, Karla Martin, and Leslie Moeller, "Smart Customization: Profitable Growth Through Tailored Business Streams," Booz & Company, November 2003, [http://www.booz.com/media/uploads/Smart\\_Customization.pdf](http://www.booz.com/media/uploads/Smart_Customization.pdf)

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