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Dr. Regina Schade-Lehn
51368 Leverkusen
Phone: +49 214/30 72 41 5
Mail: regina.schade-lehn@currenta.de

A New World Order?

Dear Reader,

"Regions & Locations Guide for the Chemical and Life Science Industry" reports on investment and operating conditions in regional markets and global economies. Since the release of the previous edition of the "Regions & Locations Guide" 12 months ago, we have witnessed quite a few events that have the potential to reshuffle the world that we know today and, thus, to change the investment climate in certain regions.

Following the Brexit referendum in the UK and the presidential election in the US, it is still far from clear what the consequences of these unexpected results will be. However, they will to a certain extent influence the economy and international trade relations. The smoldering uncertainty that has evolved in the aftermaths of these votes in the Western hemisphere adds to the lingering market volatility caused by the dramatic fall in oil prices.

In the Eastern hemisphere, things are changing, too. South Asia, which continues its upward trend, in 2016 is set to grow more quickly than China for the first time in more than two decades. But despite growing at a slower pace than a few years ago, China's "new normal" economy still outnumbers the Western markets two to three times, and the country's 13th Five-Year Plan that contains ambitious goals to expedite sustainability and innovation will further improve China's competitiveness.

Dr. Michael Reubold

With emerging countries' progress in terms of narrowing the competitiveness gap on mature markets, the world map of investment activity will change and rivalry among locations will increase. But it is not just the growth perspectives of a respective market but also a variety of other factors, such as political stability, resilience to disruptions, quality of infrastructure, attractiveness of financial incentives, innovation climate or availability of workforce and talent that can tip the scale in favor of one location.

Therefore, we have included in this issue the latest results of the WEF Global Competitiveness Report and the FM Global Resilience Index. In addition, you will again find substantiated market reports, news and articles on industrial locations. We think this essential information assists potential investors from the global process industry in facilitating investment decisions in important — mature or emerging — industrial regions of the world.

Take the time to study this issue; it will be time well invested.

Dr. Michael Reubold, Managing Editor, CHEManager International

CONTENT

WORLD

EUROPE

AMERICAS

ASIA

Global Competitiveness Index

Competitiveness Agendas to Reignite Growth

Addressing supply-side constraints to growth is of high importance, according to the Global Competitiveness Report 2016-2017. The annual report — issued by the World Economic Forum (WEF) — this year covers 138 economies and finds that income levels have recovered faster in countries with better competitive conditions even as those countries have resorted less to quantitative easing, creating less stress on their central banks. Another key finding is that more open economies are also more innovative. Therefore, falling openness — in the form of increased non-tariff barriers to trade and investment — represents a real threat to future prosperity.

According to the report's Global Competitiveness Index (GCI), Switzerland tops the ranking for the eighth consecutive year. Singapore remains second and the United States holds its third position. The Netherlands improves its position, climbing one place to fourth. Germany (5) drops one place compared with last year's ranking, Sweden (6) climbs three places. The United Kingdom (7), going up one place, is followed by Japan (8) and Hong Kong (9), which both drop two places. Finland climbs two places and now rounds out the top 10 of the most competitive economies in the world.

Americas

The United States ranks third for the third consecutive year, and its large domestic market represents a major source of competitiveness advantage over other advanced economies.

Since 2007, the United States has been falling behind both in absolute and relative terms in infrastructure, macroeconomic environment, and goods market efficiency. It has improved, however, on health and primary education, higher education and training, and especially technological readiness.

In the United States, innovation and business sophistication have improved. However, the business community in the United States is increasingly concerned about basic determinants of competitiveness such as infrastructure.

After almost a decade of strong growth following the global financial crisis, growth rates in Latin America have fallen and several countries are now heading into recession. The end of the commodity super-cycle resulted in a drop in export values for major commodity-exporting countries. The subsequent fall in global trade has also hit demand for manufacturing exports, further reducing the value of exports across most of the region. The result of this negative terms-of-trade shock has been a large trade deficit, producing current account deficits and government budget deficits. Despite the relative depreciation of the region's floating currencies against the US dollar, exports have not recovered.

The top performing country in the region remains Chile (33), increasing two places in the rankings, followed by Panama (42) with an improvement of eight positions. Costa Rica falls slightly to rank 54, and Mexico (51) improves by six positions. Brazil drops one position and ranks 81 this year.

Europe

Faced with impending Brexit and geopolitical crises spilling over into the region, Europe finds itself in critical condition in many respects. Nevertheless, the region still performs above the global average in terms of competitiveness. This is driven by the performance of a group of regional champions, notably Switzerland, which leads the global rankings for the eighth consecutive year. The top 12 includes the Netherlands (4), Germany (5), Sweden (6), the United Kingdom (7), Finland (10), Norway (11), and Denmark (12).

Accelerating innovation efforts will be crucial to maintain current levels of prosperity, and Europe can expect high returns from focusing its resources on nurturing its talent. On attracting and retaining international talent, although Switzerland achieves the top global scores, the average for the region as a whole is low. The United Kingdom is currently still the most attractive EU destination for talent, yet the Brexit vote has created significant uncertainty over the conditions under which workers from EU countries will be able to participate in the UK economy in the future.

Eurasia

Eurasia's competitiveness performance has been stable overall, although most economies in the region face challenges related to the fall in

Top 10 Countries in the Global Competitiveness Index

1 Switzerland	6 Sweden
2 Singapore	7 United Kingdom
3 United States	8 Japan
4 Netherlands	9 Hong Kong SAR
5 Germany	10 Finland

Source: World Economic Forum (WEF) Global Competitiveness Report 2016-2017

Figure: Top 10 Countries in the Global Competitiveness Index 2016-2017

Source: World Economic Forum (WEF) Global Competitiveness Report 2016-2017

commodity prices, volatile exchange rates, recession in the Russian Federation and Ukraine, and the slowdown of the Chinese economy.

Regional competitiveness differences remain wide, with Azerbaijan (37) and the Russian Federation (43) again the top performers. Despite headwinds from the drop in oil prices that impact their macroeconomic environment, both economies improve their performance slightly, mainly driven by better and more widespread education and reforms to improve the business environment and goods market efficiency. Some progress has been made in curbing corruption, which nevertheless remains a problematic factor for doing business in both countries.

The most improved Eurasian economies are Georgia (up seven places at 59) and Tajikistan (up five at 77). Kazakhstan (53), Moldova (100), and the Kyrgyz Republic (111) decline in the rankings.

East Asia and Pacific

East Asia and Pacific is characterized by great diversity. The region's 18 economies covered in the GCI 2016–2017 span a large part of the development ladder, from Cambodia (89) to Singapore (2), and include three of the world's 10 largest economies: China (28), Japan (8), and Indonesia (41). The region's emerging economies, led by China, have been supporting the modest global recovery since the global financial crisis. Today, global economic prospects look less favorable as a result of China's slowdown, anemic growth in Japan and other advanced economies, and persistently low commodity prices undermining the growth and public finances of several economies in the region. Among emerging economies, Malaysia (25) continues to lead the region.

South Asia

South Asia continues its upward trend and competitiveness improves in most economies in the region, which is experiencing positive economic momentum, and in 2016 is set to grow more quickly than China for the first time in more than 20 years. Over the past decade, the subcontinent has focused on improving overall health and primary education levels and upgrading infrastructure, areas of particular importance for future diversification and preparedness given the resource-driven nature of the regional economies.

The region remains diverse, with a core of three heavyweight economies — India (39), Pakistan (122), and Bangladesh (106) — surrounded by smaller ones such as Bhutan (97), Nepal (98), and Sri Lanka (71).

Middle East and North Africa

The Middle East and North Africa region continues to experience significant instability in geopolitical and economic terms as spillover effects from the conflicts in Libya, Syria, and Yemen are undermining economic progress in the entire region.

Instability is also being created by the uncertain future of energy prices after recent falls, which affect the region's countries in different ways. Oil-exporting countries — which include Algeria (87), Bahrain (48), the Islamic Republic of Iran (76), Kuwait (38), Oman (66), Qatar (18), Saudi Arabia (29), the United Arab Emirates (16), and Yemen (138) — are experiencing lower growth, higher fiscal deficits, and rising concerns about unemployment. Rising oil supplies are expected to keep prices low and limit growth expectations for the coming years. Israel (24) improves by three positions as it continues to build on its positioning as one of the most innovative economies in the world.

Sub-Saharan Africa

Sub-Saharan Africa's competitiveness has slightly weakened year on year, mainly as a consequence of deteriorating macroeconomic environments across the region. Public finance has been put under stress by economic slowdowns among trading partners and persistently low commodity prices, which affect the commodity-exporting countries.

Improving infrastructure, technological readiness, and health and primary education continue to be sub-Saharan Africa's main priorities as the region seeks to reap the demographic dividend by creating more employment opportunities for the millions of youth who will enter the labor market every year.

Mauritius (45) and South Africa (47) remain the region's most competitive economies, climbing two places and one place, respectively. Five sub-Saharan Africa economies improve their GCI rankings by three to six positions: Rwanda (52), Botswana (64), Ghana (114), Tanzania (116), and Sierra Leone (132). The region's biggest losers this year are Zambia (118), down an exceptional 22 positions, and Côte d'Ivoire (99), down eight places.

Innovation is an Important Source of Competitiveness

Many of the competitiveness challenges seen today stem from the aftermath of the financial crisis. Today, productivity and growth are not picking up in advanced economies, and the consequences of low and even negative productivity growth in many emerging economies are now evident. The great recession led many advanced economies to implement very loose monetary policy, which in turn fueled a global commodities boom that masked many of the competitiveness challenges of commodity-exporting emerging markets. Vulnerability to commodity price fluctuations in emerging economies and the promises of the Fourth Industrial Revolution underscore the importance of innovation as a source of competitiveness and economic diversification to reignite growth.

Against this background, it is clear that (1) monetary stimulus is not enough to reignite growth if economies are not competitive, (2) an increasingly important element of competitiveness is creating an enabling environment for innovation, and (3) innovation in turn goes hand in hand with openness and economic integration. (rk)

Contact:
Margareta Drzeniek Hanouz
Head of Global Competitiveness and Risks
World Economic Forum
Geneva, Switzerland
margareta.drzeniek@weforum.org
www.weforum.org/gcr

Innovation Makes A Difference

Europe's Chemical Sector Seeks Competitive Edge to Withstand Challenges by Global Demand and US Competition

The biggest — listed — European chemical manufacturers (Air Liquide, Akzo Nobel, Arkema, BASF, Bayer, Covestro, DSM, Evonik, Johnson Matthey, K+S, Lanxess, Solvay, Syngenta, Umicore, and Yara) have posted an operating margin rate around 10% on average between 2010 and 2015. Overall operating margins slowly decreased from $30 billion in 2011 to less than $23 billion in 2015. Yet revenues remained stable at around $276 billion (2011–2014) before a —15% drop in 2015 to $238 billion (Fig. 1). We expect a healthy operating margin rate in 2016 despite flat — or even declining — revenues.

Marc Livinec, Euler Hermes Group

The aggregated net profitability is on a similar trend although overall figures are smaller (around $14 billion in 2015). This reflects a net margin rate of 5% on average over the 2010-2015 period, a good-enough performance compared to other sectors. The spread between the operating and net incomes stems from restructuring and divestment costs since the 2009 slump. Yet a cycle peak between 2005 and 2007 made it resilient enough to cope with the drop in net profitability.

At the same time, the sector refocused on core activities, where it enjoys a solid competitive edge. These usually relate to specialized sub sectors, where innovation makes a bigger difference than raw material costs.

This explains the "low" or "medium" risk rating attributed by Euler Hermes to almost all chemical industries in Western Europe — Greece being the only exception.

The Asian Challenge: a Specialized European Response

Specialty segments have become the main drivers of overall performance and compete more successfully on a global scale. Both major chemical and agrochemical players still play an important role (see fig. 2).

Specialized chemical companies generate the highest added value. A decade ago, many Western European upstream chemical companies faced a critical challenge from Asian producers. The Europeans opted to move forward and down the value chain. This strategy has eased the dependence on volatile raw materials' prices. It also helped to focus on advanced technological products which deliver higher margins, such as consumer chemicals, which are used in final products in the hygiene and cosmetics industries.

The operating margin rate in the specialties subsector has gradually gone up to 10% since 2008 and leveled off since last year. A plunge in 2012 stemmed from a €2.5 billion write-down in Akzo Nobel's decorative paints business.

Specialty chemicals are all about margin rather than volumes. However, if a large outlet — such as construction — loses steam, suppliers' profitability suffers. Write-downs on capital-intensive plants are to blame.

Despite their size, major European chemical players are not immune to slowdowns. Giant companies' operating margin rates have fallen from 12% in 2007 to 8% in 2013 before leveling off at around 8% in 2015.

Although big companies benefit from a broad and diversified customer base, they are pushed to write-off hefty production costs and margins may be hit. As a result, big chemical players are under constant reorganization.

European agrochemical producers have maintained high operating margins (above 13%) even if revenues are on a downward trend. Companies in this sub-sector have been able to weather the difficulties in its main outlet — the farming sector — despite the latter has been plagued by low prices of agricultural commodities such as wheat, corn, and meat.

These companies' biggest advantage is their reign over an oligopolistic market. A strong negotiating position might translate into dictating prices. The Competition Council mulls this issue as it considers a possible merger between the agricultural supplies be-

hemoth Bayer and US giant Monsanto, the world's biggest seed company.

The global landscape is becoming ever more complex and competitive. The European market accounts for 17% of world sales, around one point more than North America. Asia leads the pack with 58% market share, of which 34% is generated by China alone mainly positioned in chemicals

> **Specialty chemicals are all about margin rather than volumes.**

upstream. Europe's chemical players have relied on a resilient regional economy.

The $680 billion market in the western part of the continent is well-diversified with six significant sub-segments. Two main ranges of activities are critical.

Specialties' — the most value-added chemical sub-segment — generates 29% of turnover.

Even bigger still, plastics (petrochemicals incl.) accounts for 46% of regional turnover, with ethylene (26%) and polymers (20%) as main products. In this segment, volumes tend to play a more dominant role than values, because upstream activities are less value-added than downstream ones.

Extra-EU income accounts for 25% of European companies revenues. In other words, most exports remain within the European Union. Specialty chemicals account for 35% of total exports. Along with consumer chemicals, the two sub-segments account for the bulk of the EU chemicals trade surplus.

Petrochemicals, on the other hand, face an uphill battle against upstream North American competitors which capitalize on their cheap shale gas price and both of them against Asian competitors at the same time.

Cheap Feedstock Bonanza and the American Challenge

Ethylene is the chemical industry's key product. It is utilized as the basic building block in the production of a wide range of plastics, solvents, and cosmetics. Because of its position at the core of petrochemicals and plastics' production processes, this olefin accounts for 46% of chemical sales worldwide. Global production of ethylene reached 140 million t in 2015, up 3.5% compared to 2014 due to new Chinese capacities. As ethylene's manufacturing process requires the use of fossil fuels as raw materials, its production price is highly dependent on fluctuations in feedstock prices.

A critical divergence comes into play here: European companies tend to utilize naphtha, which is manufactured out of crude oil, as their primary feedstock. American production is mostly ethane-based and thus impacted by the price of natural gas.

Since the beginning of the decade, the US shale revolution ushered in a tectonic shift in North American gas prices. These were twice as low as in Europe and three times lower than in Asia. Feedstock costs in the US have plummeted and American (petro) chemical companies enjoyed a significant advantage and growing market share gains.

On the other side of the ocean, European petrochemical players suffered. Things changed with the collapse in the price of oil, and consequently naphtha, providing the

Europeans with a much needed reprieve.

In the period between 2011 and 2013 the spread in Ethylene's prices between North America and Europe exceeded $600. Since 2014, it was halved and now stands at less than $300.

When compared to feedstock costs, ethylene selling prices make it possible to calculate an approximate gross margin in the petrochemical sector across the main three regions.

The US chemical sector enjoyed a clear edge for three years (2010–2013). Yet the gap has closed.

Ever since 2014 European and Asian chemical players' position has improved. As we expect oil and (therefore) naphtha prices to stay low until at least 2017, this trend should hold.

Ethane Has Been Given Preference by the US

However, the US has another important advantage: a gap in production costs of naphtha and ethane. Disruptive fracking technology has been massively used to produce gas and oil at a very competitive cost.

As American shale gas technology had been developed four years earlier than shale oil, the US gas price was cheaper than the oil price for a long period.

No wonder the US (petro)chemical sector has turned its attention to ethane as a feedstock rather than naphtha. Ethane price fell by -67% between 2009 and 2012 while naphtha soared by +30%. Between 2012 and 2015, US naphtha price fell by -60% while the US ethane price dropped by further -40%.

Price Competitiveness of US Upstream Chemical Companies

The US chemical sector gained an edge on foreign competitors for a while thanks to lower feedstock costs and the ethane windfall. Moreover, the US cashed in on a strong rise in cars sales, a steady pick-up in consumer spending, and a rebound in housing activity.

In the longer term, investment could be a definitive factor. American players have recently spent heavily on downstream ethylene steam-crackers, which cost more than $1 billion each. In most cases, five years pass from the moment an investment decision is taken until the new plant begins operations. Thus US competition in upstream chemicals should surge at the beginning of next decade. Figure 3 presents cumulative investment projects in the US chemical industry. $90 billion worth of new capital investment should be operational by 2021.

The Global and Regional Demand Challenge

Weak demand will keep weighing on overall output growth, which should edge up by +1.1% in 2017 after 1.3% in 2016. The soft-paced European recovery, sluggish global trade and farming sector woes which has just begun impacting the agrochemical (sub)sector, might make a deeper dent than expected. We forecast that the growth rate of chemical output in Europe should amount to no more than +1.1% in 2017. Main chemical producing countries across Europe will continue to feel the pressure on selling prices.

Even if the European chemical sector has proven resilient for four years, its production growth rate depends strongly on the health of its main industrial outlets. Taken together, the first three of these — construction, automotive and electronics — usually account for a third of total chemical sales. A downward trend in any of the three means that chemicals would feel the pinch. For example, construction across Europe went through some difficulties in 2012.

So did chemical production with a -1.6% drop in production on a yearly average at that time. Thus the chemical sector is not immune to external shocks dealing with its main outlets. From a more domestic point of view, growth trends should remain positive although uneven in 2017.

Germany will take the lead (+1.5% in 2017) while the UK should soften and lag behind (+0.3%) despite a more favorable pound exchange rate because of the Brexit fallout.

French chemical players can still count on the good health of two important outlets — construction and automotive — and on the leadership of L'Oreal in hygiene/cosmetics.

Belgium has been falling behind with a -11% chemical output between 2012 and 2016 despite the buyout of Rhodia by Solvay in 2011.

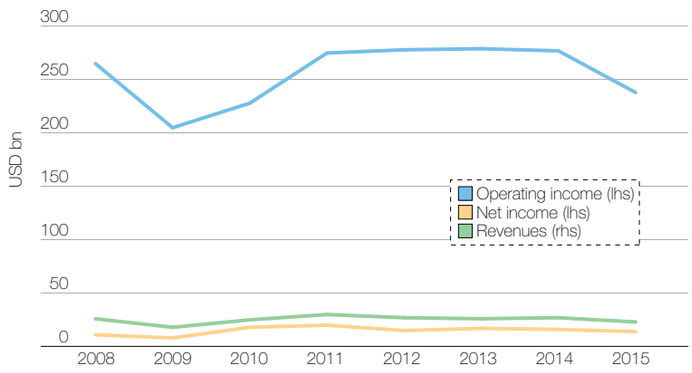
Author

Marc Livinec, Sector Advisor for Chemicals, Pharmaceuticals and Energy, Euler Hermes Group, Paris, France

Contact

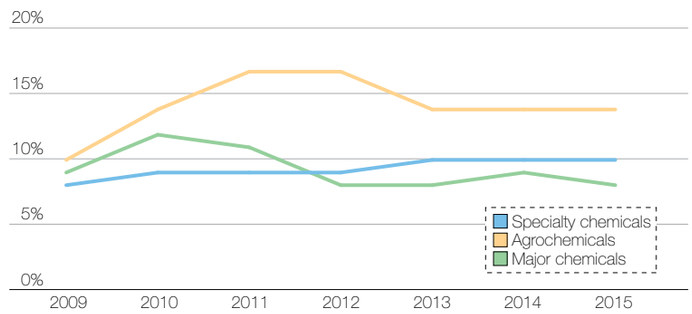
marc.livinec@eulerhermes.com
www.eulerhermes.com

Aggregated income statement of main European chemical players — Figure 1



Source: Bloomberg, companies, Euler Hermes

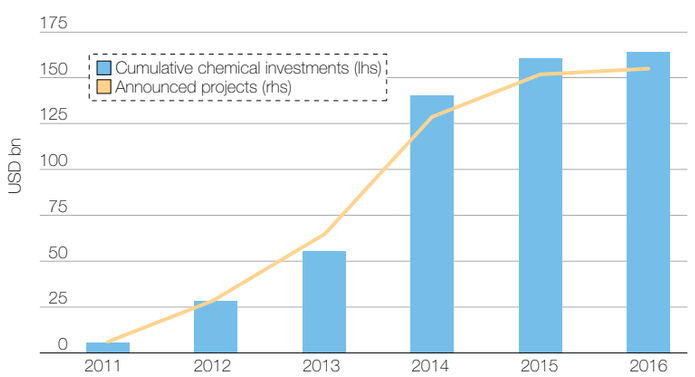
Operating margin rates of main European companies — Figure 2



Specialties: Air Liquide, AkzoNobel, DSM, Evonik, Johnson Matthey, Umicore
Agrochemicals: Bayer, K+S, Syngenta, Yara
Major chemicals: BASF, Covestro, Arkema, Lanxess, Solvay

Source: Bloomberg, Euler Hermes

Cumulative announced chemical industry investments* in the US — Figure 3



*45% of these investment projects have been completed or are underway and 55% are in the planning phase and are yet to be agreed upon.

Source: ACC, Euler Hermes

Solvay to Build Polyamide Plant in Mexico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Solvay is building a compounding unit in Mexico for its Technyl range of polyamide (PA) resins. The plant in San Luis Potosí will have an initial capacity of 10,000 t/y when it becomes operational in the third quarter of 2017. Investment costs were not disclosed.

Vincent Kamel, president of Solvay Performance Polyamides, said the facility will help to support the company's fast growing Technyl PA business in North America. He said: "Many of the world's top automotive OEMs are located in the region, which makes it an ideal base for us to serve both local and US markets."

Mexico is ranked as the second largest producer of cars and commercial vehicles in the Americas and seventh worldwide, with annual production of more than 3.5 million units in 2015. In addition, Solvay said, many consumer goods and electrical equipment players are located close by, offering new opportunities. (mr)

Air Liquide Plans US Specialty Ingredients Plant


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Two subsidiaries of French industrial gases giant Air Liquide have recently broken ground on a $60 million plant for cosmetic and pharmaceutical specialty ingredients being built on a greenfield site at Sandston in the US state of Virginia.

The new production facility will be operated as a joint venture, Polykon Manufacturing, between the two Air Liquide group companies — healthcare specialty ingredients manufacturer Seppic and hygiene specialist Schülke. It is planned to start up in the first half of 2018 with around 20 employees and will supply the $10 billion global market for specialty personal care ingredients.

With the new facility, Air Liquide said the group will strengthen its proximity to customers in the US, which accounts for about 25% of the global market, while at the same time extending the specialist companies' innovative potential and enlarging their industrial footprint. Both Seppic and Schülke have a long-time presence in the US. (mr)

Clariant Opens US Catalysts Plant


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Swiss specialty chemicals producer Clariant has opened a new PP catalyst production facility in Louisville, Kentucky, USA, as part of a strategy to accelerate its growth in North America.

The new plant has been developed and implemented in cooperation with CB&I and is part of a long-term strategic partnership with the US contractor's Novolen PP technology business.

The facility, which combines sales, technical service, R&D, a technical center, pilot plants and production, is now Clariant's largest US production hub for catalysts and further strengthens Louisville as the most important site for its regional business, Clariant said.

Clariant's CEO, Hariolf Kottmann, described the investment as a "significant step forward" for its catalysts business unit. The Swiss group has expanded its presence in North America in recent years, with sales increasing from $939 million in 2011 to $1.12 billion in 2015. (mr)

Brexit's Implications for the UK's Chemical Industry

Britain's Vote to Exit the EU Causes Numerous Long-term Uncertainties

Brexit was predicted by its opponents and even neutral economists to precipitate at best a sharp economic downturn in the UK and at worst a deep recession. So far, four months after the country voted 52/48% in a referendum in June to leave the European Union, neither has happened. Nor does it look likely in the short term.

In the third quarter GDP growth went up 0.5% in the UK — the fastest among the G7 leading economies in the world. This compared with a pre-referendum forecast of 0.1% by the Bank of England, the country's independent central bank.

In early November the Bank raised its growth forecast for the UK in 2016 to 2.2% from 2% and almost doubled next year's from 0.8% to 1.4%, although this outlook was accompanied by a warning of a steep rise in inflation. The big negative impact of the referendum has been a 15–20% fall in the value of pound sterling against the US dollar and 8–10% against the euro.

The UK chemicals industry has also been performing well in comparison to a 0.4% fall in industrial output in the third quarter. The country's chemicals and pharmaceuticals sector is the fifth largest in the EU in terms of sales with exports of around £25 billion (€31 billion) and imports of £26 billion, according to 2014 figures.

"The figures for chemicals and pharmaceuticals have been quite positive in recent months," says Stephen Le Roux, head of economics, at the Chemical Industries Association (CIA), the country's main chemicals trade association. "In contrast to the rest of the manufacturing sector, production has been rising. Exports have also been going up as a result of a depreciation of the pounds against foreign currencies earlier this year. The benefits of the post-referendum depreciation will not show up in the export figures until the next 1–2 months."

Investment Projects

So far no major investment projects have been cancelled. Ineos, the Anglo-Swiss petrochemicals operator, has been putting around $2 billion in a scheme to bring US low-cost shale ethane to its petrochemicals complex at Grangemouth, Scotland, and also to a smaller site at Rafnes, Norway. Saudi Basic Industries Corporation (SABIC) is also investing in a similar project to bring US ethane shipments to its ethylene cracker at Teesside, northeast England.

Chemical companies in the UK — or at least among the CIA's 100 strong membership which is dominated by foreign-owned multinationals — are more upbeat about future prospects than they were before the vote.

"Preliminary results from our third quarter survey of our members indicate they are more positive about the short-term outlook than they were in the second quarter before the referendum," says Steve Elliott, CIA chief executive. "This is probably because the devaluation of the pounds is strengthening sales and margins."

However chemical companies are fully aware of the difficult times ahead. First, there are uncertainties about the future while the UK government negotiates a withdrawal agreement with the remaining 27 EU member states after which the country should formally leave the Union in 2019. But this uncertainty could drag on for several more years because of the likelihood that the UK will also have to thrash out, after withdrawal, a separate free trade deal with its former partners.

Also the UK can only complete free trade agreements with non-EU countries after a withdrawal agreement. It is hoping to clinch deals with high-growth emerging economies expecting that they will generate enough extra trade to replace that lost to European Union countries.

Free Trade Agreements

The extent to which UK trade with the EU — at present it accounts for 45% of UK exports and 60% of overseas chemical sales — declines will depend on the outcome of the Brexit negotiations. According to the UK government's plans, these are currently scheduled to start next April after it formally notifies the EU of its intention to leave under Article 50 of the 2007 Lisbon Treaty which for the first time provided a procedure for member states to pull out of the Union.

The likely results of the negotiations have already been given two categories — one 'soft' and the other 'hard'.

A soft exit would mean that the UK would continue to be a member of the EU's single market or be given a status close to that position. The UK would be joining the non-EU states of Norway and Iceland in having access to the single market without tariff or non-tariff barriers. In return it would have to comply with EU regulations, such as REACh, and contribute to the EU's budget without having any say in decisions on EU legislation.

A key requirement of single market membership is the UK would have to adhere to its four principles — freedom of movement of goods, services, capital and above all of labor.

Since the main reason for the Brexit campaign's victory in the referendum was its demand for controls on levels of EU immigration into the UK, complete single market membership may be impossible. Instead it may have to accept a deal falling short of open access to the single market but with certain tariff and non-tariff restrictions being lifted for some sectors.

Single Market

If a single-market agreement is unachievable, the alternative would be a hard Brexit under which the UK's exports and imports to and from the EU would be subject to tariff and non-tariff regulations.

In the worst-case scenario the UK's trade relations with the EU

would be based on the rules of the World Trade Organisation (WTO) with export and import tariffs on chemicals averaging 5.5–6.5%.

With non-tariff restrictions the UK would be in much the same position as any non-European country importing into the EU. The difficulty, however, would be not so much adherence with the EU health, safety and environmental regulations and items like rules of origin but the extra administrative work and costs in having to demonstrate compliance.

Strong supporters of Brexit prefer the 'hard' option because it would give the country the freedom to legislate as it wishes, not only in limiting numbers of EU migrants but also in areas like employment law and health, safety and environmental legislation.

However the UK chemicals industry and most other manufacturing sectors in the country are overwhelmingly in favour of a soft Brexit without tariff or non-tariff barriers.

In a recently issued Brexit manifesto the CIA has urged the government to aim for tariff-free access to the single market, an energy deal which ensures the UK has secure supplies of energy, an immigration policy with accessibility to supplies of skilled labor from the EU and a policy framework centred on a risk- and science-based approach to regulation. The association also wants the government to replace any EU funds for research and development which may be lost as a result of Brexit.

Downstream Chemical Users

"These are our priorities," says Elliott. "We are now gathering evidence from our member companies to show the importance to them of our manifesto objectives."

Downstream chemical users are calling on the government to pursue similar aims in the withdrawal negotiations, particularly on the issue of tariffs.

"Our companies want tariff-free access to the single market because of its importance both to their exports of finished products and imports of raw materials to make these products," says Tom Bowtell, chief executive of the British Coatings Federation (BCF), which represents both coatings and inks producers, 58% of whose output is exported to the EU. "If our industry is to stay competitive, it is crucial that they are not burdened with 6.5% tariffs on raw materials, much of which currently comes from the EU."

The government has been conducting face-to-face discussions with representatives of the chemical and other industries in the last few weeks but without revealing much about its own strategy for the imminent negotiations with the EU on Brexit.

"Over the last few weeks the pace of consultation by the government has definitely been picking up," says Elliott. "But it is like grabbing fog when trying to find out what exactly the government's position is on negotiations."

Automobile Sector

The government, nonetheless, was forced to reveal at least an outline of its negotiating aims when Nissan pressed it for more clarity about its Brexit strategy so that the Japanese automobile company could decide whether to go ahead with investment plans for its Sunderland plant in the northeast of England, one of the largest and most productive in Europe.

As a result of talks and written assurances from the government that it was pursuing tariff-free access to the single market while pledging more funds for improvements in training and skills and in R&D projects relevant to Nissan and the automobile industry the Nissan board in Japan approved the investment for the production of two new sports-utility-vehicle (SUV) models at Sunderland generating 7,000 new jobs in an area which voted 60/40 for Brexit in the referendum.

The secretive pact with Nissan has triggered demands from the rest of the UK-based, mainly foreign owned, automotive sector with an annual output of 1.6 million that similar commitments be made to the whole industry. Other manufacturing sectors have been calling for comparable assistance.

"A sectoral solution to Brexit would be highly complex and the process of working out deals for each sector would be a nightmare," says Elliott.

In fact the issues surrounding Brexit for the chemicals and other manufacturing industries, as well some leading services sectors, are looking so convoluted that there may well be a need after the statutory two years of negotiations for a transition period of five or more years before withdrawal is completed.

Author
Sean Milmo, CHEManager

The Nordics — a biotech stronghold in Europe


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The Nordic region hosts some of the world's most innovative biotech, medtech and pharma companies. It also has the 12th strongest economy, making it the perfect place to invest. Recent new investments strengthen Sweden, Norway, Finland and Denmark's position as a global life science hub. To mention just a few examples, the Swedish government, AstraZeneca and Sweden's leading private research funding body, the Knut and Alice Wallenberg Foundation recently announced investments exceeding €90 million in next generation biologics. Complementing this GE Healthcare is to invest €90 million in doubling protein purification production capacity at their world-leading Uppsala-based facility. Finally according to a report last week, Nasdaq in Stockholm is home to 64 companies within the healthcare/biotech sector, 5 of them new listings in 2016. (mr)

Pfizer to Close Two England Sites


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Major US drugmaker Pfizer has announced plans to close two of its three sites in the UK, although it insists the decision is not a result of Brexit, according to media reports. The announcement came just days after a report by think-tank Public Policy Projects warned that the UK's pharmaceutical industry could be hit hard by the decision to leave the EU.

Pfizer's manufacturing site in Park Royal, London, as well as its global cold-chain packaging and distribution facility in Havant, Hampshire, near the English Channel, will close in 2017 and 2020 respectively, with the loss of around 370 jobs. Pfizer will consolidate its global packaging operations in Puurs, Belgium.

The Park Royal complex, which Pfizer inherited with its Hospira acquisition in September, is set to finish production by May 2017, with a site exit planned for August. Pfizer plans to sell the Havant site as an ongoing pharmaceutical manufacturing facility. It will retain its other manufacturing site in south London, where some capacity will relocate. (mr)

Ineos Takes Scottish Fracking Plea to UK Labour


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With its warnings that ignoring the benefits of shale gas exploitation would have dire consequences for society having fallen on deaf ears in Scotland, Ineos has taken its case to the leader of the UK Labour Party, Jeremy Corbyn.

Commenting on the party's recent announcement that it would ban fracking outright if it came to power, Ineos in an open letter to Corbyn said a ban on fracking would mean a reliance on "unstable and illiberal regimes" for energy imports. Executives of the chemical group wrote similar messages to Labour members of the devolved Scottish Parliament.

"As North Sea reserves decline," Gary Haywood, CEO of Ineos Shale, said, "it falls upon us to find new sources of energy to maintain the standard of living that we have become accustomed to. We currently import almost 60% of our gas, and this figure will only climb in the coming years."

Boring deeper into the same figurative drill hole opened by other Ineos executives, Haywood repeated claims that embracing shale gas could reverse the collapse in manufacturing experienced by the UK economy over the past several decades and transform communities across some of the poorest parts of the country. (mr)

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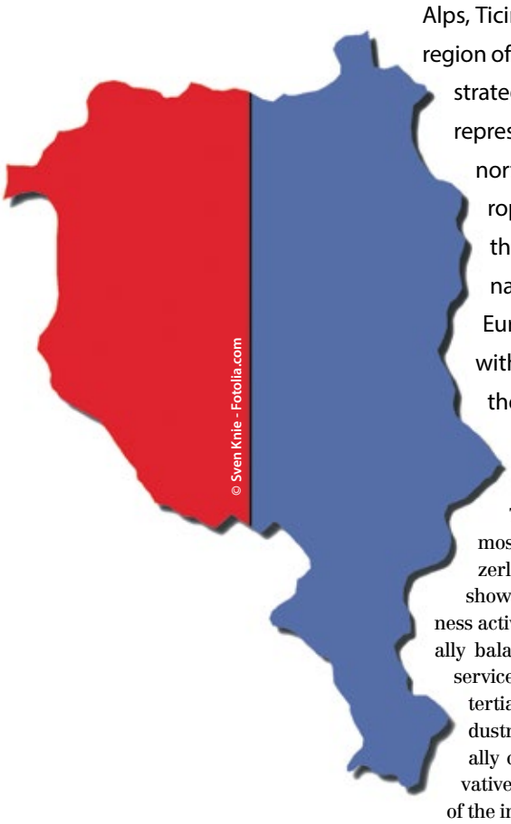
Life Science Valley in the Heart of Europe

The Swiss Canton Ticino is an Ideal Platform for International Business



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Located just south of the Swiss Alps, Ticino is the Italian-speaking region of Switzerland. The canton's strategic geographic position represents a bridge between northern and southern Europe and between two of the strongest and most dynamic economic areas in Europe: Lombardy in Italy — with Milan at its heart — and the Basle-Zurich area in Switzerland.

Ticino is one of the furthermost touristic locations in Switzerland, but at the same time it showcases a wide array of business activities. The local economy ideally balances the industrial and the service sectors. Alongside a leading tertiary sector there is a solid industrial sector with internationally competitive and highly innovative companies. The backbone of the industrial sector, composed by a number of SMEs in the fields of life sciences, mechanics and electronics, has recently been complemented by rising new sectors like renewable energies and advanced logistics.

The Life Sciences Sector

Ticino's industry sector, especially in the electrical engineering and chemical-pharmaceutical areas, is heavily export-oriented. In the life sciences field the pharma industry plays an important role, and top-quality niche producers located in Ticino cover the entire pharma supply chain.

The Farma Industria Ticino (FIT) association of chemical and pharmaceutical industries, founded in 1980, is a private organization that currently counts 27 member companies, with a combined workforce of 2,500 employees and a total annual turnover of approximately CHF2.3 billion (ca. €2.1 billion and $2.4 billion), more than 80% of which being derived from export.

Quality, technology, innovation and sustainable growth represent the core assets of the pharma industry. Several FIT member companies have been certified, in addition to Swissmedic, by many foreign authorities such as US-FDA, and participate in programs such as OSHA, ISO, responsible care and certified sustainability.

Several investments accounting for almost CHF500 million have been planned for Ticino in the next three years, mainly in R&D and innovation. Activities of the associates range from preclinical and clinical drug development to chemical and formulation process development to industrial manufacturing of different classes of APIs and of a great variety of drug products forms. The vast majority of FIT companies also offer services such as contract research and manufacturing.

Representing the vast majority of the companies active in this Italian-speaking part of Switzerland, FIT has a great network of know-how and access to skilled and qualified, multilingual human resources. In Ticino, the presence of world-class high schools and research institutes integrated into the enterprise system and the proximity to the Swiss and Northern Italy universities and pharmaceutical expertise provide a significant technical, scientific, logistic and cultural asset.

A main area of focus to which Farma Industria Ticino contributes with its own expertise is vocational training. A commitment also based on the constant need to discover and train future co-workers. The Association's activity in this specific area hinges on the promotion of all training opportunities which are tied to careers in the sector, and targeted at new generations of technicians, organizing introductory courses aimed at young people who are serving apprenticeships in the professions of chemical laboratory technician, biology laboratory technician and manufacturing operators. For the middle management teams, mini-MBA training courses in pharmaceutical management are organized in collaboration with a local university school (SUPSI).

Business Advice and Support

The success of the local industrial companies is based, on one hand, on the advantages offered by the "Swiss system" in terms of political and institutional stability, a flexible labor market, and a mild taxation. On the other hand, the availability of highly skilled labor force with exceptional multilingual skills and the opportunity for companies to collaborate with top-notch research institutes stimulates the local enterprises to constantly invest in innovation and remain competitive.

The local authorities are equipped to advise and support business ventures at their various stages. Particular attention is paid to the general framework conditions, in order to provide a business-friendly and unbureaucratic environment.

The Economic Promotion Agency informs foreign companies about the business opportunities in our region and simplifies their settlement by providing practical and direct support. Start-ups and innovative entrepreneurial projects are supported by the AGIRE Foundation through coaching, technology advisory, networking and financial support. AGIRE promotes and fosters the transfer of technology between companies and the academic or research centers. AGIRE manages the Technology Park (the network of technology parks ("Tecnopolo Ticino") that offers office spaces and support to innovative companies targeting international markets from Ticino. The main hub located in the proximity of Lugano consists of 2,700 m^2 of offices and conference rooms, and, so far, more than 50 companies have settled there. Additional locations, dedicated to specific business sectors, including biotech and medtech, are in preparation.

TiVenture is a newly established venture capital fund that invests in innovative companies with high growth potential strongly collaborating with the local stakeholders of the local innovation ecosystem.

Existing companies and newly settled enterprises active in manufacturing and innovative fields are also offered various direct incentives and support mainly aimed at fostering R&D, innovation and export.

High Competitiveness

Ticino's socio-economic elements offer an attractive and highly competitive environment. Attention to quality of life is of paramount importance in Ticino and is reflected in the personal security provided to citizens, the quality of the health system, the efficiency of public transport and of financial services. These distinguishing social factors, together with a mild Mediterranean climate and a spectacular natural landscape, represent great assets for investors and entrepreneurs in the heart of Europe.

Contact

Farma Industria Ticino, Lugano, Switzerland
www.farmaindustriaticino.ch
info@farmaindustriaticino.ch

Chemistry Works – at Every Level

Hesse Offers Ideal Infrastructure for Enterprises and their Employees at the Heart of Europe

More than 12,000 foreign companies have already chosen Hesse as the place to do business. A clear commitment to Europe's most central location. Across all industries, employers, their staff and their families feel comfortable – while networks, clusters and expertise abound. Customers, culture, leisure - in Hesse nothing is ever far away. Challenges? A few, but none that cannot easily be solved. In international cooperation the role of Switzerland for example or Brexit are merely political idiosyncrasies; they are more than compensated for by years of experience, trust and understanding the needs of others.

For a chemical, pharmaceutical, biotech or medtech company many different aspects play a role in the selection of a location or in an investment decision: infrastructure and logistics, contacts with customers and between indigenous enterprises, proximity to user industries, access to well-educated personnel and knowledge-hungry graduates from colleges and universities as well as access to the capital market, and, of course … tradition. Hesse, located at the heart of Europe, can offer all of this. According to a study conducted by the EY Consultancy, Germany ranks number one in terms of European investment locations and, from the perspective of investors, number three worldwide, for the reasons mentioned. 16% of the population of the European Union live in Germany; they account for a disproportionate 21% of the gross domestic product of the EU and Hesse is among the most productive states in Germany.

50 percent of all investment decisions in Hesse are based on personal recommendation of business partners and customers.

Play in the Champions League

As the old saying goes – if you want to grow you need a role model. In 2014, Hesse exported goods worth more than €58 billion, two thirds of which were destined for Europe. Approximately 16% went to America and Asia. The international attractiveness of the region is reflected in the figures: In 2014 and 2015, 300 companies established themselves in Hesse, of which 14% were from the pharmaceutical, biotech, medtech, chemical and plastics sectors. More than half of the firms relocating came from the USA and China, followed by companies from the EU, Switzerland, Korea and Japan - and from the United Kingdom.

The following pioneering investments are worthy of note: Pharma giant Novartis is investing in a new production facility in Marburg for the manufacture of biopharmaceutical products. Swiss specialty chemicals group Clariant invested around €100 million in a research center in the Industrial Park Frankfurt Höchst. Industrial adhesives supplier Dymax Europe opened a new research and development laboratory in Wiesbaden. US pharmaceutical group Pharm-Allergan is now running its German business out of Frankfurt. Mitsubishi Polyester Film has set up a production facility for composite panels in the Kalle-Albert Industrial Park in Wiesbaden. And Australian biotherapeutics manufacturer CSL is investing over €240 million in a plasma fractionation facility as well as further notable sums in the expansion of its production capacity at its Marburg site. (cf. interview on page 16)

Digital and Real Networking

Looking outside the chemical industry; the leading Indian IT service provider Wipro Technologies has set up its new European Headquarters in Frankfurt: Digitization is part of the genetic code of Hesse with Frankfurt as the location of the world's largest data exchange point, DE-CIX.

Today, the importance of interdisciplinary and intercultural relations is a given, which means that at least the prerequisites have to be in place. This is clearly the case for Hesse as a look at current resident industries shows: The automotive industry and its suppliers, the optical industry, medical technology, diagnostics, pharmaceuticals and industrial biotechnology as well as service providers from analytics, clinical research and contract manufacturing. Once chemical companies are based locally they find plenty of B2B customers and, above all, cooperation partners.

Finding Partners and Talent

"In the Rhine-Main region, closeness to clusters and the regional Chambers of Commerce and trade associations should not be underestimated," said Dr. Martin Vollmer, Chief Technology Officer at Clariant, adding: "Many working groups from the German Chemical Industry Association, the German Chemical Society and Dechema -the Society for Chemical Engineering and Biotechnology are also available to us as a Swiss company in the immediate vicinity and one can meet their experts at numerous events to exchange ideas." (cf. interview on page 16)

The German Chemical Industry Association (VCI), the German Chemical Society (GDCh) and Dechema, the Society for Chemical Engineering and Biotechnology, are headquartered in Frankfurt am Main, as is the Central Association of the Electrical Engineering and Electronics Industry (ZVEI), the German Society for Materials Science (DGM), the Association of Biotechnology Companies (VBU), The German Industry Association for Biotechnology (DIB) and the Association of German Machinery and Plant Manufacturers (VDMA).

The Hessian colleges and research institutes of international renown are as much a part of the canon of cooperative partners as the universities of Frankfurt, Marburg and Giessen, as well as the Technical University in Darmstadt and the Darmstadt-based Fraunhofer Institute LBF.

As important as creative networking with companies from other industries and their logistical accessibility via land, water and air routes is, so too is the feel-good factor of a new environment. In this Hesse is at the forefront: With international children's day-care centers and schools with education in ten languages to ensure the integration of children, more than 180 international business and cultural clubs in Hesse facilitate digital, but above all, real coexistence between expatriates and local people. In Hesse the chemistry works – at every level!

Author
Dr. Holger Bengs, BNCP Consultants,
Frankfurt am Main, Germany
bengs@bcnp.com
www.bcnp.com

Conitnue Page 16

Proximity to International Customers

In October 2013, Swiss specialty chemicals company Clariant inaugurated its new Clariant Innovation Center (CIC) in Frankfurt-Höchst, Germany. The CIC provides the group with an ultra-modern research hub. Dr. Martin Vollmer, Chief Technology Officer, Clariant, explains the reasons to locate the CIC in the Frankfurt area.

Why did Clariant invest €100 million in a Research Center in Hesse?

Dr. M. Vollmer: The decision to locate the Clariant Innovation Center (CIC) at the Frankfurt-Höchst Industrial Park was made for three reasons: the Rhine-Main region is one of Germany's leading business locations and Frankfurt as an international metropolis is a magnet for domestic and foreign talents. We also have direct access to qualified young people. At the same time, Höchst was and still is Clariant's largest production and research center worldwide. In Höchst, we maintain the critical mass of 500 employees in research and development in order to develop innovative products on a sustained basis.

What sets the Industrial Park in Frankfurt Höchst apart from other locations?

Dr. Martin Vollmer, Clariant

Dr. M. Vollmer: The infrastructure, customer proximity and networking possibilities are unique. The Industrial Park perfectly combines transport by road, water and air, a plus when it comes to logistics. In connection with Infraserv, we benefit from excellent conditions in terms of energy supply and other services. The proximity to Frankfurt Airport is highly appreciated by our international customers and development partners, as it gives them a high degree of flexibility and meetings can be efficiently organized.

What role will the CIC play in Clariant's future strategy?

Dr. M. Vollmer: The CIC is the flagship of the eight Clariant research centers around the world. We are interlinking Clariant's four technology platforms: Chemistry & Materials, Biotechnology, Catalysis and Process technology. This allows us to pursue new directions in product and process development. As a leader in specialty chemicals, we will continue to invest in research in order to grow profitably.

Home of Life-saving Medicines

Behringwerke Marburg Industrial Park is a biotechnology center and host to16 innovative companies specializing in biotechnology and pharmaceutical production. The park is managed by Pharmaserv. Thomas Janssen, Managing Director, Pharmaserv, talks about the special features of the location.

What characterizes your location?

T. Janssen: More than 5,200 people work at our Behringwerke site in Marburg. Our focus is the pharmaceutical industry; we lease-out and operate production, laboratory and office space. Our customers value this clear focus, among them CSL from Australia, who produce therapeutic proteins, GSK from Great Britain who make vaccines, Novartis biotechnological products and Siemens as a manufacturer of diagnostic reagents.

How do you rate your connections and integration?

T. Janssen: We consider them excellent from many perspectives. The proximity to Frankfurt Airport is a location advantage for us since 50 percent of the freight we generate is international. Furthermore, we also offer our customers the services of a "Regulated Agent" and thus avoid time and cost-intensive checking of freight at the airport. As one of the largest industrial employers in the region, we are committed to the further development of the location and are a reliable partner not only for our customers, but also for politicians and authorities. Proximity to the Hessian universities is excellent and, in addition, Provadis supports on-site training in many specific occupational fields.

Thomas Janssen, Pharmaserv

What is your view of the future?

T. Janssen: As an independent location operator, Pharmaserv has invested more than €100 million over the last decade, and our customers a multiple thereof. The Behringwerke location will continue to deliver reliable life-saving drugs and vaccines from Marburg to the world.

Italy's Pharma Industry Value Predicted to Drop


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The pharmaceutical industry in Italy is set to decline from $21.3 billion in 2016 to $18.6 billion by 2020, at a negative compound annual growth rate of 3.3%, primarily due to the country's struggling economy, according to research and consulting firm GlobalData.

The company's report published in April states that the strict pricing of drugs through negotiations and external and internal reference pricing is a barrier to the launch of innovative molecules, and that sales of generics and over-the-counter drugs will increase over the forecast period.

Adam Dion, MSc, GlobalData's Senior Industry Analyst, explains: "The pharmaceutical industry in Italy will face a number of challenges over the next few years. An increase in the Italian government's debt relative to GDP, and the country's poor growth record, will decrease cash flow in the country, meaning the industry will stagnate."

The Italian economy is also vulnerable to fluctuations in the demand and supply of goods and services in other countries. The Eurozone crisis is likely to result in lower demand for Italian products from other European countries, reducing exports and engendering a hostile environment for innovation or investment. India and China also present a threat as they have an edge in the generics market, and may usurp sales away from Italy's domestic pharmaceutical space. (mr)

Lonza Opens New Labs in Basel


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Swiss specialty chemicals and biologics producer Lonza opened a new state-of-the-art pharmaceutical Drug Product Services laboratories located at Stücki Science Park in Basel, Switzerland. The new 1300 m^2 facility, which employs 25 scientists, will focus initially on formulation development, drug product analytical development and quality control.

Lonza CEO Richard Ridinger said that from the 15 locations reviewed, the company's home base of Basel was chosen for its first-ever drug product development facility as the city is a hub of innovation in the pharma industry. Located on the Rhine River, Basel is home to major international drugmakers such as Novartis and Roche as well as being a base for specialty chemicals. (rk)

South America's Chemical Industry in Recession

As the Economic Low Point seems to have been reached in Brazil and Argentina, Long-term Growth Prospects are Positive

The South American countries were beacons of hope for the world economy until the 2008/2009 global economic crisis. Brazil, the region's largest country, was even mentioned in the same breath as China, India and Russia. The growth rates spoke for themselves. The gross domestic product (GDP) of the region grew an average of around 3.4% per year between 2000 and 2008. After the global financial crisis, however, the momentum slowed significantly. In the period 2010-2015, growth amounted to only around 2.0% per year.

Dr. Henrik Meincke, VCI

Most recently, the GDP shrank again in the wake of the various crises – especially due to the strong recession in Brazil. The region once again has to deal with a decline in the economic performance in the current year (Fig. 1). High dependence on commodity exports combined with sharply falling commodity prices is now taking its toll. Investments are being postponed and foreign direct investments are backing out. Added to this is the devaluation of currencies and the fear of interest rate hikes in the United States.

South American economies also remain susceptible to crises because the industrial sector is too small and not sufficiently diversified to have a supporting effect. Thus, the industrial and mining ratio in Brazil is only 12%. In Argentina and Chile, these two sectors have in fact a total ratio of approximately 20%. In Chile, the copper mining ratio alone is around 8% of the GDP.

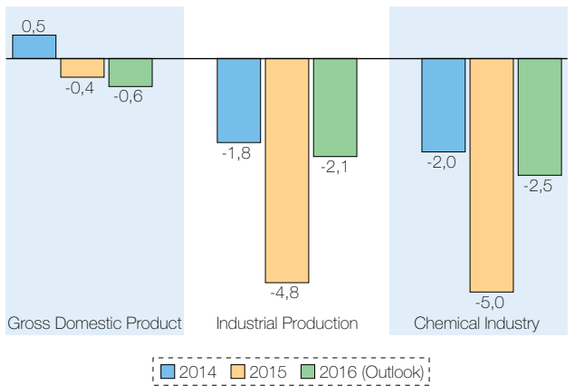
There is little hope that the industry ratio will increase quickly. On the contrary: the growth of South American industry has slowed significantly since the crisis, and the region's production has even been in decline since 2013 (Fig. 2). Volume is lacking, in terms of both competitiveness and products that are in demand on the world market.

Homemade Problems in Many Countries

The reasons for the weak growth are varied. In Brazil, the present government has made conditions fairer through social programs, but Brazil's dependency has been deepened even more by commodity exports and nothing has been done to improve international competitiveness; education, security, and infrastructure have received little attention. Likewise, the reform of the political system that allows private campaign financing has been neglected – the main reason for the rampant corruption currently being observed.

Key data of the South American economy — Figure 1

2014 – 2016, Annual change (%)



Sources: Feri, VCI

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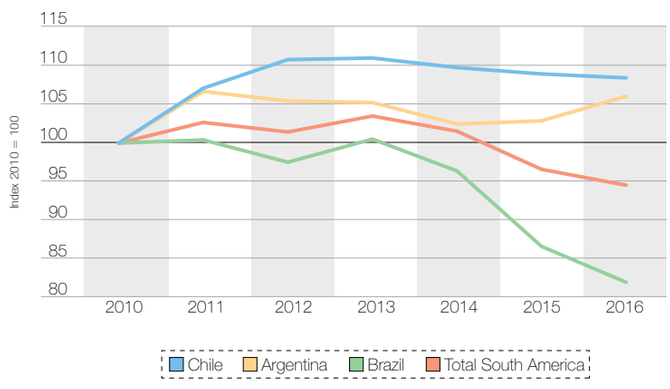
Development of industrial production in selected countries — Figure 2



Sources: Feri, VCI

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In addition to its high dependence on the export of raw materials, Chile suffers as a result of China's weakness. The Asian giant is the country's main trading partner, followed by the United States and the European Union. Low commodity prices also put a strain on investments. In 2015, investments in the mining sector dropped by 20%. Chile also has a general problem with competitiveness. The productivity of the country has grown by an average of only 0.2% over the past 25 years – too little to remain competitive.

Argentina is still coming to terms with its second national bankruptcy in a little more than a decade. There has been hardly any growth in this country in the past few years. The investment climate is poor, and the devaluation of the peso has weighed on consumer spending. Nevertheless, the change in the government at the beginning of the year is raising hopes among investors.

Falling Demand for Chemical Products

Until 2011, the chemical industry benefited from the economic recovery in South America. The need for chemicals rose dynamically at an average of 7.5% per year, but in the wake of the recent crises, demand has decreased.

South America is a net importer of chemicals and pharmaceuticals. The trade deficit was €53 billion in 2015. The production capacities in almost all sectors of the region are inadequate to meet the demand for chemicals on the continent (Fig. 3). The growing trade deficit for chemicals makes it clear that the chemical sector has to fight the problems typical for South America: in many places, companies complain about a poor infrastructure, bureaucracy and corruption.

Due to its natural resources, South America's chemical industry produces mainly raw materials. The ratio of basic chemicals in 2015 was around 50% and this was on the rise. Fine and specialty chemicals and pharmaceuticals follow, with a ratio of around 20%. The consumer chemicals sector is the smallest with a ratio of 13%.

German Chemical Industry Commits to Business in South America

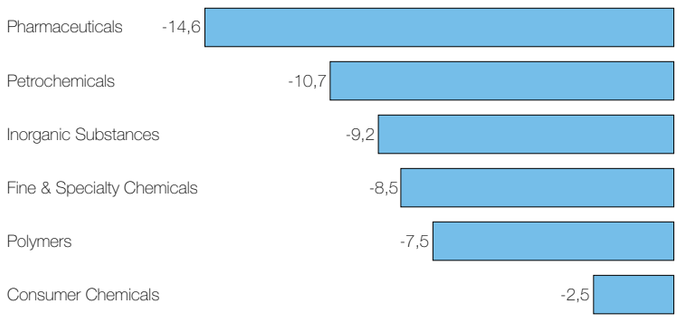
In the past decade, South America has gained in significance as an export market for the German chemical industry. Approximately 3% of the total chemical and pharmaceutical exports went to South America in 2015. This corresponds to goods worth almost €5 billion. Exports of German chemical companies to the region grew apace until 2011 but leveled off in the wake of economic turmoil. In 2016, exports by German companies to South America are likely to decline slightly as a result of weaker growth in the region.

A rising standard of living can also lead to an increase in private consumption

Foreign trade balance of the South American chemical and pharmaceutical industry

Figure 3

2015, Mrd. EUR



Sources: ChemData, VCI

South America remains interesting to the German chemical sector as an investment target. Currently the continent represents about 3.5% of all direct investments of the industry. In total, 118 subsidiaries of German chemical companies were active in South America in 2014. They generated a turnover of €14.1 billion and employed 39,000 employees.

Outlook: Long-term Growth Prospects are Positive

The economic low point now seems to have been reached in Brazil and Argentina. GDP and industrial production will be able to improve slightly in the coming months. This has a stabilizing effect on the entire region. In the long term, the chemical industry association VCI expects that South America can overcome its various structural problems. This should allow the continent to continue to develop its attractiveness as an investment location and market in the future. After all, the conditions for dynamic growth are good: the population is growing in many South American countries and a growing middle class can promote the expansion of consumer-oriented industrial products and services. A rising standard of living can also lead to an increase in private consumption. Last but not least, countries such as Brazil and Chile have considerable deposits of raw materials that can be used to increase the importance of these countries as commodity exporters.

Author

Dr. Henrik Meincke, Chief Economist,
German Chemical Industry Association (VCI).,
Frankfurt/Main, Germany
meincke@vci.de
www.vci.de

Latin American Pharma Market Remains Attractive

Brazil will continue to be the most important market for multinational pharmaceutical companies wishing to generate significant revenues in Latin America, according to an Industry Trend Analysis by BMI Research published in May. Public tender offers in Brazil will continue to play a decisive part in multinationals' local revenue growth. Mexico and Argentina also have potential to contribute solid growth. Furthermore, leading local drugmakers in Latin America will become increasingly attractive acquisition options for foreign pharma corporations.

The region's long-term commitment to healthcare, expanding public provision of medical services and the expanding middle-class mean significant commercial opportunities for drugmakers, however, revenue growth in Latin America will continue to slow down due to ongoing challenges, such as deteriorating local macroeconomic situations, currency devaluation impacts, unfavorable patent regulations, generic competitions and pricing pressures. (mr)

Syngenta Completes Plant Expansions in Brazil

Syngenta has completed capacity expansions at two key production sites in Brazil: new fungicide plant in Paulínia, São Paulo, and an expanded corn seed factory in Formosa, Goiás.

The Paulínia formulation plant for the fungicide sold under the Elatus trademark is claimed to be the first in Latin America to make use of the Pepite technology, which Syngenta said results in water-soluble granules that combine the properties of liquid use with the convenience and easy transportable advantage of a dry, solid product.

At the Formosa site, production at the corn seed plant has been quadrupled to raise its production capacity to 1.6 million bags of corn per year.

The Swiss agrochemicals producer disclosed an investment sum of $240 million, which also includes the budget spent on a capacity expansion at its Kaisten, Switzerland, site. However, most of the investment was dedicated to the projects in Brazil. (mr)

Top Business Climate Meets Excellent Talent Pool

Investors Benefit from Ohio's Infrastructure for Chemical and Advanced Manufacturing Industries

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In the last few years, the US market has been focused more and more again by European companies. This largest single market in the world has been recognized again with a top score in the latest World Competitiveness Yearbook (WCY) published by the renowned Swiss IMD Business School. The analysis is based on 340 criteria out of four factors; in two of them, "infrastructure" and "economic performance", the US has been ranked #1. The WCY annual study ranks competitiveness of 61 countries, and the US regularly achieves top results.

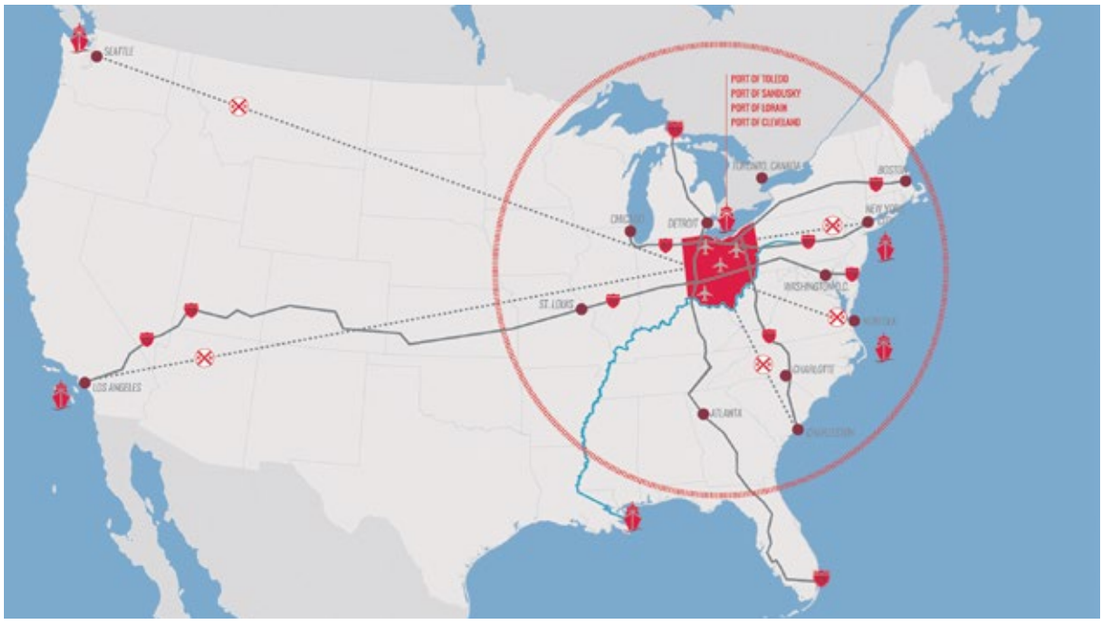
Within the US, Ohio has consistently been named for the past ten years as one of the best investment locations. This is proven by the nationwide Governor's Cup award of the Site Selection magazine. This annual prize is awarded to federal states for business expansions or newly founded subsidiaries in their area. To be included in the analysis, the project must meet at least one of three criteria: involve a capital investment of $1 million; create over 20 new jobs; or add 20,000 sq. ft. (1,850 sq. m.) of new floor area. Trade, state projects, hotels, schools and hospitals are excluded. In 2015, numerous European companies contributed to this success through expansions and new locations such as Valeo Bayen, TFF Group (both from France), and Ravizza Packaging (Italy), and German companies including Storopack, Röchling, and Peter Cremer.

Glenn Richardson, JobsOhio

Leading in Plastics and Rubber Product Manufacturing

A closer look on chemical and advanced manufacturing industries shows that Ohio is the No. 1 US location for the plastics and rubber product manufacturing. The state leads the nation with more than 1,800 establishments, producing $5.49 billion in products in 2014 — the largest volume of plastic and rubber products in the US (by GDP). World-famous companies like Goodyear, Parker Hannifin, PolyOne, or Omnova are headquartered here. Overall more than 68,500 people are employed in the polymer and plastics industry in Ohio.

The plastics and rubber processing industry in Ohio centers on two core regions: the Northeast around the cities of Akron, Cleveland and Youngstown, and the Cincinnati-Dayton Corridor in the Southwest. Ohio has considerable resources of shale gas and wet gas, which are particularly relevant for companies within the chemical, polymer, rubber and



Proximity to customers, suppliers, and market partners: 60 % of all US production sites and 50 % of US consumers are located within a day's drive from Ohio.

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plastics industries, among other things, for the production of ethylene-based products.

One of the latest success stories in chemical industry in the Greater Cincinnati region comes in of Peter Cremer North America (PCNA), a leading supplier of oleo-chemical products and part of Cremer, based in Hamburg, Germany. In 2015, the company expanded its North American subsidiary in Cincinnati for $9 million, creating 122 new jobs. Established in 1999, PCNA offers a wide range of oleochemicals: fatty alcohols, fatty acids, biodiesel, esters, glycerine, and care products.

JobsOhio along with its regional economic development partners and the local chambers of commerce facilitate market entry for foreign companies and are the driving forces in relocation and expansion projects. The services offered and range of free services differ considerably from one state to the other. In Ohio, the JobsOhio team has close connections to specialists such as banks, lawyers, tax consultants and energy providers. They also offer assistance and advice on all aspects of market access, and have a broad range of incentive programs, all offered free of charge.

Important Criteria for Site Selection

Small and medium-sized businesses often locate close to their customers they already have in the USA, but it is also important to keep in mind the geographic proximity to potential markets. Business criteria for site selection can be classified:

- economic environment and tax aspects
- proximity to customers, suppliers, and market partners
- talent and close proximity to universities, research institutions and enterprises
- infrastructure for easy business travel and distribution of goods

Other political and economic factors and the overall long-term investment climate in the state of choice are important as well. Studies have shown that medium-sized companies with focused budgets and limited human resources approach their expansion abroad differently than large corporations that have far greater financial and personnel resources. Also, medium-sized enterprises allow themselves more time in their international expansion processes.

Economic Environment and Tax Aspects

Ohio has one of the top five business climates in the entire US with a surplus of $2.1 billion and a balanced budget. Low taxes, the lowest in the Midwestern US for new capital investment, and strategic logistics options keep the cost of doing business in the state low. In addition, the assembly in Free Trade Zones supports precise investments and tax planning.

Proximity to Customers, Suppliers, Market Partners

Because the country is 26 times larger than Germany, for example, choosing the right location is of critical importance in the USA. Ohio is strategically located in the heart of the Midwest industrial heartland: 60% of all US production sites and 50% of US consumers, which are 160 million people, are located within a day's drive from Ohio. The most populated and industrialized region of Canada is also within this radius.

Talent and Proximity to Universities and Research Institutions

Out of its over 200 universities and colleges, Ohio has eight universities with programs dedicated to polymer science, e.g. the University of Akron's college of polymer science and polymer engineering which enjoys an excellent reputation as one of the best programs worldwide. With 11,700 engineering and technician graduates per year, Ohio provides an excellent talent pool for the industry. Apart from university education, a dual training system based on a German model was incrementally implemented by German company Festo Didactics with state support.

Easy Business Travel and Distribution Of Goods

A number of international and regional airports give access to all the important markets in North America in order to reach the customers. With a total of 21 interstate highways, Ohio has the fourth-largest Interstate Highway System in the US. The fine-meshed railroad network in Ohio facilitates the transportation of heavy goods to the Ohio River and from there via the Mississippi to the Gulf of Mexico. The „Cleveland-Europe Express" connects Cleveland on Lake Erie via container ship with Europe.

European Companies have Positive Influence on Business Climate

Due to the state's stable economic base, its longstanding European heritage and central location, European companies have more than 2,200 establishments in Ohio — over 500 of them from German companies. With an advanced infrastructure for plastics and rubber manufacturing companies, Ohio provides the environment for industry, science and talent to contribute to an innovative economic climate in progressive manufacturing.

Author
Glenn Richardson, Managing Director Advanced Manufacturing and Aerospace,

Contact
JobsOhio Economic Development, Columbus, Ohio, USA
richardson@jobs-ohio.com
www.jobs-ohio.com

The University of Akron's College of Polymer Science and Polymer Engineering enjoys an excellent reputation as one of the best programs worldwide and offers the USA's largest and most comprehensive polymer program.

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Challenges Evolve In China

Domestic Chemical Market Changes as Country Seeks Wider Global Role

In the last 12 months, developments in China's chemical industry have been somewhat contradictory, as illustrated by two different company statements made in September.

On the one hand, some multinationals still strongly emphasize the importance of China for global growth. Clariant's CEO Hariolf Kottmann observed that China now accounts for 40% of the global chemical market and will contribute about 60% of the absolute global growth in the chemical industry until 2020, concluding that "Clariant's future continues to be decided in China."

On the other hand, companies encounter increasing difficulties to meet their targets. For example, BASF has recently confirmed that its earlier target of achieving €12 billion in sales in China by 2020 will not be met. "China did not grow as fast as we had assumed," said Sanjeev Gandhi, BASF board member.

And Indian financial analysts are quite bullish about the prospects for India's chemical companies, giving the rationale that "our analysis of leading Chinese (chemical) manufacturers indicates increasing cost pressure in China" (Emkay). Indeed, China's chemical industry faces numerous challenges, which will be discussed below.


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Dr. Kai Pflug,
Management Consulting-Chemicals

Economic Slowdown

While official figures still indicate a current gross domestic product growth of 6.7%, it needs to be kept in mind that by now services account for 54% of the Chinese economy. And these services grew at a faster rate of 7.5% in the first half of 2016, leaving a growth rate of only 5.8% for the non-service sectors of the economy (which are probably a better proxy for the chemical industry than overall GDP). Furthermore, forecasts for the next few years — depending on the source — predict a further slowdown. For example, the Economist Intelligence Unit forecasts GDP growth of only 4.3% for 2020, though admittedly this is among the most pessimistic forecasts published.

Overcapacity

While coal and steel are the most prominent examples of overcapacity in China, many commodity chemicals are also affected. This is not surprising given the huge investments that poured into the industry in the last decade. The European Chemical Industry Council (CEFIC) states that China capital investment in chemicals increased from €14.4 billion in 2005 to €95.6 billion in 2015 — a huge figure given that in 2015 chemical investment in Europe was only €20.7 billion while the US figure was €32.5 billion.

As a consequence of the capacity buildup and the economic slowdown, utilization rates are now quite low for many commodity chemicals. For example, BASF recently stated that Asian capacity utilization rates in acrylic acid and toluene diisocyanate average 60%, those of butanediol are at 65%, and caprolactam and methylene di-para-phenylene isocyanate (MDI) are each at 70%. And these rates are already higher than for even more commoditized products such as methanol, for which domestic capacity utilization is not much above 50%.

As a consequence, overcapacity is given substantial attention in the parts of the current 13th Five-Year Plan that relate to chemicals. In particular, the plan describes the reduction of overcapacity via elimination of plants exceeding energy or emissions standards, the phasing out of capacity with below-average profitability, and the upgrading of portfolio toward higher-end and differentiated products. All these measures may incur additional costs at chemical companies, at least initially.

Industry Fragmentation

One of the drivers of overcapacity is the high degree of fragmentation for many chemical markets. For example, China has about 60 producers of polypropylene, 270 producers of carbon dioxide and 255 producers of calcium carbide. For methanol, the biggest 45 producers account for only 58% of total domestic capacity. This fragmentation depresses profitability and is an additional driver of overcapacity, as Chinese companies prefer expanding their capacity to gain economies of scale instead of merging with competitors.

Rising Salaries

Average Chinese monthly salaries approximately tripled between 2006 and 2015, a much faster increase than in Southeast Asian countries that may compete with China as investment locations. While it is true that labor cost matters somewhat less in chemicals than in many other industries, there is a strong indirect effect. Once labor-intensive industries such as textile lose competitiveness in China, this may also result in a loss of markets for the relevant chemicals (e.g., textile additives, dyes). The shift of the textile industry away from China has already started. For example, in December 2015 it was reported that major clothing producer TAL was to close a factory in Dongguan because of rising wages and had already begun transferring pants orders to its factory in Malaysia. And China's output volume of dyed/printed cloth in larger enterprises dropped by 5.1% in 2015 compared with 2014.

Environmental Protection

In the past two years, China has been actively tightening its environmental regulation, both by enacting stricter laws and by implementing them more strictly. In particular, implementation got a boost from the Tianjin explosions (which were mainly caused by disregard of existing regulation) and the anti-corruption campaign of the government (which makes it far more dangerous for local government officials to ignore violations of regulations).

There are examples from individual sectors (e.g., certain types of dyes) for which this tighter regulation has led to factory closures and a shift of production to India. The 13th Five-Year Plan also strongly emphasizes control of, e.g., mercury pollution, air pollution, organic waste, VOC and hazardous waste disposal while encouraging waste gas recycling, recycling of other materials and clean production technologies.

Chemical parks are to become the mandatory future location of chemical production, requiring substantial investment from affected companies (though the government sometimes provides support). Generally, the government seems serious about improving environmental protection — for example, in September a guideline was published describing a pilot program to evaluate officials based on their performance in environmental protection.

The recently published China Position Paper of the European Chamber's Petrochemicals, Chemicals and Refining Working Group also highlights the worries of European chemical companies related to environmental regulation. Out of six recommendations given in the paper, four are related to regulation of chemicals and the additional costs and complexity this adds to producing chemicals in China.

Figure 1: Challenges and opportunities in China's chemical market

Examples of environmental regulation in China

Year	Regulation	Issued by	Core content	Impact
2010	Measures for Environmental Administration of New Chemical Substances (MEP 7)	Ministry for Environmental Protection (MEP)	Regulation of new chemical substances	Increased barrier for use of new chemicals
2011	Decree 591 - Regulations on Safe Management of Hazardous Chemicals	State Council	Requirements for handling of hazardous chemicals	Pressure to reduce use of hazardous chemicals
2014	Revisions to China's Environmental Protection Law	Standing Committee of NPC	Tightening of environmental protection	Increased pressure to comply with existing environmental laws
2015	Catalogue of Hazardous Chemicals	10 ministries including MEP	List of and requirements for handling of hazardous chemicals	Pressure to reduce use of hazardous chemicals
2015	Comprehensive Improvement Plan on VOC emission of Petroleum Chemical Industry	MEP	Limits on VOC emission from chemical production	Need to reduce emissions of VOC from chemical production
2015	Emission Standard of Petroleum Refining Industry	MEP	Pollutant emission requirements for petrochemicals	Need to reduce emissions of chemicals to water and air
2017	[Establishment of nationwide carbon market]	Tbd (currently under discussion)	Establishment of nationwide cap-and-trade scheme for CO_2	Need to reduce carbon dioxide emissions

Table 1:Examples of environmental regulation in China

Any Upside?

On the positive side, the Chinese government strongly emphasizes the goal of achieving strong positions in innovative specialty chemicals segments such as engineering plastics, organosilicones, fluoroorganics and materials used in water treatment. As a consequence, specialty chemicals companies active in targeted segments can expect substantial support for establishing R&D and production. Therefore, the prospects for specialty chemicals in China still seem fairly bright, particularly in the more innovative segments, though some mature segments such as textile dyes or leather chemicals may indeed suffer. After all, specialty chemicals are strongly aligned with China's overriding goal of moving from the world's workshop to a key center of global innovation.

For commodities, the perspective is a bit more negative, though selected areas may still be promising, including p-xylene, polycarbonate and polypropylene. The differing prospects of commodities and specialties are also reflected in BASF's announcement to shift emphasis in Asia "from commodity chemicals in the oversupplied markets to focus on specialties catering for industries that include transportation, consumer products, electronics, construction, packaging, and agriculture."

In conclusion, while a growth rate of 5 to 7% may seem low using China's recent past as a benchmark, it is still very high compared with the growth rates in Western markets. As a consequence, CEFIC expects China's global chemical market share to increase from 39.9% in 2015 to 44% in 2030 while Europe's will drop to 12%. And even BASF expects growth in Asia to be about 2% higher than the global average (5.6% versus 3.7%). Despite the challenges described above, no global chemical player can afford to ignore China.

Author
Dr. Kai Pflug, CEO, Management Consulting-Chemicals, Shanghai, China
kai.pflug@mc-chemicals.com
www.mc-chemicals.com

Improving Resilience to Supply Chain Disruption

Asia-Pacific Countries Biggest Risers in 2016 FM Global Resilience Index

Whether it be a heightened risk of terrorism, the prolonged decline in oil prices, an impending natural disaster, the risks of accidents due to inadequate safety practices, or an abrupt corporate crisis, external risks to business operations are not trivial. For business executives, such events can disrupt their companies' global supply chains, making a focus on resilience vital.

Resilience against disruption in the global supply chain is a valuable asset, enhanced by an understanding of the drivers of resilience. The results of the 2016 FM Global Resilience Index highlight areas of strength and vulnerability in the global supply chain, providing a useful resource for investors and business executives seeking to manage resilience.

Resilience is the ability to withstand disruption and rebound quickly when necessary. It is especially vital for global companies doing business in a fluid, borderless manner, facing unknown risks in developing markets. The Resilience Index presents an annual ranking of 130 countries and territories according to their business resilience to supply chain disruption.

The scores that generate the ranking are calculated as an equally weighted composite of nine core variables that affect resilience significantly and directly. The key results of the 2016 survey:

- Switzerland is the new occupant of the top position in the index, reflecting the country's high scores for an extensive and efficient infrastructure, prime quality local suppliers, strong economic productivity and resilience to oil shock. Following on ranks 2 and 3 are Norway (down from last year's top rank) and Ireland, respectively.
- Germany (4) improves slightly by rising two positions, while both France (19) and the United Kingdom (20) retain their positions from last year.
- Armenia (ranked 52) and Malawi (84) are two of the biggest risers in the index this year, driven by an increased resilience to oil shock as their consumption of oil fell relative to economic productivity.
- ASEAN members Singapore (23) and Malaysia (26) are the top-ranked Asia-Pacific countries,
- followed by Sri Lanka (41) and Taiwan (49). China appears on position 57 and India ends up on no. 107 only a few ranks higher than the ASEAN member countries Myanmar, the Philippines, Indonesia, and Guayana.

Resilience Index

The FM Global Resilience Index is an additional resource for business executives to support them in their quest for supply chain resilience. The index provides strategic insight in four key areas of supply chain risk management:

1. Selection of suppliers based on the supply chain risk/resilience of the countries in which they are located,
2. Decisions on where to locate facilities,
3. Evaluation of the resilience of the countries hosting existing facilities, and
4. Assessment of the resilience of the countries where customers' facilities are based.

The index provides a robust, composite view of business resilience to supply chain disruption. Independently constructed and annually updated, it facilitates deeper analysis of the key drivers of resilience, helping to inform decision-making and bring a fresh perspective to supply chain strategy.

The Biggest Movers 2016

Among the top risers in the 2016 index (countries that have jumped more than ten places) are 9 Asian countries and one African state. The rise up the index for Armenia (ranked 52) and East African country Malawi (84) has been driven by an increased resilience to oil shock. Given that GDP has been largely stable for the two countries, the shift has been due to a fall in the consumption of oil, making the countries less exposed to the dynamics of the oil market.

The following group of countries has benefited from an improved commitment to fire risk management: Bangladesh (ranked 85), Cambodia (92), Nepal (94), Sri Lanka (41) and Vietnam (83). In contrast, the improvement in the rankings for Kazakhstan (71), Mongolia (87) and Tajikistan (101) has been driven by an improved commitment to natural hazard risk management and, to a lesser extent, an improvement also in the relative exposure to natural hazards.

Other Asian countries that appear among the biggest fallers for 2016 are Guyana (ranked 113) and Taiwan (ranked 49), however, they dropped back this year following their significant improvement in commitment to natural hazard risk management shown last year. (mr)

Contact:
FM Global
www.fmglobal.com/resilienceindex

Shell, Sinopec, Total Open Lube Park in Singapore

The Singapore Lube Park, officially opened on 26 May 2016, is a successful outcome of studies by the Singapore Economic Development Board (EDB), JTC Corporation and the joint venture partners Shell, Total, and Sinopec. As the first of its kind in Asia, the Lube Park houses some shared facilities such as pipelines and a tank farm. These support the lube oil blending plants and grease manufacturing plants of the JV partners, which are located on separate sites adjacent to the park.

Singapore has long been a strategic lubricants hub for both Shell and Total, from which they have been supplying products to their respective customers and markets in Asia Pacific. For Sinopec, its lubricants and grease plants have been in operation in Tuas since 2013, and have been playing a significant role in its business expansion in Asia Pacific.

The Singapore EDB said the park exemplifies Singapore's effort to foster win-win partnerships between companies to achieve synergies and optimize resources such as land. (mr)

Messer Commissions Third Air Separation Plant in Vietnam

Messer, the world's largest privately managed industrial gases specialist, has commissioned its third air separation plant in Vietnam. The plant was built to supply gases to steel manufacturer Hoa Phat Steel. In 2011 Messer in Vietnam and the Hoa Phat Group signed the company's first 25-year supply contract. Following a construction period lasting 15 months, the plant is now in stable operation and producing air gases, such as oxygen, nitrogen and argon.

The new air separation unit (ASU) is the largest industrial gases plant in North Vietnam. It supplies the steelworks itself as well as produces gases in liquid form for the local market. "We secure the leadership position in the North Vietnamese market on a continuous basis", highlights Stefan Messer, owner and CEO of the Messer Group.

Messer intends to continue strengthening its leadership position in the Vietnamese market. The plan is to supply other plants besides Hoa Phat Steel with gases in both liquid and gaseous form, particularly those in the North Vietnamese industrial corridor from Hanoi to Hai Phong. (mr)

Wacker Expands Singapore Technical Center

Wacker has opened a new food laboratory at its Technical Center in Singapore. The lab dedicated to innovative food ingredients, dietary supplements and gumbase applications enables the German chemical company to provide its customers in Asia with support for the development of novel, tailored products in the fast-growing market for food solutions. The new laboratory will focus on applications involving cyclodextrins, cysteine and hydroxytyrosol intended for the special demands and needs of Asia.

"With a highly fragmented Asia, it is clear that companies need tailor-made solutions to meet market needs," says Cindy Koh, Director Energy & Chemicals, Singapore Economic Development. "Instead of opening labs in every market across Asia, economies-of-scale can be derived by having Singapore as a strategic base to drive application development for the region. Our access to markets and insights, as well as our research and development ecosystem of publicly funded research institutes and universities, offer opportunities for collaboration which can accelerate innovation yield and reduce cost." (mr)

South Korean Pharma Industry Poised for Growth

The South Korean domestic pharma economy is forecast to become the 7th largest pharma market globally by 2020. The Korean government is trying to boost the pharmaceutical market with a fund for R&D and tax deductions for R&D costs, promote mergers and acquisitions, train workers in the industry, and create and sustain a national pharma company to compete on the international stage. However, Korean companies invest little in developing new drugs, with most making generics, health supplements or traditional Chinese medicine products.

The rapid expansion of the biosimilar sector and a continued modernization across its industry are the key factors behind the diversification of pharmaceutical opportunities in the Asian country. Government initiatives are driving the biosimilars and health foods sectors, with increased international partnerships.

According to the newspaper The Korea Herald, South Korea's biopharmaceutical companies are making strides in the emerging drug category of biosimilars. Investments into the sector's development by big players like Celltrion, along with the Government's capital and regulatory assistance, are predicted to facilitate the biosimilar market's growth to $1.2 billion by 2019, with a global market share of 22% by 2020. Moreover, large companies are investing, with R&D expenditure rising by 19% and exports by 32.6% in the last year. In fact, the overall pharma market is expected to exceed $24.3 billion by 2020. (mr)

Novozymes to Build New Enzymes Facility in India

Danish biotechnology company Novozymes is building a new enzyme production and supply chain facility in India. An initial investment of around €40 million will be spent on the site in the Patalganga Industrial Area near Mumbai. The facility is expected to be ready in 2018, employing 150 people in the first phase, some of whom will relocate from Novozymes' existing site in Bangalore.

Thomas Videbaek, Novozymes' COO for research, innovation & supply, said: "We see a big opportunity in India and Southeast Asia where knowledge-based innovations in the field of industrial enzymes can effectively replace polluting chemical processes and deliver environmental sustainability."

Present in India since 1983, Novozymes has three sites in Bangalore in the southern state of Karnataka. The company said its formulation site in Bangalore will now move to Mumbai, which will bring it closer to customers for faster deliveries. Other key functions, such as its head office, R&D and service centers will remain in Bangalore. (mr)

Arkema Opens Philippines Adhesives Plant

Bostik, the specialty adhesives business of France's Arkema, has expanded its production of cementitious powder in the Philippines. The plant in Misamis Oriental opened in April will supply construction customers in the high-growth regions of Mindanao and Visayas. Capacity or investment details were not divulged.

Jeffrey Merkt, Bostik's senior vice president of Asia, said development in high-growth geographies is one of the central components of the company's growth strategy. Bostik's latest expansion follows other plant openings in Mexico, the US, India, Brazil and Malaysia. (mr)

Axalta to Build New Facility in Nanjing, China

Axalta Coating Systems will construct a new manufacturing plant for high-performance automobile, commercial vehicle and industrial coatings in Nanjing, China. The facility will be built on more than 170,000 m² of land located at Nanjing's National Chemical Industrial Park (NCIP). The company, a global supplier of liquid and powder coatings, anticipates allocating between $100 and $150 million over the next 3 to 5 years toward the Nanjing project. Preparation work is in full swing as Axalta has begun to work closely with the local authorities to start the design phase and development of engineering specifications for the new facility, which is expected to be fully operational by the end of 2020.

"China is a strategic market for us and we continue to invest in our manufacturing capacity and network there to enable us to more effectively serve our customers and to raise our service standards to support their growth," said Charlie Shaver, Axalta Chairman and CEO.

Zhu Yuanshen, Deputy Director of the NCIP Management Committee, said, "[…] Axalta can bring its state-of-the-art manufacturing technology into its new production base, and produce environmentally responsible high-performance coatings so as to support and contribute to the local economy and to the sustainable development of China's automotive enterprises."

The project will build on Axalta's total investments in China to date of close to $100 million since 2013. Having entered the China market 32 years ago, Axalta's new Asia Pacific Technology Center, a 15,500 m² facility in Shanghai, will open in early 2017. (mr)

Oil Majors Line up to Invest in Iran

France's Total is planning to invest up to $2 billion in Iran's petrochemical industry, according to local media reports. The energy and petrochemicals giant has signed several deals with Iran this year, including a Memorandum of Understanding (MOU) with Iranian state-owned group National Petrochemical Company (NPC) for a petrochemical complex.

The French group is one of many other international companies lining up to invest in the Middle East country after sanctions were lifted, unfreezing billions of dollars of assets and allowing foreign investors to return.

Another major oil and chemicals company, Shell, has signed a letter of intent (LOI) with NPC to explore potential areas of cooperation. Hans Nijkamp, head of Shell's department for Iran affairs, said the group is seeking "a long-term presence" in Iran. The preliminary agreement would revive projects interrupted in 2010 by US sanctions, including gas to liquids. Nijkamp added that Shell is "well aware of the problems involving the transfer of funds," without commenting on what solutions it may have found.

Marzieh Shahdaei, one of Iran's deputy oil ministers and CEO of NPC, is quoted by the news agency SHANA as saying the country plans to expand its petrochemical output from currently 60 million t/y to 160 million t/y by 2025.

Reports said the most lucrative project could be the South Azadegan oil fields discovered in 2001 and described at the time as the world's biggest find in decades. France's Total is said to have presented a development proposal. National Iranian Oil Company (NIOC) recently announced that South Azadegan would be first oil field to be put out to tender. (mr)

Index

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Publishing Director
Dr. Heiko Baumgartner

Product Management + Managing Editor
Dr. Michael Reubold
Tel.: +49 6201 606 745
michael.reubold@wiley.com

Editor in Chief
Ralf Kempf
Tel.: +49 6201 606 755
ralf.kempf@wiley.com

Media Consultants
Thorsten Kritzer
Tel.: +49 6201 606 730
thorsten.kritzer@wiley.com

Corinna Matz-Grund
Tel.: +49 6201 606 735
corinna.matz-grund@wiley.com

Jan Käppler
Tel.: +49 6201 606 522
jan.kaeppler@wiley.com

Team Assistant
Bettina Wagenhals
Tel.: +49 6201 606 764
bettina.wagenhals@wiley.com

Lisa Rausch
Tel.: +49 6201 606 316
lisa.rausch@wiley.com

Beate Zimmermann
Tel.: +49 6201 606 316
beate.zimmermann@wiley.com

Freelancer
Miranda Kennedy, Sean Milmo

Wiley Reader Service:
65341 Eltville
Tel.: +49 6123 9238 246
Fax: +49 6123 9238 244
E-Mail: WileyGIT@vuservice.de

Production Managers
Jörg Stenger
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