STABLE CREDIT OUTLOOK, BUT CHINA AND FINANCIAL POLICY POSE RISKS

- **Ratings Outlook.** Rating trends across the global chemicals industry remain mostly stable, reflecting our base-case assumption of a largely unchanged operating environment.

- **Forecasts.** We anticipate that sector revenue and profitability will remain broadly stable in 2016 on average, supported by organic growth and adjustments that companies have made to their cost structures to reflect weakening in the operating environment in late 2014. However, we believe that operating performance at some companies and in some subsectors, such as titanium dioxide, will likely weaken.

- **Assumptions.** We assume chemicals demand growth in line with global GDP, with faster growth relative to 2015 in developed markets and slower, but still healthy, chemicals demand growth in China. We also factor in a continued satisfactory supply-demand balance across major industry segments, with some exceptions for products such as the polyester chain in Asia. In particular, we do not anticipate meaningful petrochemical supply additions in 2016, although in the longer term, oversupply in this segment remains a risk. However, base chemicals profitability in Europe is likely to fall as capacities that were shut down temporarily come back on line.

- **Risks.** Weaker growth than we currently anticipate in China could materially alter the supply-demand balance in the chemicals industry globally, and financial policies and growing appetites for mergers and acquisitions (M&A) are at the top of the agenda for the sector in 2016.

- **Industry Trends.** Recent oil price declines have tempered some large investment plans in the U.S. petrochemical industry and in Chinese olefin projects, but we anticipate that capital spending will remain high by historical standards. We also see a rise in M&A activity, including from European firms that want to tap higher growth markets, notably the U.S.
There are more ratings in the ‘B’ category than in any other category, reflecting the large number of companies that are at the lower end of our business risk profile or financial risk profile assessments, or at the lower end of both assessments. Many, but not all, of these companies are commodity chemical producers that operate in niche markets.

Overall, we expect credit quality in the chemicals sector in 2016 to remain resilient, and the vast majority of outlooks are therefore stable. Underlying this outlook is our base-case scenario, in which we assume positive demand growth for most chemicals and petrochemicals products in the next 12 months, even if growth expectations have been muted in recent months following a slowdown in China. We also do not anticipate any major supply shocks over the next year for key chemicals and petrochemicals products,
except potentially for nitrogen, which will, however, remain very profitable for low-cost North American players.

There is a slight negative bias in the outlook distribution that is largely explained by company- and country-specific issues. Some of the negative outlooks and CreditWatch negative placements, especially among the investment-grade companies in North America and Europe, relate to M&A activity. In addition, the major turning point in the negative bias for Latin American credits related to currency volatility, softer economic conditions, and weakening sovereign credit quality, especially in Brazil.
The revenue decline was largely driven by lower oil prices. Oil-based derivatives are key raw materials in this sector. Pricing, particularly for many commodity chemicals, is influenced by the price of oil. The impact on absolute profits differed by segment. Earnings declined at many petrochemicals producers that use natural gas as a low-cost alternative to oil, because of an increase in the relative competitiveness of oil-based chemical production. This has had a negative effect on producers in the U.S. and the Middle East, although in the U.S., a decline in ethane prices cushioned the blow. The decline in oil prices has benefitted chemical production in Europe and Asia, although many companies have either fully or largely passed through these cost decreases to customers through price reductions, without having a major impact on earnings per tonne.

Overall absolute EBITDA for the industry increased moderately in 2015, and we expect it to be stable or grow in the low-single digits in 2016, supported by organic growth that remained healthy in 2015 despite lower revenues. Margins are likely to remain broadly stable, supported by an unchanged supply-demand balance in most sectors and companies' cost-efficiency initiatives. We expect leverage to remain largely unchanged, as internal cash flows and cash balances are generally sufficient to fund capital spending and dividends in our base-case scenario, while large M&A transactions pose event risk.
ASSUMPTIONS

KEY INDUSTRY ASSUMPTIONS

1 | Demand
Overall, we anticipate that economic growth rates will remain an important determinant of chemicals demand. We believe that chemicals demand will grow modestly in 2016, in line with our expectation for global GDP growth. This reflects demand growth in the developed markets at rates that are the same or slightly higher than GDP and industrial production growth rates. We also factor in mid-single-digit demand growth in China roughly on par with our GDP growth projection. However, this is lower than the 1.5x GDP growth that we have witnessed in China in the past. Finally, commodity dependent markets such as Brazil, Australia, or Russia will likely show no growth, or even a decline in demand.

2 | Supply
We do not anticipate any supply shocks from major capacity additions over the next 12 months for major chemicals products. At the same time, we do not anticipate meaningful relief in the form of a reduction in supply or growth in demand for the producers of some chemicals that are already in an oversupply situation— including chlor-alkali in North America, titanium dioxide in most parts of the world, and purified terephthalic acid and polyester fibers in Asia. Importantly, beyond 2016, we anticipate significant supply additions in petrochemicals, especially on the U.S. Gulf Coast, putting pressure on prices in both the U.S. and globally.

3 | Feedstock Prices
We factor in a naphtha-to-natural gas price ratio that continues to benefit chemical producers that use natural gas as an input. Importantly, we assume that spreads between product prices and feedstock costs for many chemicals products will remain flat or improve in 2016. We further assume that most, but not all, subsectors within the chemical industry will be able to pass on increases in feedstock prices to customers without having a major impact on profitability.

1. Petrochemical profitability in Europe versus the U.S.
Relative to abnormally high margins in 2015, we expect markedly lower profits for European olefins in 2016, due to weaker cracker margins in the region. However, we expect margins to remain relatively high relative to historical standards. The naphtha cracker margins that topped €800 per tonne in the first half of 2015 were unsustainable, because they were largely driven by an abnormally high number of cracker outages, refinery turnarounds, and forces majeures. For example, we estimated that about 10%-15% of European cracker capacity was offline during the second quarter of 2015. Therefore the decline in the cracker margin over the past several months appears logical, and we do not anticipate a significant rebound in 2016. We do not even exclude a margin below €400 per metric tonne.

CHART 11 | EUROPEAN CRACKER MARGINS TO FALL BACK BELOW U.S.

<table>
<thead>
<tr>
<th>Eur. Naphtha Cracker Margin (€/metric tonne)</th>
<th>U.S. Ethane Cracker Margin ($/metric tonne)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nov-10</td>
<td>1800</td>
</tr>
<tr>
<td>May-12</td>
<td>1500</td>
</tr>
<tr>
<td>Nov-13</td>
<td>1200</td>
</tr>
<tr>
<td>May-15</td>
<td>900</td>
</tr>
<tr>
<td>-300</td>
<td>600</td>
</tr>
<tr>
<td>300</td>
<td>300</td>
</tr>
<tr>
<td>600</td>
<td>0</td>
</tr>
</tbody>
</table>

Source: Platts

U.S. ethane-based petrochemical producers will remain more cost competitive than predominantly naphtha-based European and Asian companies. We expect margins in the U.S. to be higher than those in Europe, at least until significant new capacities come on stream in 2017-2019.
2. **Resilient specialty chemicals**
   
   Specialty chemicals producers will remain much more resilient in general, with lower sensitivity to potential GDP fluctuations. We expect these companies to exhibit lower revenue volatility, supported by favorable market positions giving them greater pricing power; long-term contracts, sometimes with take-or-pay clauses; and exposure to more stable consumer products. Higher barriers to entry should also enable specialty chemicals producers to maintain their margins even in case of lower demand and sales.

3. **Fertilizer prices under pressure**
   
   Fertilizer prices remain under pressure due to the strong U.S. dollar, weak soft commodity prices, and changes to the value-added tax and corn subsidy policy in China. We believe these factors will continue to weigh on fertilizer demand and prices in 2016.

   Nitrogen prices remain under pressure due to increased international supply and weak demand. The commissioning of several capacity expansion projects in North America in 2016 is likely to exacerbate these pricing pressures. We therefore assume price declines of about 10%, with some variance by product and region.

   In potash, we expect demand to weaken modestly and prices to decline to $280-$290 per tonne on average for benchmark cost and freight China prices, from an average of $315 per tonne in the first half of 2015. We also expect the North American price premium to narrow, due to imports and increased supply from Agrium Inc.’s expanded Vanscoy facility. Supply additions in 2016 are relatively modest, with K+S AG’s Legacy project (2 million tonnes of new capacity) not expected to start up until the end of the year.

   On the other hand, in phosphates, we expect relatively balanced supply-demand fundamentals in 2016. Although we expect prices to decline, margins should remain relatively steady due to falling input costs.
## RISKS AND OPPORTUNITIES

### KEY INDUSTRY RISKS AND OPPORTUNITIES

| 1 | Slowdown In China          | 2 | Oversupply                  | 3 | Revival Of Construction In The U.S. And Europe |
|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
| A slowdown in demand growth in parts of the world, notably in China, could materially weaken the supply-demand balance for chemicals. We believe that commodity products that can be transported at a reasonable cost, such as polyolefins, are particularly vulnerable, as regional oversupply could quickly spill over to other parts of the world. | Unexpected supply additions, or the prospect of new capacity or a ramp-up of production by an existing player, could create or exacerbate an existing oversupply situation, and depress product pricing and hurt margins. Large capacity additions in some chemicals products usually have a long lead time, but the negative effect of an increase in operating rates in weak product markets such as titanium dioxide, or in some fertilizer products, could be felt in the near term. | Rising construction activity in the developed markets, notably in the U.S. and Europe, could provide uplift to the chemicals industry in 2016. The construction industry is a large consumer of chemicals and has been lagging since 2007. |

### 1. Slowdown in China

China currently represents one of the largest markets for chemicals products. In the event of a more significant slowdown than our macro base case currently assumes--our GDP growth base case is currently 6.3% in 2016 and 6.1% in 2017--the global supply-demand-balance would be changed. A slowdown in China could reroute commodity chemicals into other markets, creating or exacerbating the existing oversupply of some products.

However, the impact of the slowdown in China would differ by region and by product. Asian chemicals producers will clearly be more affected, given China’s share of the overall Asian economy. At the same time, we estimate that the direct exposure of the majority of European and U.S. producers to China is moderate, and usually does not exceed 25% of sales. In addition, this exposure often relates to specialty chemicals and chemicals sold to the consumer goods industry, which are inherently more resilient than chemicals sold to other industries. However, commodity producers in markets where products are standard and transportation costs are reasonable would suffer from indirect exposure even if their exports to China were moderate.

### 2. Revival of construction in developed markets

The construction industry is one of the largest consumers of chemicals. Construction can therefore boost overall chemicals demand materially. The construction sector has been lagging since 2007, but many indicators now point to accelerating activity in both residential and nonresidential construction in the U.S., and to a lesser extent, in Europe. Notably, we expect U.S. real nonresidential construction to grow by 4.1% in 2016, and residential construction by 11.0%.

In addition, construction projects in developed markets usually require more chemicals per square meter than in developing markets such as China. This is due to greater safety, quality, and efficiency requirements that necessitate the use of innovative chemical solutions.
FINANCIAL POLICY

Financial policy is a risk

In the absence of a turbulent operating environment, and given relatively low interest rates in some parts of the world, financial policy has become an important credit issue. We see M&A as a key risk to the chemicals industry, highlighted by a string of large cross-continent acquisition attempts in 2015, including the L’Air Liquide S.A.’s $13.4 billion offer for AirGas Inc.; Monsanto Co.’s attempts to acquire Syngenta AG; and Potash Corp.’s attempts to acquire K+S. In addition, the pressure on management teams in some U.S. companies to increase shareholder rewards or attempts by shareholder activists to influence companies’ strategic decisions also poses a risk.

We expect these trends to continue in 2016, except in Asia Pacific. We believe that European players are likely to be especially active in trying to secure cross-Atlantic acquisitions, given slower growth in Europe than in the U.S. and therefore limited organic growth opportunities in the domestic market.

We expect capital expenditure to be more moderate than record-high levels in 2014, as low oil prices make the economics of many petrochemicals projects in the U.S., but also methanol-to-olefins and coal-to-olefins projects in China, less appealing. Nevertheless, in general, free operating cash flow should only improve gradually in 2016.

Finally, dividends and share buybacks should remain high, particularly in the U.S., where investors put significant pressure on management. This may also be a reason for chemicals companies’ weakening balance sheets in 2016.
GLOBAL CHEMICALS: CASH, DEBT AND RETURNS

CHART 12 | CASH & EQUIVALENTS / TOTAL ASSETS

- Global Chemicals - Cash & Equivalents/Total Assets (%)

CHART 13 | TOTAL DEBT / TOTAL ASSETS

- Global Chemicals - Total Debt / Total Assets (%)

CHART 14 | FIXED VS VARIABLE RATE EXPOSURE

- Variable Rate Debt (% of Identifiable Total)
- Fixed Rate Debt (% of Identifiable Total)

CHART 15 | LONG TERM DEBT TERM-STRUCTURE

- LT Debt Due 1 Yr
- LT Debt Due 2 Yr
- LT Debt Due 3 Yr
- LT Debt Due 4 Yr
- LT Debt Due 5 Yr
- Nominal Due In 1 Yr

CHART 16 | CASH FLOW AND PRIMARY USES

- Capex
- Net Acquisitions
- Operating CF
- Share Buybacks

CHART 17 | RETURN ON CAPITAL EMPLOYED

- Global Chemicals - Return On Capital (%)

Source: S&P Capital IQ, S&P Ratings calculations
RELATED RESEARCH

- Why EMEA Chemical Firms’ Profits Are So Far Unscathed By China’s Slower Growth, Nov. 5, 2015

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