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Scenario Study

DEMAND - THE NEW DIRECTION FOR PROFIT

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‘Demand – the New Direction for Profit’ The Impact of Low Oil Prices and China’s Slowdown on the global Petrochemical and Polymer industry

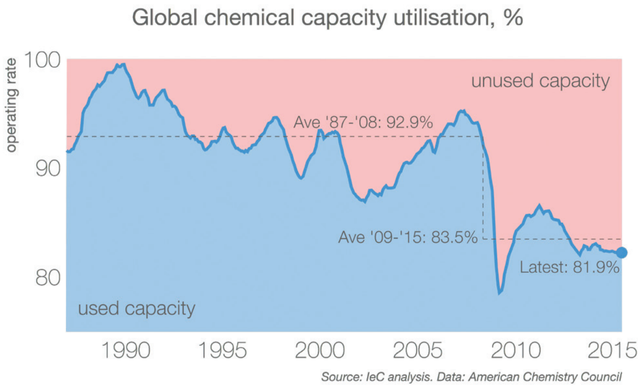
OUTLINE CONTENTS

Executive summary

Today’s uncertain economic and oil price environment has created chaos in petrochemical feedstock and product markets. This creates major risks for producers, consumers and investors. This study will analyse the potential impact of these developments on the olefins, aromatics and polymer value chains over the next 10 years. It will provide answers to the five key questions that arise from this increasingly chaotic environment:

- Low oil prices and China’s slowdown have changed the outlook for the global petrochemicals and plastics industry.
- Oil prices have returned to historical levels around $30/bbl.
- The “China chill” is slowing end-user demand in the global economy.
- Today’s globally ageing population are unable to maintain the same levels of demand for autos, housing, electronics etc as in the past.
- New Megatrend areas are now emerging as the drivers for future growth in areas such as water, food, shelter, health, mobility and the environment.

Our analysis will therefore explore the critical challenges that confront the industry today.



1. Where are we now?

We will rigorously examine today’s received wisdom around the current state of the world for petrochemical supply and demand, and separate truth from fiction:

- **The China chill.** What is the real impact of China’s change of economic direction and its New Normal policies? Does it mean ‘business as usual’ by another name? Or does it represent a paradigm shift in global supply and demand patterns? The Asian Development Bank claimed that more than half of China’s households had become “middle class” by 2007: was this realistic given their definition of “middle class” as being an income of $2–20/day?
- **The return to low oil prices.** Oil prices have tumbled as investors have become aware that stimulus policies created a major supply glut in most energy markets. Have central bank efforts to restore growth to previous levels been successful? Or have they simply created a debt mountain which will be difficult to repay in a low-growth world?
- **The demographic cliff.** Global fertility rates have halved since 1950, whilst life expectancy has risen by 50%. Globally, 1 in 5 people will be in the New Old 55+ generation within 15 years and nearly 1 in 3 in the developed world. What is the likely impact of this change on demand patterns? Will the New Old continue to spend in the same way as when they were in the Wealth Creator 25–54 age group?
- **Oil and petrochemical super cycle.** China has been the growth engine of the chemical industry since 2009. This led many to believe Morgan Stanley’s 2010 analysis that the world was about to see “the strongest period of ethylene demand growth in the past 20 years”. But their analysis has proved to be wrong. Could the “China chill” now lead to a lack of export demand for existing and planned new capacity outside China?
- **Affordability versus value-added.** Core end-user markets including retail, autos, electronics and housing have seen a paradigm shift by consumers. They are less interested in purchasing value-added products and instead focus on price and affordability. Is this a temporary or more permanent shift in demand patterns? If permanent, what implications does it have for petrochemical and polymer markets?

2. The core scenarios

The study will use three core oil price scenarios to highlight the wide range of potential outcomes:

- **$25/bbl oil = Collapsing demand** – Emerging markets submerge, and developed markets slow dramatically as stimulus-created debt has to be repaid.
- **$50/bbl oil = Comfortable middle** – Stimulus policies prove to have worked, demand recovers, project cancelations and revived growth prospects create a balanced market.
- **$100/bbl oil = Continuing tension** - Economic recovery stalls as geo-political risk rises along with the potential for supply disruptions.

Today's uncertainty over future growth prospect is already leading to greater caution and risk aversion. Mega-dollar projects have become more difficult to justify and finance. In addition, the "China chill" has created a concern that world-scale projects in chemicals/polymers will become "white elephants", as China's lost demand growth appears to be irreplaceable.

This challenge to previous business models also creates opportunities, such as for the adoption of new "distributed manufacturing" production models. These can be closer to the customer and be more flexible if needs change. The growing role for 3D printing in aerospace highlights the potential to develop new markets for polymers in auto and other industries.

In addition, our analysis will examine the potential for companies to develop major new revenue and profit streams from the new Megatrend areas of water, food, health, shelter, mobility and sustainability via a more service-led approach. We will also highlight the potential for whole new industries to emerge in areas such as 3D printing, and the opportunities from the increased focus on sustainability issues.

3. The China chill

2008's Great Financial Crisis led to the adoption of major stimulus policies by the G20 nations. Their aim was to restore demand via the creation of wealth effects in global financial markets, and to simultaneously generate inflation. Policymakers claimed "it worked" at their Pittsburgh Summit in September 2009, but it was soon clear their celebration was premature: further stimulus packages have since become a regular feature of the economic landscape.

China became a powerful example of the assumed benefits of stimulus spending. It was particularly exposed to the global slowdown due to its focus on export-led growth, and its stimulus was half of the G20 total. It doubled lending in 2009 from $10tn to $20tn – 4 times the size of its economy. Major development too place in construction and infrastructure markets, creating an appearance of sudden wealth in China's Tier 1 cities. In turn, Western financial investors assumed that China had indeed become middle class, and were happy to finance new capacity to supply the new demand that appeared to have been created.

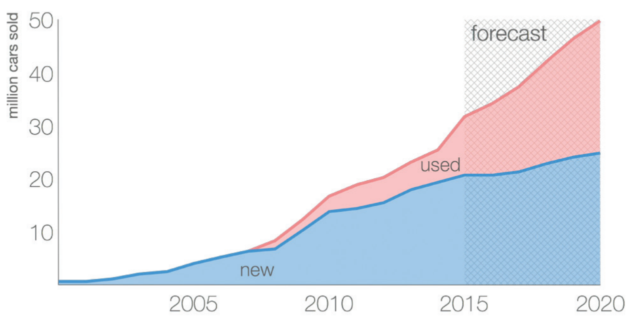
China's leadership changed in 2013, however, and new President Xi Jinping quickly made it clear that China had to reverse the stimulus policy to relieve its mounting debt burden. He opened China's main economic policy-making conference in November 2013 by telling delegates "The good meat is all gone; all that is left are hard bones to chew." Since then he has developed an entirely new approach, known as the New Normal policies, which are instead focused on delivering domestic growth via a focus on the mobile internet.

However, the previous stimulus policy has left a legacy of vast over-investment in real estate, chemicals and commodities. In addition, it had allowed corruption to flourish and created severe environmental problems. Thus today, China's economy is essentially composed of a large legacy Old Normal economy which is suffering a major slow-down, and a smaller, but fast-growing, services-based, New Normal.

This policy reversal has begun to impact global markets over the past year. Essentially, it has begun the Great Unwinding of the G20 stimulus programme. Commodity prices have fallen sharply, and former high-flying economies such as Russia and Brazil have moved into painful recession. In turn, expectations of inflation have been replaced by fears of deflation. Our analysis will therefore build on the insights developed in the ICIS Chemicals & the Economy and Asian Chemical Connections blogs over the past 3 years:

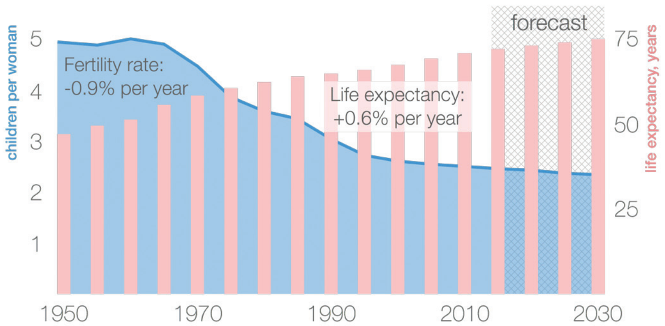
- They successfully forecast the major fall in crude oil prices and the downturn in China's economy once stimulus policies had to be reduced.
- This Great Unwinding of stimulus policies is now impacting currency and equity markets.
- Oil-based sovereign wealth funds are being forced to sell increasing amounts from their equity holdings to fill the budget gap caused by lower oil prices.
- China's currency has come under major pressure as investors worry about the impact of its debt mountain.

Evolution of China's passenger car market



Source: pH report analysis. Data: China Automotive Association, Ministry of Public Security

Fertility rate and life expectancy



Source: IeC analysis. Data: UN population division

We argue that the world has been distracted by the seemingly endless debate over the likely course of US interest rates. As a result, it has failed to recognise until recently the real cause of the tremors now being felt in the global economy. China had been responsible for half of the G20 stimulus programme – and no other country or region can possibly replace this support now that it is being reversed.

4. Impact on the major value chains

The Study will provide in-depth analysis of the likely impact of these wide-ranging developments on the major chemical value chains.

We will focus on today's return of oil prices to historical levels around $25/bbl. And we will look downstream at developments in key markets for petrochemicals and polymers – including autos, housing, electronics and polyester, and examine how these will be impacted by changing supply/demand patterns:

- What is the outlook for new olefin and derivative projects – both shale-driven US projects and China coal-to-olefins?
- What is the potential impact on cracker operations and petrochemical/polymer margins of on-purpose propylene production via PDH from low-cost LPG
- What does the future hold for benzene and its key derivatives, given the supply volatility created by upstream gasoline markets?
- What is the demand outlook for derivative markets such as PTA that are now suffering major oversupply? Is this a wake-up call for other value chains?
- What do these developments mean for inter-polymer competition?

The analysis will therefore highlight the risks in continuing to forecast demand by using a simple multiple for each product versus an IMF GDP growth forecast. It will also provide clear recommendations for companies as to how they can mitigate the potential for suffering a roller-coaster ride in terms of supply/demand and margins.

5. How to survive and prosper in today's chaotic markets

Our approach will be based on an integrated methodology covering supply and demand.

We will provide detailed and robust conclusions on the key issue: what to companies need to do differently in order to become a Winner, and how can they avoid becoming a Loser? We will detail our conclusions in relation to the building block products – ethylene, propylene, butadiene, benzene and paraxylene - and their key derivatives.

We will also answer these questions:

- How can producers and consumers position themselves to not only survive in this uncertain world, but also build profitable new businesses for the future?
- How can they create more service-based businesses based on the new Megatrends of food, water, shelter, health and mobility to establish sustainable profit streams?
- How can companies develop successful pilot programmes to tap the potential of the major growth taking place in the world's New Old generation?
- How can they profit from the growing focus on environmental and sustainability issues, including pollution and the circular economy

The Study will therefore provide a road-map through today's challenges, and a clear vision of the new opportunities for future growth and profit.

Contact us

To enquire now fill in the short form www.icis.com/study-enquire/

Alternatively to find out more about this study and to arrange a purchase, please contact:

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Research Study Biographies

Lead Authors

Paul Hodges (IeC) is a trusted adviser to major chemical companies and the investment community. He has worked in the chemical industry for 30 years. Initially he spent 17 years as a senior executive with one of the world's leading companies (ICI), both in the UK and the USA, where he held senior executive positions in petrochemicals and chloralkali, and was Executive Director of a $1 billion ICI business.

He founded IeC in 1995, and has strong professional relationships with the leading players, and follows developments on a detailed day-to-day basis. He is the co-author of Boom, Gloom and the New Normal: How the Ageing Western BabyBoomers are Changing Demand Patterns, Again (www.new-normal.com), and has been recognised in the Financial Times and elsewhere for his success in correctly forewarning of the global financial crisis.

Paul is an invited member of the World Economic Forum's Global Agenda Council on the Future of Chemicals, Advanced Materials & Biotechnology 2014-2016, a Member of the Energy Institute, and a Freeman of the City of London. He is a graduate of the University of York, and studied with the IMD business school in Switzerland.

John Richardson (ICIS) is a highly experienced chemicals consultant and trainer, who has been working in the industry for 18 years.

Based in Asia-Pacific, John has deep knowledge of the companies and people who have transformed the region into the world's major production and consumption region. His aim is to provide insightful, factually based consultancy analysis of the key issues facing the industry. His views are highly valued by senior executives, who appreciate his balanced and independent approach.

From 2006 until 2013, John was Director - Asia of ICIS training, in which role he successfully launched the ICIS training business in Asia. This provides a wide range of courses covering petrochemicals, oil refining, fertilizers and base oils.

He now works for the ICIS consulting team, with responsibility for the Asian Polyethylene and Polypropylene Price Forecast Reports

John co-authored 'Boom, Gloom and the New Normal: How the Ageing Western BabyBoomers are Changing Demand Patterns, Again'. Published by ICIS, this eBook examines how demographic factors and events in financial markets have reshaped the global economy.

Editor

Joseph Chang (ICIS) is Global Editor of ICIS Chemical Business, a weekly publication focusing on making sense of chemical prices worldwide. This includes price trends, and the factors impacting these trends in both the short term and the long term. He has been with ICIS and one of its predecessor publications for 18 years, specialising in coverage of financial topics such as macroeconomics, capital spending patterns, equity and debt markets, and mergers and acquisitions. Joseph has a degree in Finance and International Business from New York University's Stern School of Business.