

# Petrochemicals firms take a stand against oil price volatility

Many petrochemicals firms are seeking to reduce price volatility through hedging, given that the cost of crude oil is strongly influencing the price of petrochemical products. GlobalView Software looks at the figures behind the trend

**M**any risk analysts and consultants report a big increase in requests for information from the petrochemicals industry in recent years. It seems such firms are taking price risk management very seriously in a bid to reduce their costs.

Commodity chemical and plastics prices can swing sharply, often with little or no warning. For example, ethylene prices in the US have ranged from a low of 13 cents a pound to a high of 27.50 cents/pound since January 2002, according to information provider Platts spot market price assessments (see figure 1). In the same period, butadiene hit a low of 12.75 cents/pound and peaked recently at 35 cents/pound (see figure 2). In just the first quarter of this year, ethylene has seen a 34% increase from 20.5 cents/pound to 27.50 cents/pound.

The cost of crude oil strongly influences the price of the petrochemical products – some analysts say there is as much as an 80% correlation (see figures 3 and 4).

As a result, increased volatility in the petroleum

markets – recently prices have spiked to levels not seen since the early 1990s – has been a key driver for the chemicals sector's embracing of risk management. Crude oil supply disruptions ripple through the chemical industry with a two- to four-month lag.

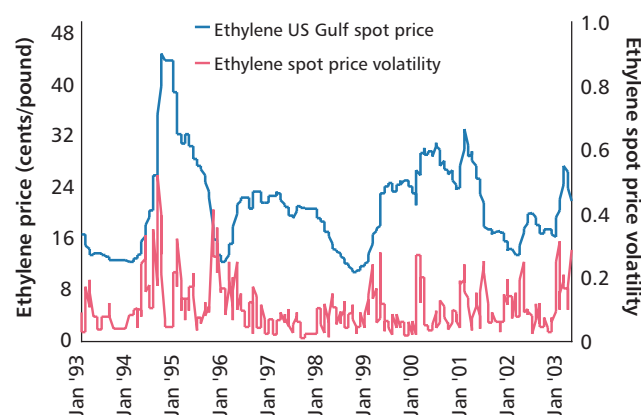
Market economics have also changed, and end-users of chemical products are looking to operate within fixed price structures. These petrochemical consumers are seeking to optimise risk capital, maximise debt leverage, reduce earnings volatility, limit capital investment, conserve cashflow, increase business using creative contract pricing and enjoy potential tax benefits. The main benefit of hedging is that it reduces price volatility.

## Market trends

Other trends are emerging in the petrochemicals market. Bigger, more sophisticated buyers are asserting themselves using their buying power and demanding higher value in their purchasing. In the past, six-month contracts were the norm. But now, interest in longer-term contracts seems to be on the increase, and customer-orientated, value-added offerings can create cost efficiencies for both producers and buyers.

Historically, the chemicals market has sought to manage commodity price volatility through price concessions, improvements in raw materials and product inventory control, and contracts that included profit-and-loss-sharing clauses. Now, according to a Shell Chemical Co risk management study, participants use sophisticated risk tools including swaps, cost collars, caps and

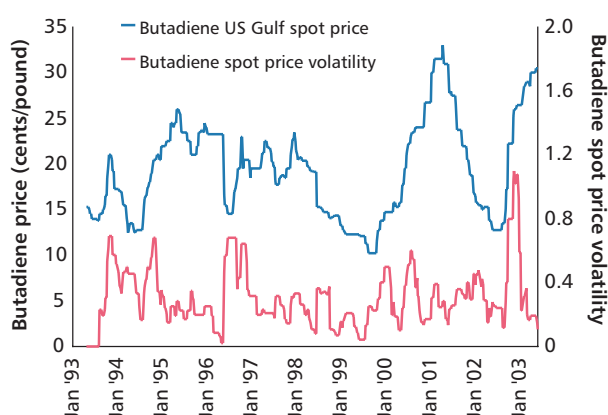
Figure 1: Ethylene spot price volatility, 1993–2003



Source: Platts; GlobalView

The US spot price for ethylene displays a cyclical nature, with a fairly consistent measure of volatility over several years.

Figure 2: Butadiene spot price volatility, 1993–2003



Source: Platts; GlobalView

The US spot price for butadiene shows a stronger volatility than in figure 1, with some price swings nearly tripling the price within little over a year.

floors, and virtual integration (which we will look at later). Deals are being done for one- to five-year durations, with 18 months being the most common term, where previously six months was typical.

‘Integration’ in this context can be defined as controlling the supply chain in order to reduce dependencies and improve margins. Big conglomerates, such as Dow, Shell and ExxonMobil, focus on integration that puts chemical production near refineries to maximise efficiency of the production of many petrochemicals and their supply logistics.

Non-integrated market participants are embracing risk management tools to simulate integration. For example, they are using swaps to guarantee a fixed price for a defined period for the sale or purchase of a chosen percentage of a company’s physical production or requirement of the underlying product. The customer swaps a floating market price for a fixed price, benchmarked against a recognised pricing index. The swap is purely financial and does not interfere with the existing physical transaction the buyer and seller. Buyers are looking to buy chemicals on an energy-plus-margin basis.

A non-integrated producer or a producer that may have little or no flexibility in the feedstock it consumes can also use a derivative to synthetically create vertical integration without having to make a plant investment. For example, a merchant ethylene buyer at a polyethylene manufacturer must manage the margin between the purchase price of ethylene and selling price of the polyethylene. A deal can be structured whereby the parties swap ethylene for ethane plus another material, thereby defining virtual integration.

Yet price risk management is a relatively new concept for the chemicals industry. Market-makers, such as Shell Chemical Co, began to offer

chemical and plastics price risk management services in the late 1990s. Bigger companies are the most likely to have initiated risk management strategies, due to the scale of their buying and the likelihood that they have risk policies and practices in place for other areas.

The emergence of online chemicals markets boosted liquidity and offered companies tools for hedging the impact of futures and derivatives pricing on their bottom-line performance. A number of exchanges were launched, and the Chicago Mercantile Exchange launched futures contracts for benzene and xylenes in the fall of 2001 on its Globex system. But the contracts never took off, and the online market has seen drastic consolidation in the face of the dotcom slump.

## Seeking transparency

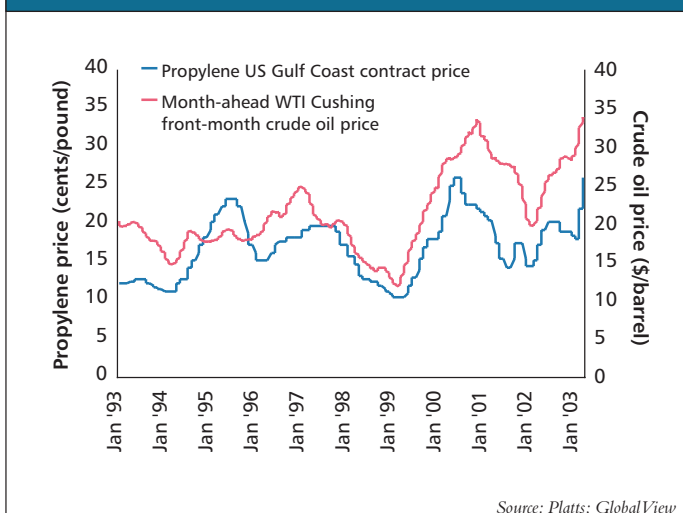
Chemicals trading platform ChemConnect.com is considered a leader among the survivors and aims to offer buyers strong price transparency. But most transactions seem to be done directly between the parties. Some firms are unwilling to trade online because of the lack of transaction transparency. In some cases, counterparty identities are not revealed until a transaction is complete, only the party’s credit rating. For many, this represents an unacceptable credit risk.

Comprehensive price discovery is essential for market participants’ execution of risk strategies as they contract their supply. The main chemical market price information providers include Icis-Lor, part of the Reed group; DeWitt Analytics; Platts; as well as the New York Mercantile Exchange and the International Petroleum Exchange. These firms make market assessments and provide indexes, although the majority of transactions are kept private between the parties.

As market events have given some clear guidelines as to good and bad practice, the chemicals industry has the opportunity to create a more transparent market that allows participants to establish well defined and effective risk management systems. The movement towards the use of risk management for the chemical industry is clearly under way. But it still seems to be a slow-moving trend, despite the compelling factors that should be pushing the market in this direction. **EPRM**

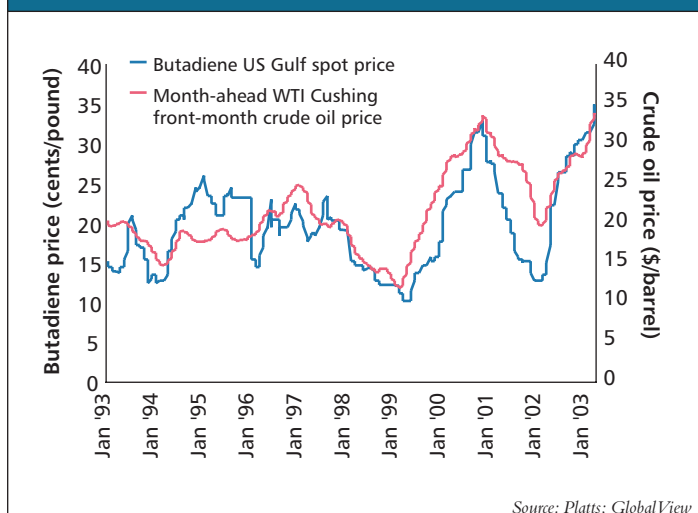
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Figure 3: Propylene v. crude oil spot price, 1993–2003



There is a clear correlation between the propylene spot price and the moving average of the New York Mercantile Exchange West Texas Intermediate crude oil spot price.

Figure 4: Butadiene v. crude oil spot price, 1993–2003



The correlation is even stronger than in figure 3 between the butadiene spot price and the moving average of the New York Mercantile Exchange West Texas Intermediate crude oil spot price.