



DIVERSIFIED INDUSTRIALS

# Manufacturing and the Turbulent Commodities Environment

Steeling the Manufacturing Industry for a  
Sustained Period of Commodity Price Movement

ADVISORY

## Introduction

Managing commodity risk is a key concern for most global manufacturers. The ongoing economic turmoil in the world's financial markets has made this task all the more challenging. In the past year alone, the price of some core commodities broke through decades-old record highs only to be followed a few months later by new record lows. Such swings have greatly complicated purchasing, budgeting, and decision making. This paper explores the turbulent conditions in the global commodities market and the implications for global manufacturers as they consider their 2009 procurement needs and look for ways to alleviate cost pressures.



# Manufacturers face an unprecedented financial environment

Manufacturers the world over continue to experience severe cost pressures. The current credit and liquidity environment only exacerbates the challenge. Stung by high prices through the first three quarters of 2008, the global manufacturing industry has been facing pressure to either pass costs on to consumers or find alternatives to reducing their overall cost structure. "We have taken out head count, automated, and been very diligent on cost control,"<sup>1</sup> said Andrew Liveris, Dow Chemical Company's chairman and chief executive, in a June 2008 *New York Times* interview, but there's a limit to how much cutting one can do without harming the underlying business. Airlines and other transport companies are consolidating in an effort to halt financial losses. And car manufacturers, facing higher manufacturing costs and a jittery, price-sensitive consumer base, feel the pinch from both ends. Many automakers in the United States and Europe are seeking government assistance to help them through this difficult period as sharply lower consumer demand further stresses their business models.

Indeed, the impact of sharp commodity price movements is reverberating throughout the manufacturing industry, from capital-intensive sectors such as heavy equipment machinery and industrials to plastics, chemicals, and other heavy raw material consumers.



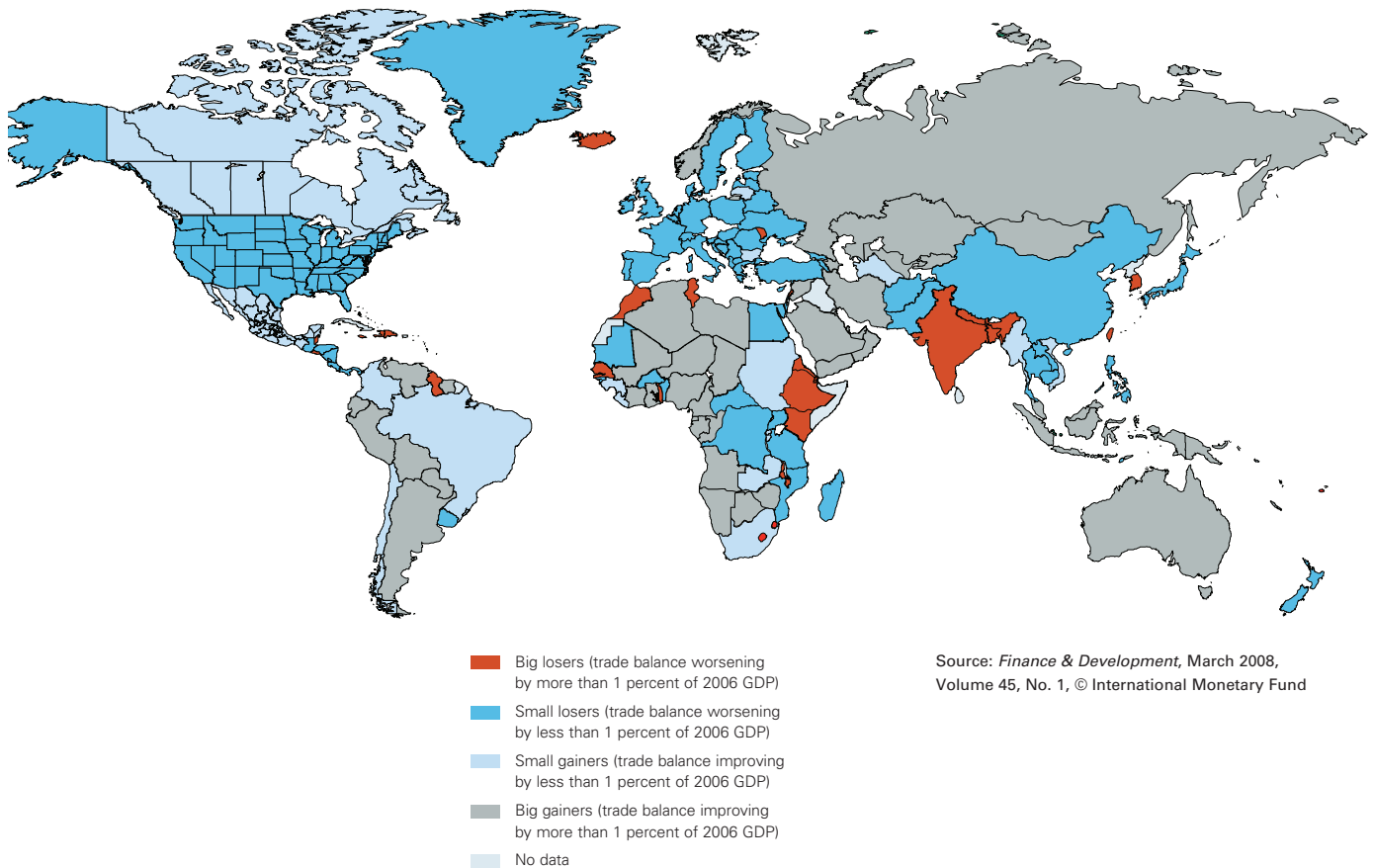
<sup>1</sup>"Oil Prices Raise Cost of Making a Range of Goods," *New York Times*, Louis Uchitelle, June 8, 2008.

## What is behind the market turbulence?

### Skyrocketing demand

Over the past few years, global consumption of steel, oil, copper, corn, and other core materials outpaced supply—fueled in part by the increasing appetite of the developing world. China, India, and the Middle East accounted for more than 56 percent of the growth in oil consumption from 2001 to 2007. Analysts point to the booming commodities trade as a key factor in the buoyant growth of these and other emerging economies (see Figure 1). And in terms of global demand between 2003 and 2007, China’s share alone was 64 percent for copper, 70 percent for aluminum, and 82 percent for zinc, according to the International Energy Agency.

**Figure 1: Winners and Losers**



### Supply is not keeping pace

Some core commodity suppliers have been slow to adjust to increased demand due to finite resource limits, the impact of drought and other natural causes, or rising mining and acquisition costs. Structural problems are particularly acute in the case of oil, where capacity growth in response to persistently higher prices has been disappointing in recent years.

The scarcity of some core materials can have a domino effect on the cost of substitute materials. When fuel prices rise, for instance, so too does the cost of natural rubber as manufacturers make the switch from petroleum-based synthetics. With biofuels in high demand, ethanol consumption pushes the price of corn ever higher, making animal feed more costly and increasing the amount we pay for meat and dairy products as farmers recover their costs.

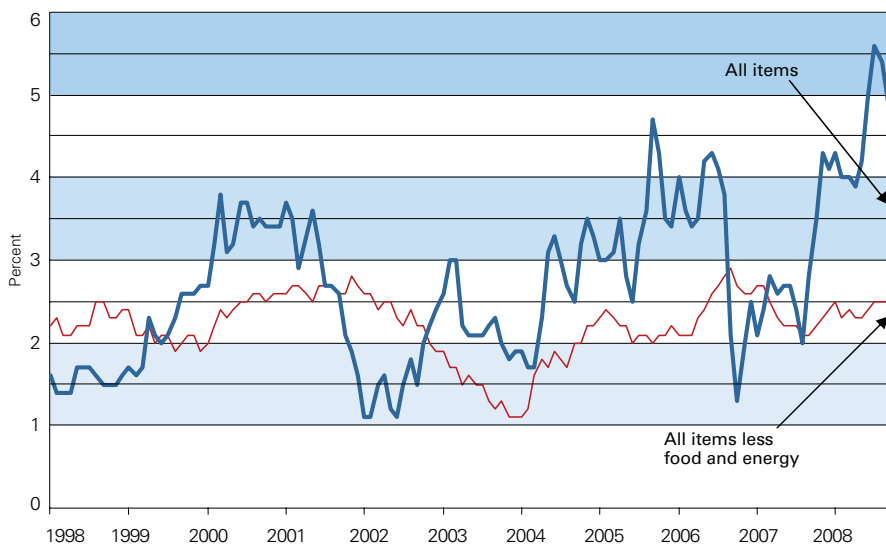
### Low interest rates and a weakening dollar

Since most commodities are traded in U.S. dollars, low interest rates and a fluctuating U.S. dollar can expose commodities to inflationary pressure on prices. In addition, a surge of speculative activity over the past two years is believed to have contributed to big price swings in crude oil, gold, silver, lead, uranium, cattle, cocoa, and corn futures. Figure 2 offers some illustration of this. With the sharp reversal in the prices of many core commodities in the latter part of 2008, the global commodities market moved rapidly from a position of strong demand and tight supply to one of weak demand and excess supply in response to the rapid deceleration in global economic activity.

### Credit crisis

The global stranglehold on credit lies behind much of the recent reversal in commodity prices, and the speculative investment that contributed to some of 2008's overheating has largely cooled. With the worldwide economic malaise comes slower GDP growth, which will continue to exert downward pressure on commodity prices in the near term. But that doesn't mean we should expect stability any time soon. Indeed, many analysts suggest that the current downturn in commodity prices may be only a temporary adjustment. Fundamental supply constraints remain, meaning that prices could again soar once the market begins to turn.

**Figure 2: Consumer Price Index for All Urban Consumers (CPI-U)  
12-Month Changes, 1998 to Present**



Source: Consumer Product Index,  
U.S. Bureau of Labor Statistics

## What steps should the industry take?

While these factors make for a challenging operating environment, they also present several opportunities. Our experience indicates that global manufacturers should, at a minimum, assess the following strategies to enhance their procurement, production, and business processes:

- Spread costs by extending value
- Integrate procurement
- Strengthen operational efficiency and pursue lean manufacturing efforts
- Review hedging strategies
- Incorporate commodity risk within the overall risk management framework.

### Spread costs by extending value

While passing costs on to customers may be inevitable for many segments, there are ways to soften the blow. By reexamining their product portfolio and reevaluating which customers are most profitable, manufacturers may be able to generate superior value and better absorb underlying price increases.

Mantaine Corporation, an Ohio-based company that manufactures rubber gaskets and parts for such businesses as Freightliner Trucks, offers one example.<sup>2</sup> Faced with rising rubber costs, the company hired a pricing consultant to determine how its customers would react to higher product prices. Based on a survey of its customer base, Mantaine learned that while some clients would indeed balk at a price increase, many others were open to paying more in return for greater collaboration. This insight gave Mantaine an opportunity to match premium pricing with premium service. It elevated a commodity product—rubber gaskets—into a superior offering. In doing so, the company improved profitability despite rising raw materials costs.

The Goodyear Tire & Rubber Company was also forced to raise prices in the past year, but like Mantaine, it did so strategically. After analyzing its customer base, Goodyear determined that it had an underserved buyer demographic. The company redesigned its product mix, introducing a specialized tire for discriminating customers who would be willing to pay a correspondingly higher price. This allowed the tire maker to spread price increases over several different products without boosting the price of its traditional brands too sharply.

Customer segmentation can also shed light on where companies are investing too heavily, i.e., overspending on an underperforming account. Barry Jaruzelski, a vice president with the consulting firm Booz Allen Hamilton, suggests in an interview with *IMPO* magazine that companies ask themselves, “Is each customer really paying for all the complexity we create in our operation in order to serve that customer’s unique needs?”<sup>3</sup>

▶ By capturing the knowledge contained within their business networks, using technology to make that information more accessible, and bundling the result into an offering that might otherwise be unavailable, manufacturers may be able to demonstrate value in a way that resonates with customers and justifies premium pricing.

<sup>2</sup>“Raising prices, keeping customers,” *Fortune Small Business*, Justin Martin, September 13, 2007.

<sup>3</sup>“Q&A with Barry Jaruzelski,” *Industrial Maintenance and Plant Operation*, 2008 (<http://www.impomag.com/scripts/ShowPR.asp?RID=9841&CommonCount=0>).

Done well, customer segmentation allows manufacturers to align the value delivered with the value received. This approach also positions a company competitively for when the market turns around again.

#### *Activities to consider:*

- Segment the customer base by value and profitability.
- Revisit the product portfolio to align unmet demand with high-value customer needs.
- Engage pricing specialists to plan and sequence the pricing program to avoid raising prices too quickly or suddenly.
- Communicate openly with core customers in advance of any price changes.

#### **Integrate procurement**

With commodity prices in such flux, procurement is receiving heightened board-level attention. From target costing to predictive pricing, there are a number of ways that manufacturers can leverage procurement to their competitive advantage.

To gain traction with core suppliers and greater visibility over total supply chain costs, manufacturers might wish to winnow their supply base to a key group of preferred suppliers. This motivates providers to ensure high service quality in exchange for the opportunity to service multiple business divisions. It also gives manufacturers greater negotiating leverage and, in some cases, improved transparency over the supplier's finances and pricing metrics.

Eaton Corporation, a leading diversified industrials manufacturer, offers a good case in point. When the price of benzene skyrocketed a few years ago, the company reengineered its procurement program. As *Purchasing* magazine reported, Eaton created a hub-and-spoke system comprising internal supply chain members from each of its four main business units as well as its commodity department.<sup>4</sup> The business unit with the highest purchasing volumes served as the hub and the other business units served as the spokes. Together, they intend to halve their current network of 10,000 suppliers, consolidate purchases, negotiate improved pricing controls, and build mutually beneficial strategic partnerships. In the first year of implementation, the company saved nearly US\$750,000 in resin costs alone.



<sup>4</sup>"Hub-and-spoke teams change the way commodities are purchased," *Purchasing*, Tom Stundza, September 10, 2007.



Target costing is another important cost-optimization approach. Target costing tools can help procurement departments assess a potential pool of prequalified suppliers in advance. Target costing is designed to help companies maintain profit margins by requiring design improvements to be made early—during the planning and concept phases of product development—rather than later, when changes are more costly.

Such changes can affect the way contracts between manufacturers and key suppliers are negotiated. Some manufacturers may establish incentives for suppliers to meet pricing targets, with bonus payments for meeting agreed performance criteria. Others may balance one-year fixed contracts with longer-term strategic agreements. It is important to note that complex contracts require expert counsel.

**Activities to consider:**

- Engage procurement early in the process. Doing so can help manufacturers consolidate orders, gain better negotiating leverage with key suppliers, set target costing, and enable more predictive pricing.
- Where feasible, consolidate the supply base to a small and streamlined group of core suppliers.
- Align procurement policy with business objectives.

**Strengthen operational efficiency and pursue lean manufacturing efforts**

Operational efficiency improvements, simplification of product lines, continued automation, and standardization across core processes are among the areas in which manufacturers intent on being lean can get a whole lot leaner. In fact, a recent study of 600 major manufacturers by the Economist Intelligence Unit found that, in an effort to drive operational efficiency, more than one third intend to lead change management efforts in the coming year.<sup>5</sup>

To reduce costly engineering change orders, some manufacturers are working to minimize the need for specialized parts by standardizing components. Others are literally trimming waste—returning valuable steel and rubber scrap back into the production mix.

Still others are looking to substitute with less costly materials. While natural rubber, soybean, and other substitutes have experienced large price swings, the inflationary pressures are often not as marked and the base supplies are more robust. Further up the production chain, manufacturers like Procter & Gamble are experimenting with innovative forms of packaging, housing products in smaller containers made from cheaper materials. In the process, they are reducing their plastics consumption and better-insulating themselves from the high cost of oil-based raw materials.

<sup>5</sup>“A change for the better: Steps for successful business transformation,” Economist Intelligence Unit, May 2008.

**Activities to consider:**

- Evaluate whether a broadscale business process review can help to steer improvements strategically and efficiently across the organization.
- To improve efficiency on the factory floor, renew the focus on lean manufacturing.
- Where feasible, consider reprocessing scrap, substituting less costly materials, repackaging products more cheaply, and standardizing components.

**Review hedging strategies**

In light of what is expected to be a sustained period of uncertainty in commodity prices, manufacturers are likely to pursue a series of sophisticated hedging strategies. These may include a combination of financial and nonfinancial hedges.

Financial hedges are perhaps the most common and include cash flow hedges, which protect the future purchase or sale price of a commodity, and fair value hedges, which protect the prices agreed to in a fixed contract. When no market exists for a given commodity, however, a manufacturer may be able to hedge something closely correlated with it. For instance, a plastics manufacturer might hedge benzene by using derivative oil transactions as a substitute. Such “proxy hedges” can provide additional risk mitigation in a tight supply market.

Of course, with any hedging program, companies run the risk of “locking in” high prices prior to a tight market reversing its trend. One of the keys to managing a successful hedging program is identifying the company’s potential exposures and designing a hedging strategy that meets the company’s risk tolerance and reduces the uncertainty related to its key cost components over a time frame appropriate for the company’s market sector. Companies may also want to consider more complex hedging strategies involving options, which can potentially cap upside risk while still offering the opportunity to benefit from lower prices in the future.

To hedge against materials shortages and better-insulate themselves from the risk of skyrocketing prices, some manufacturers are turning to vertical integration and other nonfinancial hedging strategies. Builders are buying steel companies, and steel companies are buying iron-ore mines. Mittal Steel, the world’s largest steel manufacturer, intends to be largely self-sufficient in regard to iron ore by 2010; and Bridgestone, one of the largest global tire manufacturers, surprised some by purchasing a rubber plantation in Indonesia.<sup>6</sup> Such strategies are designed to control the source or the means of distribution in order to protect supply, control costs, and build resilience.

**Activities to consider:**

- Assess the value-at-risk of your commodity portfolio and design/revise hedging programs to address the most strategic or vulnerable points.
- Assess your control environment and reporting process.
- Review the appropriateness of your accounting treatment.

Vertical integration fell into disfavor a decade ago with analysts who felt few companies could manage so many disparate business models. But that view is changing as vertical-integration strategies mature. Instead of buying all the links in the supply chain, manufacturers are now making acquisitions that are squarely focused on strategically vital components.

<sup>6</sup>“A Hot Commodities Market Spurs Buying Spree by Manufacturers,” *Wall Street Journal*, Timothy Appel, August 14, 2006.

### **Incorporate commodity risk within the overall risk management framework**

Commodities have different risk profiles: some are scarce, some have high price volatility, and some can be purchased only in long-term contracts. It's important that a manufacturer clarify its overall exposure and align risks with the company's budget and profit objectives. Where there are gaps that exceed the manufacturer's risk appetite, appropriate hedging and risk mitigation activities can be applied.

As manufacturers assess their commodity risk and corresponding profit and loss exposure, many are giving treasury departments a more active role. This allows treasury to lend its expertise in budgeting, cost control, interest rates, and currency hedging while procurement stays active in communicating anticipated consumption and managing the supply base. In an environment where the price of some raw materials is more volatile than currency or interest rates, this type of cross-functional approach can help ensure that the appropriate risk mitigation, limits, and accounting are in place. Manufacturers that take a holistic approach to commodity price volatility will be better positioned to understand which risks they are comfortable taking and which need to be hedged.

#### *Activities to consider:*

- Develop a commodity risk strategy that aligns with your overall risk management program and takes your risk appetite into account.
- Employ cross-functional teams to assist with supply and consumption forecasts.
- Assess alternative hedging strategies against your overall risk management program.

## What's next?

While volatile commodity prices bring many challenges, the current environment provides manufacturers with the opportunity to renew their focus on operational efficiency, create additional customer value, and reinforce risk management principles. Looking ahead, expect manufacturers to become far more sophisticated in their approach to commodity risk. The best will use the volatility to their advantage, becoming leaner and more strategic with respect to their supply base and eclipsing less-prepared competitors.

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- Procurement and logistics strategies
- Total cost optimization
- Business process redesign
- Market and customer value segmentation
- Commodity risk and hedging strategies
- Derivative accounting.

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