Perspective

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Coping with Record-setting Commodity Prices and Volatility

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INTRODUCTION

In the past few years, the price of many commodities has risen sharply—jumping precipitously in early 2008 to record or near-record levels. Add in the weakening dollar, weather-related crop shortfalls, increasing market speculation, and general margin pressure, and it comes as no surprise that commodity prices are now a front-and-center issue for every company.

Since 2006, oil prices have risen 100 percent, and corn is up 300 percent. The turmoil isn't affecting only agriculture and energy.

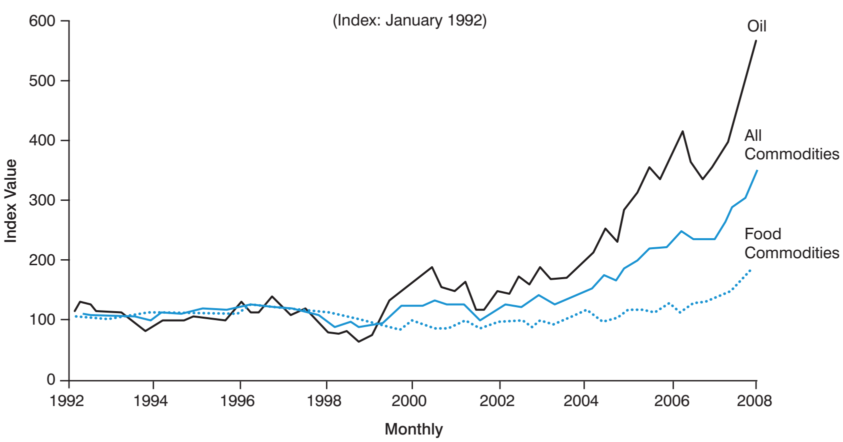
The costs of all key commodities, including basic and precious metals and energy derivatives like resin, have ballooned as well *(see Exhibit 1, page 2)*. Price volatility is also rising. In March 2008, a Chicago Board of Trade index of price volatility showed that traders expected wheat prices to rise or fall by more than 72 percent in the subsequent 12 months, the highest level of volatility since 1980. Soybean and corn volatility also surpassed historical monthly averages *(see Exhibit 2, page 2)*.

The degree to which companies depend on any particular commodity varies across industries, and among individual companies and products. Yet few sectors have been immune from the recent run-up in prices. Whether because of the price of steel for cars, resin for household product packaging, aluminum for soda cans, grain for breakfast cereals, or jet fuel for airlines, the distress has scarred many balance sheets. Tyson Foods Inc. reported a loss of US$5 million in the second quarter of 2008, compared with a profit of $68 million in the same period a year before, due in part to higher commodity costs. Procter & Gamble Company reported that higher commodity and energy costs reduced its gross margins by more than 220 basis points in the first quarter of 2008. And it's likely that there will be much more bad news in the coming years: Although it's difficult to foretell the length or severity of any given price cycle, most experts predict that commodity prices will experience upward pressure and volatility through 2012 at least.

Some companies try to soften the impact of rising commodity prices on margins by squeezing efficiency gains out of their supply chains and manufacturing functions, substituting less expensive items for costly material components, and streamlining selling, general, and administrative costs. Other companies have succeeded in passing along increased commodity prices to customers or consumers. In 2007, Nestlé SA, the world's largest food company, increased prices across its strong portfolio of products by 3 percent, compared with increases of 1.5 percent, 2 percent, and 1.6 percent, respectively, in the three previous years. Dow Chemical Company, facing a 42 percent jump in energy costs in the first quarter of 2008, imposed an unprecedented 20 percent price increase—the biggest one-time hike in the company's 111-year history. Still other companies are making more dramatic structural changes to cope with escalating costs. For example, P&G announced that it was shifting manufacturing sites closer to consumers to decrease transportation costs.

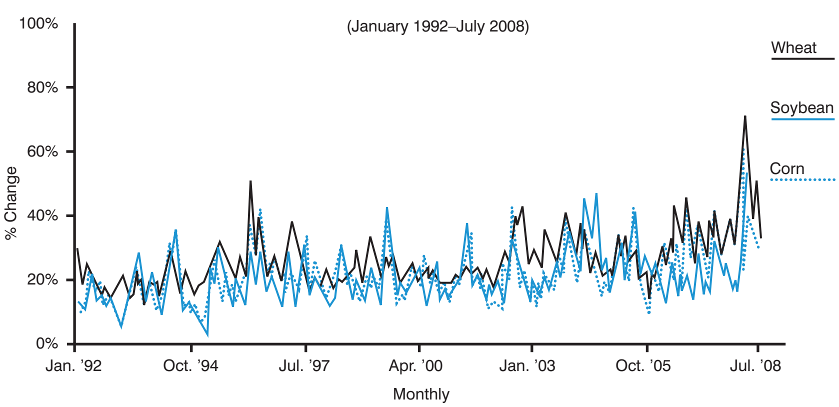
But such efforts are one-off, or at least finite, measures—not an enduring plan for dealing with ballooning commodity costs. They are not sufficient in an environment in which a company's success will be measured by how it buys as much as how it sells. To profit in such an environment, a company must create a fine-tuned approach to handling commodity price shocks that integrates deep insight into underlying cost drivers with improved pricing transparency and strategic foresight. Such an approach cannot prevent prices from rising, of course, but it can delay the impact of higher prices, opening a window of time to adjust operational processes to new conditions in the supply markets and occasionally even creating a competitive advantage. A strategic approach can also limit the damage that commodity price volatility and supply disruptions can inflict on quarterly earnings targets, and leave the company better positioned for the turbulent years to come.

Exhibit 1
Commodity Price Increases, 1992–2008



Note: Food commodities index is a composite of corn, soybean, wheat, and rice price indexes.
Source: U.S. Department of Agriculture, International Monetary Fund

Exhibit 2
Historical Volatility Trends in Three Agricultural Commodities



Source: CME Group

WHEN THE OLD RULES NO LONGER APPLY

The goal of a successful commodities strategy is threefold: to secure supply, mitigate risk, and minimize pricing volatility. Historically, proactive companies have relied on a range of commodity management options to meet these objectives *(see Exhibit 3)*. The suitability of each approach differs by commodity and market—as do the unique circumstances that impact commodity prices. The utility of each approach is also dictated by a company's time horizon: Some strategies will not change the price a company pays today—and may even require near-term investment—but could have positive long-term results.

Fixed pricing was a commonplace strategy in the past, but it no longer

Exhibit 3
Risk Management Options

OPTION	DESCRIPTION	CHARACTERISTICS
1. Market-based Pricing	• Let commodity pricing swing fully with the market through either a direct or indirect market index (e.g., no position)	• Lowest cost • Highest volatility • Risk borne by purchaser
2. Collar Pricing	• Let commodity pricing swing within agreed-on limits, as contracted directly with supplier(s)	• Low cost • Bound volatility • Element of risk shared between buyer and supplier
3. Fixed Pricing	• Fix commodity pricing directly with supplier	• Low cost • No volatility (short term) • Risk borne by purchaser who takes a position vs. market
4. Financial Hedge	• Arrange pricing directly with supplier (1 or 2 above), then transact a financial hedge to lock in pricing	• Some cost • Can eliminate volatility • Risk borne by purchaser, who takes a position vs. market
5. Operational Hedge	• In conjunction with 1, 2, or 4 above, purchase and inventory material in attempt to "buy low"	• Some cost • Managed volatility • Risk of taking wrong bet vs. market
6. Backward Integration	• Own/take a position in the direct, producing assets of the commodity (e.g., buy the farm/manufacturing plant)	• High fixed costs • Low volatility (usually) • Can be very risky and requires an understanding of running the new business and an explicit strategic need

Source: Booz & Company

works. With commodity prices extremely volatile and in many cases trending nowhere but up, few suppliers are willing to lock in a long-term price, whether it be firm-discounted or even at-market. A more likely arrangement is market-based pricing, which typically relies on transparent and available barometers such as market indexes to monitor and set prices. The General Motors Corporation has an agreement with suppliers to adjust prices monthly for parts made from aluminum on the basis of the spot price of the commodity on the New York Mercantile Exchange. A hybrid strategy that incorporates a bit of market-based and fixed pricing is collar pricing, which lets the commodity price swing between a minimum and maximum. If the cost of the commodity drops below expectations, the supplier profits because the buyer is bound to purchase it at above-market rates; if the price rises above forecasts, the buyer pays less than market rates.

When commodity prices are wavering, companies that are confident they have gauged the marketplace well often turn to hedging, which entails using futures or options contracts to minimize adverse price swings prior to an anticipated sale or purchase of a commodity. Consider Southwest Airlines Company. More than 15 years ago, Southwest locked in an aggressive hedging strategy that allowed it to buy oil at $32 a barrel for 65 percent of its fuel needs in 2006, $31 a barrel for 45 percent of its needs in 2007, $33 a barrel for 30 percent of its needs in 2008, and $35 a barrel for one-fourth of its needs in 2009. Given current prices of over $100 a barrel, the airline's seemingly uncanny strategy has given it a significant leg up on its competitors, few of which matched the accuracy of Southwest's long-range reading of the oil market.

For companies that can afford to buy and hold the commodities they need, an operational hedge may be a more viable alternative. Using this

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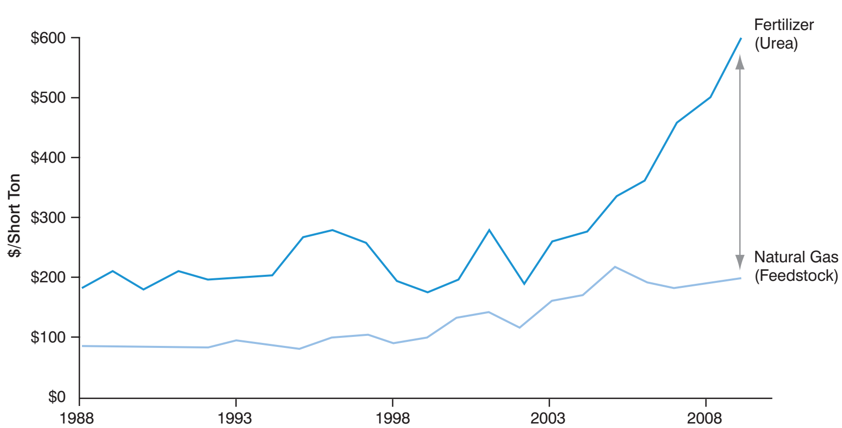
approach, a company anticipating a price increase buys a large amount of a commodity—enough to cover its needs for the next few years, for example—at current market prices and puts it in inventory, thus protecting the company from paying more for the commodity if its price indeed rises. This is a fairly aggressive strategy in terms of cost; expenses, such as the use of operating capital and storage of the commodity, must be weighed against the potential savings of advance purchases.

An even more aggressive strategy favored by some companies is backward integration. In this process, a buyer simply acquires its commodity supplier or parts maker—or takes a stake in the company—so that it has a ready amount of the commodity available at the lowest possible cost. This is a high-risk approach: Besides having to lay out significant amounts of cash to complete the deal, the buyer must weave the supplier's operations into its overall organizational structure and successfully run the new business. Nevertheless, some businesses find that backward integration is the only competitive option at their disposal. For example, a major clothing maker, facing a growing demand for products made from organic cotton, was concerned that a shortage of the much-needed commodity would force it to limit the large volume runs that allowed it to offer retailers apparel at lower prices than its rivals could. Consequently, the company acquired a stake in an Indian organic cotton farm, securing a long-term supply and giving the farmer enough new capital to cultivate more cotton and gain organic certification for additional farms.

Although traditional strategies such as these can still be quite useful, many companies have been caught short by the recent price run-ups and increased volatility of commodities markets—and are stymied by sharply changing micro- and macroeconomic conditions that have led to supply shortages as well as price escalation. They've found that many of the old rules no longer apply and that more and deeper insight into the reasons behind commodity price instability is needed. In the past, for example, companies that relied primarily on indexes and hedging focused on managing price volatility, but assumed a nearly unlimited supply market with some modest level of seasonal or climatic supply–demand perturbations. As a consequence, they have found themselves unprepared to foresee, or handle, severe price and supply disturbances occurring simultaneously in commodities markets.

One example: A consumer packaged goods (CPG) company was caught unawares by a sudden spike in synthetic urea (fertilizer) prices, despite its diligence in tracking the price of important feedstock commodities used in producing it, such as natural gas. Looking more closely—something the company now wishes it had done sooner—it found that urea prices had recently "broken away" from the underlying feedstock index *(see Exhibit 4)*, a change driven by lagging capacity in urea plants and supplier consolidation. Furthermore, the CPG company learned that because of urea

Exhibit 4
Urea Prices vs. Natural Gas Prices, 1988–2008



Source: U.S. Department of Energy, U.S. Department of Agriculture shortages, it would face smaller allocations in the upcoming year.

Meanwhile, some of the company's weaker but more prescient competitors, which had taken long-term positions in urea during depressed spot markets, realized significant earnings gains and made inroads into the larger company's core markets. Faced with this competitive threat, the CPG company had to fight the temptation to embrace rash, short-term steps, such as backward integration with a urea provider. Instead, the company undertook a comprehensive examination of the market drivers affecting urea prices, which allowed it to buy a sufficient quantity of the fertilizer to cover short-term needs and mitigate the damage of imminent price escalation. The company also identified several capacity expansion projects under way that in the next two to three years would not only ease urea pricing but also provide a short window when supply would overshoot demand, offering an opportunity to lock in low prices for the long run.

Our experience suggests that no matter what the current economic environment looks like or which strategy is selected to manage unstable commodity prices, a company must take three steps to ensure that its commodity procurement efforts are properly managed in terms of cost, risk, and supply and to support the continued profitability of its goods or services.

1. Profile commodities risks. Assess the extent of your company's sourcing risks—whether the concern is price, physical availability, or both—by mapping the corporate-wide commodities needs and the organization's price exposure by commodity, business unit, and location. Analyze the flow of materials through the entire supply chain, going as far back as second- and third-tier suppliers. Each commodity can then be ranked in terms of the degree to which a sudden increase in price or decrease in supply might affect the business. In performing this exercise, companies typically find that they face supply risks they had not previously considered, and that they are more exposed to price movements in a commodity than they had realized. Take the case of a manufacturer of private-label detergents that completely missed its annual profit target after being caught off guard by rising oil prices. Although oil-based materials are key components of the company's product line, the manufacturer had underestimated the risk until it was too late; it simply didn't understand the extent of its exposure. Most of its petroleum-related purchases were in derivatives such as tensides, an ingredient in detergent, and packaged materials such as plastic bottles, whose prices were linked to ethylene, a petroleum offshoot. A simple hedging strategy might have shielded the company from 85 percent of the price run-up. Companies can also underestimate their exposure to commodity pricing if they purchase materials from another part of the world, where fluctuations in exchange rates affect prices. For instance, the weak U.S. dollar has helped reduce the impact of rising commodity prices, many of which are priced in dollars, on some

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European companies. However, that advantage, held since 2002, could easily turn into a disadvantage if the dollar bounces back.

2. Understand commodities market dynamics. Gain a better understanding of external economics and internal demand by addressing these critical questions: What are the most important cost drivers of the commodities we purchase? How is the business environment changing for suppliers? What external influences have an impact on demand and price volatility? What is the suppliers' competitive landscape? How much buying (and selling) power do we have? Thoughtful answers should lead to the deep insights needed to create a tailored sourcing strategy. In many cases, companies will find that building this overall understanding of the market is a fairly straightforward, yet enlightening, endeavor.

More complex products, such as those based on several raw materials and dynamic markets—among them are citrus products, which are affected by local conditions, and resin-based products closely linked to oil volatility—frequently require deeper analysis. In these cases, it is often helpful for a company to develop a multivariable cost model for each component commodity included in its products. Such analytics can be used to maintain a dashboard of critical market factors that provides continuous data about the direction of commodity prices. That, in turn, will allow companies to set well-chosen maximum and minimum commodity pricing collars, to enter into contracts of suitable length that minimize exposure to commodity price shocks, and to price their own products more carefully, keeping an informed eye on shifts in the cost of their underlying commodities.

3. Address supply, price, and risk goals. Build on the insights gained from studying risks and commodities market dynamics to craft commodity-specific strategies that address the near- and long-term goals needed to ensure cost stability and manage both supply and risk. This process includes examining supply chain resilience—identifying which links in the company's global supplier footprint are most vulnerable to disruption because of political or climatic instability. How a company designs its strategy will often depend on its time horizon and its relative buying power. For example, operational hedging may be appropriate for some commodities, such as corn-based products that could be disrupted by natural disasters, but securing supply through long-term contracts may be more important for commodities with limited sources, such as precious metals. Even in cases in which a company has significant market leverage by dint of the sheer volume of its purchases, market insights may enable it to time its purchases better to take advantage of swings or dips in pricing.

An effective and winning commodities strategy must be built with expertise from across the company—product development, marketing, sourcing, finance, manufacturing. Changing product specifications to reduce internal demand for a commodity whose price is rising rapidly, for example, can be a powerful solution to higher costs, but it requires significant internal cross-functional coordination. In 2004, Florida suffered an unprecedented four hurricanes in one season, which wiped out two-thirds of the state's grapefruit crop. Consequently, the cost of grapefruit oil shot from $10 a pound up to $70, forcing beverage and fragrance producers that relied on grapefruit oil as a key ingredient to find alternatives. Many of them tapped the knowledge of their design and development teams to reformulate their recipes using other natural ingredients. The grapefruit oil market has since rebounded, but companies that changed their specifications gained new knowledge of substances that mimicked grapefruit oil, mitigating the risk from future crop shortfalls and reducing overall ingredient costs.

Companies that successfully leverage greater insight into commodities markets to improve their approach to commodities management can gain significant competitive advantage. Done well, taking such an approach ensures mutually beneficial and sustainable solutions with suppliers that not only mitigate price volatility but also reflect the true economic cost of production—and lead to both decreased procurement spending and increased shareholder value when compared with a "sit and wait/do nothing" approach. Although no strategy can provide perfect foresight, a diligent approach to commodities purchasing can yield the knowledge needed to make better-informed decisions and trade-offs, and prepare a company better for the future while managing opportunities today.

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Fair Return Sourcing

With commodity prices in flux, piecing together a successful commodities sourcing strategy requires more market insight and a deeper well of knowledge about commodity cost drivers than ever before. These are difficult to attain, but the process is made easier with a tool we call "fair return sourcing." Simply put, this approach provides transparency into commodity pricing trends as well as global, regional, and local supply–demand dynamics. Based on an in-depth examination of market conditions—current and past—fair return sourcing produces a detailed pricing analysis to help companies create a commodities purchasing strategy that reduces the impact of price variability.

Implementation of fair return sourcing begins with an exploration of cost parameters for a given commodity. Included are the factors that most influence the price of the commodity, such as transportation, labor, and raw material costs; the commodity's relative price sensitivity to changes in each of its underlying cost drivers; and historical and geographic price trends for these drivers. This cost analysis is combined with marketplace insights—among them, production by country, supply and demand trends, and pricing data. What emerges is a "fair pricing" estimate—a likely range of scenarios for how much the commodity and its by-products will cost over a period of time, depending on real and potential changes in market conditions.

Armed with this analysis, companies can use fair return sourcing to determine near- and long-term commodities purchasing opportunities, depending on the market power of the buyer and the supplier. For example, market makers, companies that have significant leverage over suppliers because of the sheer volume of their purchases, may seek to lock in a fair return, which will maintain security and certainty of supply at a price that will provide a balanced and sustainable return for both buyer and seller over the long term. On the other hand, price takers—smaller companies with no influence over suppliers or commodity prices—could rely on the fair return model to chart when a commodity is underpriced, pinpointing the best time to buy *(see Exhibit A)*.

Perhaps most important, fair return sourcing can facilitate collaboration between a company and its suppliers, creating partnerships that use the model as a basis for purchasing agreements. Among many other benefits, coping with market changes together can prevent the supplier from amplifying a shift in the market, such as labor rate increases or currency devaluations, and can protect the buyer from being put at risk by an unexpected price spike.

Exhibit A
A Fair Return Sourcing Example

Source: Booz & Company

The most recent list of our office addresses and telephone numbers can be found on our website, **www.booz.com**

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