Driving Down the Cost of Raw Materials

A four-pronged approach to managing input steel prices and commodity purchases

The volatility in the raw materials markets—the dramatic shift in the cost of raw materials and their associated components—has become a focal point for CPOs and CFOs. As global demand for steel in the first half of 2008 rose, it resulted in significant price increases for raw materials. Once the global financial crisis hit, demand for steel in all markets slowed while inventories surged and prices dropped for steel and its raw material inputs. Now more than ever companies have to focus on their steel management strategies.

Despite the volatility of the past year, long-term trends in the steel industry point to steel producers becoming more aggressive in managing steel pricing. Consolidation within the industry is likely to continue as steel producers seek to diversify geographically and rationalize production. Consolidation will allow producers to limit supply as a means to either stabilize or raise prices. At the same time, steel producers are becoming more vertically integrated in an effort to control their input pricing.[1] The large integrated mills—those that make steel from coke and iron ore, among other ingredients—are quickly acquiring global mines to shore up their steel making raw materials supply chains. Mini-mills, where steel is typically made by melting scrap steel in electric arc furnaces, are now acquiring scrap dealers in an attempt to better control their raw material supply and prices.

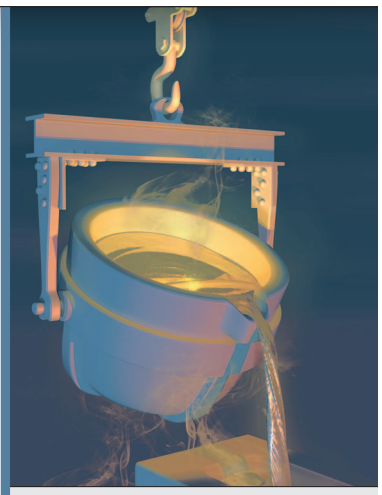
During these challenging times, there are four ways companies can improve the management of their steel and other commodity purchases.

1. Recover Materials Costs

Steel scrap, a by-product of the manufacturing process, is typically not very well managed. Depending on the process, up to 30 percent of input steel is unused and considered waste. This is true for numerous manufacturing industries, from automotive, white goods and electronics to heavy industries. While manufacturers focus on minimizing waste, they often fail to capture the value of material scrap in the part price.

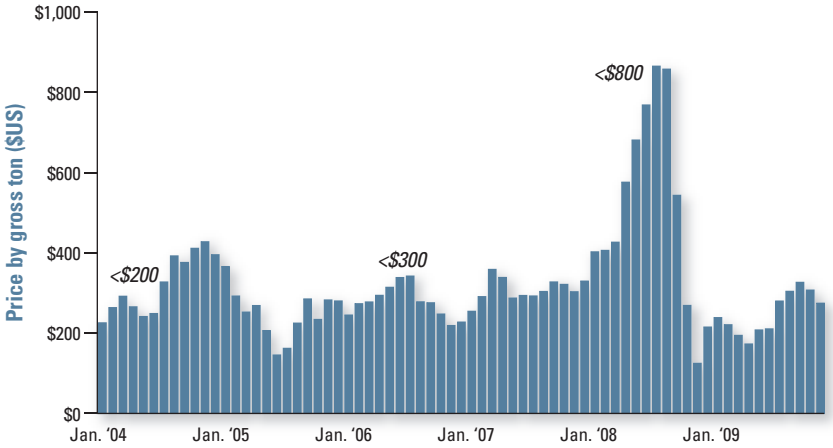
Scrap prices have increased significantly since 2004 *(see figure 1 on the following page)*. Before 2004, prices averaged less than $200 per gross ton for automotive bundles. From 2004 to 2007, prices averaged about $300 per gross ton, a 50 percent increase. Steel

[1] *For more on this topic, please see "Mining + Steel: How Will M&A Play Out?" at www.atkearney.com.*



Trends in the steel industry require companies to become more aggressive in managing their steel and raw materials purchases—capturing scrap and usage value, and improving sourcing and pricing strategies.

FIGURE 1: Steel scrap pricing per automotive bundle



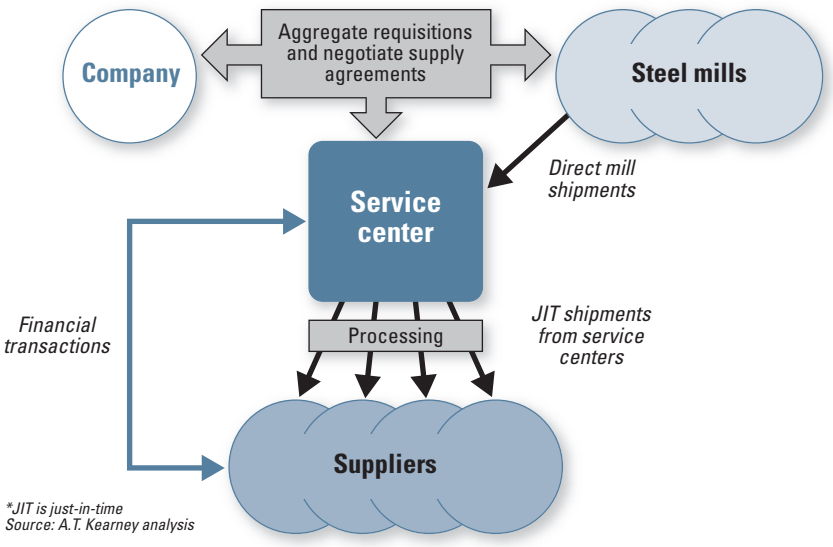
Sources: American Metals Market, A.T. Kearney analysis

scrap prices peaked in July 2008 at more than $800 per gross ton before dropping back to the 2004 to 2007 average.

Although steel scrap prices have been depressed recently, the long-term outlook has prices becoming more volatile and trending higher. Yet with limited visibility into the value of scrap materials accounted for the part prices, companies are often unable to address this cost. When the price of raw materials rises, this becomes a virtual price increase from parts suppliers.

Companies that account for scrap material value in the component price can reduce their material costs by 5 to 8 percent. For example, if steel or material accounts for 35 to 50 percent of the total part price, a 5 to 8 percent improvement in material costs would equate to a piece part savings of 2 to 4 percent.[2]

FIGURE 2: A future-state sourcing model consolidates service centers



**JIT is just-in-time*
Source: A.T. Kearney analysis

2. Increase Sourcing Power

In a traditional supply chain, as suppliers purchase materials they typically focus exclusively on their internal businesses, which are not always large enough to negotiate directly with large entities, such as steel mills. Therefore, steel is often purchased from an intermediary, such as a steel service center, resulting in an extended supply chain that includes numerous service centers and different pricing levels for each steel grade.

It is possible to improve negotiation leverage and reduce costs by gaining more visibility and control over the material supply chain—specifically, by optimizing the material purchased directly from the large steel mills and the material provided through service centers. The idea is to implement a leveraged sourcing model focusing on a few key parameters *(see figure 2)*.

The first step is to assemble a consolidated package of the steel buy (volume by grade, gauges and sizes, among others) that includes steel purchased by the company and its large Tier I suppliers directly from the mills, and steel purchased from service centers of the smaller Tier I and Tier II suppliers. This allows consolidation and elimination of different material specifications, gauges and sizes.

As the steel buy is being defined, a detailed understanding of the operating capabilities of the various steel mills will help take advantage of oper-

[2] *The equation: 5 percent x 35 percent = ~2 percent and 8 percent x 50 percent = ~4 percent.*

ational efficiencies at each mill (economical sizes and sheet thickness). It is important to negotiate total cost rather than just base price and to avoid additional costs such as surcharges. Ideally, negotiations concern everything that feeds into the total cost, including raw material inputs, transportation and energy.

Optimizing the purchasing of materials will improve negotiation leverage and reduce costs.

With the steel price set, the focus can shift to materials provided through service centers. As figure 2 shows, the goal is to consolidate the number of service centers providing materials. Because the base steel price has been negotiated with the mills, selection and negotiations should focus on value add, freight and service levels, and ensuring inventory levels and services.

This model can result in significant savings. Our clients achieved from 8 to 15 percent savings on the cost of steel. If steel accounts for 35 to 50 percent of the piece part price, this equates to direct material savings of 3 to 8 percent.

3. Optimize Materials Usage

The third component of our strategy focuses on reducing costs through technical improvements, including reducing complexity, shrinking part-design costs, and segmenting suppliers.

Reduce complexity. To reduce complexity, the focus naturally turns to a portfolio rationalization to reduce specifications, such as gauges and grades, and then implementing processes to prevent re-proliferation. This requires getting engineers and designers aboard early to understand the cost impact of deviating from preferred specifications. In the electronics industry, as an example, this might include a cost-benefit analysis of standard versus non-standard thickness for printed circuit boards.

Shrink part-design costs. Reducing part-design costs begins with collaborative design reviews with internal and supplier engineering teams to evaluate all parameters that affect material costs and utilization. Competitive benchmarking and reexamining the manufacturing process will ensure that maximum benefits are achieved

Segment suppliers. When sourcing parts, it makes financial sense to consider material specifications and sizes. For example, sourcing parts that use the same grades or gauges to the same supplier allows for nesting parts more effectively.

Typical results from focusing on material usage: 5 to 8 percent direct material savings.

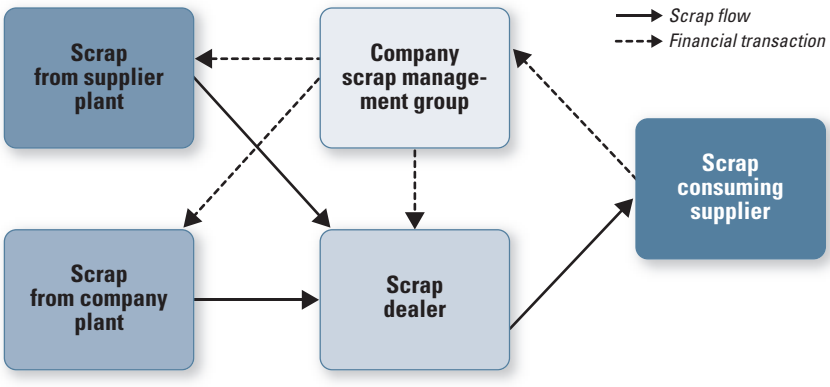
4. Manage the Materials Supply Chain

A supply chain materials management strategy employs material scrap generated by manufacturing processes—both internally and externally—within the supply chain.

The goal is to create a closed-loop network whereby the company uses the scrap dealer for processing and transportation and sells scrap directly to a scrap-consuming supplier *(see figure 3)*.

We can use the aerospace industry to illustrate this point. Aerospace parts have high purchase-to-fly ratios, commonly 8 to 12:1. For every 1 lb. of material in a part, 8 to 12 lbs. of raw material has to be purchased due to the reduction that occurs during the manufacturing process. The industry has scrap revert programs, including right-to-buy agreements for supplier-produced scrap. Lean principles and

FIGURE 3: A closed-loop scrap network



Source: A.T. Kearney analysis

Scrap Management

Even if a company's scrap network is not large enough to create a closed-loop system, there are three ways to improve savings potential by managing scrap throughout the supply chain.

Evaluate best prices. Determine the best price for scrap by renegotiating based on a better understanding of competitive market prices and types of scrap being generated (through a scrap surcharge evaluation). Are we paying true market price? Make sure all additional costs are based on the true market price for the grades used.

Concentrate scrap volumes. Better pricing can be achieved by consolidating dealers, pooling scrap volume across facilities in a region, and redistributing volume among scrap dealers.

Optimize product specifications. Using materials with the least-cost specifications requires investigating specifications to identify potential to use substitute or lower grade materials.

best practices improve the recovery. Scrap collection, along with inbound freight and quality assurance of scrap produced, is then used as leverage when negotiating raw material contracts with mills. In doing so, the aerospace industry not only reduces its raw material acquisition costs, but also reduces lead times.

Although determining market price for material scrap includes acquisition costs, transportation, processing and margins, most companies do not know if they are getting "fair" market price. Unbundling these costs offers transparency into these costs and removes a margin layer. Indeed, supply chain material management can reduce the overall cost of finished products by 2 to 5 percent *(see sidebar: Scrap Management)*.

Get Aggressive

Given the volatility and price increases in the raw materials markets, companies are renewing their focus on the raw materials supply chain, primarily steel and commodity purchases—recovering materials costs, improving sourcing, and utilizing steel scrap throughout the value chain. Long-term trends in the industry will require a more aggressive stance in managing pricing—now more than ever.

Authors

Bill Windle *is a partner in the firm's automotive practice. Based in the Detroit office, he can be reached at bill.windle@atkearney.com.*

Michael Mazur *is a principal in the firm's automotive practice. Based in the Detroit office, he can be reached at michael.mazur@atkearney.com.*

David Lamb *is a consultant in the Detriot office. He can be reached at david.lamb@atkearney.com.*

Eric Gierahn *is a consultant in the Detroit office. He can be reached at eric.gierahn@atkearney.com.*

Kevin Krot *is a consultant in the Detroit office. He can be reached at kevin.krot@atkearney.com.*

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A.T. Kearney, Inc.
Marketing & Communications
222 West Adams Street
Chicago, Illinois 60606 U.S.A.

1 312 648 0111
email: insight@atkearney.com
www.atkearney.com