

# ***Hard commodities: metals volatility***

June 2012

This publication was created in cooperation with the Economist Intelligence Unit (EIU). The findings presented in the report are based on analysis conducted by the EIU on behalf of PwC and the insights of PwC practitioners in the metals industry and risk assurance practice.

In addition to the analysis, the EIU conducted in-depth interviews with six executives for this report. We thank the following individuals for their valuable contributions: Phil Martens, president and CEO, Novelis; Michael Tanchuk, CEO, Ormet Corp.; Dave Delie, president, Welspun Tubular LLC; Harriet Hunnable, managing director of metals products, CME Group; Jamie Sokalsky, president and CEO, Barrick Gold; Angel Pueyo, COO, Celsa Group.

---

## ***Table of contents***

---

***The heart of the matter*** **2**

***Operating effectively in today's metals market requires more than a solid hedging strategy.***

---

***An in-depth discussion*** **4**

***The financial instruments that forward-thinking metals companies use help them be more resilient amid the market's shifting core dynamics.***

---

***What this means for your business*** **17**

***Volatile risk environment puts premium on companies' ability to stay agile and opportunistic.***

---

*The heart of the matter*

Operating effectively in today's metals market requires more than a solid hedging strategy. Metals firms work to define and assess their risks, be prepared for unforeseen events, and develop the agility to capitalize on emerging opportunities.

Metal markets face pressures today similar to those of the 2008 financial crisis. Many companies may be better prepared to deal with volatility and economic fallout—they have strong cash positions, and hedging tactics and strategies that allow them to benefit from economic shocks and market overreactions—but the lessons learned from the last financial crisis may not be enough. The risks to some metals firms come not only from steep price fluctuations, but also from geopolitical crises and policy shifts that could change widely held assumptions about where production costs are lowest and where markets are most stable. These risks change the dynamics of the market, and hedging input costs or selling prices through financial markets or long-term contracts—while essential—are not always sufficient to mitigate metals risks.

After analyzing the metal markets and seeking insights from influential industry executives, the following themes emerged:

**Vertical integration provides a long-term hedge against market fluctuations.** Metals producers are acquiring upstream resources to ensure their own supply. Traditionally, this could be a primary aluminum producer obtaining alumina or bauxite assets or a steel producer locking up iron ore or scrap metal supplies. Today, an effective hedge can even include diversifying into energy production to better manage fuel or electricity costs.

**Metals firms must maintain successful hedging strategies or contract formulas for passing costs through to customers.** That could mean using financial exchanges or linking long-term agreements to published indices. In either case, given increased metals volatility, companies must have a robust risk-management strategy in place. Keeping operational costs low remains essential, but given big swings in metals prices, cutting operational costs alone may not be enough to offset market fluctuations.

**Market dislocations can provide opportunity.** During periods of high market volatility and extreme price movements, companies may consider locking in favorable currency exchange rates, metals prices, or input costs. Such a strategy comes with risks, but it may also create an opportunity to create a significant competitive advantage against less favorably hedged competitors.

**Companies must be prepared to deal with regulatory uncertainty.** Policies such as carbon taxes and export restrictions dramatically change the cost landscape. New carbon policies could mean that developing countries will no longer be a source of low-cost supply.

**Locating facilities in developing markets can provide a base for exports, but looking to serve growing domestic markets can be wise long-term strategy.** This is true in the United States and in major developing countries such as China, where trade barriers, local content rules, and other policy measures may encourage indigenous development while making exports less profitable. However, focusing on the domestic market may be a lower-risk strategy.

---

*An in-depth discussion*

The financial instruments that forward-thinking metals companies use help them be more resilient amid the market's shifting core dynamics.

Current stock and commodities markets provide a stress test for the risk management practices adopted after the 2008 financial crisis. In the wake of that shock, firms can no longer say that increased volatility is unprecedented. But the last crisis also provided valuable lessons that companies can apply to blunt the impact of other big market moves like the one that may be playing out now as the sovereign debt crisis in Europe spreads and influences commodity markets around the world.

Firms that successfully navigated the choppy waters of 2008 relied on well-honed risk management strategies and clever acquisitions, as well as improved inventory management and cost-cutting programs, to thrive. This report explores why volatility is here to stay and which instruments metals companies have employed to become more resilient.

In recent years, some businesses have put a collar around their input costs through financial instruments. In contrast to nonferrous metals, where financial instruments are more widely employed, steel businesses have tended to rely on long-term contracts and physical warehousing. A few metals businesses have found success by remaining exposed to volatile market prices. Each of these strategies carries a mixture of risks and costs that need to be carefully weighed by senior executives.

### ***The new game: Finance, Asia, and energy drive a market shift***

Harriet Hunnable, managing director of metals products for the CME Group, notes that metal markets will almost certainly suffer from volatility in the future. This is partly driven by new players in the field. Metals consumers are using commodity-linked instruments. Financial participants are “looking to express a point of view on industrial demand and industrial growth,” says Hunnable. This is a delicate means of referring to the significant involvement institutional investors have had in commodities in recent years.

She further claims that ferrous financial products could one day be comparable in magnitude and volume to oil commodity markets. According to Hunnable, both steelmakers and users might benefit from transparent financial products, such as steel futures, instead of relying on current “opaque” price-negotiation methods. Futures contracts can allow businesses to smooth out their earnings results. Hunnable is adamant that futures do not increase volatility, arguing that, “There is significantly more volatility in products that don’t have financial instruments on top of them versus ones that do.”

Some steelmakers have said that their adoption of steel futures is ultimately up to their customers. But many have been reluctant to embrace steel-related derivatives. That is, in part, a result of concerns that pricing could be influenced by financial speculators not involved in the steel industry. Futures could potentially cut into the margins steelmakers regard as necessary to maintain their operations in such a capital-intensive business. Their wariness has only been aggravated by the steep price fluctuations of commodities for which there are deeper and more liquid futures markets.

But the reluctance of steelmakers to employ futures is not without precedent. In the aluminum sector, for example, futures contracts initially struggled to gain traction. That situation changed as leading producers, such as Alcoa Inc., initially staunchly opposed to futures, changed strategy and embraced them. Many steelmakers already use financial instruments to hedge input costs like natural gas or nickel, which is used to make stainless steels. Some steel industry participants and observers have suggested steel futures may one day become widespread. But before that might happen, most agree that a big steelmaker would first need to adopt them. Other steel mills might then follow suit or mill customers might feel more comfortable asking that their mill suppliers use futures as a basis for pricing or long-term supply contracts. The real reason steel companies don't hedge is because there is tremendously more variability in steel quality and products than in aluminium, which makes it difficult to establish liquidity and achieve economically effective hedges.

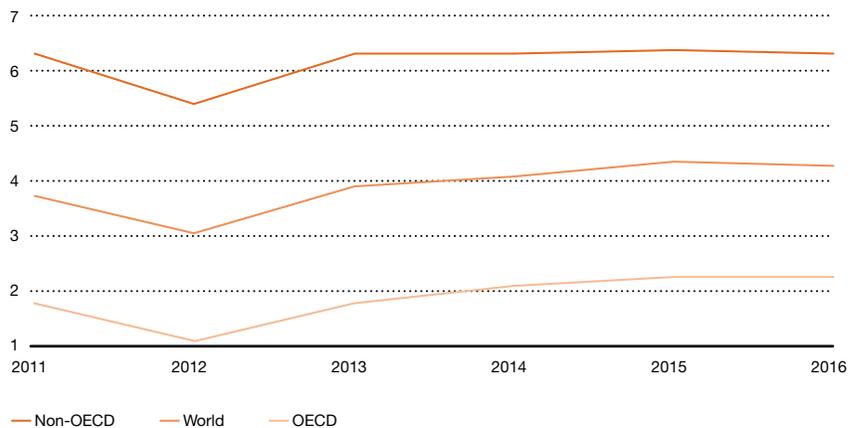
### Asia rising

The rising involvement of financial players in metals markets comes as larger trends are orienting both demand and supply toward high-growth developing markets. According to Economist Intelligence Unit forecasts, real GDP growth in non-OECD countries will continue to far outstrip that in OECD nations. For metals companies, this drives investors to consider markets such as China, India, and Brazil.

Take Atlanta-based Novelis Inc., a leader in flat-rolled aluminum products production and the largest beverage can sheet producer in the world. Aluminum beverage stock remains the company's core business, and sales are

expected to grow steadily at 4% to 5% per year. However, other sectors, such as automotive, are likely to provide faster growth rates. Aluminum is increasingly used as a substitute for steel in certain vehicle components because its lower weight can increase a vehicle's energy efficiency. Rolled steel may still be the dominant material in the auto metals market, says Phil Martens, president and CEO of Novelis, but aluminum usage in the sector has accelerated over the last five to seven years. The gains on steel may seem small but are very significant, especially considering that worldwide aluminum sheet capacity is "probably at its limit," Martens contends. This limited supply and growing demand will likely hold prices high and drive new investment.

Chart 1: Projected real GDP growth at PPP exchange rates



Emerging markets are expected to help drive automotive growth and thus aluminum use. These dramatic changes could double aluminum's automotive use in the next three years and more than triple it within another five to seven years. This will require substantial new investments, Martens says. "While cans are stable, the demand for aluminum in other consumer products is far exceeding the ability to manufacture it." Novelis is investing \$400 million to expand its aluminum rolling and recycling operations in South Korea, from which it intends to serve the entire Asian market thanks to good access to shipping, says Martens. At the same time, Novelis also is investing \$380 million in Brazil. "You just have to look at urbanization and the growth of the new middle class in these areas," he says. Aluminum companies need to position themselves to meet this demand.

However, Martens says Novelis is cautious about investing in China, in part because of issues such as carbon taxes, a policy recently implemented in Australia, and likely a bellwether of things to come. "By 2015, there will be carbon taxes everywhere... and it's going to put enormous pressure on geographical borders," he predicts. As carbon taxes gain ground, exports from China, which relies largely on coal-fired power, will become more expensive and less competitive, Martens argues. "You are going to almost instantly create an internal demand cycle (in China) because you are not going to be able to export in a commercially viable manner," he says. The risk, however, is that a glut of supply would drive foreign producers out of business while local companies remain protected by favorable regulatory treatment and access to credit.

Trade barriers — essentially import tariffs on finished goods and export tariffs on raw materials — present another prominent hurdle. Martens says these trade barriers are "structured to drive indigenous development," and for a company like Novelis to build a production facility in China, it would need confidence that a robust scrap recycling or reclamation system could be developed in the country. "We haven't seen that yet, but we certainly expect it to happen," Martens says. In the meantime, Novelis isn't "rushing to throw up a big mill and spend \$1 billion" until it has a better idea of what market, policy, power supply, and labor-relations issues might look like. "If we were to

(invest heavily), we would do it for the Chinese market, not as an export base," Martens says.

The focus on markets in Asia — and China in particular — does not mean these regions have ceased to be a low-cost source for many metals-related products. For example, integrated aluminum producer Ormet Corp buys carbon anodes, a key input, from China. The company is "looking very closely" at investing in an existing manufacturing facility in China to reduce its costs, according to Michael Tanchuk, president and CEO. Petroleum coke is the basic raw material for carbon anodes, and China has significant reserves of the material, he says. The necessary capital, construction, and equipment costs for making anodes are much less expensive in China. That means it can still be cost-effective to produce them in China, even taking into account higher transportation to the United States, where Ormet's aluminum production facilities are located, Tanchuk states.

Moreover, developing Asia is driving demand in a range of metal products. According to Jamie Sokalsky, president and CEO of Barrick Gold, demand from the emerging markets is not limited to industrial metals, but includes precious metals, such as gold. Sokalsky notes that China may soon become the world's largest consumer of gold.

## **New growth in traditional markets**

There is also a wider trend to locate closer to end product markets. In some cases, metals firms in developing countries see developed economies such as the United States as prime locations for their manufacturing facilities. Energy costs and their implications on transportation economics play a major part of this shift.

Mumbai-based Welspun Group, a conglomerate that makes steel line pipe used for oil and natural gas transmission, is an example. The company constructed a large-diameter steel line pipe mill in Little Rock, Arkansas, and announced plans to build the facilities necessary to produce smaller-diameter line pipe in the United States as well. According to David Delie, president of Welspun Tubular LLC, the company's US subsidiary, the advantages of locating in America include eliminating delays of up to eight weeks in shipping and the reduced risk of goods being damaged in transit.

Welspun's large-diameter mill has already supplied large interstate natural gas pipeline projects, such as Alberta-based TransCanada Corp.'s Keystone XL pipeline, which is slated to run crude oil from the tar sands

of western Canada to the Gulf Coast of Texas. This massive pipeline was expected to be approved by the end of 2011 but was recently denied key federal permits. TransCanada, which intends to reapply, still expects the project to go ahead and be in service by 2015. Welspun's smaller-diameter plant is expected to take advantage of demand from gathering lines needed to support burgeoning shale oil and shale gas production in North America.

Lower transportation costs and good demand prospects were not the only reason Welspun decided to build line pipe production facilities in the United States. Logistics, customer relations, and even political concerns also played a big role, suggests Delie. "The transportation costs are huge for large-diameter line pipe, and (without production facilities in the United States) you have the risk of being an outsider," Delie says. Given the political sensitivity of a project like the Keystone XL, it helps to be based in the United States, he says.

While transportation costs may remain high, the divergence of oil and natural gas markets is changing the face of the metals industry. Lower natural gas prices, and their resulting lower electricity costs, have opened up a range of opportunities for US mills to reduce their input costs. Pittsburgh-based US Steel Corp., for example, is using more natural

gas in its blast furnaces. This saves money and can reduce the amount of coking coal needed to make steel. US Steel has also discussed the possibility of using electric arc furnaces (EAFs) charged with direct-reduced iron (DRI). John Surma, the chairman and chief executive officer, has suggested that lower natural gas prices make operating both EAFs and DRI-making facilities attractive propositions.<sup>1</sup> As US Steel has traditionally been an integrated steelmaker that produces steel from blast furnaces fed with coking coal and iron ore, EAF production would represent a significant shift in the company's strategy.

Nucor Corp., a pioneering mini-mill steelmaker, owns both scrap and DRI operations that provide raw materials for its EAFs. In the mid-2000s, it moved a DRI facility in Louisiana to Trinidad to take advantage of lower natural gas prices on the island. Due to current, historically low natural gas prices in the United States, Nucor is now spending \$750 million to build a DRI facility in St. James Parish, Louisiana, with production expected to begin in 2013.<sup>2</sup> Company officials have noted that lower natural gas prices are also boosting demand for steel products from the chemical industry, which, thanks to low natural gas prices, is expanding after decades of relative stagnation.

---

1 "Unites States Steel's CEO Discusses 4th Quarter results: Earnings call" SeekingAlpha.com, January 31, 2012

2 Nucor press release September, 15 2010, "Nucor selects St. James Parish, Louisiana for Iron Making Facility"

## Coping with volatility: What are your options?

Metals markets are being buffeted by unprecedented volatility. The costs of producing metals in China, the country's growing appetite for industrial products, and current investor interest in commodities all have contributed to increasing the magnitude of price swings, according to Tanchuk. Previously, primary aluminum prices might have moved up or down in the range of \$100-\$200 per ton in a volatile market. In the last four years, the market has seen gyrations of \$600-\$1,000 per ton, Tanchuk says.

The EIU's data (see Chart 2) reflects this, with primary aluminum prices hovering between approximately \$1,400 per ton and \$1,600 per ton from 1996 until as recently as 2004. Prices then surged upward to a peak of more than \$2,600 per ton in 2007 and 2008 before declining to less than \$1,700 a ton in 2009.

Chart 2: Primary aluminum prices (USD/ton)



"I think you are going to see volatility in our metal for the foreseeable future," Tanchuk says. "It's like the weather. You can't change it, so you have to learn to deal with it."

To address volatility, key tools are contract terms and option instruments. For Ormet, that has meant implementing a metal risk management program. The company makes commodity aluminum ingots. While it cannot negotiate prices with its customers, who are mostly traders, it can lock in prices for physical materials. Ormet actually benefitted during the market crash that coincided with the 2008 financial crisis because it had locked in a sales price far above the price the market fell to when the "bottom dropped," according to Tanchuk.

## Hedge your bets

Financial strategies carry their own risks, however. If the market were to enter a period during which prices in the near term are higher than those in the future, it could wreak havoc on a company that had implemented a hedging strategy based on the expectation of prices going up. Ormet addresses this concern by collaring (placing put and call options around) its commodities costs at a level at which the company can turn a profit. This potentially means losing some of the upside if prices increase more than expected, but it safeguards the company in both directions. With a two-sided hedge, "volatility no longer matters to me" for the timeframe of the contract, Tanchuk says. However, he cautions, "You don't go too far out, maybe one to three years, because it's hard to predict beyond that."

Ormet keeps an eye on operational costs looking for improvement where possible. But according to Tanchuk, cutting costs at the operational level can only save the company \$100-\$200 per ton. Although this is a significant figure, it is not enough to offset the magnitude of metal swings in the current environment. "Unless you address the trading piece of it, you could ... have the best operation in the world and still find yourself in trouble if you don't take advantage of that volatility," Tanchuk says.

## Case study: To hedge or not to hedge: For Barrick Gold, that's not a question

Barrick Gold doesn't hedge gold prices because its shareholders want exposure to price volatility. This has served the company exceedingly well given gold's steady upward march in recent years, says Barrick president and CEO Jamie Sokalsky. "That's one of the reasons we don't think gold is in a bubble; it's been an orderly move up," Sokalsky says. Since 2004, gold prices have climbed steadily from approximately \$400 per troy ounce to an average of more than \$1,600 per troy ounce in 2011. However, the EIU forecasts that, after peaking in 2012, gold prices could decline to slightly more than \$800 per troy ounce by 2016.

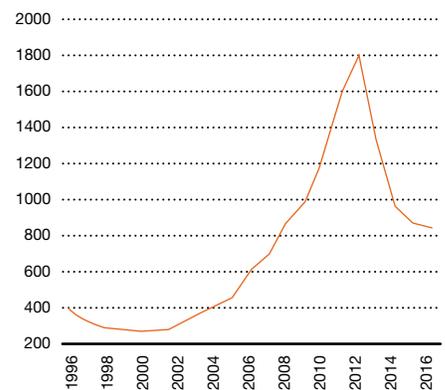
Even if gold prices were to tumble, Barrick would not hedge its gold exposure, according to Sokalsky. Barrick is already a low-cost producer, it has a strong balance sheet, and it benefits from the economies of scale and leading practices derived from having operations around the world, he says. Its cash cost of producing gold is roughly \$460 per troy ounce in 2011. "Gold prices would have to fall an extreme amount before we would not still be generating very strong cash flows," he says. While gold prices have jumped roughly five-fold in the last few years, global production has only increased by 2% in the same time.

Although Barrick remains exposed to gold prices, it hedges much of its input costs and selling prices for the other metals it produces, including copper. The company's strategy with oil exemplifies this. Its mining operations consume roughly 15,000 barrels of oil per day, largely to feed its diesel-powered trucks and machinery. In fact, energy expenditures represent roughly one-quarter of Barrick's overall cost structure, according to Sokalsky. Barrick buys futures largely for West Texas Intermediate (WTI) oil to hedge its diesel requirements, and has used the volatility in oil prices in recent years to its advantages, especially in the cases in which prices have fallen. Average WTI prices shot up to nearly \$100 per barrel in early 2008 before tumbling to below \$65 per barrel in 2009. WTI's price per barrel is expected to climb to approximately \$115 by 2016, according to EIU forecasts.

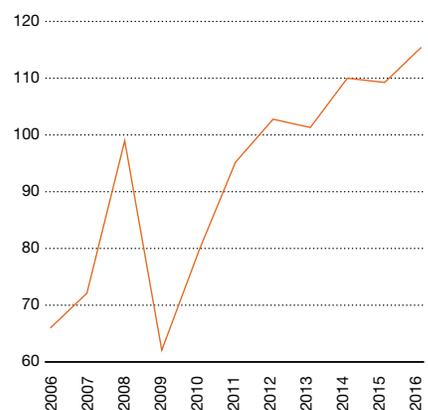
Barrick's hedges of other metals, including copper, are not simply a way of reducing the company's exposure to a drop in prices, but also help fund its gold operations, Sokalsky says. The company also takes opportunities in currency markets — when the Australian dollar plunged to about \$0.65 compared to the US dollar during the financial crisis, Barrick took a big position and locked in at a very favorable exchange rate. While there are clearly risks to this level

of trading involvement, market distortions can provide insightful and fortunate businesses with highly profitable opportunities.

**Chart 5: Gold prices (USD/troy ounce)**



**Chart 6: Oil prices, West Texas Intermediate (USD/barrel)**



Celsa Group, a mini-mill steel producer headquartered in Spain, does not participate in steel futures markets, but this does not mean it ignores hedging. “As a business driven by the spread between finished products and the scrap costs, hedging is a management tool to reduce the impact of additional transformation costs,” says Angel Pueyo, the company’s chief operating officer. Scrap is the primary raw material used by Celsa’s EAFs, but these furnaces consume very large amounts of energy to melt that scrap. Energy is Celsa’s second largest input cost, and the company hedges it to reduce the volatility of its budget. To seek balance and flexibility, the company hedges one-half of its current year’s energy costs and one-quarter of the following year’s. This allows Celsa to track to the market while reducing much of its input volatility.

In part because of increased regulations in Europe, energy is more expensive on the continent than in regions that do not have carbon taxes and strict emissions controls, Pueyo notes. Collectively, these shifts have raised energy’s share to one-quarter of the company’s transformation costs. That means the Celsa Group must do more than hedge its energy costs. It also is reducing energy consumption by deploying more efficient technologies and practices, such as hot charging billets in its rolling mills.

### ***Protection with pass-through contracts***

To better handle price fluctuations, Novelis has put in place a cost pass-through business model. This was brainstormed in early and mid-2008 and, in effect, treats Novelis “as a conversion company,” according to Martens. Metals, fuels, and other costs are now passed along to customers in almost all of the company’s significant long-term contracts around the world. “Each of the contracts is subtly different. But in principle, we are well advanced in our ability to pass through what I would call the metal risk or the metal cost,” he says.

Since the summer of 2009, almost every major piece of the company’s business has been re-contracted, 70% of it on a long-term basis, with new cost pass-through mechanisms, Martens says. Now, instead of being exposed to London Metal Exchange (LME) aluminum prices for as long as seven months, the company is generally only exposed to metal price fluctuations for the roughly 45 days that metal might spend in Novelis facilities. “It’s not about customer relationships. Don’t ever think that. It’s about running our business in a disciplined and intelligent manner. At the end of the day, it’s about cash management,” Martens says.

### ***Steel dances to a different tune: long-term contracts***

While aluminum firms like Ormet and Novelis rely largely on LME prices to structure their cost pass-through mechanisms, the picture is different in steel. A more common tactic for steel producers in this market is to buy steel over a period of time and index both input steel and finished product prices to published indices of ferrous scrap or steel coil. Steel coil is the raw material used to make products like welded line pipe. Smaller mills tend to use ferrous scrap as the raw material for coil. A company like Welspun, which sits between a steelmaker and an end user like pipeline firm TransCanada, would prefer to work with both parties to hammer out a long-term supply agreement.

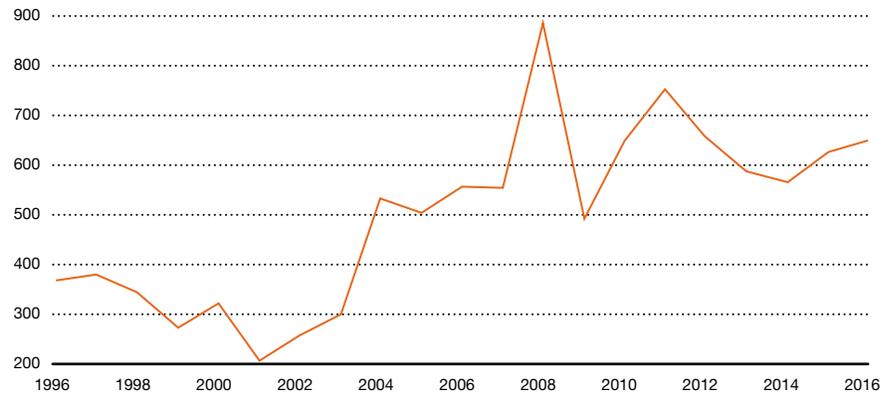
For instance, assume a contract is based on ferrous scrap prices of \$400 per ton. If scrap prices stay in the range of \$300-\$500 per ton, Welspun would not increase its pipe prices. If scrap prices were to fall below \$300 per ton, Welspun could send money back to the customer. And if scrap costs were to rise above \$500 per ton, the customer would have to pay more for its product, Delie says. Regardless of whether the contract is based on scrap or coil costs, the benchmark would be an industry publication or index “that everybody could look at” and that no party involved in the transaction could directly influence, Delie states. This approach accepts some variability, but spreads risks across other partners in the supply chain.

## The cost is worth it: warehousing

One way, but perhaps highest-cost, method to secure Welspun's flat-rolled steel prices is to buy the steel up front and store until needed for production of pipe, according to Delie. Welspun has turned to such warehousing as its long-term pricing mechanisms had relied, to no small extent, on trust and relationships. Unfortunately, trust has its limits. In early 2008, for example, when steel prices skyrocketed before the financial crisis, steelmakers added surcharges rapidly as scrap and other raw material prices rose at an unprecedented rate. Steel prices leapt from approximately \$550 per ton to nearly \$900 per ton. Before the end of 2008, however, prices collapsed to below \$500 per ton. To place that volatility in perspective, from 1996 until 2002, steel prices never rose above \$400 per ton nor fell as low as \$200 per ton.

"It was very, very dicey," Delie recalls. "I had contracts that were written rock solid that said there were no (price) escalators that could be placed on the steel; that it was a firm price." But as steel prices spiked, some suppliers tried to renegotiate or even back out of contracts, refusing to ship steel unless a new price were agreed to.

Chart 3: Steel prices (USD/ton)



That is an acute problem because not every steel mill is certified to make the high-quality steels necessary for an energy pipeline. "Nobody wanted to go to court. We were trying to push our customers, and they were threatening us as we were threatening our steel suppliers," Delie says. At the end of the day, all parties involved decided the best course of action was to reach a settlement, even if it meant making compromises.

Welspun now tries to "lock up" as much steel as it can as soon as it receives an order, according to Delie. That may be one of the key lessons resulting from the rapid run up in prices leading into

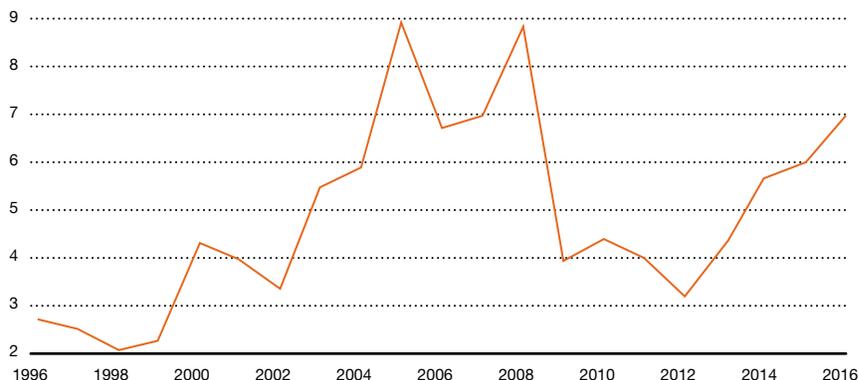
the financial crisis, the dramatic fall off in the wake of it, and the continued volatility since. As an operational strategy, this keeps the risk in terms of the physical product: The price is clearly defined and delineated. Delie is emphatic: "We aren't traders or gamblers. That's not our game. ... We make pipe, so we want to know what costs are going to be." That means if Welspun can buy steel at a price that it knows will make a given project profitable, it may buy that steel as soon as possible, even if that means holding it in storage until pipe production begins. While warehousing carries a cost, this strategy helps ensure that Welspun focuses on its core business.

## Keeping control of costs: vertical integration

Novelis locks up supplies through vertical integration. The company does not mine bauxite or smelt alumina to make primary aluminum; instead, it largely makes metal from recycled material. The company aims to make 80% of its products from recycled aluminum by the end of the decade, in part because of the savings that it expects will be generated by the lower-carbon footprint. “We are getting into scrap recycling in a huge way, both to support our growth initiatives but also in recognition of the spreads that will ultimately exist between scrap and what you might buy on the market for prime or cast ingots,” Martens says. Expertise in recycling and sources of scrap offer a wider mitigation for volatile commodity prices.

Ormet also looks to use more than financial hedges. The company aims to control costs by producing alumina, one of the key raw material inputs for the production of primary aluminum. As a result, it has restarted a previously idle alumina refinery in Burnside, Louisiana. It estimates that it could produce alumina for less than market price even given the investment necessary to ramp up use of the refinery, according to Tanchuk.

Chart 4: Natural gas prices (USD/million BTU)



For the Celsa Group, operating its own sources of supply is the principal means of coping with input prices. “Vertical integration, in this case upstream, is very important for us. This is the way we are fighting with the big problem that is volatility in the market,” Pueyo says. Owning scrap operations allows Celsa not only to secure access to a key raw material but also to gauge price movements in the scrap market. The company has further pursued a strategy of integrating both upstream into scrap assets and downstream into finished products. This allows them to mitigate risk from volatility and the risk from lack of demand, according to Pueyo.

Barrick Gold goes beyond metal in its vertical integration strategy: The company also has a natural hedge in Barrick Energy. The oil division in western Canada can produce about 10,000 barrels of oil per day, roughly two-thirds of the company’s total oil requirements. “The beauty of having the Barrick Energy division is it’s quite a long-term hedge, whereas using financial futures, you can generally go out two to four years before you’re exposed to market volatility,” Sokalsky affirms.

Barrick has also taken advantage of price declines resulting from burgeoning natural gas production to lower costs and push forward with projects that might have been far more expensive without cheap and abundant reserves of energy. Natural gas prices plummeted from highs of nearly \$9 per million British thermal units (BTU) in 2008 to under \$3 per million BTUs, driven by large discoveries of shale gas in the United States. Today, the EIU forecasts that prices could move above \$5 million BTU in 2014 and to \$7 per million BTU by 2016, still off the 2008 peak.

In Alaska, Barrick is considering feeding its Donlin gold project with natural gas, a move that would reduce costs, Sokalsky says. It is a model that could be replicated across the company as the “low-hanging fruit” of gold and other ore reserves become harder to find in developed areas. “As we go further afield, often we have to build our own power,” according to Sokalsky. Australia’s carbon tax is an example of the regulatory changes that are pushing Barrick to look at natural gas and other strategies to reduce its carbon footprint, including investments in wind energy in South America. Energy costs are a large and rising part of total costs, so the company has moved directly up its own supply chain to ensure it has affordable access to key resources over the long term.

## **Managing the risks**

Companies that have demonstrated an ability to successfully manage risk have done so by implementing a structured approach to identify, assess, and manage the exposures.

### **Identify and assess**

The first step in the development of any risk management program is to identify and assess risk. For many companies, the identification and definition of commodity price risk may not prove to be too difficult. But truly understanding risk profiles requires that the company understand how changes in commodity prices affect financial and operational drivers. Typically, this analysis requires some level of quantification or use of analytical tools.

Initially, this may simply be focused on understanding how much of a metal is consumed and how price changes impact earnings or cash flow. But a deeper analysis is often required, one that incorporates the impact of price elasticity and also the impact of embedded risks (i.e., those risks embedded with contracts that cause “non-linearity”). A common example of an embedded risk factor that is non-linear is the classic fuel price escalation clause commonly found in shipping contracts. With such clauses, there is not a “one-for-one” change in shipping rates with increases in fuel cost. Rather, only if diesel fuel were to rise by “x” percent might there be a

consequent change in shipping rates. The entire concept of price elasticity also calls for higher-end analytics. Much like brand marketers attempt to measure the effectiveness of advertising spend on sales volume, so too might metals market forecasters analyze how changing steel prices affect car purchases and pricing.

### **Determine objectives and set appropriate appetite and tolerance**

Before commencing any effort to improve the overall effectiveness of a metals risk management program, management should develop and broadly communicate a clear set of objectives. Further, the objectives of a metals risk management program should, of course, be aligned with the overall financial expectations of the company’s stakeholders (including, but not limited to, investors). Barrick Gold provides a strong example of aligning its risk management program to its stakeholders’ expectations by refusing to hedge its gold despite the metal’s recent rapid rise in price. Its investors don’t want it to hedge; they buy Barrick as a way to get gold exposure into their portfolios.

In practice, this value proposition is often unclear. Typically, stated risk-management objectives may include:

- To reduce earnings volatility and protect a minimum cash flow
- To ensure that a specified debt covenant is not breached
- To hedge a fixed portion of production
- To monetize the value of the commodity in the ground
- To outperform budgeted targets
- To protect existing or anticipated underlying cash in relation to physical positions/investments
- To hedge exposure based on sales projections/orders and guarantee prices to customers
- To keep within predetermined price ranges

Once objectives have been set, management must define its risk appetite and set a quantitative risk tolerance that gets cascaded down through the organization. The risk appetite is a higher-level understanding of the nature and magnitude of risks that the company is prepared to bear. The company's defined level of confidence, or "risk appetite," provides the foundation for establishing, monitoring, and modifying the hedge strategies used.

The risk tolerance is a specific number — measured in the same units of the objective — that serves as the signpost of limit when developing and implementing strategy. An integral step in setting risk tolerance is gaining a clear understanding of the sensitivity of earnings, cash flow, or other target financial ratios (implied by a target credit rating) to changes in metals price variables. Finally, once management has agreed on an appropriate set of objectives, risk appetite, and tolerance—and these are all well-aligned—the board of directors, based on its assessment of value to the shareholders, should validate the overall level of acceptable risk.

### ***Identify and evaluate potential strategies***

There is a range of potential approaches a company can take to address metals price risk. In order to design an optimal program, it is important to start by formulating an inventory of all feasible alternatives. This inventory should span the entire value chain of the sector, not just individually owned companies. As noted above, some of the most effective strategies may involve customers or suppliers and be strategic in nature.

Once a comprehensive view of all potential alternatives is established, each strategy can be assessed and prioritized based on its costs and benefits. Prioritization using a visual tool, such as a matrix, can be helpful. By prioritizing the alternatives, management can then review the results and select the strategy, or series of strategies, that is likely to yield the best results at the lowest cost over the longest time horizon.

It is unlikely that a single alternative will be the panacea. Rather, it is likely that a number of specific steps in concert across the value chain will allow a company to successfully manage metals price risk.

## Executing a hedging strategy

A risk management program requires investment in governance and organization, process, and infrastructure to support various functions, including risk analysis, deal execution, reporting, settlement, accounting, and control.

When designing and implementing a hedging program, considerations can include:

Any hedging program where the full economic effects are not properly understood, controlled, and managed, whether or not derivatives are used, can have disastrous consequences for an organization, its employees, customers, suppliers, and other stakeholders. There have been

high-profile examples of hedging programs failing dramatically because of inadequate control and monitoring.

Recent high-profile collapses, although not directly resulting from the use of derivatives to hedge exposures, demonstrate the importance of good corporate governance and the necessity for both non-executive and executive management to understand the underlying risks in its business, including any associated hedging activities. Unfortunately, experience shows that, although senior management usually understands these risks on a conceptual level, it often fails to establish an effective and appropriate governance and risk management framework to underpin its activities. This can leave a company exposed to the risk of serious control failure.

Organization



- Understanding the range of financial instruments or derivatives available in the marketplace to mitigate exposure to the identified risks.
- Evaluate the benefits, costs, and risks associated with the proposed strategy and tools to be used.

Process



- Consider direct transactional costs (bid/ask spread) for using hedge instruments such as futures, forwards, swaps, and options.
- Consider potential systematic costs of hedging reflected in the shape of the forward price or yield curve.
- Consider the increased management and operational costs for the establishment and implementation of required systems.

Technology



- Consider increased compliance costs associated with accounting, internal control, legislative, and stakeholder requirements.
- Consider how the hedges to be used will qualify under the accounting rules.

## **Advancing your company's risk strategy**

If there is a single rule to follow in developing a hedging approach, it is that a comprehensive study of the impact of risk should be carried out first. No common approach will suit every organization, and no single hedge approach will suit a company all of the time. However, a risk management best practice involves identifying and maintaining an overarching, consistent philosophy and set of objectives. Key points to consider when formulating your company's financial risk management and hedging approach are:

- Ensure that your hedging philosophy can be supported by a thorough exposition of how it contributes to shareholder value (either by itself or, preferably, in the context of the wider financial and corporate strategy).
- Undertake a business impact analysis to understand properly and measure the impact financial risk is having on your business and how hedging might impact the objectives of internal and external stakeholders.
- Ensure there is clear communication to investors of the resulting risk profile.
- Conduct regular performance assessments of your hedge policy to ensure that objectives are being met. Has the business changed in a way that means the hedge approach needs revisiting?

Many companies already manage metals pricing risk in some form; however, benefits may be realized by adopting a more robust and integrated program. Improving the current approach may just be a matter of formalizing and standardizing risk monitoring activities across the value chain.

Executive leadership, assigning clear roles and responsibilities, and delivering training are all critical to gaining program support. Throughout the first stages, it is important to demonstrate small wins with tangible value. As the program becomes more robust, management should be able to refocus on core strategic risks with frequent reviews of specific metals risk. This can enable a metals company to move forward confidently and deliver value.

---

*What this means for your business*

Volatile risk environment  
puts premium on  
companies' ability to stay  
agile and opportunistic

Metal price variability has been high and is likely to continue to be so. Historically, companies have managed this variability using cost pass-throughs, derivatives and cost cutting. These strategies are no longer sufficient to do the job. Companies need to think more broadly and strategically. In addition, the current global business environment creates emerging risks—for metals producers that are potentially more significant than metal prices.

In order to operate effectively in this environment, forward thinking companies need to define and assess their risks, develop broad sets of alternatives, apply multiple strategies in concert, be prepared to respond to unforeseen events and develop the agility to capitalize on opportunities as they present themselves.

Metal price management strategies are increasingly important in a world characterized by continued price volatility. Given current swings in metals prices, cutting operational costs alone may not be enough to offset variations in commodity prices. That means it is essential to carefully manage both input costs and prices of finished product. In parallel, companies can endeavor to have transparent mechanisms in place that pass on costs to customers.

Risk management is about far more than hedging strategies or passing on input costs to customers, according to Novelis CEO Martens. For him, it is important to “back up to the 50,000-foot level” and look at “true risk” such as geopolitics, carbon policies and other macroeconomic factors that pose a potentially greater risk to the company than commodity price alone. “How do you ensure that as you develop new assets you’re not going to get blocked by import or export taxes and you’re not going to get caught up in some sort of geopolitical mess. That’s the real risk that a metals business has to think about,” Martens argues. Present volatility is one part, albeit a crucial one, of a company’s enterprise management considerations.

Executives should understand that volatility is not always a problem. A well-informed and prepared company can use economic dislocations to its advantage, locking in input costs or exchange rates at low levels in markets that have overreacted and oversold commodities or commodity-linked currencies. Furthermore, in select cases, there are substantial upsides to naked exposure to the market; this can benefit a company if it has strong evidence to support such an overall strategy.

***To have a deeper conversation  
about how this subject may affect  
your business, please contact:***

Robert McCutcheon  
US Industrial Products Leader  
+1 412 355 2935  
[robert.w.mccutcheon@us.pwc.com](mailto:robert.w.mccutcheon@us.pwc.com)

Peter Frank  
Partner  
+1 646 471 2787  
[peter.frank@us.pwc.com](mailto:peter.frank@us.pwc.com)

Sean Hoover  
US Metals Industry Leader  
412 355 8087  
[sean.t.hoover@us.pwc.com](mailto:sean.t.hoover@us.pwc.com)

Jim Forbes  
Global Metals Leader  
905 972 4105  
[jim.forbes@ca.pwc.com](mailto:jim.forbes@ca.pwc.com)

Thomas Waller  
US Metals Director  
973 236 4530  
[thomas.a.waller@us.pwc.com](mailto:thomas.a.waller@us.pwc.com)