How to Identify Commodity Risks and Implement a Corporate Hedging Program

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Abstract. The workshop will help identify financial and physical commodity risks, evaluate options to hedge those risks, and formulate and implement a corporate commodity strategy.

Part I of this workshop will help to provide a working methodology to evaluate the risks to the company related to commodity purchases by addressing the following: categorizing spends; evaluating sales contracts; identifying financial risks; identifying supplier risks related to continuity of supply; benchmarking contracts; gaining market intelligence; contingency planning for future market conditions and summarizing “risk position” for each commodity.

Categorizing spends. Identify spends with a significant % of cost related to a single raw material; be sure to evaluate supplier’s raw material content as well. A good guideline is to use 25% or more of the purchase price as a threshold. A 10% increase in the raw material passed thru to you would be a 2.5% increase. Document your direct and indirect spends, combine according to the raw material content and include the quantity purchased. A good example of an indirect commodity spend is the oil content in engineered plastics - it is hard to offset contractually, but can fluctuate significantly, and if desired, can be easily hedged.

Evaluating sales contracts. For each commodity, work with the appropriate people to understand how your company’s products are priced in accordance with material costs. If the sales price does not change with raw material price changes, then the company is at risk when underlying raw material prices change. The difference between the purchase price of the raw material and the cost of it reflected in your product’s sale price at the time of delivery is the basis of the company’s risk position. Document the sales price with the change in material cost for each of the raw material spends.

Identifying financial risks to the company. How effective the pass thru clauses and base price increases are in matching those costs and in recouping price increases is the quantifiable risk that the company bears. It is important to thoroughly understand how general price increases are triggered and how well they are accepted by customers. First, identify the effectiveness of the price change clauses by asking if they stick and getting finance agreement that the price clauses are in fact the way the items are sold. Next, compare the purchase price of the raw material to the corresponding price basis at the time of delivery – i.e., buying steel at August prices and selling racks at May steel prices. It’s important to understand what the differences are between the prices of the raw material at the time it is sold and at the time it is delivered. Once you understand the transaction specifics for each sales contract, identify the order frequency and the overall ordering patterns for each type of sales contract. The goal is to determine the percentage of sales associated with each pricing basis and then quantify the overall risk to the company.

Here is a hypothetical breakdown: Commodity X - 20% sold on trailing 3 month average; 50% sold on trailing one month average; 15% sold on current month average or spot price; 15%...
sold on fixed price, project basis. Commodity Y, Z, A – passed thru via general price increases; Commodity B – 25% captured via surcharge mechanism. The percentages are hypothetical, but the intent is to develop an accurate distribution of the sale price basis for each major commodity spend. Next, determine manufacturing lead times for your products and compare the expected purchase price to the delivered price for each of those products and their pricing mechanisms. After this, you need to identify the purchase price relative to the delivery and order dates. For instance, if a contract allows the order to be placed with significant lead times, delivery request times or ability to order and change the requested date, then the pricing mechanism should change accordingly. This may be difficult, but a model of the purchases and deliveries is essential to hedging. Figure 1 illustrates a hypothetical multi-plant, multi-product line profile for Commodity X’s purchased date relative to the order date and the manufacturing lead time. The chart can then be used to determine what percentage of commodity purchases do not match up with deliveries, from a price recovery standpoint.

<table>
<thead>
<tr>
<th>Plant</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of Total Sales</td>
<td>30%</td>
<td>2%</td>
<td>4%</td>
<td>29%</td>
<td>5%</td>
<td>11%</td>
<td>16%</td>
<td>100%</td>
</tr>
<tr>
<td>Sales/Yr in $M</td>
<td>1000</td>
<td>60</td>
<td>144</td>
<td>860</td>
<td>160</td>
<td>360</td>
<td>600</td>
<td>3264</td>
</tr>
<tr>
<td>Lead times range in wks</td>
<td>0 or 1</td>
<td>0</td>
<td>2-3</td>
<td>4-6</td>
<td>0-4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commodity purchase relative to order placed</td>
<td>-5</td>
<td>-6</td>
<td>-5</td>
<td>-10</td>
<td>-5</td>
<td>-5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Figure 1 - Estimated % of Commodity X purchased in week relative to order placement**

**Identifying supplier risks related to delivery and continuity of supply.** Identify the risks to delivery and continuity of supply so that you can make sound business decisions as to who the right suppliers are for you and what the supply chain can provide for you. For suppliers with significant raw material content, identify their risks for that aspect of their supply chain.

**Benchmarking contract methods.** Ask your suppliers, customers and colleagues how they manage raw material price risk. Research contracts, identify best in class and document what you believe to be the best in class methods to contract for your raw materials. Hire a consultant if the value justifies it or if there’s no other way to get the information. You must
understand how it’s done by other companies, particularly your competition. Identify and document how the competition buys and be ready to explain in detail how and why.

**Gaining market intelligence.** Customers, suppliers and peers often are the best source of information. If possible, hire a consultant that has worked in the raw material industry for your biggest spend category and is knowledgeable about product pricing and has experience with your company and your competitors. Hire them specifically to teach you what you don’t know. Your banker often has a research department with good insights and may send out regular briefings or intelligence reports.

**Contingency planning for future market conditions.** Simply put, understand the risk of physical delivery in the future. Answer these questions - will there be enough supply available next year, in five years? Will our suppliers still be in the market? Will the market price support continued production or new production? What external events or technologies are likely to significantly change the supply landscape? What risks do I believe really exist?

**Summarizing “risk position” for each commodity.** For each raw material, document:
1. Annual spend and quantity purchased directly and/or indirectly
2. How purchase price is reflected in sale price and how price changes are recouped.
3. The % of product delivered by pricing mechanism, lead times and mfg times
4. The purchase date for the raw material used in the delivery of the products
5. The difference between actual raw material purchase price and the price reflected in the delivered product sale price (based on pricing, either contract or policy). Do this by product type for total commodity spend. An example is illustrated in Figure 2 for one order, one commodity.

<table>
<thead>
<tr>
<th>Example</th>
<th>Order Date</th>
<th>Delivery Lead Time</th>
<th>Mfg Flow Time after Commodity Purchase Date</th>
<th>Commodity</th>
<th>Sale Price Basis for Commodity</th>
<th>Risk</th>
<th>Risk Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Rules”</td>
<td>Today</td>
<td>12 weeks</td>
<td>4 weeks</td>
<td>prior month average of date of order placement</td>
<td>Price risk between actual purchase price and contract price basis</td>
<td>actual price difference * purch qty</td>
<td></td>
</tr>
<tr>
<td>Example</td>
<td>1/1/2010</td>
<td>3/26/2010</td>
<td>Start mfg on 3/1-10</td>
<td>Commodity priced at Feb 10 average</td>
<td>Sale price at Dec 09 Average</td>
<td>Price difference per lb between Dec 09 and Feb 09 average prices</td>
<td>= (Feb 09 - Dec 09) * lbs/order</td>
</tr>
</tbody>
</table>

Use the following:

- Feb Average price = $2.20
- December Average price = $2.00
- 2000 lbs/order

\[ \text{Price risk} = (2.20 - 2.00) \times 2000 = 400 \]

$400 price risk

**Figure 2 – Example illustrating calculation of risk position for an individual sales order.**

Using this approach, calculate the price differences for each commodity for each pricing mechanism and estimate a typical month’s worth of risk, based on customer order patterns. Once you identify the risk position for all pricing mechanisms by product type, apply it to bookings, real and anticipated, for a period of time that accurately reflects the customers’ order patterns and the company’s delivery performance. This will give you an idea of how much
money is potentially at risk given your current agreements. If there were 1000 orders on the books like the example, then the risk position would be $400,000 for April deliveries.

Part II will focus on how to utilize this analysis to focus management attention on available options to hedge these risks and to allow a method to properly evaluate the options.

**Identify physical purchase hedges.** Once you understand your price risks, first determine if you can change pricing on physical deliveries to offset the price risk. Utilize your suppliers, industry experts, peers and bankers to assist in identifying feasible options. Start by negotiating with suppliers to align the purchase price with your delivered sales price or to determine what other options are available, such as changing the underlying price basis, fixing prices or having your supplier financially hedge the purchase by buying and holding inventory for you. This may not be possible, but by having the conversation, you should uncover insights into best in class pricing. Typically, the costs associated with physical hedging are less than those with financial hedging.

**Identify financial hedging options.** Once you have exhausted the physical hedging efforts, identify what financial hedging options are available for each commodity in question. Don’t do this on your own. Get the options from internal experts or from professionals. If you prepared your risk positions and understand your physical purchase options as well as your sales contracts, you can work quickly with commodity brokers or traders to get a clear understanding of options available. There are too many options to mention here, but most likely you will be limited by accounting treatments. Typical hedges include future and options contracts. A future contract is usually used in conjunction to offset your physical purchase contracts to hedge against the typical price risk when delivery and volume are defined. Options to buy or sell can be utilized to hold a position for an outstanding quote as well as to provide mitigation for potential price swings that cannot be recovered or to limit losses on forward contracts.

Moreover, if you are not literate on hedging, then get educated prior to contacting the experts. Again, hiring, or enlisting the support of the right people cannot be stressed enough. Start with a book or website on hedging, such as NYMEX’s hedging guide. Additionally, if the spend is significant, I recommend a professionally taught course, such as the courses available from the London Metals Exchange. At this point, gauge the education level inside your company, particularly the C-Level executives. Hedging programs are typically approved by the board (or owners) so if you are engaging the services of experts to educate yourself, leverage them and educate the C-Level executives as well. This will go a long way to making the final decisions more quickly. I brought in a number of experts to provide insights on the financial.

**Hedging via sales contracts.** If the purchase price cannot be changed, the commodity is not traded on an exchange, or the company does not want to financially hedge, then it is imperative to align the sales contracts with the commodity purchases when the risk is significant. It’s best to do this as a part of normal sales contract negotiations or pricing rollouts. However, if the timing does not support this, then the need to implement this should be balanced against the customers’ acceptance as well as legal implications.

**Financial accounting considerations.** Again, solicit internal expertise as well as external accounting considerations as required. Typically, you will need to identify a financial option and then solicit your finance organization to determine if “hedge accounting” treatment can be
obtained. It is often easier to identify what commodities and what types of options are available to you from an accounting perspective prior to exploring anything complex. There are numerous information sources on this, but go straight to your finance personnel or outside accounting firm because the final buyoff must come from them and they need to be comfortable. Often, the finance organization will take responsibility for hedging programs with the supply chain management function providing the data or analysis to develop the risk position and the day to day requirements.

**Competitive strategic analysis.** You should know what your competition is doing and how they are doing it. You need to provide this information to your CFO and CEO so they can talk intelligently about this to the board, as well as to analysts. Additionally, this will provide insights into your competitiveness in the market. Sales people, customers and bankers are excellent sources of specific data or information that can be compiled to understand how the competition works. Customer RFP’s can provide considerable insights into what the competition is willing to do or has done. Gather data on how competitors hedge, physically or financially; how they contract for the sale price with pass thru commodity clauses; and if they provide fixed price contracts. If fixed prices are offered, at what price, duration and volume commitments. Then compare and document what you do vs what they do.

**Cost associated with hedging options.** If hedging financially, you will need either a credit limit established and/or collateral. Forward contracts are marked to market on a daily basis, with applicable margin calls. Transaction commissions are minimal (included in the price). Price differences exist between traders as a result of their internal risk curves and their access to the market. In short, shop around, but keep in mind that the finance organization will most likely dictate the use of your current bank as well as others based on your firm’s risk tolerance and financial considerations. Credit availability is extremely important as you will be limited to how many contracts you can enter into based on your credit limit and collateral requirements.

**Risks associated with hedging.** In short, if you hedge to offset price risk, then getting the analysis right is critical. You risk either too much or too little hedging; getting the timing wrong between the financial contract and the physical contract and you risk customers walking away from firm orders when you’ve fixed the price and the price drops significantly. You also risk the margin call when the prices drop. Plan for these risks – implement cancellation charges, monitor cancellations; make sure the cash plan has anticipated margin calls. Additionally, you may be hedging and your competition isn’t, and the price drops – what do you do? Discuss in advance and evaluate options. For additional money, you can procure calls or puts that allow you to buy/sell at your option, instead of being committed to a forward contract. The price of these options has been expensive due to the significant volatility in the markets lately. One primary use of options is to limit losses on forward contracts. Seriously consider using options if your firm’s strategy results in significant long positions. Again, financial experts and available literature can provide you with guidelines and spell out risks involved with typical strategies.

Part III will focus on methods to set up a policy committee, establish corporate goals for hedging, agree on hedging strategy, document the strategy, enact rules and metrics, assign responsibilities, establish reporting requirements and gain board approval. The criticality of change control procedures, appropriate hedge accounting, measuring policy effectiveness and maintaining market intelligence will be covered as well.
I recommend that you set up a policy committee for hedging. If you need to convince the company that you should hedge, I recommend that you follow these steps to get approval:

1. Identify the risk position for the commodities in question in dollar terms and cite recent examples where the company was negatively or positively impacted
2. Document the purchase price and sale price mechanisms to explain why there is a risk and why it was not mitigated; Identify risks on the order book and in existing contracts
3. Determine the impact to the company if actions are not taken to mitigate the risks – calculate potential losses/gains if use typical pricing for commodities and price changes
4. Prepare a presentation for appropriate management to review the risks in question; be prepared to recommend a course of action going forward; i.e., develop a hedging program and a policy committee to develop and agree on the hedging strategy.
5. Present to appropriate management with recommendations. Continue below.

If you are starting a hedging program or revising an existing one, I recommend these steps:

6. Set up a policy committee made up of key executives particularly top P&L and Finance executives. Outline the scope, determine a meeting schedule and agree on the first deliverable. From that point on, the process will likely evolve.
7. Establish corporate goals for hedging. I recommend soliciting committee members for their goals, clearly defining the meaning for each goal, gaining consensus on like worded goals and determining a method to rank goals. I recommend using “forced ranking” to get goals prioritized. Use a Six Sigma facilitator if possible.
8. In a spreadsheet, list the goals in a column and the hedging options in rows. At the intersection of goal and hedging option, indicate how well the option would meet the intent of the goal, if it was implemented. Use Fully Meets, Partially Meets, Does Not Meet. This is what you will review and discuss in detail.
9. Get the committee together, show the matrix and discuss. Be prepared to discuss the costs and risks of implementing as well as how well the hedge meets the goal.
10. Agree on a hedging strategy – evaluate the hedge options, risks, goals and recommended strategy and make a case for correct fit for the firm. Take the necessary time to investigate all issues and concerns; don’t rush and complete all open actions.
11. Document the strategy – be sure to document all aspects of the program, keeping it as succinct and clear. Put it in writing with signoff and date approved, etc.
12. Enact rules and metrics – how and when to execute; limits; change control procedures; decision making criteria; signoff responsibility and documentation requirements
13. Assign responsibilities for recurring activities as well as dates/milestones for execution.
14. Establish reporting requirements and publish charts/reports weekly – performance measurement is key to initial success and ongoing evaluation of effectiveness
15. Gain board approval as required; closely monitor compliance to the board’s direction.
16. Meet regularly – often in the beginning (weekly) and then less regularly as the program matures, recommended every 2 or 4 weeks; continue to publish weekly reports.