Managing commodity volatility

Reducing your risks with effective hedging
1 Managing commodity volatility
2 Why hedge
3 About EY
Managing commodity volatility
Recent volatility in commodity prices

Driven by supply and demand, logistics, weather, consumer sentiment and geopolitical factors, prices of commodities from oil and natural gas to corn and wheat have moved with surprising force and speed.

**Energy**

<table>
<thead>
<tr>
<th>Price</th>
<th>05 Jan 2011</th>
<th>05 Jan 2012</th>
<th>05 Jan 2013</th>
<th>05 Jan 2014</th>
<th>05 Jan 2015</th>
<th>05 Jan 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crude oil</td>
<td>$120.00</td>
<td>$110.00</td>
<td>$100.00</td>
<td>$90.00</td>
<td>$80.00</td>
<td>$70.00</td>
</tr>
<tr>
<td>Natural gas</td>
<td>$120.00</td>
<td>$110.00</td>
<td>$100.00</td>
<td>$90.00</td>
<td>$80.00</td>
<td>$70.00</td>
</tr>
</tbody>
</table>

**Grains**

<table>
<thead>
<tr>
<th>Price</th>
<th>03 Jan 2011</th>
<th>03 Jan 2012</th>
<th>03 Jan 2013</th>
<th>03 Jan 2014</th>
<th>03 Jan 2015</th>
<th>03 Jan 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corn</td>
<td>$10.00</td>
<td>$9.00</td>
<td>$8.00</td>
<td>$7.00</td>
<td>$6.00</td>
<td>$5.00</td>
</tr>
<tr>
<td>Wheat</td>
<td>$10.00</td>
<td>$9.00</td>
<td>$8.00</td>
<td>$7.00</td>
<td>$6.00</td>
<td>$5.00</td>
</tr>
</tbody>
</table>

**Metals**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Copper</td>
<td>$9,000.00</td>
<td>$8,000.00</td>
<td>$7,000.00</td>
<td>$6,000.00</td>
<td>$5,000.00</td>
</tr>
<tr>
<td>Aluminum</td>
<td>$9,000.00</td>
<td>$8,000.00</td>
<td>$7,000.00</td>
<td>$6,000.00</td>
<td>$5,000.00</td>
</tr>
</tbody>
</table>

**US Dollar Index**

<table>
<thead>
<tr>
<th>Price</th>
<th>03 Jan 2011</th>
<th>03 Jan 2012</th>
<th>03 Jan 2013</th>
<th>03 Jan 2014</th>
<th>03 Jan 2015</th>
<th>03 Jan 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>$100.00</td>
<td>$90.00</td>
<td>$80.00</td>
<td>$70.00</td>
<td>$60.00</td>
<td>$50.00</td>
<td>$40.00</td>
</tr>
</tbody>
</table>

In a recent EY survey\textsuperscript{1} of more than 1,600 executives across 18 sectors, 34\% of respondents believed that increased volatility in commodities and currencies is the greatest economic risk to their businesses over the next 6 to 12 months.

\textsuperscript{1} Oil and Gas Global Capital Confidence Barometer: deal activity to accelerate, EY, October 2015
## Impacts of commodity volatility
### Potential business implications

<table>
<thead>
<tr>
<th>Impact</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exposure to price volatility</td>
<td>Creates uncertainty in earnings per share, causing reporting issues for CFOs</td>
</tr>
<tr>
<td>Negative cash flows</td>
<td>Creates short-term working capital issues for company treasurers</td>
</tr>
<tr>
<td>Lack of margin optimization</td>
<td>Company not able to capture earnings upside due to commodity volatility</td>
</tr>
<tr>
<td>Earnings comparability</td>
<td>Commodity volatility eats into company’s core earnings, creating differences between company and peer group</td>
</tr>
<tr>
<td>Headline risk</td>
<td>Unlimited or unmanaged commodity volatility gives public perception that company does not understand business drivers</td>
</tr>
<tr>
<td>Earnings degradation</td>
<td>Commodity volatility can cause significant earnings loss due to increase in input costs</td>
</tr>
</tbody>
</table>
How effective is your company at managing commodity risk?
## Self-assessment
Does commodity volatility affect you?

<table>
<thead>
<tr>
<th>Question</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Have you experienced commodity price volatility in the last three years that has had an appreciable impact on earnings and cash flows?</td>
</tr>
<tr>
<td>2</td>
<td>Do you have a strong understanding of key business areas in your company that are impacted by commodity price volatility?</td>
</tr>
<tr>
<td>3</td>
<td>Do you have clear business objectives for the procurement of commodities and related hedging?</td>
</tr>
<tr>
<td>4</td>
<td>Do you have the tools in place for monitoring commodity market risks and reporting relevant information to management?</td>
</tr>
<tr>
<td>5</td>
<td>Does your technology provide sufficient and timely access to data needed to measure and manage risk?</td>
</tr>
<tr>
<td>6</td>
<td>Do you have tools in place to measure and report your specific exposure to commodity prices?</td>
</tr>
</tbody>
</table>
Managing commodity volatility
Why hedge

The primary objectives of hedging are to:

1. Reduce price risk and earnings volatility
2. Stabilize procurement costs
3. Optimize margins

Companies in a broad range of industries — including airlines, chemicals, consumer products, food products, industrial manufacturing and utilities — engage in commodity hedging activities. Because they understand how difficult it is to predict precisely when commodity prices will rebound after a precipitous drop, most realize that a low-price environment is a good time to consider or revise a hedging program.

Key takeaways:

► Hedging is an important tool that can help companies in a variety of industries reduce price risk and earnings volatility, maintain a stable supply of raw materials and optimize margins.

► Hedging programs need to be tailored to the organizational strategy, financial goals and risk appetite of the company.

► In determining a hedging program, the organization should align its operations to key value drivers that include transaction and credit costs, capital requirements, technology and people investments, and expected value and timing of returns.
Approaches to hedging
Which approach suits you?

The first step for a company embarking on a hedging program is to determine goals and style for the program and prioritize them. Historically, companies have relied on different hedging strategies, ranging from static programs that lock in prices for a fixed volume to active hedging programs that anticipate trends in price movements. The relevance of each strategy is dependent on the overall business objectives, financial goals and risk appetite of the company.

Below are three broad categories of hedging we see as a means of managing risk:

A. The “price fixer”
   - Hedges a fixed percentage of production or requirements; limited or no market exposure
   - Locks in hedged revenues and costs for the season mechanically; minimal earnings volatility and price risk
   - Low flexibility, no participation in beneficial price moves

B. The “opportunistic hedger”
   - Extracts additional margins on the basis of market volatility; manages market exposure
   - Adjusts percentage hedged and timing of trades on the basis of view of market
   - Generally between 40% and 80% of physical hedged
   - May win or lose depending on success, but earnings should be within a targeted range

C. The “active hedger”
   - Takes more directional views
   - May or may not hedge at times depending on view
   - Enters and exits hedge positions actively
   - May have both “hedge” and “opportunistic” portfolios managed separately
   - Needs more sophisticated risk and limit monitoring, and robust systems and controls
   - Potential for higher rewards at the cost of volatile results
An effective hedging program must be installed within the context of a structured framework supported by well-defined processes that cover all aspects of the transaction life cycle and an infrastructure that includes the people, systems and documented policies and procedures for risk management and accounting.

Key elements of a well-designed and well-executed risk management program:

- Robust processes around governance, forecasting, credit, risk, accounting and treasury should be bolstered as necessary to address the requirements of the hedging program.
- People with the right experience and skills manage different aspects of the program.
- Fit-for-purpose policies — from a governance perspective, a risk management policy document is a must that clearly articulates the objectives, risks and rewards of the hedging program.
- Program performance — key performance indicators should be established and monitored to aid oversight and improve overall program performance.

Common challenges of poorly designed or executed risk management programs:

- Unclear objectives for risk management
- Unidentified financial risks
- Lack of investment in resources to support the risk management function
- Inadequate internal controls
- Misapplication of hedge accounting rules
- Lack of meaningful performance measures to control and manage risks
Sample hedging framework
Principles in action across the transaction life cycle

Sample illustration of a framework to support implementing an effective hedging program

Risk management committee
- Oversees all hedging activities to confirm compliance with company policies, risk appetite and objectives

Credit function
- Sets up and approves all counterparties and credit limits
- Monitors credit exposure

Risk function
- Monitors market exposure
- Conducts curve validation
- Performs stress testing and sensitivity analysis

Commercial team
- Conducts forward and historic market analytics
- Executes transactions to manage financial risk within the market and credit limits

Accounting and back office
- Performs settlement of positions
- Prepares and books journal entries
- Meets derivative accounting rules and disclosure requirements
- Oversees internal controls
How can EY help?
Our framework and phased approach

Companies that are exposed to commodity prices should carefully consider the impact that price increases and volatility may have on the bottom line. Whether to hedge and how much to hedge are questions that companies need to think through, and companies must carefully evaluate the risks and rewards of hedging. More important, companies must clearly articulate their objectives and risk tolerance, then align the execution of their hedging program with that assessment.

EY has a proven approach to advise clients in the development of fit-for-purpose hedge programs that address the key infrastructure components.

The services we can offer may vary as certain of our services for an audit client and its affiliates may be more limited in order to comply with applicable independence standards. Please reach out to your EY contact for further information.
Managing commodity volatility

Commodity price volatility is nothing new, but increasingly companies are actively considering how best to manage the risks and potential opportunities that swings in prices present to operating and financial results.

Whether you are thinking about putting a hedging program in place or would like to enhance your existing approach, EY can help you proceed strategically and operationally to achieve your goals. At EY Financial Accounting Advisory Services (FAAS) Commodities Markets, we have a global team of commodity professionals who can share their insights and lessons learned through our six service offerings.

### Service offerings

<table>
<thead>
<tr>
<th>Business transformation</th>
<th>Regulatory compliance</th>
<th>Internal controls assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>► Risk management effectiveness, functions, roles and reporting</td>
<td>► Trade surveillance business process and systems</td>
<td>► Assessment focusing on front- to back-office controls, regulatory compliance, rogue trader risk, Commodity Trading and Risk Management (CTRM) system application and business readiness, and hedge effectiveness</td>
</tr>
<tr>
<td>► Strategy, process analysis, leading practices, industry comparisons and industry training</td>
<td>► International, and domestic acquisitions regulatory due diligence</td>
<td></td>
</tr>
<tr>
<td></td>
<td>► Global regulatory compliance such as Dodd-Frank, European Market Infrastructure (EMIR)</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Quantitative advisory</th>
<th>Hedge accounting</th>
<th>Technology support</th>
</tr>
</thead>
<tbody>
<tr>
<td>► Model risk management (including model validation), independent valuation</td>
<td>► Financial accounting advisory services under both US GAAP and IFRS</td>
<td>► Technology assessment and strategy</td>
</tr>
<tr>
<td>► Risk measurement (value-at-risk, stress testing), risk budgeting, performance measurement</td>
<td>► Complex leases, fair value, derivatives accounting, netting issues</td>
<td>► Technology selection</td>
</tr>
<tr>
<td></td>
<td>► Accounting training</td>
<td>► Systems development and integration</td>
</tr>
<tr>
<td></td>
<td></td>
<td>► Data services — architecture, management, analytic support, reporting tools and cubes</td>
</tr>
</tbody>
</table>

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Being part of an integrated global organization provides a holistic approach to a hedging program. We can provide insights on global and regional practices from leading organizations across multiple operating sectors and industries, including areas such as tax, governance, currency, business processes, regulatory compliance and systems. This approach allows us to work closely with other EY service lines such as Performance Improvement (supply chain and procurement), Risk Assurance, Tax and Valuation.
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