

STRATEGIC HEDGING

A holistic approach can rein in the overall risk-reward proposition for investors, employees and management.

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The vast majority of commodity-price hedging by small and mid-sized exploration and production companies is strategically ineffective. Equity investors typically express ambivalence about hedging policy, and management teams often express frustration with both the process and results.

Secured-debt investors are the only participants that seem genuinely enthusiastic about hedging;

price risk, an approach we characterize as *strategic hedging*.

Roots in agriculture

Price hedging methods and techniques emanated from the agricultural markets. Farmers wished to lock in price certainty on a portion of their crop during planting so as to avoid financial ruin from adverse price movement at the time of harvest. The duration of the forward activities was governed by the duration of the growing season, resulting in contracts typically ranging from three months to one year.

Because the farmer could alter his decisions on crop allocation each and every season, the duration of the hedge naturally matched the duration of the commitment period. Thus, hedging implementation practices evolved that focused primarily on basis risk (the difference between the actual product price and the standardized product price) and quantity.

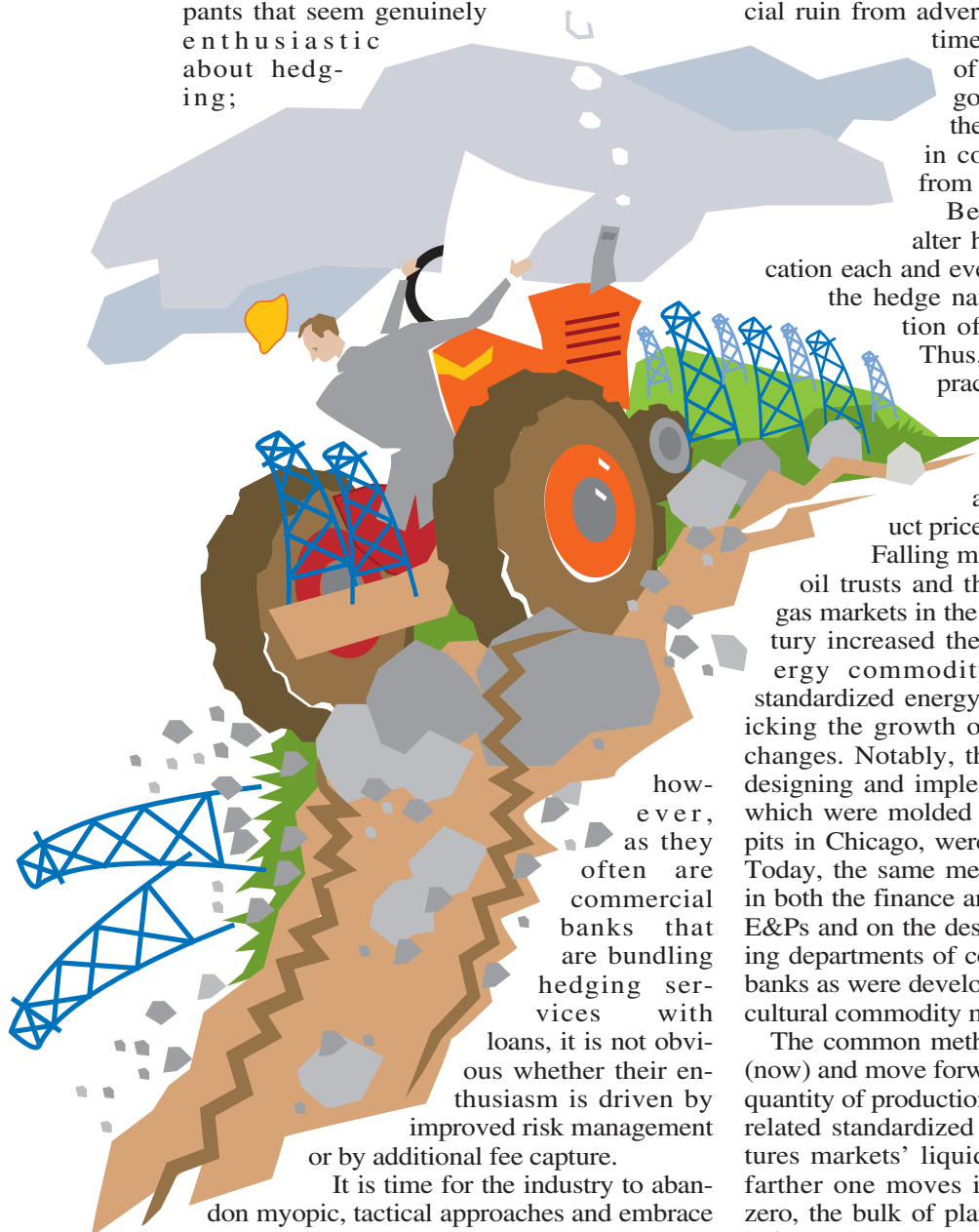
Falling market share of oligopolistic oil trusts and the deregulation of natural gas markets in the latter half of the 20th century increased the realized volatility in energy commodity prices. Markets for standardized energy contracts emerged, mimicking the growth of agricultural futures exchanges. Notably, though, the techniques for designing and implementing hedging policies, which were molded in the agricultural futures pits in Chicago, were not substantially altered. Today, the same methodologies are employed in both the finance and treasury departments of E&Ps and on the desks of the commodity trading departments of commercial and investment banks as were developed and honed in the agricultural commodity markets of yesteryear.

The common method is to start at time zero (now) and move forward in time, estimating the quantity of production and the most closely correlated standardized contract. Because the futures markets' liquidity tends to decrease the further one moves into the future from time zero, the bulk of planning and implementation is focused on the near term.

however, as they often are commercial banks that are bundling hedging services with

loans, it is not obvious whether their enthusiasm is driven by improved risk management or by additional fee capture.

It is time for the industry to abandon myopic, tactical approaches and embrace a holistic perspective on managing commodity-



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Common practice, for example, would be to estimate monthly production volumes for 12 to 24 months at the most, and then to select the best contracts to hedge a portion of that volume. In the agricultural arena, where the duration of a project (i.e. the time from planting to harvest) is limited, this technique can effectively and dramatically reduce financial risk. Unfortunately, in the energy production arena, project duration is measured in years and sometimes decades, not in months or seasons.

Cash flow versus value

Because the duration of production greatly exceeds the scope of the typical hedging program, most modern commodity-price hedging programs are *only locking in a small portion of future cash flows*. The net present value of the sum total of all future expected cash flows therefore is exposed to unmitigated future price volatility. Assuming the average North American E&P company has an eight-year R/P (reserve-to-production) life, even if 100% of production is hedged for the first two years, then less than 30% of the value of the assets is hedged, even considering intrinsic declines in production. (The average North American R/P ratio is increasing as the trend toward horizontal drilling in hard shale replaces shorter-life drilling in conventional fields. Thus, the proportion of value being hedged by 24-month hedging programs is falling.)

From a fundamental equity investor's perspective, the benefits of a conventional hedging program are at most a slightly lower risk of bankruptcy during the covered period. Given that many equity investors use E&P stocks as proxies for commodity-price movements, many will even express displeasure when hedging programs of any sort are contemplated. It is no wonder that managements of E&P companies are both underwhelmed by and unenthusiastic about commodity-price hedging.

Secured debt and capital cost

Secured debt is the least expensive form of financing for E&P companies, with floating rates typically priced at Libor plus 100 to 300 basis points. Compared with unsecured mezzanine debt at approximately 18% and private equity at 25%, secured debt is extremely inexpensive, and thus, widely sought after. The most commonly used vehicle for accessing secured debt is the syndicated bank-borrowing-base facility (BBF), a revolving loan with a two- to three-year term. These loans use an independent third-party engineering report, combined with the bank's own assessment of future pricing, to evaluate the "base" amount of the loan facility. Generic terms are usually the lesser of either 50% of P1 (total proved reserves) or up to 65% of PDP (proved, developed and producing reserves), using a price deck of approximately 70% of the forward

Nymex curve.

For example, a company desiring a secured loan against an E&P asset having an engineering report demonstrating a PV-10 (the present value of future cash flows at a standardized 10% discount rate) of \$100 million on PDP reserves using a conservative 70% forward pricing curve, should expect to be awarded a \$65-million credit line. These loans have various customary restrictive covenants. Most importantly, however, the base amount is "reset" periodically (typically every six months), adjusting for asset acquisitions and divestitures, the future quantity and cost of reserves, and pricing-deck assumptions. Given the extreme volatility of energy commodity prices, usually the latter impacts the calculation most dramatically, both on an absolute basis and from a surprise/uncertainty perspective.

In our example, if the forward price curve had declined 40% by the end of the first six-month reset period, our PDP value would fall to \$60 million, and our BBF would be reset to \$39 million. The company would then have to pay back the \$26-million difference between the original \$65-million BBF and the adjusted \$39-million BBF. This can be problematic if the company does not have sufficient operational liquidity at the time of reset, forcing the issuance of high-cost mezzanine debt or equity. In periods of unstable financial markets, the only other options are asset sales, corporate sale or bankruptcy.

Commercial banks and investors that loan money on a secured basis are not investors in your company. Despite all the friendliness and fanfare shown by your relationship banker, its only job when originating or participating in a borrowing-base facility is to ensure that it loans capital on an almost risk-free basis. That's why the rate is priced in hundreds of basis points above Libor, the rate at which banks lend money to one another on a short-term basis.

The bank's security lies in keeping the actual duration of the loan short (six-month resets) and in making sure there are enough assets backing its capital so that should those assets have to be liquidated, it would recover 100 cents on the dollar loaned. When a bank encourages a company to hedge, generally it is because it increases its fee. Unless it is reducing its rate or increasing the BBF-base-calculation formula to account for the additional security, it is only interested in the fee.

Fundamental equity investors are only somewhat better off, in the sense that a cash-flow hedge covering two years of production may reduce the chances of triggering a cash-flow-related loan covenant in the short term. However, given that even a generic BBF has value-related covenants (debt-to-capital; debt-to-equity) designed to protect against balance-sheet (not cash-flow) insolvency, the protection is minimal at best. When a company employs a BBF to capture the benefits of a lower blended cost of capital, it is shouldering additional commod-

ity-price-liquidity risk. Unless the entire value of the BBF has been hedged, this risk is born by the equity holders.

Is there a way to quantify the cost of that risk? Yes: it's the cost of adding commodity-price insurance for the total balance of the BBF versus the substitution cost of unsecured mezzanine debt. Commodity-price insurance is available in the form of premiums paid for put options. While most managements would think this is outrageously expensive as a benchmark, consider the approximate 18% cost of capital demanded by unsecured lenders. These unsecured lenders, in contrast to the secured BBF syndicate, are investors in your company. Since their investment is not completely covered by the nominal liquidation of the assets of the company, they have a true stake and alignment in the management of those assets for future

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growth and value.

In other words, an unsecured, preferential investor in naked E&P assets demands a hurdle return of 18% and a private-equity investor demands 25%. Any funds that come below those rates are not bearing any true operational, fundamental or commodity-price risk. Any company that uses low-nominal-cost, secured BBF financing should realize that it is materially increasing the risk of distress and bankruptcy for its true investors. The price of that increased risk is explicit as the difference between the price of financing using only unsecured mezzanine debt and the price of financing using a BBF that has been fully hedged using energy price puts.

A company can also shift that risk to third parties by using swaps, forwards and collars—i.e. by increasing its hedging program to cover the total value of the BBF. While forward sales and similar tools do not have an immediate income-statement impact, as compared to the cost of premium paid on commodity-price put options, the company has given up significant operational and strategic flexibility and therefore, has chosen to bear as significant an expense as the explicit cost of put-option premium.

Introducing strategic hedging

The two basic elements in a strategic hedging program are: 1) understanding that hedging is about reducing the risk associated with major decision-making, and 2) that hedging is most properly viewed in the context of the cost of capital, not as a line-item cost on the income statement.

Returning to the roots of commodity-price hedging, the farmer's goal was not to smooth seasonal cash flow, but rather to make sure that

the logical strategic decision he made to plant crop x, which was based on all of the information he had access to at the time of planting, did not result in financial disaster at the end of the harvest solely because prices had changed. Likewise, when an E&P firm makes the strategic decision to develop and produce an oil and gas field, or to purchase or merge with a competitor, it can only take into consideration the price environment that exists at the time of investment. A strategic hedging plan would consider the total duration of production and the value of being able to stick to an initial plan regardless of unpredictable short-term price volatility.

Management teams that employ conventional hedging methods often complain of the insurmountable cost of put options, or the opportunity costs of swaps and forwards. They need to move away from a myopic focus on the income statement and put those costs in the context of the income statement, cash-flow statement and balance sheet; that is, they need to understand how hedging may affect their cost of capital.

Surprising as it may seem, ExxonMobil is an active strategic hedger despite the fact that it does not use any commodity-price derivatives. ExxonMobil plans and executes its strategy with enough liquidity and flexibility to essentially ignore short-term commodity-price volatility. Exxon also chooses to maintain a strong liquidity position and does not rely on secured debt as the primary financing mechanism underlying its business model. The relatively low levels of net debt carried by the company are not accidental, but rather a strategic decision.

Strategic hedging is about putting reins on the overall risk-reward proposition for investors, employees and management. Strategic hedgers are interested in designing favorable risk-reward outcomes, not in managing earnings. The current popular methodologies overemphasize monthly volumes and basis risk, and underemphasize the value of decision-making optionality and flexibility. The result is that hedging has become a tool for smoothing quarterly results and a major profit center for the secured lenders.

Meanwhile, companies that follow conventional "conservative" policies often find themselves on the brink of distress, insolvency, liquidation and bankruptcy when their bank syndicate makes its semiannual capital call. Financial management is often an afterthought at operationally focused E&P companies. Management would be well advised to invest the same effort in engineering the safety and soundness of its capital structure as it does in the oil and gas fields that compose its assets. □

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