

Look before you leap

Successful risk management calls for a thorough understanding not only of a company's risk exposure, but also of the strengths and weaknesses in its infrastructure and balance sheet. Cynthia Kase puts risk management theory into context.

IT IS TEMPTING for companies to rush into a risk management program without a proper understanding of all the risks involved. That's not all – managers can make the dangerous mistake of concentrating exclusively on risk at the expense of other issues. It can be fatal to ignore a company's financial and structural strengths and weaknesses, and no risk manager can afford to work in an ivory tower. There are four basic steps that every risk management program should take to ensure that it is as successful as possible.

❑ First, understand the nature of price risk. There are three basic types – risk on purchases, risk on sales and risk on margins. Purchase risk applies to consumers like an airline buying jet fuel, a steel manufacturer purchasing natural gas, or a hospital purchasing heating oil. Pure producers, like crude oil or natural gas producers, refiners and gas processors (who only process company produced feedstock), are exposed to sales risk.

Those with risk on margins include refiners who might be balanced on overall exposures in terms of barrels-in versus barrels-out, but who have refining margin risk. Gas marketers who purchase, aggregate and resell gas are another example. If gas is not bought and sold simultaneously, then the marketing margin is at risk, and could be wiped out by one day of adverse market activity. Many firms, of course, are exposed to a mix of all three risks.

The first step in evaluating exposure is to draw a circle around a flowchart of all the physical oil or gas movements and/or commitments in and out of the company (see figure). The integrated refiner in the example processes both company produced crude and also third party purchased crude.

The exposures should be broken down into subsets—those that can be hedged with exchange-based contracts (expressed in terms of flat price and basis exposure,) like unleaded Gulf Coast gasoline, and those exposures that are difficult to hedge with futures, such as 1% sulphur fuel oil.

It is crucial to net all risk. In some larger organizations, it is not uncommon to find two offsetting, or partially offsetting risks

being hedged separately. For example, take a crude oil producer that also aggregates and markets third party crude along with its own, with a risk manager in the production group and another in the marketing group. On a given day, the hedger in the production group might be selling crude oil futures to cover the day's unsold crude, while at the same time the hedger in the marketing group is buying crude oil futures to cover a short-sale of physical crude (because a customer offered a good cash-market premium). Double hedging 100 contracts of crude oil per month under normal circumstances would cause a firm to incur additional execution expenses in excess of \$350,000 at current rates.

The separate balance sheets of a company's various units can pose difficulties in setting up a risk program. Take again the refiner whose exposures are shown in the figure – the production department wants to lock in a price for its crude that is sold to the refineries on a formula-price basis, when in reality, this crude does not cross the risk boundary of the company, and so does not need to be directly hedged.

The solution is not to pay what can amount to hundreds of thousands of dollars in transaction costs, but to settle the issue

with internal book transfers as necessary.

Further complications can be caused by traders buying crude who may want to lock in an attractive purchase price for this crude as a hedge, when in fact the company has refining margin risk, and not crude oil price risk. The crude exposure is offset by counterbalancing product exposure.

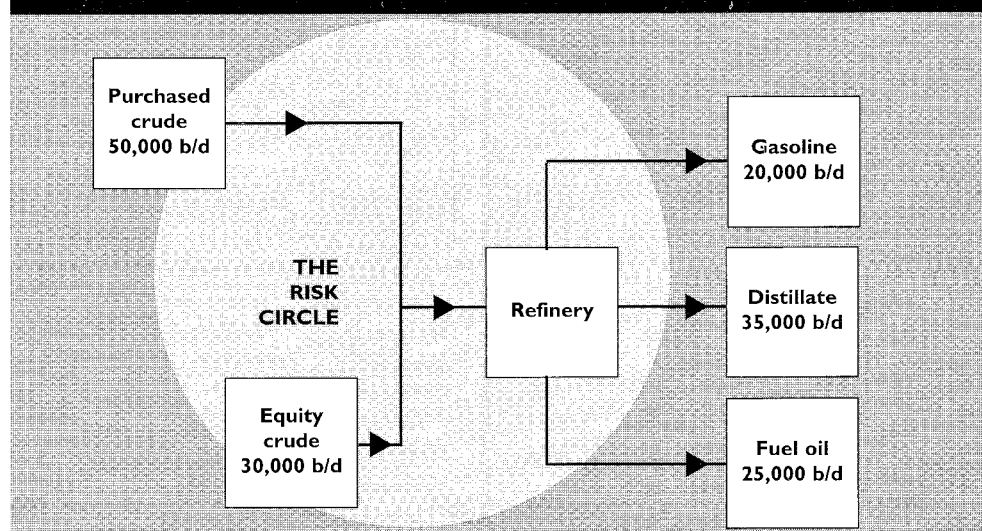
If, as above, an exposure exists on a margin, but not on a purchase price, then by hedging a purchase price, the company is taking on risk, not reducing or managing it. While there is nothing wrong with taking on some risk to generate profit, the real answer is to set up a separate (discretionary) book for such activity, rather than confuse it with hedging of basis risk. It is also advisable to face such issues squarely and set up strict risk controls to keep traders in check. They will then have little incentive to abuse trading authority or to get themselves in a position of running up excessive losses.

Another objection to this approach is that some risks are quite dissimilar and do not need to be managed together. For example, risk associated with a gas processing plant in the US versus an aviation business in Europe. Of course, you can decide that some risks will not be netted, but managed separately; however, it is better to make this decision after completing correlation analyses.

❑ The next step is to establish the goals for your risk management program. The three basic strategies in energy risk management are fixing budgeted prices or margins, achieving an average market price, and protecting budgeted prices or margins.

But strategies have to vary according to the type of company – what can be a risk

The risk circle



reducing strategy for one firm can induce risk for another. Take two different jet fuel buyers – one is a courier that includes the cost of jet fuel, among other considerations, in its fees that are set one quarter in advance for each six-month period; the other is a small state-owned airline competing against a number of major carriers, needing to keep ticket prices low. The courier service may be well-suited to choose a hedging strategy that involves fixed budgeted prices for its fuel, but such a strategy may lead to insolvency for the small airline as it finds itself at a competitive disadvantage to those carriers able to buy spot fuel.

At times, the choice of strategy will depend greatly upon management discretion. Take, for example, the decision to hedge company-owned production. A privately held company (with well-defined production costs, and substantial debt to service) may find it attractive to lock into a good margin (between cost of production and sales price). However, for a large, publicly-held producer that feels its equity is being bought as a commodity play, such a strategy may be impolitic.

Similarly, a small entrepreneurial firm with shareholder management, or a firm that also trades for profit, may be perfectly well-suited to employing a risk management program to achieve a better than average market price. But a company involved with downsizing, where it would be politically unacceptable ever to be wrong on a trade or take a loss, would clearly not be ready for such hedging.

There is not necessarily one answer as to whether a company should limit the cost of its price protection by restricting upside potential. In some firms, it is quite unacceptable to spend money on price insurance, so in such cases, a zero-cost collar, protecting the upside and limiting the downside, would be the perfect solution. At the opposite end of the spectrum there are managers who look at lost opportunity cost, and find it far more satisfactory to pay up for options than ever to limit profit. It should be remembered that limiting upside is similar to fixing price, so a company must ensure that this strategy does not pose any new and/or unacceptable risk.

In setting goals, it is thus always important to think through the consequences of one's strategy. Business strategies vary from fixing a budget to service debt, to protecting prices to prevent production losses, but the common denominator is the aim to stay profitable and viable.

A company must also consider what kind of time-frame its risk program should have to meet its needs, and it may be best to have differing goals for different time horizons. Take, for example, a firm that wants to limit the downside risk on the price of company-owned production, in a political environment where it is generally unacceptable to

limit upside risk.

Thus, in the longer term, like for the 10 or 12 months of an option's life, a company may opt to hold puts to protect downside risk. In a rising market, it could be argued that once production has been sold into the cash market, upside potential will be eliminated. So, if it has not been necessary to exercise the options, they would be sold back to recoup some of their value as they near expiration (but prior to the time delay accelerating). A fixed or average price strategy would then be used for the remaining time.

Strategies must vary according to the type of company – what can be a risk-reducing strategy for one may induce risk in another

□ Once your firm has decided upon its goals, it is essential to make sure all concerned are willing to live with the consequences. It is not uncommon for a company to embark on a risk management program with the intention of not tampering with the hedge once in place. Take the example of a food processor that decides to buy natural gas for one year at \$2 and actually achieves \$1.92. The firm's traders improved their company's target by 8 cents per mmbtu. It is illogical for managers to criticize traders if the opportunity then presents itself (i.e., after they had bought at \$1.92) to have hedged at \$1.87. It is even worse to decide, mid-course, that it was wrong not to lift the hedges and then sell back in a panic at \$1.79, only to have the market rally well above the original \$2 goal.

There is nothing wrong with a strategy that involves managed hedges, but it should be well controlled. If a company decides, with hindsight, that a managed hedge strategy would be beneficial, it is best to set out a new, well-thought-out plan for future implementation, rather than to tamper with an existing one.

Another area where it is difficult to remain consistent is in accepting the losses that are inherent to any managed risk program. No trader has a 100% track record; in fact, many private traders, and those trading futures portfolios for speculative purposes, are only right for less than 50% of the time, but consistently make large gains versus very small losses. These traders are focused on maximizing return with small drawdowns, rather than being right all of the time.

It is not unreasonable to strive for a high degree of accuracy in a managed hedge program. It is not unreasonable to set a goal of having 65% of traders' decisions proving to be correct, and taking losses that are less than half the size of gains. However, it is important to stay focused on an overall goal, such as improving the prices received for product by 10%, rather than to focus on whether discrete transactions make or lose money. An environment where it is unacceptable to cut a loss encourages traders to become reckless when trying to cover any losses they might have made.

When using options strategies, a company must be realistic and view option premiums in the same way that it regards insurance payments. Management must decide, ahead of time, that it will not have regrets if it has been unnecessary to exercise an option.

□ The final step in setting up a risk management programme is to ensure that your plan is realistic, given your company's strengths and weaknesses. Credit, staffing, infrastructure and business relationships must all be considered to ensure they are adequate to the task. Whenever you hedge, credit issues are involved – margin calls on hedges must be made, so it is essential to obtain the appropriate credit to meet such obligations. Do not assume that over-the-counter hedging will eliminate the need to make margin calls. Dealers often require margin to be posted once a mark-to-market reaches a certain level. For example, you may obtain \$500,000 in open credit, but have to post margin in \$100,000 increments thereafter. So it is essential to combine your physical exposures with a realistic assessment of volatility, estimate what your margin calls may be and then insure that you can cover your obligations.

Before embarking on a risk management program, check that your infrastructure is up to it, and ensure that proper funding is obtained to guarantee at least the basic requirements. A firm with a sizeable internal research group, which must execute a large number of crack spreads and has experienced traders, may choose a futures commission merchant just to clear its trades and execute directly on the floor. A smaller firm with a novice trader, however, may choose a large house with extensive research and other types of support.

Similarly, a firm with good credit may lean towards aggressive market makers, known to hold a large book in the commodity it is interested in hedging. On the other hand, a firm concerned with physical supply and poorer credit may choose a counter-party active in the cash market (offering the possibility of physical delivery and good credit terms), but who passes risk through to others as soon as is feasible after the business has been concluded □