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Risk Management Checklist

by Cynthia A. Kase, CMT, CTA

Editor's Note: Enron Capital & Trade Resources recently joined forces with a small independent consulting firm, Kase and Company, to offer customized risk management services to producers and end-users of natural gas, crude oil, and natural gas liquids. Enron noted as one of its reasons for forming the alliance with Kase was the discipline that the firm's approach brings to the hedging process. In this article, Cynthia Kase, president of Kase and Company, provides a checklist developed for hedgers wishing to follow a logical step-by-step process and think through the strategic elements important to them.

While it is possible to forecast short term events, it is neither feasible to forecast events further out, nor rational to rely on such forecasts for medium term hedging. The reason for this is the "butterfly effect". This effect gets its name from an example which envisions a butterfly flapping its wings today causing a hurricane in a few months, that is the effect asserts that small changes in initial conditions, while having negligible impact in the short run, can have enormous impact longer term.

No matter how astute your trading group, no group of fallible persons can accurately and consistently take into consideration all the factors that can impact the market longer term. In order to be a true fundamentalist, we must have the mind of God. A logical, strategic hedge plan should be supported by an analytic, statistical approach.

A risk management checklist can be useful in maintaining quantitative discipline. The checklist is comprised of three parts: 1) a determination of exposures and risk appe-

tite relative to those exposures; 2) setting up a passive mechanical approach to hedging using statistics; 3) selecting reasonable instruments in order to execute hedges properly.

List One: Determining Exposures And Risk Appetite

This first list is designed to help us pin down the specific exposures, in terms of volumes, commodity, and pricing basis to be included in the plan. While the need for commodity and volume is obvious, risk management programs must start out with a definition of a base case against which to leverage a hedge program, and all hedge instruments must correlate with underlying exposures to satisfy hedge accounting guidelines, thus the need to define actual pricing bases used.

What Are Your Volumes?

- ✓ Itemize volumes to be bought or sold by month for the next 18 months.
- ✓ Classify each month's volumes by the index or price publication which represents its basis point, for example Houston Ship Channel gas, Northern California gas, or WTI, ANS, Brent.

Defining a Default Case

- ✓ Determine how volumes will be bought under neutral market conditions.

A neutral market is a market which neither offers favorable pricing, nor threatens adverse pricing.

Correlation Issues

- ✓ Determine the extent to which your portfolio index points correlate with exchange denominated settlement types.

Reduce Volatility by Diversification

- ✓ Evaluate ways to reduce the volatility

in your portfolio through diversification.

- Different settlement types
- Volume cost average forward strips
- Settle cash market exposures on mix of periods

List Two: Developing a Mechanical Approach, Using Statistics

A successful hedge program is one which balances goals with actions. List Two is designed to help the hedger identify his goals, understand tradeoffs among goals and to match a mechanical set of hedging rules to the goals desired.

How Much to Hedge

We must decide how much volume might we hedge from a practical standpoint.

- ✓ Define the maximum absolute volumes to which we are exposed and take 80%. The reason we use 80% is that we do not want to exceed the amount we will actually purchase, and 80% allows for a reasonable margin for operational tolerances. Companies which have a closer operational tolerance can choose a higher percentage, and vice versa.
- ✓ What is our comfort level emotionally
- ✓ Do we have any external goals we have to meet?
- ✓ Degree of reporting and sensitivity to stockholders or regulators.
- ✓ Are our volumes high enough to be limited by liquidity issues?
- ✓ Can we meet the credit requirements to hold hedges though their maturity dates?

Risk Appetite and Trade Offs

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VOLUME 2 NUMBER 3

(Continued on page 2)

One major reason hedge programs fail is hedgers want simultaneously to protect budget and to beat market. Unless we engage in speculative trading (regardless of what we call it), we cannot accomplish both extremes. If we are aggressive in placing hedges in order to protect budget, we may find budget worse than market. If we avoid placing hedges because we do not have a high degree of confidence about beating market, we may be unhedged in painful markets.

So, we must decide: How aggressively do we wish to protect a particular budget or *acceptable price* versus *capturing opportunities* and possibly suffering through adverse periods when a hedge is missed?

Table 1, which illustrates five levels of hedgers, can be used to assist in the determination of risk appetite.

We can, of course, become more elegant

Risk Appetite	Avoiding Adverse Pricing, %	Capturing Favorable Pricing, %
Level 1	100	0
Level 2	75	25
Level 3	50	50
Level 4	25	75
Level 5	0	100

Table 1. Five Levels of Hedgers

with risk appetite definition. We may feel more comfortable risking option premiums than risking larger costs associated with fixing forward. So we may choose to be a Level 1 on buying calls and a Level 4 on fixing forward. So, it is important to decide:

- ✓ What is our risk tolerance for buying options?
- ✓ What is our risk tolerance for fixing forward?

When to Hedge

"When" is never a good question in that

the only good time to hedge is when market structure and associated prices so justify. That said, once we are in a statistical zone that calls for hedging, the "when" question is answered by risk appetite. The more budget driven, the sooner and faster hedges are placed.

At What Price

"What price to hedge?" can be answered statistically. When prices are at a statistically attractive level, say at the 10th percentile for consumers or the 90th percentile for producers, probabilities are in favor of fixing forward.

Along the same lines, buying price protection becomes appropriate as prices move into areas considered statistically unattractive. For consumers, this point may be at or above market average and vice versa for producers.

The more aggressively we wish to hedge, the less extreme will be our hedge points.

In order to bring a risk management plan into reality, the best a derivative instrument, the characteristics of which must have the proper structure must be chosen. Additionally, once choice of instrument may help to diversify the risk in the hedge portfolio.

List Three: Selecting Reasonable Instruments

- ✓ Selecting exchange based or index based instruments
- ✓ Selecting option type
- ✓ How closely does the settlement match our exposure
 - American
 - European
 - Asian
- ✓ How much are we willing to budget to buy price protection

- ✓ How far out of the money do we need to buy options to stay within budget
- ✓ Will we buy fewer options closer to the money or more further out
- ✓ Can we save some money by purchasing exotics such as compound options or swaps
- ✓ Will we include collars in our fix forward strategy
 - How wide will the collars be
 - Will an exotic option be included at least on one side

Often traders' choices pose more costs to their firms because of short run thinking, as opposed to an objective, longer view. A simple example is that an at-the-money option, while more expensive, has a greater probability of exercise than an inexpensive deep out-of-the-money option.

When fixing forward, remember collars are fixed price mechanisms, not protective. A collar fixes a range instead of one price. So, whenever fixed prices are called for we can begin with wide collars, move to more narrow collars, and end with swaps as the market goes in our favor.

Becoming familiar with how derivatives work, and ways in which the functionality of derivatives may be modified to suit us better, is important for a rigorous risk management program.

Recap

Accepting we cannot foretell the longer term future, we recommend the following steps towards developing a sound strategic hedge program: determine your exposures and related risk appetite, develop a structured approach using statistics, and choose reasonable instruments with which to execute your program.

Cynthia A. Kase is president of Kase and Company, Inc., a firm providing short term forecasts, trading software, a strategic computerized hedge model and related advisory services for the energies.

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