

“The tricky part of any risk management effort is that judgments are required virtually every step of the way, and different people would likely make different judgements.”

TAKE 5

A 5-step process for implementing a risk management program

IRA KAWALLER

Hedging with derivatives is straightforward—if and when a risk exposure is deemed to be too large, a highly correlated derivative position could be entered into in a way where the gain (or loss) on that position would offset the change in the economic outcome relating to the original exposure. If you lose on your exposure, the derivative offsets this loss, and vice versa. Critically, the hedge can only be expected to offset prospective market changes. Hedging after-the-fact can't do anything with respect to any previously generated adverse results.

An effective risk management program involves five steps. The tricky part is that judgments are required virtually every step of the way, and different people would likely make different judgements.



1. Identify a risk of concern

This step applies to the major categories of risk shown in the accompanying exhibit – Interest rate risk, currency exchange rate risk and commodity price risk. We can also distinguish between two types of risk: those where the risk is associated with discrete, forthcoming pricing dates (or rate setting dates), versus those where the risk relates to changing rates or prices on an ongoing or continuous basis. This latter type applies in the cases designated with an asterisk: (1) protecting the value of non-dollar assets and liabilities and (2) protecting the value of commodity inventories. It might also apply to the interest rate risk associated with buying or selling new debt instruments when the prospective transaction date is uncertain.

The remaining categories involve prices or rates that have yet to be determined, thereby fostering an uncertain outcome prior to those price-fixing dates; and for these exposures, hedgers need to establish explicit hedge horizons that reflect the span of time for which risk mitigation is intended. The length of these hedge horizons would depend on the nature of the business, but they could be of almost any duration, from as little as, say, the current quarter, to the budget horizon, or even many years.

By their nature, price/rate fixing dates for some types of exposures are explicitly identified (e.g., reset dates on variable rate debt), while for others, those dates would likely have to be estimated with some degree of uncertainty. For example, it might be reasonable to expect to purchase a commodity sometime in, say, March, without knowing exactly which day the purchase price would be set. In fact, both the volume and the pricing date might have to be estimated, as neither may be known with certainty.

If the firm had variable-rate debt, hedgers could reasonably decide to set a hedge horizon that encompassed all the rate-setting dates of the debt, or just a portion of them—say, the first half of all prospective resets. Any choice would be acceptable, but the hedge would only cover the critical dates that fall within the selected hedge horizon. An analogous orientation would apply as well to prospective currency and/or commodity transactions.

The completion of this phase of the hedging process should yield a schedule of prospective critical dates and associated quantities throughout the selected hedge horizon. Then, a another critical judgment has to be made—both for hedges where critical dates apply and where the risk is more continuous in nature (i.e., e.g., the hedges of non-dollar assets and liabilities and hedges of commodity inventories). That is, the hedging entity must decide on the portion of the exposure that it wishes to hedge.

HEDGE-ABLE RISK CATEGORIES

Interest Rate Risk

Setting rates on variable-rate instruments

Prospective issuing or purchasing new debt

Intended liquidation of existing assets or liabilities

Currency Exchange Rate Risk

Prospective buying or selling non-dollar currencies

Protecting against losses on non-dollar assets and liabilities (including receivables and payables)*

Commodity Price Risk

Prospective buying or selling of commodities

Protecting values of commodity inventories*

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2. Evaluate the desired level of risk exposure

Just because a risk can be identified doesn't mean that it should necessarily be hedged. Unfortunately, this sensibility often serves as the justification to take no action, when a more prudent course would involve instituting a hedge of at least a portion of the exposure that is present. Effectively, this step should impose some discipline to preclude doing nothing as a default.

With this orientation in mind, hedging 100% of any exposure may seem to be reflective of full confidence that the risk of an adverse price move will be realized, while remaining completely unhedged may be reflective of full confidence that the risk won't be realized, while remaining completely unhedged may be reflective of full confidence that the risk won't be realized. Thus, it may seem like hedge coverage of 50% is sort of a neutral starting point in that hedging half of an exposure may reflect more of an agnostic view to any forecast as to the direction of future price moves.

An adjustment up or down from that 50% starting point likely depends on our level of fear relating to the prospect of an adverse price move. That is, how much we elect to hedge reasonably might be driven by our sense of how bad things could end up being with a particularly adverse price/rate movement—i.e., the more severe the prospective losses, the greater the propensity to hedge. On the other hand, the corollary to this sensibility is that when we assign a low probability to a bad outcome, we might choose to hedge a smaller portion of the risk—or even none.

Many people are guided by consensus forecasts in making these judgments, but even that orientation is fraught because consensus views tend to be built into prices of derivatives. For example, in many markets, when the world at large believes that widget prices will be higher next year than they are today, you won't be able to lock in today's widget price (i.e., the spot market price); you'll only be able to lock in a price that's consistent with consensus expectations (i.e., the forward market price). Recognizing that expectations can be quite fluid, ideally, the best time to hedge is before a consensus develops that an adverse price move is in the offing. In effect, this sensibility would have entities hedging more when the threat seems most quiescent. It's tricky.

A further consideration has to do with decisions of peers or competitors. If our hedging decisions are substantially different from those of our peers, we have the prospect of being an outlier. If we hedge but they don't, and the covered risk materializes, we look like a star; but if the risk fails to materialize, all else equal, our company would underperform relative to our peers. The reverse would be true if we don't hedge, but our peers do.



3. Select the right derivative

Irrespective of whether the risk relates to discrete or continuous price exposures, the two most typical hedge objectives that would likely be considered would be to (a) fix a price or value or (b) assure that the effective price or value after the hedge is bounded by some worst-case limit price or value. This first objective could be realized with futures contracts, forward contracts or swaps. These instruments don't require any upfront cash payment, but they inherently bear an opportunity cost. That is, by locking in the price, the hedger gives up the prospect of enjoying a beneficial (as opposed to adverse) price move on the exposure, if one were to occur.

The second objective could be realized using option contracts, caps or floors, which can foster a limited or worst-case outcome, while allowing for the prospect of a more favorable result. Options, caps and floors require an initial cash payment or premium that must be paid by the buyer, up front at the inception of the hedge. This premium would be the cost of the hedge.

Nomenclature for caps and floors is intuitive. For example, a 5% cap assures that funding costs will never exceed 5%, while a 5% floor assures that yields will never drop below 5%. Options, on the other hand, require a bit more explanation. The market offers two distinct option types: call options and put options. Calls convey the right to buy, while puts convey the rights to sell. In both cases, contracts stipulate a strike price or exercise price, which is the price at which the option buyer may act.

The choice of hedge objective (i.e., whether to price-fix or price insure) is another matter of judgment, where trade-offs have to be considered. Without question, if you knew that an adverse move

was certain to occur, the better strategy would be to fix the price today. On the other hand, if you knew that the price would move beneficially, remaining fully exposed would be preferred. Options, caps and floors may be thought of as somewhat of a middle ground, giving protection when prices move adversely, with the prospect of enjoying at least some portion of any beneficial price move that might occur.

In considering the prospect of buying options, caps or floors, the price or premium of these instruments is critical. Amounts required can vary considerably overtime. As consensus price forecasts gravitate one way or the other, these contract prices could change rather dramatically.



4. Assess performance

Whether a hedge performs as expected depends on a comparison of the critical terms relating to the exposure and those of the hedging derivative. When these critical terms perfectly match, the results of the hedge should conform identically with a priori expectations—i.e., to the decimal point. On the other hand, when critical terms differ, say because of mismatched pricing dates or because the two respective reference prices don't exactly match, targeted expectations would have to be expressed within some neighborhoods—i.e., outcomes approximating some expected fixed price/rate or value (for futures, forwards or swaps) or some expected worst-case outcome (for options, caps or floors), plus or minus. When mismatches end up involving “unusual” relative prices, actual results would likely differ from expectations. But assuming the exposure remained unchanged throughout the hedge, any deviation in actual performance from pre-hedge expectations should be readily attributable to a specific comparison of the critical prices relating to the exposure and the derivative, respectively.

Economically, hedges should work when the reference price of the derivative is highly correlated to the exposure's price. The only legitimate question would be whether the measure of high correlation might be spurious—i.e., a reflection of a specific span of history in the correlation analysis that's not representative of a truly robust economic relationship.

Assuming correlation considerations have been satisfied, and again, assuming the character of the exposure remains unchanged during the hedge, any performance inconsistent with prior expectations would likely be due to the two respective critical prices exhibiting an unusually high degree of independence. It shouldn't happen often, but it certainly may happen from time to time. This result could work to the advantage of the hedger just as easily as it could work to the detriment. In either case, however, the result shouldn't necessarily justify terminating the hedge. As long as the hedging entity expects the critical prices to revert to their anticipated, long run relationship—i.e., where high correlation continues—it would be reasonable to accept the current results as being somewhat anomalous but to allow the hedge relationship to be ongoing.



5. Review and repeat

Hedging is a process that requires ongoing review—both at regular intervals, and whenever a substantive change in conditions has occurred. As time passes, entities should reconsider whether their current hedge horizons remain appropriate, or whether they should be extended. Such periodic reviews might reasonably be performed monthly or quarterly. These periodic reviews should be supplemented by additional reviews if and when the size of the exposure changes or new information affects management's sensibilities as to future price changes. At each such review, adjustments to hedge coverage should be considered, reflecting all of the same issues confronted the first time around—but given the revised circumstances.

Final considerations

In retrospect, it becomes readily apparent that if prices had moved adversely, hedging 100% of the exposure would have been the best choice. On the other hand, had prices moved beneficially, remaining fully exposed would have been best. There's no middle ground after the fact, but this perspective ignores the risk that motivated considering the hedge in the first place. The whole point of hedging is to avoid the adverse possible contingency—*whether or not it actually happens*.

Ira Kawaller is Principal of Derivatives Litigation Services, LLC.