



Companies exposed to raw material prices should consider cross-hedging

# Marks the Spot

Cross-hedging works well when offsets are not aligned

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Some companies face risks that can be perfectly hedged with standard, textbook derivatives. Other companies may not be so fortunate. Two examples of the former are companies that borrow with a variable interest rate tied to the London Interbank Offered Rate (LIBOR), and U.S. firms with Euro-denominated transactions. In both cases, it may take some care in structuring the trades, but derivative instruments that generate perfect offsets to the respective exposures are readily available.

Critically, such hedge imperfection is not necessarily bad.

In contrast, companies exposed to raw material prices generally should expect some degree of hedge ineffectiveness—the reason being that, in all likelihood, the marketplace offers derivatives that price off closely related goods, but not necessarily the *same goods*. These companies need to conduct cross-hedging.

Consider the company that buys natural gas for use in company operations. If this company sought to hedge this exposure, it would probably choose from futures contracts, swaps, or options as hedging instruments. But in all likelihood these derivatives would reference the price of natural gas delivered at Henry Hub, L.A., as opposed to the actual price paid by that company. More likely than not, the company's point of purchase would be elsewhere; and the price change for the company's purchase would probably differ somewhat from the price change at Henry Hub. Another example of an imperfect hedge would be the case of a farmer who grows corn and wants to hedge this price exposure. Besides the location issue, there also may be a quality or grade difference between the corn grown by the farmer and the corn referenced by the derivative contract.

Cross-hedges may be used in financial markets. As is well known, interest rate swaps are the most common tool corporate treasurers use to convert variable rate funding to fixed, or vice versa; and the most popular design of these swaps exchanges LIBOR-based cash flows for fixed cash flows. These swaps often are the instruments of choice even for variable interest rate exposures tied to interest rates *other than* LIBOR, largely because of the superior liquidity to the LIBOR-swaps relative to more customized alternatives. For instance,

companies that rely on commercial paper financing or companies that access the repo market (usually financial institutions) often prefer LIBOR-based swaps, fully understanding that the ideal offset most likely will not be realized.

Critically, such hedge imperfection is not necessarily bad. Certainly, if you are enjoying gains on a derivatives position, having the derivative generate *excess* gains relative to the exposure improves the bottom line. Here, the over-performance of the derivative works to the hedger's benefit. On the other hand, if the derivative were losing, you would naturally prefer to find the derivative underperforming.

Beyond appreciating that hedge ineffectiveness could work in your favor or against you, hedgers should recognize that the probabilities associated with these two outcomes may likely be unequal. That is, whether the ineffectiveness could be expected to be beneficial or adverse would be a 50/50 proposition only if the invoice price paid or received by the hedger and the reference price of the derivative were expected to move one-for-one, or, in other words, if the basis were expected to be constant. This expectation, however, might not be appropriate.

For example, if the basis happened to be unusually wide or narrow at the inception of the hedge, the expectation that it would remain so might be unrealistic, depending on the amount of time remaining in the hedge horizon. A more reasonable expectation might be that this basis would gravitate to a more "normal" difference. A corollary of this perspective is that if you can make a judgment about how the basis will likely adjust, that judgment translates into an expectation as to whether the ineffectiveness will help or hurt.

## Over-performing hedges, on the other hand, foster concurrent earnings impacts each period, equal to the change in the cumulative over-performance of the derivative.

Returning to the case of the farmer hedging corn, suppose the farmer's grade and location allowed for selling at a premium above the derivative's reference price, and suppose this premium had historically oscillated around \$2 per bushel. Further suppose that the farmer's corn was selling at a premium of only \$0.50 when the hedge was initiated. In this case, it might have been reasonable to expect the premium to widen. In other words, the farmer's price would likely fall slower or rise faster than the derivative's reference price. In a falling price environment, the derivative would post excess gains, i.e., the derivative would over-perform.

On the other hand, with corn prices rising, the derivative would lose; but in this instance with the basis adjustment conforming to expectations, the derivative would be expected to under-perform. Thus, regardless of the direction of price changes, the ineffectiveness would end up benefiting the hedger. Of course, had the example been constructed were the starting basis was deemed to be an unsustainably high premium, a return to the norm would have meant that the ineffectiveness of the hedge would have been detrimental.

A further nuance is the fact that,

as a function of the accounting rules, ineffectiveness does not always have an earnings impact—at least for cash flow hedges. For fair value hedge (think about hedges of inventory values), both the gains or losses of the hedged item and the gains or losses of the hedging derivative are recognized in earnings, such that a mismatch between these two effects will directly hit earnings—irrespective of which of the two effects dominates. For cash flow hedges, ineffectiveness affects earnings *only* when the derivative over-performs on a cumulative basis. With an under-performing hedge, all of the derivative's gain or loss would be reported in AOCI, with no contribution to earnings until either the under-performance is superseded by over-performance, or the hedge terminates and (subsequently) the AOCI amount is reclassified to earnings. Over-performing hedges, on the other hand, foster concurrent earnings impacts each period, equal to the change in the cumulative over-performance of the derivative.

Three concluding caveats:

1 Sometimes expectations are not realized. Irrespective of best efforts to discern how the basis will likely change over the course of the hedge, these forecasts may be confounded. What seems to be an aberration today might end up persisting for quite some time, ultimately turning out to be the new normal.

2 It may be tempting to think about the basis as being a random variable—something that you cannot control or that you cannot hedge. In fact, that judgment may or may not be the case. The basis may actually perform

systematically with respect to the price underlying the derivative. For example, the basis may consistently widen with higher prices and vice versa. If such a relationship can be demonstrated, the hedger might want to mitigate these basis effects by adjusting the size of the derivative hedge position to address this concern. *My own experience working with organizations that hedge commodity risk suggests that only a small portion of companies actually investigate this opportunity.*

3 With a cross hedge, at least some hedge ineffectiveness must be anticipated. Generally, hedgers will expect these effects to be small relative to the possible gain or loss on the exposure that would arise from a more fundamental commodity price change. While that may be true for any single period, when hedgers hedge forecasted transactions scheduled over multiple periods, these basis effects will be additive and the additive effects could potentially foster considerable income volatility over the course of a multi-period hedge. Such income volatility might not be desirable, but it certainly should not be unexpected. Hedge accounting rules effectively force ineffectiveness associated with future derivative settlements to be reflected in current earnings. That result may be unappealing, but it is an unavoidable consequence of the rules.

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