



10 Tenets of Derivatives

Instruments to be used to manage risk

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When managing risks relating to interest rates, foreign exchange and commodity prices, derivatives can provide an effective hedge. Often the simplest strategies with the simplest instruments can be the most effective.

For corporate managers who are astute enough to realize that derivative instruments can be used to manage risks relating to interest rates, foreign exchange and commodity prices, deciding what to do or how to do it is often a huge hurdle. Lack of knowledge is a tremendous barrier. The fact is, derivatives need not be intimidating. The simplest instruments and the simplest strategies are often the most effective. This article, then, is designed to present derivatives in a way to make them understandable and accessible.

Here are the things that have to be understood:

1. *Derivatives are contractual arrangements that, when used as hedges, can be expected to generate gains concurrently with losses being realized in your underlying business.* When you enter into a derivatives hedge, you still borrow using the same funding mechanism that was in place before the imposition of the hedge, or you exchange foreign currencies when you need to, or you buy or sell commodities as your business requires. In any such case, however, if you “pay too much” (or “receive too little”) the derivative should generate a gain that compensates—at least to some degree. On the other hand, if interest rates, exchange rates, or prices associated with your exposure end up moving to your benefit, you can expect your derivative to generate a loss.
2. *What’s done is done.* The use of derivatives for hedging purposes should always be forward looking. You’ll never be able to recoup prior losses. You should only be seeking to address the effects of price changes (interest rate changes or foreign exchange rate changes) that are yet to come. Given the forward looking nature of the hedging process, don’t think that hedges necessarily have to be maintained for the entire duration of an existing risk. It’s conceivable that you could decide to discontinue hedging, even though the risk might still be present. Most likely, the decision to terminate a hedge might be reasonable if the risk of an adverse price move seems less probable—either because the influences that originally motivated the hedge no longer seem to be present, or because the adverse price adjustment is deemed to be complete, such that further adverse changes are no longer expected. Of course, terminating the hedge early means you’re no longer protected if, despite your judgment to the contrary, further adverse price moves come about.
3. *Ultimately, derivatives fall into either of two categories—those having the potential of unconstrained gains or losses, or those where there is some limit or constraint on either the gains or the losses.* Those with some familiarity to derivatives will recognize that this division could alternatively be stated as “forward-type” derivatives versus “option-type” derivatives. Forward-type derivatives (inclusive of futures contracts and swap contracts) gain if the market moves in one direction, and lose in the other direction; and the magnitude of the gain or loss will be commensurate with extent of

the market move of the underlying price (or interest rate or exchange rate). Option-type derivatives have unconstrained results in one direction, but constrained results in the other.

For option buyers, gains are unconstrained while losses are constrained. For option sellers, it’s the reverse. Caps and floors are nothing more than a set of option contracts, bundled together. Caps pay off when prices move above a threshold value known as the cap’s “strike price” or “exercise price,” where the payoff reflects the difference between the market price and the strike—but only if the market price is higher than the strike. Similarly, floors pay off when the market price moves below floor’s strike price, where the payoff reflects the difference between the two—but only if the market price is below the strike.

In most cases hedgers might think of using either forward-type hedges or buying caps or floors—irrespective of the risk being hedged. The former serves as a price-fixing (or un-fixing) mechanism, while the latter works more like insurance that compensates you on only if the risk you are hedging is realized. In one particular situation, however, the option-type hedge is preferred—when the hedged item has some probability of not occurring. For example, suppose you were bidding on an international project where your profit was contingent on (a) getting the business and (b) operating with a foreign exchange rate of exchange no worse than some threshold value. Under these conditions you’d probably favor a hedge with limited risk (e.g., a purchased option), as opposed to a derivative with unbounded loss exposure (e.g., a forward contract). If the company failed to secure the business and, at the same time, you’d be stuck with that loss as a cost of just “trying” for the business. With the purchased option, you’d know how the worst case loss outcome would be. With a forward contract, on the other hand, this loss would be unconstrained.

4. *No derivative is free.* One way or another, you have to pay for a derivative. For the forward-type derivative, this cost comes in the form of an opportunity cost. That is, for forward-type derivatives, depending on which way the associated market moves, the derivative could end up losing money—maybe a lot of money. Thus, at the onset of the derivative’s position, although there is no up-front

cash requirement, the ultimate cost is uncertain. On the other hand, option-type derivatives do require an initial payment from the buyer to the seller at the inception of the trade. This cost of the option is known, up front; and it represents the largest loss that the option buyer could possibly realize.

5. *Forward-type derivatives are used to lock in prices that would otherwise be uncertain—or to unlock fixed prices when applied in the other direction.* The most popular forward-type derivative is an interest rate swap, which is used to synthetically convert fixed rate loans to variable rate loans, or vice versa. The same concept applies for any swap, however. For example, a natural gas purchaser who buys gas in the spot market and suffers with rising gas prices (or benefits from falling gas prices) can lock in his/her prices in advance by entering into a gas swap, analogously to the way the corporate treasurer locks in his interest expense using interest rate swaps in conjunction with variable rate loans. Critically, the swap is a commitment, and you're stuck with the outcome irrespective if the swap is offsetting the impact of adverse price changes on your underlying exposure, or beneficial price changes.
6. *The most basic option hedge involves buying an option to protect against market moves in one direction.* It may be most intuitive to refer to these options as caps and floors—whether in connection with a single pricing exposure or multiple exposures over time. In any case, a cap would be purchased to cover the exposure to the risk of rising prices or interest rates; while a floor would cover the exposure to the risk of falling prices or interest rates. The risk in question would determine which of the two—i.e., the cap or the floor—would be the appropriate option to buy. For example, the gas purchaser exposed to the risk of higher gas prices would buy a cap; but the gas seller exposed to the risk of lower prices would buy a floor.
7. *Derivative pricing will generally reflect consensus expectations as to where prices are headed in the future.* Don't for a minute think that you can lock in today's spot prices (or interest rates or exchange rates) for future transactions. For forward-type derivatives, the price that the derivative will permit you to lock in will reflect these expectations; and the price of option-type hedges, too, will reflect these consensus views. This consideration is one that makes hedging particularly difficult. Just when risks seem most probable, derivatives will tend to be most costly.
8. *Hedging need not be perceived to be an "all-or-nothing" proposition.* All too often, when companies first consider using a derivative to hedge an exposure, they evaluate how the hedge would be expected to perform under a range of possible outcomes. This range of outcomes might be prepared by the prospective counterpart or a derivatives broker. Just because they show you the possible outcomes for a fully hedged position doesn't

mean that you should necessarily cover the entire risk. A perfectly reasonable course would be to cover only a portion of the exposure, appreciating, of course, that you won't be fully protected; but at the same time, you'll realize a lower cost of hedging—whether the cost is an opportunity cost or a direct payment of option premium.

9. *The prices of options depends on both the consensus forecast relating to underlying prices (interest rate or exchange rates) and consensus expectations relating to market volatility.* Higher volatility translates to a higher probability that you, the option buyer, will receive (more) compensation from the seller, and hence the cost of that option (insurance) will be greater. Conversely, lower volatility translates to a lower probability and a lower cost. The trick in hedging with options is to buy the options *before* the threat of an adverse move is recognized by everyone else! The concept of one-sided protection is clearly appealing, but a critical question is whether the cost of this protection is appropriate or excessive.
10. *Corporate hedgers—particularly at publicly traded companies—need to be aware of the accounting ramifications of hedging with derivatives.* The objective of hedging is to generate compensation for an adverse income statement effect (i.e. higher expenses or lower revenues) or a deterioration of a balance sheet item (i.e., lower asset or net investment value, or higher liability value). In either case, the hedging mindset would typically hope to recognize gains or losses on derivatives in the same accounting period as the losses or gains of the associated "hedged item" are recognized. This desired accounting treatment, however, isn't automatic. "Special hedge accounting" treatment is typically required; but qualifying for this treatment is not trivial. All hedging relationships for which hedge accounting is desired must be so-documented at or before the initiation of the hedge, and prospective and retrospective effectiveness tests must be satisfied as a prerequisite for applying this treatment. And, critically, incomplete or inaccurate documentation could pose the possibility of having to restate earnings.

Perhaps the most important thing to realize is that any users of derivatives can't expect careful study and analysis to lead to choosing a derivative that will necessarily add to profitability. It may or it may not—but that shouldn't be the objective. Instead, the objective should be to end up realizing some predetermined, *acceptable* result that precludes the possibility of realizing an *unacceptable* outcome. The fact is, derivatives do what they are designed to do. And if you choose a derivative contract with a full understanding of what it is capable of delivering, the outcome should never be a surprise, or entirely unwelcome.

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