

What practitioners need to know about hedging

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A financial futures contract obligates a seller to pay the value of the futures contract to the buyer at a specified date. Futures contracts are standardized while forward contracts are customized and negotiated privately.

The fair value of a futures or forward contract is based on the notion of arbitrage. In general, the fair value of a financial futures contract equals the price of the underlying asset plus the cost of carry. The cost of carry equals the interest cost associated with purchasing the asset less any income the asset generates during the term of the contract.

The range of values around fair value is determined by the ease with which arbitragers can profit from a misvalued contract. The more expensive or uncertain it is to transact in the underlying asset, the farther away from the fair value, the futures price may drift before arbitraging starts.

Irrespective of the market movement, upward or downward, a long position in a stock index and an offsetting position in the stock index futures contract should yield the riskless return, if the futures are priced fairly. If the futures are under-priced, the return will be below the T Bill yield and if overpriced, the return will exceed the T Bill yield.

Suppose we have a portfolio consisting of equity and bonds. We want to reduce the exposure to the equity investment and increase the exposure to the bond component. We can use interest rate futures to increase the exposure to bonds.

Suppose we want to purchase stocks that will outperform the market and short sell the underperformers. If our long and short positions have the same beta, we can eliminate the systematic risk by purchasing and selling equal amounts of the two portfolios. But if they have different betas, we must adjust the quantities of the long and short exposures suitably. Suppose beta of the long position is 1 and that of the short position is .9. Then we can limit the long position to 90% of the short position. An alternative approach is to have equal long and short exposures and then sell index futures to offset 10% of our long position. If our skills in stock selection are limited to identifying the outperformers, we can buy the stocks and sell the futures in an amount based on the beta of our long position. If we have skills in identifying the underperformers, we can short the stocks and buy an amount of futures based on the beta of the short position.

While hedging currency risk, we must hedge, taking into account the beta of the portfolio with respect to the relevant currency.

The cost of hedging currency risk has several components- transaction costs, management costs, administrative fees. In addition, currency futures will sell at a discount to the spot rate when domestic interest rates are lower than foreign interest rates. If the spot exchange rate does not decline to the current forward rate, we will incur a loss on our short forward position. If we sell a currency forward contract at a premium and the spot rate fails to appreciate to the forward rate prevailing at the time we sell the contract, we might experience a gain.