An alternative view on cross hedging*

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Abstract

Risk management in incomplete financial markets has to rely on cross hedging which creates basis risk. This paper focuses on cross hedging price risk with futures contracts in an expected utility model. So far, basis risk has been *additively* related to either the spot price or the futures price. This paper takes an alternative view by assuming a *multiplicative* relation where the spot price is the product of the futures price and basis risk. The paper also analyzes the reverse relation where the futures price is the product of the spot price and basis risk. In both cases, basis risk is proportional to the price level. It is shown that the decision maker's prudence is of central importance for the optimal futures position in an unbiased futures market: For the first relation, positive prudence is a necessary and sufficient condition for underhedging. For the second, non-negative prudence is a sufficient condition for underhedging. Numerical examples show that the optimal futures position can deviate significantly from the variance-minimizing position.

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