

What practitioners need to know about commodity futures contracts

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A commodity futures contract obligates the seller to deliver a specified quantity and grade of a commodity to the buyer at a pre-determined date, location and an agreed upon price. The terms of the contract are standardized.

Most futures contracts are settled not by actual delivery but by an offsetting transaction prior to the settlement date. Where an existing exposure is being hedged, the contract may be settled by exchanging futures for physicals. Some commodity futures contracts specify cash settlement. The gain or loss is transferred to the appropriate counterparty.

In a futures exchange, a futures commission agent performs the same function as a brokerage house. Each exchange has a clearing house that performs two functions. It enables exchange members to clear their positions. It monitors the creditworthiness of exchange members and maintains enough capital to protect itself against the insolvency of any of the members.

Exchanges set margin requirements for each contract. At the inception of the contract, the initial margin is deposited in the form of a T Bill or Letter of Credit. The initial margin serves as a performance bond and depends on the volatility of the underlying commodity. The initial margin is greater for speculators compared to hedgers. A daily variation margin is also expected to be paid when trading losses occur.

Arbitraders monitor the prices of futures contracts and do trades such that the prices do not deviate significantly from the fair value. Fair value is determined by the cost of carry model. The futures price must equal the spot price plus the cost of carrying the commodity. The carrying cost includes: financing, storage, transportation, risk of spoilage, damage.

The difference between the spot price and futures price is called basis. In a normal market, the price of a commodity futures contract must exceed the spot price as the carrying costs are positive. If the futures price exceeds the spot price the relationship is called **contango**. If the spot price exceeds the futures price, the market is said to be in **backwardation**. Backwardation may result because arbitradgers are unable to engage in transactions to correct the theoretical mispricing. The forgone profit as a percentage of the spot price is called **convenience yield**.

A commodity futures contract is a highly leveraged investment. Purchasing a futures contract is equivalent to buying the underlying commodity on margin. The inherent leverage can be eliminated by collateralizing the position, i.e. by investing an equivalent amount in riskless securities. The lending implicit in a T Bill instrument offsets the borrowing implicit in futures contract investment.

The return on a collateralized future portfolio consists of three components:

- Return on the underlying T Bill position
- Return on the underlying commodity
- Roll yield i.e. the return from liquidating an existing futures position and establishing new position in a contract, with a more distant settlement date, controlling for the change in the spot price.

The commodity component of the returns on a collateralized portfolio offers superb diversification with respect to stocks and bonds. However, the long run return from commodities may not always be appealing because improvements in technology may increase supply or reduce demand.

The roll yield component may offer an opportunity for investors to extract a premium by overweighting commodity futures contracts that are in backwardation (i.e. positive roll yields) and underweighting contracts that have negative roll yields