



# Managing risk through futures contracts

**Paul Cusenza is Chairman & CEO of Nodal Exchange and Nodal Clear**

**R**isk exists in business. How effectively risks are managed greatly impacts the performance of the business. In businesses dependent on commodities (eg, cocoa, corn, wheat, gold, oil, electric power), price risk is a critical factor. If an entity produces or purchases a commodity, the future price of that commodity is a significant risk. For example, an entity that wants to invest in developing windmills to produce electricity will incur significant fixed costs and has uncertain knowledge about the future price they will obtain for that electricity. In short, the windmill developer has price risk.

This article will address how entities can manage their price risk through futures contracts and how futures contracts also address the credit risk and liquidity risk involved in buying or selling a contract that settles in the future at a specific price.

Nodal Exchange is an electric power futures exchange in the United States which allows participants in the North American power markets to trade power to hedge future price risk. Nodal Exchange contracts are settled financially, meaning the contracts are settled without having to provide the physical power. The wind developer noted above could sell futures contracts for a specified volume of electric power at a specific location in the electric grid (US power prices are priced at 'nodal' locations on the electric grid) to lock in a price.

Suppose the wind developer sold a futures contract for \$50 per megawatt hour for the month of September 2018. If three years later in September 2018 they actually sell the power for \$45 in the physical market, they will earn that \$45 plus another \$5 from the futures contract they sold at a fixed price of \$50 settling at the actual market price of \$45.

Similarly, if the actual physical market price in September 2018 is \$55, then they will earn that \$55 from their physical power sales but lose \$5 on the futures contract (\$55-\$50). No matter what the actual price of power is in September 2018, the wind developer has sold the power for \$50. By hedging their price risk through a futures contract, the wind developer creates a certainty of price that allows the wind generator to sleep well knowing they will earn sufficient revenue to cover, for example, the financing cost of developing the windmill. Futures contracts enable entities to manage their price risk.

However, there is also credit risk - will the counterparty who agreed to the trade today be there to complete the final settlement three years from now in September 2018? In order to manage this risk, futures contracts are 'cleared'. When contracts are cleared on a market such as Nodal Exchange, the

clearing house becomes the central counterparty, acting as the buyer to every seller and the seller to every buyer.

For example, if the windmill developer trades the September 2018 futures contract with a financial entity, the clearing process inserts the clearing house into the trade, creating one trade between the windmill developer and the clearing house and a second trade between the financial entity and the clearing house. This process is called novation. The clearing house ends up in the middle, but takes no market risk as it has an equal and opposite position for every trade. To protect against the risk of default, the clearing house uses three risk mitigation mechanisms: collection of variation margin, collection of initial margin, and insertion of additional layers of protection.

The first mechanism for addressing credit risk is to mark the futures contracts to market price at least once per day (at Nodal Exchange, contracts are marked twice per day) and then to collect variation margin from participants every time the price moves. Regularly collecting variation margin based on market prices prevents losses from accumulating. For example, if the contract's price diverges from the original trade price over time prior to final settlement (September 2018 in our example), the clearing house is always collecting the value of the price difference so that the exposure in the case of a party's default is never more than a half business day's price movement in the contract.

The second mechanism for addressing credit risk is to collect initial margin. Initial margin is an amount collected from each counterparty to the transaction sufficient to handle a certain number of days of price movement to a defined probability level. For example, for the Nodal Exchange market, the clearing house calculates initial margin to cover a two day price movement with 99.7% probability. With initial margin in hand, if an entity does default, the clearing house is fairly certain it has the resources, provided by the defaulting party, to cover at least two days price movement as it closes out the defaulting party's positions to remove any further market risk. Initial margin is a way of ensuring that the defaulting party essentially pays for their own default.

The third mechanism for addressing credit risk is having additional layers of protection. One of the additional layers of protection is inserting clearing members, typically large banks, between the clearing house and trading participants to guarantee the trades of their participants. With this structure, the large banks handle participant defaults and the clearing house is only at risk if the clearing member defaults. In addition, the clearing members also contribute to a guaranty

fund which provides additional funding in the event that the defaulter's initial margin is not sufficient to cover the cost of closing its positions. The guaranty fund is part of a 'default waterfall' which outlines the sequence of various funds that can be used in the case of a default and typically includes a significant capital contribution from the clearing house as well.

With these three main mechanisms for providing credit risk protection, parties can trade safely without having to worry about the credit quality of the entities they may be trading with. The clearing house process has been very successful and counterparties in the United States have never suffered a credit loss when they traded cleared futures contracts.

The final area of risk management that futures contracts provide is liquidity risk management. Liquidity risk is the risk of not being able to find a counterparty to a trade at a fair market price. The advantage of futures contracts is that the contracts are all standardized. By having standard contracts it is easier to find multiple interested counterparties. Similarly, by trading futures contracts instead of doing a direct bilateral swap transaction with a specific counterparty, the entities do not have to worry about the credit quality of the counterparty.

This opens up a wider number of possible entities to trade with, thus improving liquidity and the ability to trade at the

*"... managing risk is critical to effective business management in commodity dependent businesses"*

best price. Also, by having a central counterparty, trades that offset each other can be netted and extinguished making the futures market more attractive and therefore more liquid. Trade prices and volumes, but not trading entities, on futures contracts are also transparent to the marketplace. This aids liquidity as it increases participant confidence that trading is at fair prices. Finally, the trading screen or voice broker assisted trades that support futures markets make it easy to trade with any participant in the market. Futures markets help with managing liquidity risk.

As discussed, managing risk is critical to effective business management in commodity dependent businesses. Futures markets, such as Nodal Exchange, provide participants an environment to be able to manage their price, credit and liquidity risk so that they can more effectively manage their business and achieve superior performance. ■

