Hedging with futures

Econ 235

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Introduction

- Hedging is the action of taking a position opposite to an existing one to counterbalance gains or losses.
  - For example, if long in the cash market, then take a short position in the futures market.
  - In the opposite case, if short in the cash market, then take a long position in the futures market.
- Simple hedging strategies use the fact that prices in the cash and futures markets move in the same directions. More advanced hedging strategies may use price movements in opposite directions in the cash and futures markets or position in other markets.
- We will consider hedging with futures in this section.

To read!

- Self-Study Guide to Hedging with Grain and Oilseed Futures and Options.
- Self-Study Guide to Hedging with Livestock Futures and Options.
- McNew's Marketing Guide available on Blackboard.
- Grain Price Hedging Basics from ISU extension.

Why hedge?

- Arbitrage:
  - Can earn a risk-free return by taking advantage of predictable changes in the basis;
  - One example is a firm that can store a commodity at a lower cost than the change in the basis (accounting for transaction costs).
- Operational hedging:
  - Provides flexibility in day-to-day operations and reduces price risk;
  - Can be used when forward contracting with flexible exchange rate;
  - Amounts to speculating on the basis.
- Anticipation of transaction:
  - Hedging to reduce price risk in anticipation of a forthcoming transaction in the cash market.

Do farmers hedge?

- From Carter [2003]:
  - A small fraction of farmers hedge to protect against price risk.
  - Farmers tend to speculate more than hedge.
- Why so few farmers hedge?
  - Government programs;
  - Production risk;
  - Lack of knowledge;
  - Margin calls make it too risky;
  - Availability of forward contracts;
  - Production size does not match size of futures contract;
  - Can manage price risk with forward contract.
- With less government support, higher commodity prices and greater price volatility, farmers would have more incentives to hedge.
- Carter [2003] is a fairly old book and it seems that more farmers hedge now.

Basic hedging strategy with futures and options

- We will begin by covering the basics of hedging with futures.
- We will focus on hedging to reduce risk from price variability.

Short hedging

- Suppose that you are a corn farmer.
- You wish to hedge to protect against price risk.
- To simplify, assume for now that the basis is zero.
- Suppose that the current price of corn on the December futures market is $6.00 per bushel.
- In hedging, your strategy is to take a position opposite to the one you have on the cash market.
- As you are **long in the cash market**, you must take a **short position in the futures market**.

Example: short hedge

- Let's consider two cases:
  - At the time of delivery in December, the price of corn has increased to \$7.00 per bushel.
  - At the time of delivery in December, the price of corn has declined to \$5.00 per bushel.
- If the price of corn increases to \$7.00 per bushel, then you:
  - Gain \$1 per bushel in the cash market;
  - Lose \$1 per bushel in the futures market;
  - In total, you do not gain or lose from your hedging position.
- If the price of corn declines to \$5.00 per bushel, then you:
  - Lose \$1 per bushel in the cash market;
  - Gain \$1 per bushel in the futures market;
  - In total, you do not gain or lose from your hedging position.

Example: short hedge

Table: Price of corn increases

	Futures	Cash
May price	\$6.00/bu	\$6.00/bu
December price	\$7.00/bu	\$7.00/bu
Gain/loss	-\$1.00/bu	\$1.00/bu
Price of corn at beginning of hedge		**\$6.00/bu**
Gain/loss from cash position		**\$1.00/bu**
Gain/loss from futures position		**-\$1.00/bu**
Net selling price		**\$6.00/bu**

References I

Colin A. Carter. *Futures and Options Markets: An Introduction*. Waveland Press, Inc., 2003.