Agricultural Commodity Marketing: Futures, Options, Insurance

Basis
The Cash – Futures Relationship

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Fact Sheets

- Knowing and Managing Grain Basis
- Understanding and Using Feeder and Slaughter Cattle Basis

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What is Basis?

- Basis is defined as the difference between your local cash price (local elevator, local auction, direct sale price) and a futures contract price
- Basis = Local Cash Price - Futures Price
- Basis is usually calculated using the nearby (closest to expiration) futures contract
- Basis can be positive (cash is higher than futures) or negative (cash is lower than futures)

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What is Basis (cont.)?

- A futures contract price represents the consensus opinion of the value of that commodity at the time the futures contract expires
  - It is specific to a certain grade
  - It is specific to a location (delivery point)
- A local cash price represents the value of a specific quality of a commodity at a specific location and at a specific point in time
- Cash and futures prices may differ because of
  - Location
  - Quality
  - Time of Delivery

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What is Basis (cont.)?

- The futures price is a measure of the aggregate supply and demand conditions for a commodity
- Your local cash price is influenced by these aggregate conditions and also by local supply and demand conditions
- Thus Basis will vary over time with changing local conditions relative to changing aggregate conditions

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Example Aggregate versus Local Conditions

- Nationally there may be a relatively short supply of yearling feeder cattle in August to place on feed
  - The Aug FC contract price may be relatively high
- Locally you may be in an area of drought
  - Yearlings are being pulled off grass earlier than normal and being taken to the auction
  - Your local cash price may be lower than you would expect based on the higher Aug FC contract prices

Basis Terminology

- “Strong” basis also sometimes “Narrow” basis
  - Basis is more positive or less negative than is typical
- “Strengthening” basis
  - Basis is becoming more positive or less negative
- “Weak” basis also sometimes “Wide” basis
  - Basis is less positive or more negative than is typical
- “Weakening” basis
  - Basis is becoming less positive or more negative

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Why is Basis Important?

- Basis can be used as a barometer, or gauge, of market strength/weakness
- Basis can be used to forecast cash prices
- Basis can be used to evaluate forward contract price offers
- Basis is key to determining expected net price from hedging using the futures or options markets

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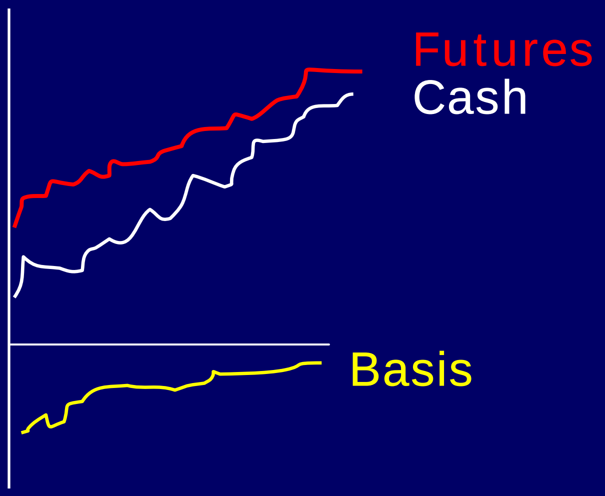
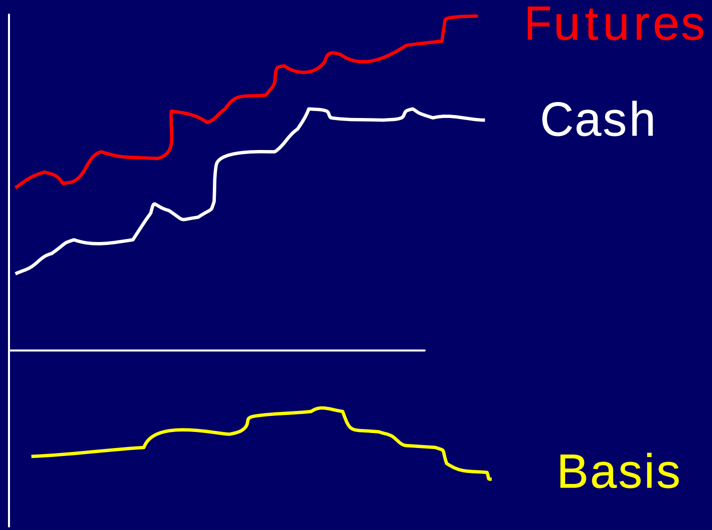
Basis as a Market Barometer



Market is Strengthening



Market is Weakening

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Basis as a Market Barometer

- Elevator receives export bids – increase in Demand
  - Elevator increases local cash bids to get farmers to deliver grain
  - Local basis strengthens
- Feedlots observe a plentiful supply of feeder cattle at the local auction – increase in Supply
  - Feedlots do not aggressively bid on feeder cattle
  - Local auction prices are lower
  - Local basis is weaker

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Level of Basis

- Transportation cost is a major component that determines differences in basis across geographic areas
- A “weak” basis is driven by anything that tends to force producers to sell their products in the near term (buyer’s market)
  - Good weather at harvest
  - Big crops in competing countries
  - Big surplus stocks
  - Inadequate on-farm storage capacity
  - Shortage of rail cars or barges
  - Farmers need cash immediately (poor cash-flow position)
- Conversely, a “strong” basis is driven by forces that create a seller’s market

Forecasting Cash Prices

- Basis = Cash – Futures
- **Cash = Basis + Futures**
- Futures contract prices are assumed to be efficient, they are the markets best guess for what prices will be in the future, given the present supply and demand conditions
- Cash prices and futures prices tend to respond to the same information
  - Increases/decreases in Supply lead to lower/higher cash and futures prices
  - Increases/decreases in Demand lead to higher/lower cash and futures prices
- Basis is more stable than either Cash or Futures prices

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Forecasting Cash Prices Need Historical Basis Data

- Cash = Basis + Futures
  - The futures prices can be readily observed for many months into the future
  - If I knew historical (expected) basis for a particular month, I could forecast cash prices for many months into the future

- Expected Cash = Expected Basis + Futures

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Obtaining Historical Basis Data

- Feeder Cattle basis for many states at
  - www.Beefbasis.com
- Many state cooperative extension services have web sites with this data
  - Utah: http://extension.usu.edu/agribusiness/htm/prices
  - http://cattlemarketanalysis.org/charts.html
  - Iowa and Midwest for Corn and Soybeans
  - http://www.card.iastate.edu/ag_risk_tools/basis_maps/

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Calculating Historical Basis Data

- Record your local cash price
- Record current futures market price
- Calculate basis
- Feeder Cattle Example (Producers Auction, Salina, Utah) 1st week of August

Year	750 lb Steer Price	CME Aug FC	Basis
2006	102.00	114.18	-12.18
2007	103.56	116.63	-13.07
2008	100.94	113.08	-12.14
2009	91.31	101.35	-10.04
Average 750 lb Steer Basis at Salina, UT			-11.86

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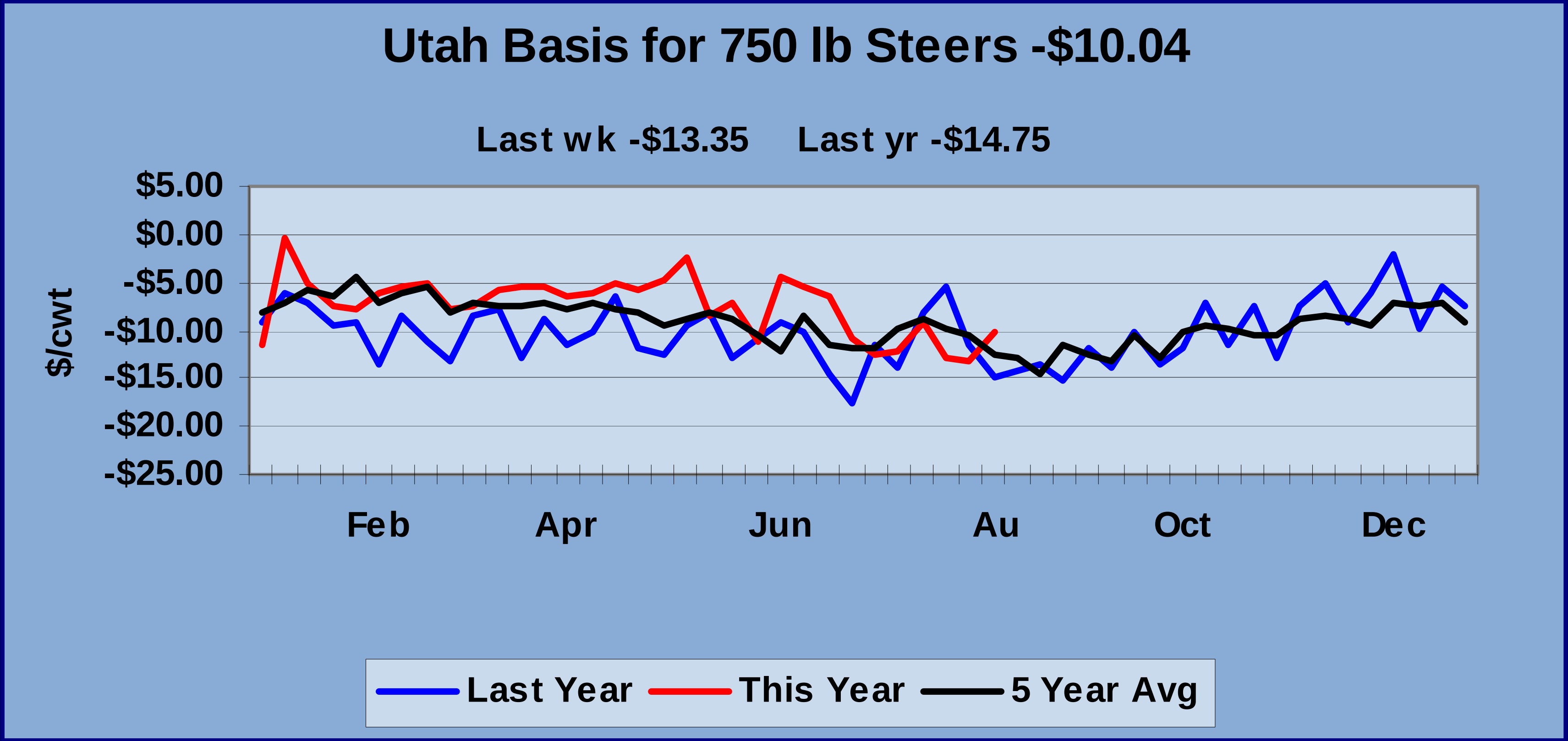
Example Basis Over Time



Need Basis for the Time You Plan to Buy or Sell

- If you plan to sell Corn in November, then the November basis (Nov. Cash – Dec C Futures) is the relevant basis
- If it is currently September, then the Current cash – Dec C Futures doesn't tell you much
- If you plan to sell fed cattle in June, then you want historical June Basis estimates
  - It doesn't matter if May Basis is stronger than June if your cattle are not finished in May you can't sell them in May

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Forecasting Cash Prices From Historical Basis Data

- It is mid August
- Dec Corn is trading at $3.30 per bushel
- Historical Omaha, NE Basis for November is -$0.30/bu
- Forecasted harvest price in November at Omaha is $3.00 per bushel
  - Expected Cash = Expected Basis + Futures

$3.00 = -$0.30 + $3.30

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Forecasting Cash Prices From Historical Basis Data

- It is mid August
- Oct FC are trading at $101 per cwt
- Historical Salina, UT Basis for October for 500 lb steer is $4 per cwt
- Forecasted market price in October at Salina, UT for 500 lb steers is $105/cwt
  - Expected Cash = Expected Basis + Futures

$105 = $4 + $101

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Using Basis to Evaluate Forward Contract Offers

- A local grain elevator in Utah offers a farmer $3.70/bu. for the corn to be delivered on December 1st. Is this a good offer based on current market conditions?
- Dec Corn Futures are @ $3.30
- Expected basis Dec 1 = +$0.45/bu.
- Expected cash price = $0.45 + $3.30 = $3.75
- Under what conditions would the farmer accept the contract?
- The elevator is essentially offering a contract at a $0.40 basis. This is narrower than the $0.45 that is expected. However, the elevator will bear the basis risk, and the farmer has no price or basis risk if they take the contract

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Using Basis to Evaluate Forward Contract Offers

- A rancher has his calves listed for sale on a Satellite Video Auction in July for November delivery
- The calves expected weight will be 600 lbs
- The expected basis in November at a local auction is -$2 cwt for 600 lb steers
- In July, Nov FC futures are at $103
- The rancher receives a bid of $103 for his calves. He no sales them because he thought they were worth at least $105. Was this a wise decision?
- We won't really know until November, but
  - Expected Cash = Expected Basis + Futures
  - $101 = -$2 + $103
- Actual Cash in November may be higher or lower than $101 because the market level (futures) may be higher or lower and/or because local basis may be stronger or weaker than -$2

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Using Basis to Evaluate an Expected Hedged Price

- Determining an expected hedge price is the subject material in the next lesson
- It will be covered in detail with numerous examples

Summary

- Basis = Cash – Futures
- Basis can serve as a market barometer
- Basis can be used to forecast future cash prices
- Basis can be used to evaluate forward contract offers
- Basis will be used in the next lesson to evaluate future hedge prices