Commodity Options

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SOUTHERN EXTENSION RISK MANAGEMENT EDUCATION

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Options Example

- Your neighbor is offering to sell 120 acres at a price of $1,200/acre. You want to purchase the land but can't right now. What can you do to lock in the right to buy the land at $1,200?
- Persuade your neighbor to sell you an option to purchase the land anytime during the next 6 months at that price. For this privilege, you pay the neighbor $25/ac.

Land Example (con't)

- The option expires in 6 months, it costs $25/acre for the right to buy land at $1,200/acre.
- In options terminology:
  - Expiration = 6 months
  - Premium = $25/acre
  - Strike Price = $1,200
  - Right to buy = call option

Land Example (con't)

- If you decide *not* to buy the land, you let the option expire; or you may sell the option to someone else. You are not obligated to make a purchase—the choice is yours.
- If you decide to buy the land, you pay the owner the $1,200/ac within the next 6 months. The total cost of the land is $1,225/acre.
- The cost of this marketing flexibility is the premium or cost of the option.

Option Markets

- **An option is simply the right but not the obligation to buy or sell something at a predetermined price at anytime within a specific time period.**
- **Put option—gives the buyer the right to sell the underlying commodity**
- **Call option—gives the option buyer the right to buy the underlying commodity**

Characteristics of an Options Contract

- Put or Call (right to sell or buy)
- Underlying Futures Contract
- Strike Price
- Expiration Date
- Premium

Types of Options

- **Put option: Grants the buyer of the put option the right but not the obligation to *sell* a futures contract at a specified price within a specified timeframe (short position)**
- **Call option: Grants the buyer of the call option the right but not the obligation to *buy* a futures contract at a specific price within a specified timeframe (long position)**

Options Traders

- **Buyer**
  - Person who obtains the rights conveyed by the option; pays the premium
- **Seller**
  - Person who sells the rights of an option contract in return for a price; receives the premium (landowner in our previous example)

- **If the value of the land increased to $1,400/acre in the 6 months time period of the previous example, would it be profitable to exercise the call option with a $1,200 strike price?**
- **What would you do if the price of land drops to $900/acre?**

Actual vs. Futures

- The previous example was an option on the actual because it involved the actual transfer of real property.
- Similarly, there are options on futures contracts.

Corn Dec '20 (ZCZ20)

358-0s unch (unch) 09/04/20 [CBOT]

357-0 x 69 357-0 x 71

OPTIONS PRICES for Fri, Sep 4th, 2020

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Options Type: American Options | Dec 2020 | Near-the-Money | Side-by-Side | Intraday | download

74 Days to expiration on **11/20/20** Implied Volatility: **19.35%** Price Value of Option point: **$50**

Calls						Puts				
Links	Last	Volume	Open Int	Premium	Strike	Last	Volume	Open Int	Premium	Links
⋮	49-1s	N/A	2,110	2,456.25	310-0	1-1s	97	15,229	56.25	⋮
⋮	44-3s	N/A	N/A	2,218.75	315-0	1-3s	145	442	68.75	⋮
⋮	39-6s	1	3,833	1,987.50	320-0	1-6s	1,608	24,327	87.50	⋮
⋮	35-2s	N/A	N/A	1,762.50	325-0	2-2s	566	668	112.50	⋮
⋮	31-0s	313	18,679	1,550.00	330-0	3-0s	2,594	28,912	150.00	⋮
⋮	26-7s	N/A	19	1,343.75	335-0	3-7s	62	1,946	193.75	⋮
⋮	23-2s	244	18,126	1,162.50	340-0	5-2s	1,573	35,497	262.50	⋮
⋮	19-7s	3	1,094	993.75	345-0	6-7s	67	1,385	343.75	⋮
⋮	16-7s	749	17,923	843.75	350-0	8-7s	639	21,830	443.75	⋮
⋮	14-1s	729	1,579	706.25	355-0	11-1s	403	3,769	556.25	⋮
⋮	11-6s	2,998	26,820	587.50	360-0	13-6s	340	12,800	687.50	⋮
⋮	9-6s	114	1,131	487.50	365-0	16-6s	N/A	626	837.50	⋮
⋮	8-1s	2,872	28,803	406.25	370-0	20-1s	43	9,388	1,006.25	⋮
⋮	6-6s	141	2,433	337.50	375-0	23-6s	N/A	62	1,187.50	⋮
⋮	5-5s	296	25,080	281.25	380-0	27-5s	1	5,530	1,381.25	⋮
⋮	4-5s	23	948	231.25	385-0	31-5s	N/A	N/A	1,581.25	⋮
⋮	3-7s	827	11,971	193.75	390-0	35-7s	2	3,367	1,793.75	⋮
⋮	3-2s	201	758	162.50	395-0	40-2s	N/A	2	2,012.50	⋮
⋮	2-6s	770	39,384	137.50	400-0	44-6s	25	5,978	2,237.50	⋮

Prices are reported in 1/8ths of a cent, minimum price move = 1/8 cent

Option Values

- **Premium is the negotiated price of the option; made up of two components:**

Premium = Intrinsic Value + Time Value

Intrinsic Value

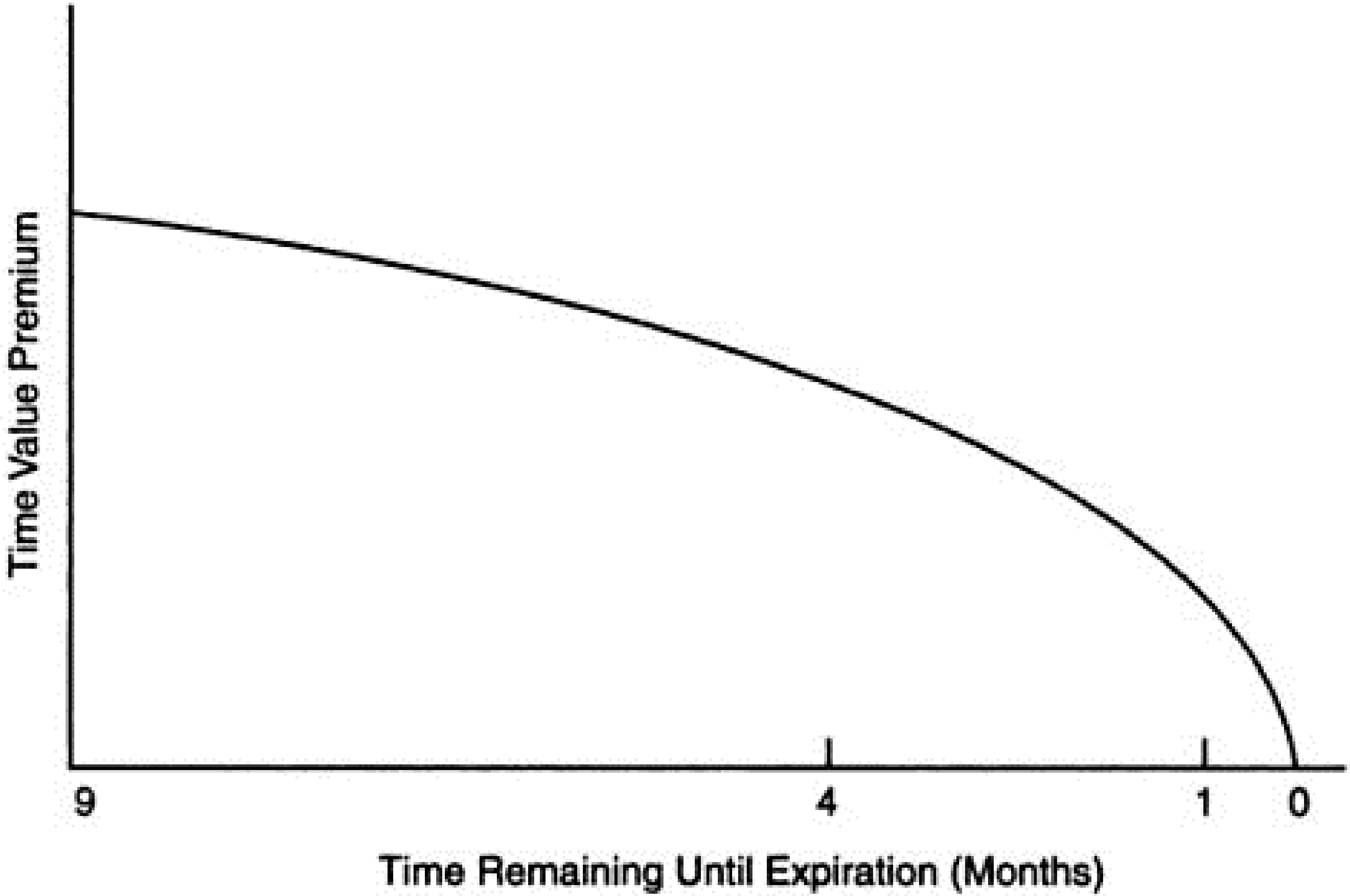
- Positive difference between Strike Price and Underlying Commodity Price
  - For a put, Strike Price above the Futures Price
  - For a call, Strike Price below the Futures Price
- An option has intrinsic value if it would be profitable to exercise the option.

<u>December Futures: 358</u>

360 Put is the right to sell a December Futures contract at 360
360 Call is the right to buy a December Futures contract at 360

Time Value

- Portion of premium associated with the number of days until expiration
- Time value declines as expiration date approaches. Conversely, the greater number of days until expiration, the greater the time value.
- Time value increases as market volatility increases.


Time Value Premium
9
4
1
0
Time Remaining Until Expiration (Months)

Determining Option Classifications

	Put Options	Call Options
In-the-money	Futures price < Strike price	Futures price > Strike price
At-the-money	Futures price = Strike price	Futures price = Strike price
Out-of-the-money	Futures price > Strike price	Futures price < Strike price

Premium equals intrinsic value plus time value

Futures trading at 358, 360 put at 13¾
Futures price < Strike price, in-the-money (profitable to exercise)
Intrinsic value = Strike minus Futures = 360 minus 358 = 2 cents
Time value = Premium minus intrinsic value = 13¾ minus 2 = 11¾

Futures trading at 358, 360 call at 11¾
Futures price < Strike price, out-of-the-money (not profitable to exercise)
Intrinsic value = 0
Time value = Premium minus intrinsic value = 11¾ minus 0 = 11¾

Option Value at Expiration

- An option's value at expiration will be equal to its intrinsic value (time value will go to zero).
- The only value will be the amount it is 'in-the-money'.
- This is true for both puts and calls.

Basic Information on Options

- Options are traded in "pits" similar to futures contracts or electronically.
- Each exchange is allowed to provide the market for option contracts on any futures contract that they are currently trading.
- Not all futures contracts have options.
- Option contracts generally expire in the month prior to the futures contract (options on September corn expire in August, exception FC).

Premium Determination

- Commodity exchange is responsible for determining strike prices.
- The premium for each strike price is determined by open out-cry or electronic auction .
- However, premium values are influenced by a number of factors:
  - Whether the option is a put or a call
  - The length of time until maturity
  - The price level of underlying futures contracts
  - Volatility of commodity’s prices

Choices for Option Buyers

- Options are like futures and can thus be traded.
- Option buyers have three choices
  - Exercise the option
  - Trade the option/Offset (the most commonly used)
  - Let the option expire/Do nothing

Exercising and Trading Options

- If a buyer exercises the option, he or she is now placed in a futures position.
- Once in a futures position, must post margin and pay another commission.
- Because of additional commission and time value of margin money, most buyers choose to trade the option back to the market, i.e., sell the option to the market.
- Sometimes, the market is not liquid enough to allow the trade and the option buyer must exercise the option.

Choices for Option Sellers

- Sellers of options have two choices:
  - Wait for the buyer to either exercise or let the option expire
  - Trade the option (buy it back from the market) to offset the position

Buying and Selling Options

- Buying Option
  - When purchasing an option, the buyer must pay for it in full by the morning of the next business day.
- Selling Option
  - The writer of the option maintains a margin account with a broker.

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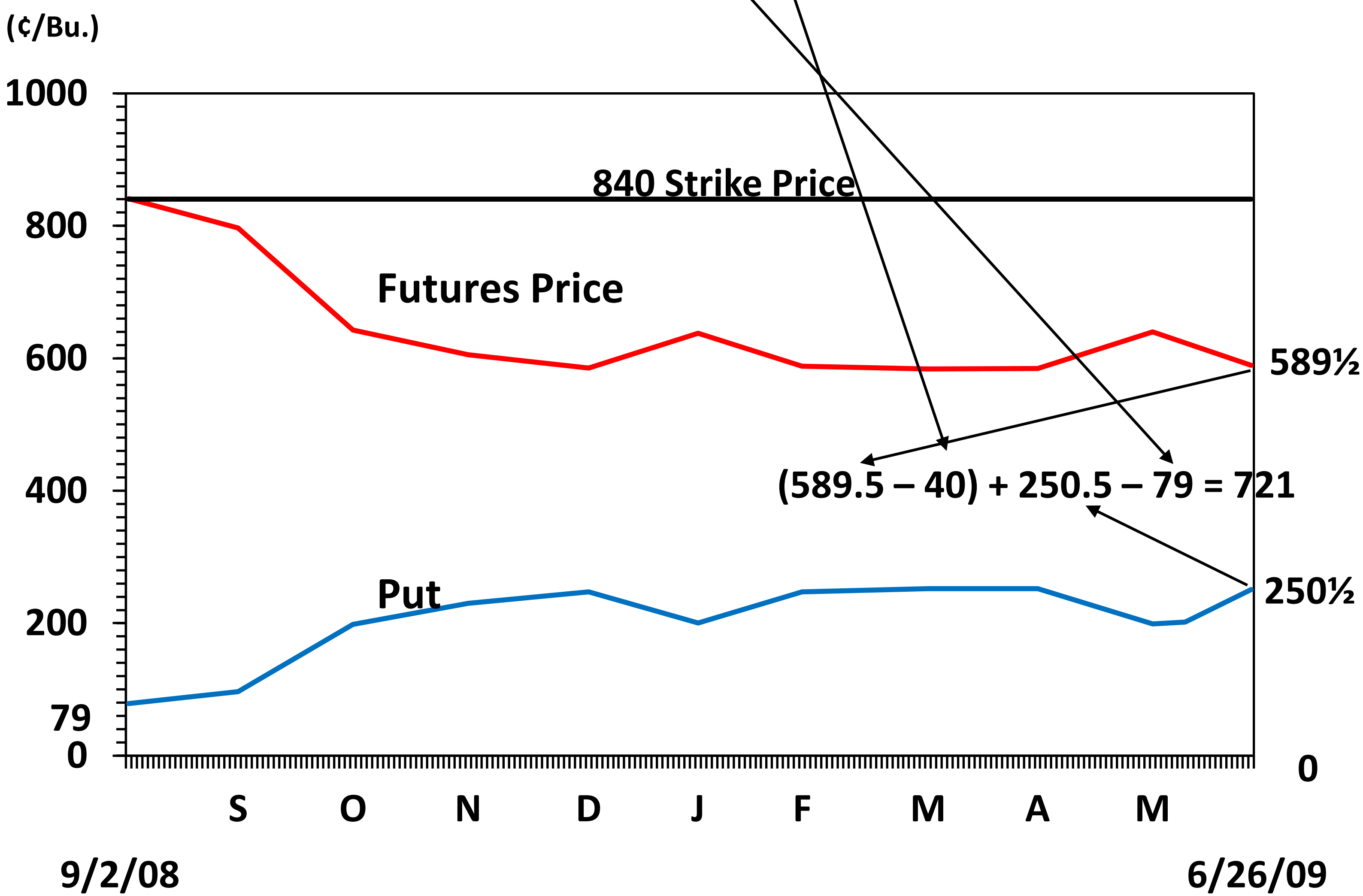
July 2009 Wheat Futures and Options Premiums

840 Put @ 79, -40 basis

Floor = strike – premium + basis: 840 - 79 - 40 = 721



Puts profit as prices plummet

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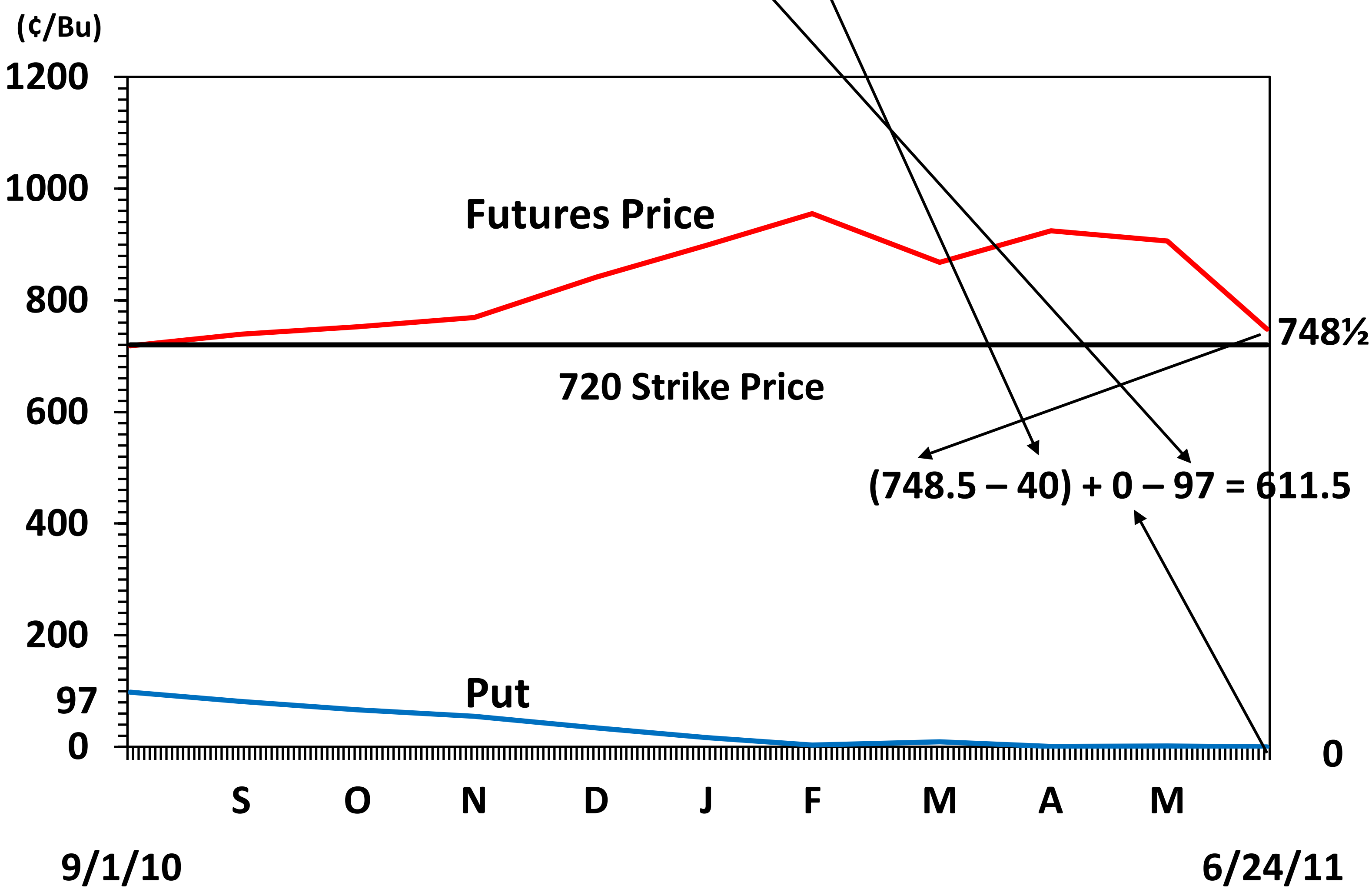
July 2011 Wheat Futures and Options Premiums

720 Put @ 97, -40 basis

Floor = strike – premium + basis: 720 - 97 - 40 = 583



Puts profit as prices plummet

Advantages and Disadvantages of Buying a Put Option

- Advantages
  - Acts as price insurance: locks in a floor price while letting you benefit from favorable price movements
  - No margin calls
  - Limited risk (the most you can lose is the premium)
  - No requirement to exercise
- Disadvantages
  - Cost; premiums in volatile markets are expensive
  - Pay premium up front
  - Still have basis risk
  - Option premiums may be an eroding asset
  - Option premium changes may not equal futures price changes

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