Agricultural Commodity Marketing: Futures, Options, Insurance

Option Problems

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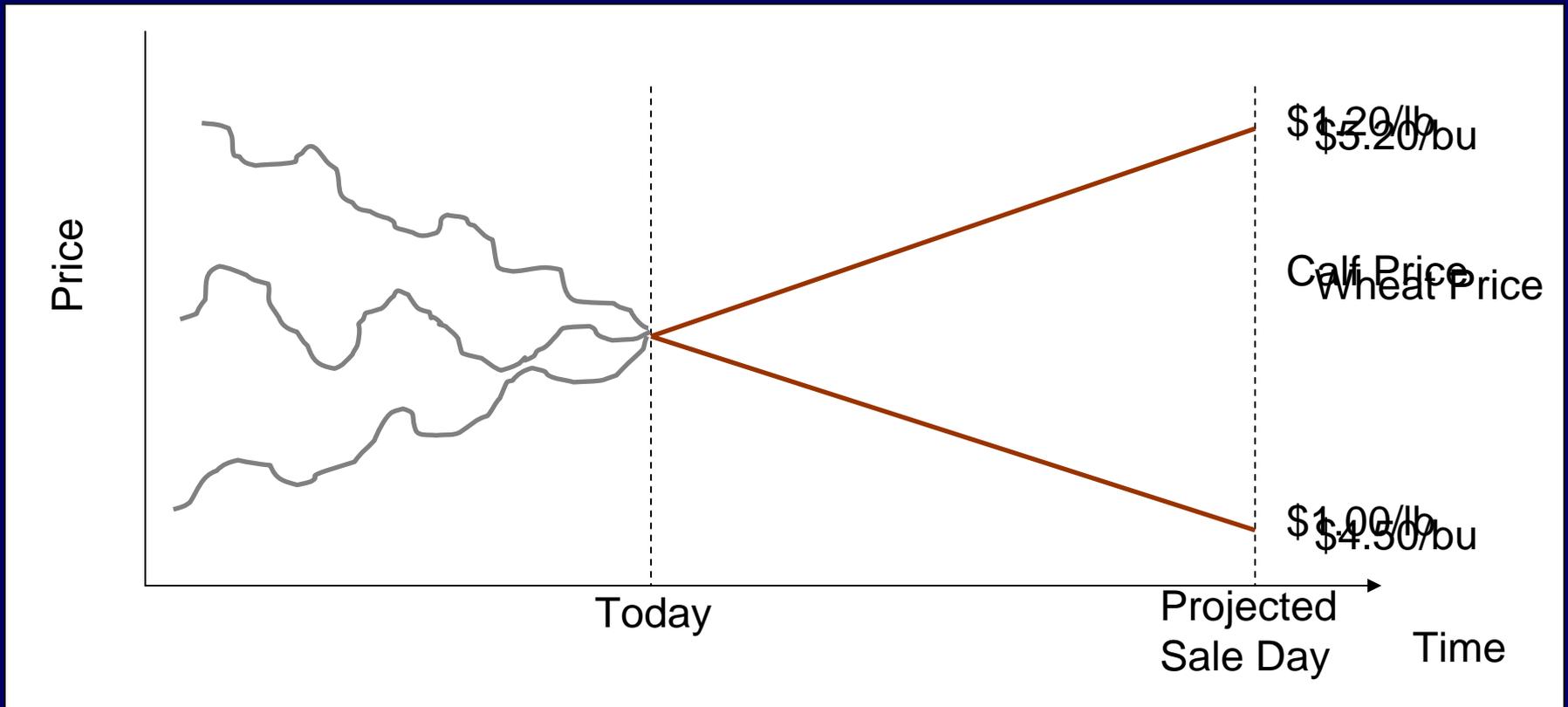
Fact Sheet

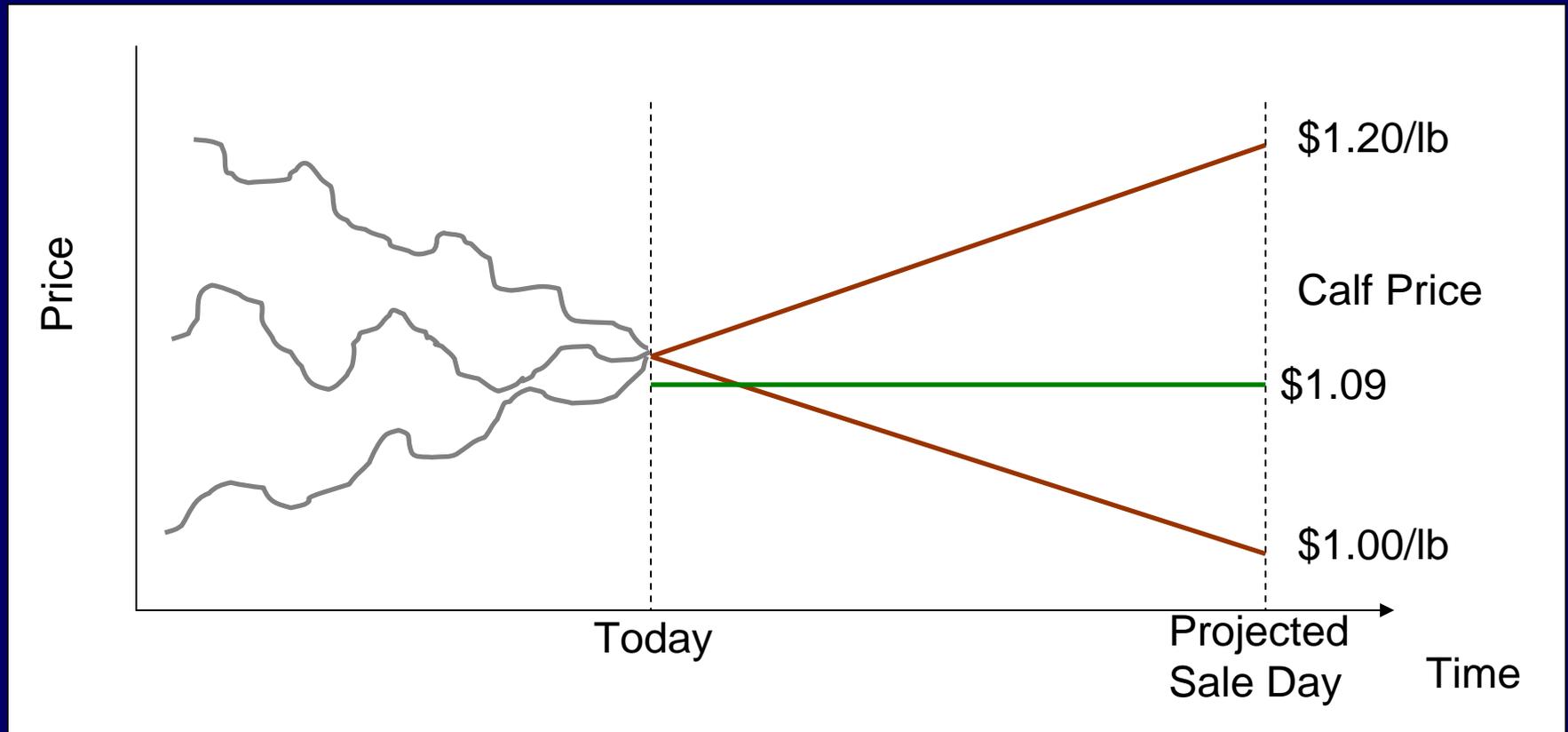- Hedging with a Put Option

Cash Price Uncertainty

$1.20/lb
$5.20/bu

Calf Price
Wheat Price

$1.00/lb
$4.50/bu

Today

Projected
Sale Day

Price

Time

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Feuz Cattle and Beef Market Analysis
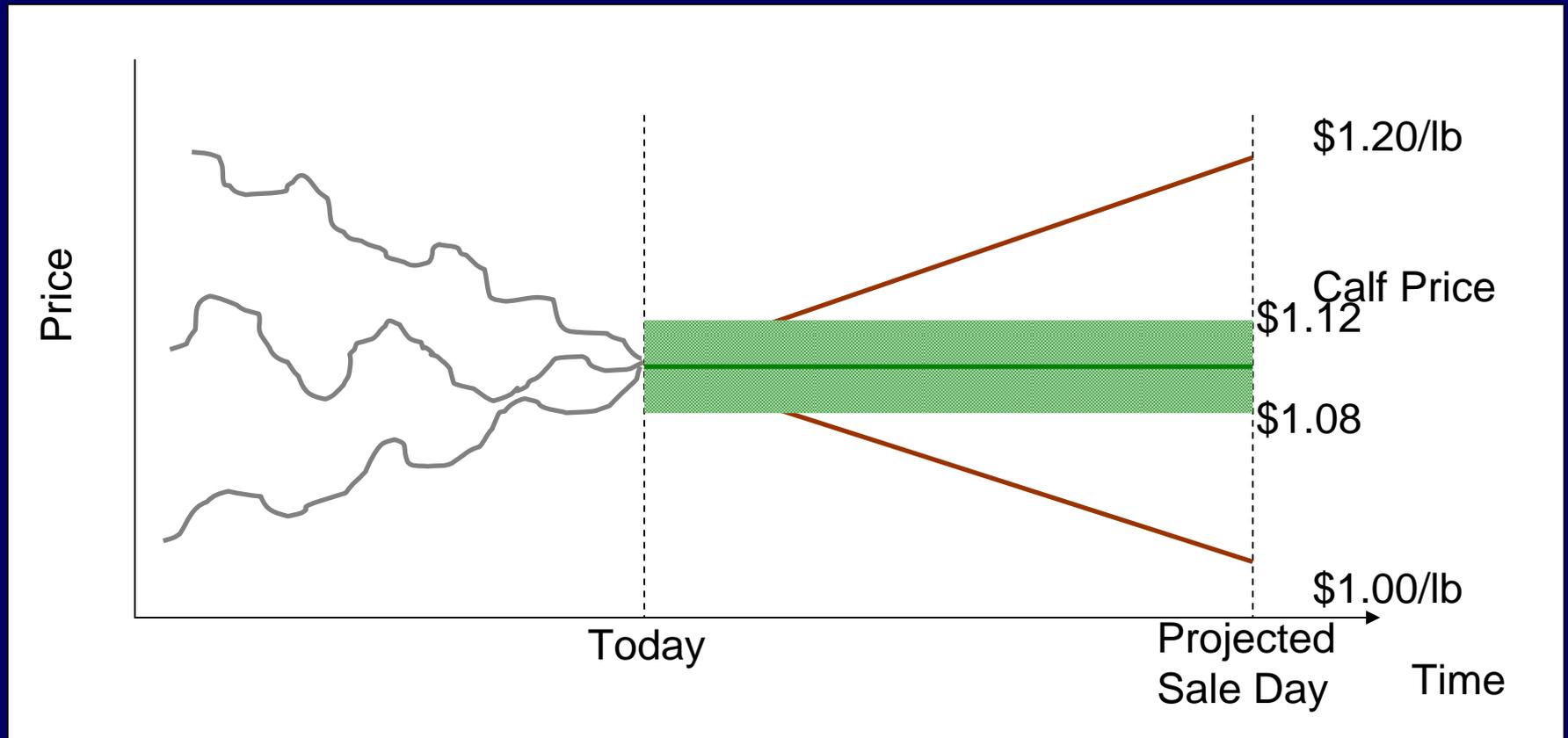
Cash Price Uncertainty
Forward Contract

Cash Price Uncertainty
Futures Hedge
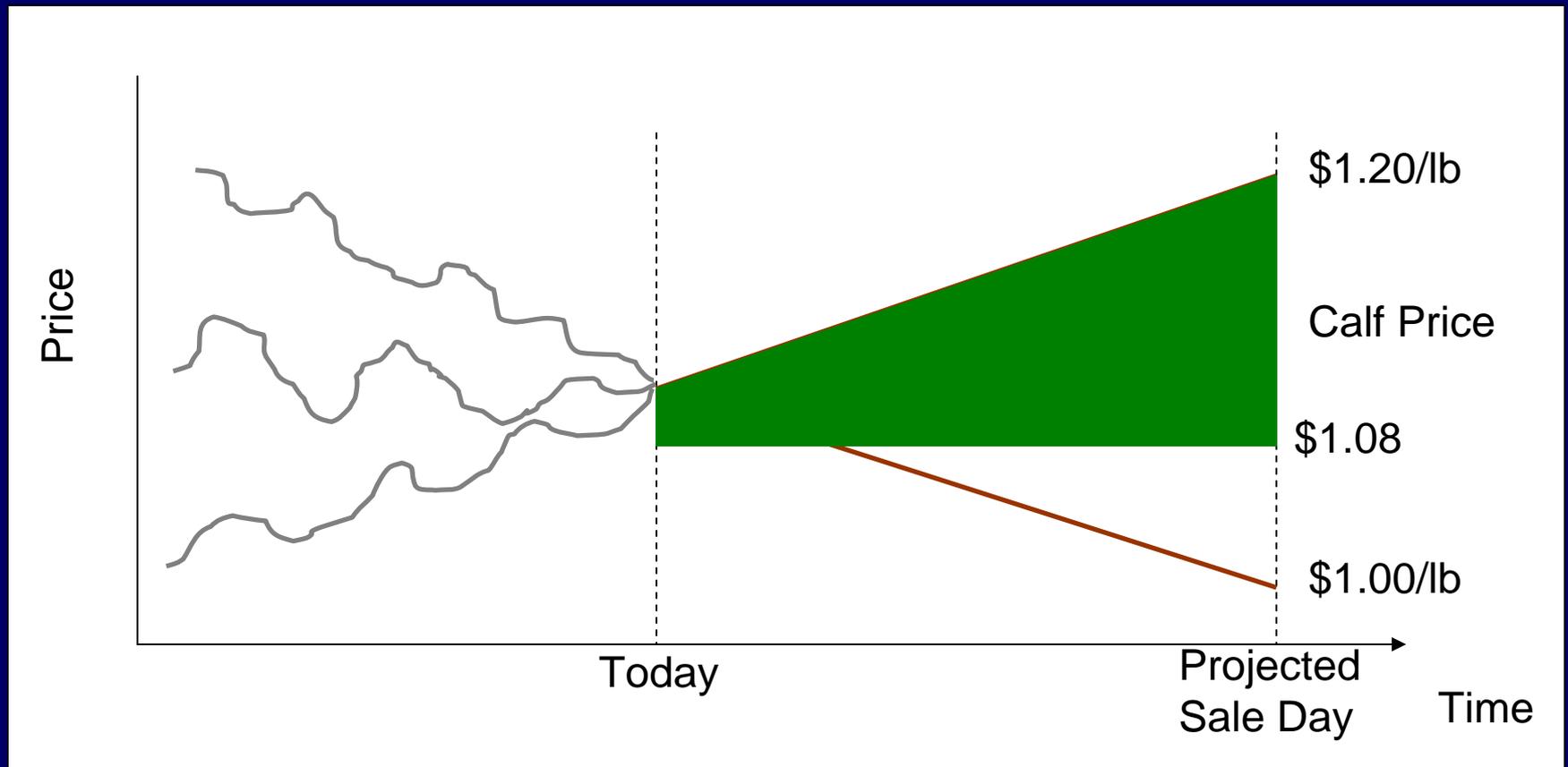
Market Alternatives

- Cash
  - Exposed to both upside and downside potential
- Forward Contract
  - Fixed price, no price risk
  - Eliminate downside (good) also Eliminate upside (bad)
- Futures Hedge
  - Similar to Forward Contract
  - Basis Risk
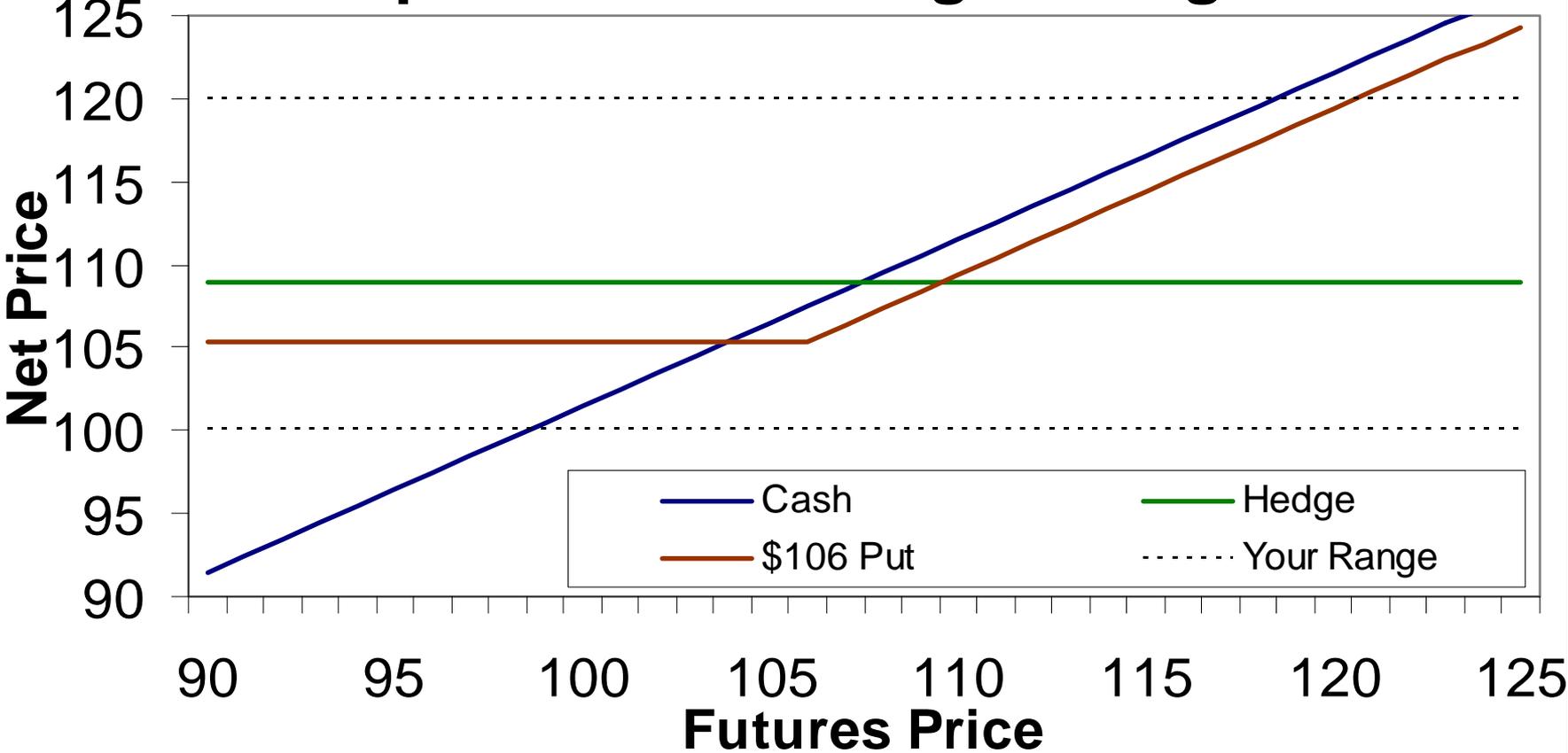 - Still limited upside potential

Put Option

Protect future sales against price decreases

- Eliminate Downside risk
- Take advantage of upside market potential
- There is a cost to do this
  - Option Premium
  - What you are paying to insure against lower prices

Cash Price Uncertainty Put Option

Comparison of Pricing Strategies

Net Price vs Futures Price

Legend: Cash, Hedge, $106 Put, Your Range

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The Mechanics of Put Option

- A producer buys a Put to protect against declining prices

- Chooses Strike Price and Pays the premium

- Determines the minimum expected price

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Minimum Expected Price Examples

Min Exp Price = Strike Price – Premium +/- Basis

$107.50 = $108 - $2.50 + $2.00 feeder cattle

$83.20 = $88 - $3.30 - $1.50 live cattle

$4.30 = $5.40 - $0.40 -$0.70 wheat

DAY FEEDER CATTLE (Jan 2007)

Last	Change	Open	High	Low	Volume
113.425s	-1.375	114.650	114.650	113.350	54

Symbol: FCF7 [Go] Future Symbol Search | Symbol Lookup Strike Range: Near-the-Money Chart | Options | Futures Chain

Sep 2006 | Oct 2006 | Nov 2006 | Jan 2007 | Mar 2007 | Apr 2007 | FCF7

Days Until Expiration: 133

| Calls | | | | | | | Strike | Puts | | | | | | | |
Symbol	Price	Chg	Open	High	Low	Volume	Open Int		Symbol	Price	Chg	Open	High	Low	Volume	Open Int
								104000	FCF7P104000	1.050s	0.200	1.000	1.000	1.000	1	113
								106000	FCF7P106000	1.300s	0.200	1.200	1.400	1.200	2	101
								108000	FCF7P108000	1.650s	0.250	---	---	1.900	5	109
								110000	FCF7P110000	2.050s	0.300	2.200	2.200	2.200	1	96
FCF7C112000	4.050s	-1.000	---	4.500	---	0	14	112000	FCF7P112000	2.650s	0.350	---	2.600	2.550	2	37
FCF7C114000	2.875s	-0.800	3.250	3.250	3.000	2	205	114000	FCF7P114000	3.450s	0.550	---	3.400	3.250	7	22
FCF7C116000	2.000s	-0.650	---	2.000	2.250	8	27	116000	FCF7P116000	---	---	---	---	---	0	0
FCF7C118000	1.300s	-0.400	---	---	---	4	80	118000								
FCF7C120000	0.800s	-0.250	---	1.000	0.950	22	107	120000								
FCF7C122000	0.450s	-0.150	---	0.550	0.600	2	12	122000								
FCF7C124000	0.200s	-0.100	---	0.300	0.500	0	420	124000								

In the money   At the money

Quotes generated on: Wed, Sep 13, 2006 4:59 PM CDT

Assume Expected Basis = -$3.00/cwt for 700 lb steer
Min Exp Price = $114 - $3.45 - $3.00 = $107.55
= $112 - $2.65 - $3.00 = $106.35
= $110 - $2.05 - $3.00 = $104.95

Feuz Cattle and Beef Market Analysis

Buying a Put Problem Template

Date	Cash	Options	Basis
Initial Date	Exp. Min. Sale Price	Buy Put Pay Premium Price	Exp. Basis
End Date	Sell Cash Price	Sell Put collect Premium Let Expire for no value Or Exercise	Actual Basis
		Gain/Loss	

Net Sale Price = Cash Price +/- Gain/Loss in options

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Buying a Put Problem
Jan 2007 FC example
Market Stays same or Moves Higher

Date	Cash	Options	Basis
Sep 13	Exp. Min. $106.35	Buy $112 FC Put Pay $2.65	Exp. -$3.00
Jan 15	Sell 700 lb Steer $111	Jan FC 114 $112 Put has $0 value	Actual -$3.00
		-$2.65	
Net Sale Price = $111 -$2.65 = $108.35			

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Buying a Put Problem
Jan 2007 FC example
Market Moves Lower

Date	Cash	Options	Basis
Sep 13	Exp. Min. $106.35	Buy $112 FC Put 　Pay $2.65	Exp. -$3.00
Jan 15	Sell 700 lb Steer $104	Jan FC 107 Sell $112 Put for $5.00 value	Actual -$3.00
		$2.35	
Net Sale Price = $104 +$2.35 = $106.35			

Call Option
Protect future purchases against price increases

- Eliminate Upside risk

- Take advantage of downside market potential

- There is a cost to do this
  - Option Premium
  - What you are paying to insure against higher prices

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The Mechanics of a Call Option

- A commodity user buys a Call to protect against increasing prices
  - Feedlot using Corn
  - Elevator buying wheat
- Chooses Strike Price and Pays the premium
- Determines the maximum expected price

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Maximum Expected Price Examples

Max Exp Price = Strike Price + Premium +/- Basis

$114.25 = $110 + $2.25 + $2.00 feeder cattle

$4.80 = $4.00 + $0.30 + $0.50 corn

$5.20 = $5.50 + $0.40 - $0.70 wheat

Assume Expected Basis = +$0.45/bu for Corn in Utah
Max Exp Price = $3.20 + $0.27 + $0.45 = $3.92
= $3.30 + $0.20 + $0.45 = $3.95
= $3.40 + $0.17 + $0.45 = $4.02

Buying a Call Problem Template

Date	Cash	Options	Basis
Initial Date	Exp. Max. Purchase Price	Buy Call Pay Premium Price	Exp. Basis
End Date	Buy Cash Commodity Price	Sell Call collect Premium Let Expire for no value Or Exercise	Actual Basis
		Gain/Loss	

Net Purchase Price = Cash Price -/+ Gain/Loss in options

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Buying a Call Problem
Dec Corn 2009 example
Market Stays same or Moves Lower

Date	Cash	Options	Basis
Aug 26	Exp. Max. $4.02	Buy $3.40 C Call Pay $0.17	Exp. +$0.45
Nov 15	Buy Corn $3.75	Dec C $3.35 $3.40 Call has $0 value	Actual +$0.45
		-$0.17	
Net Purchase Price = $3.75 +$0.17 = $3.92			

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Buying a Call Problem
Dec Corn 2009 example
Market Moves Higher

Date	Cash	Options	Basis
Aug 26	Exp. Max. $4.02	Buy $3.40 C Call Pay $0.17	Exp. +$0.45
Nov 15	Buy Corn $4.25	Dec C $3.80 Sell $3.40 Call for $0.40 value	Actual +$0.45
		+$0.23	
Net Purchase Price = $4.25 -$0.23 = $4.02			

Summary

- Put Options can be used to establish a price floor, a minimum price
  - Worst case you lose your premium
  - Can take advantage of higher market prices
- Call Option can be used to establish a price ceiling, a maximum price
  - Worst case you lose your premium
  - Can take advantage of lower market prices

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