(Lecture notes for the Week 3 Second Session, Wednesday, 2/26/14)

Introductory Pricing/Marketing Workshop for Grains, On-Line

Sponsored by MSUE and Michigan CORN

Review

Where we are on Pricing Decision Chart, *Store Cash, Buy Put* and *Sell Cash, Buy Call*

What we have calculated below worksheet

MINIMUM PRICE

Using Put Option

Basis Open

Continue with

Two Option Pricing Tools, above and below worksheet

MINIMUM PRICE

Using Call Option

Basis set

New

Worksheet for all Pricing Alternatives (Tools) discussed.

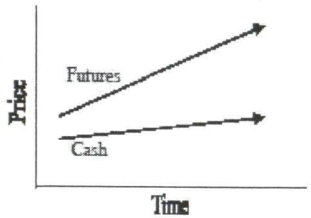
Pricing Decision Chart for Cash Product Sellers

right to Buy
to buy Futures

Futures-Up

ACTION

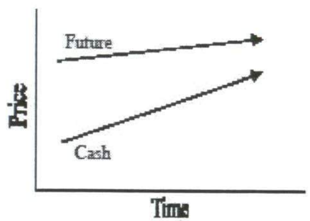
1. Basis Contract
2. Sell Cash, Buy Futures
3. Sell Cash, Buy Call
4. Forward Contract, Buy Call
5. Minimum Price Contract



Futures: Now (Later)
Basis: (Now) Later

ACTION

1. Store Cash
2. Delayed Pricing
3. Store Cash, Buy Put
4. Minimum Price Hedge-to-Arrive



Futures: Now (Later)
Basis: Now (Later)

Expected Change for Futures and Basis

Basis-Weakening

You like the basis now, so you'll CALL it

Basis-Strengthening

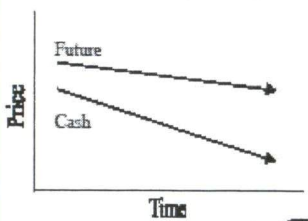
You like the basis long-term (later), so you better PUT a ring on it

Futures-Down

ACTION

1. Sell Cash
2. Forward Contract
3. Sell Cash, Buy Call
4. Forward Contract, Buy Call
5. Minimum Price Contract

right to Buy Futures

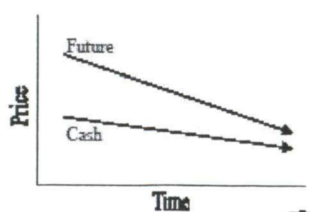


Futures: (Now) Later
Basis: (Now) Later

ACTION

1. Hedge (Store Cash, Sell Futures)
2. Hedge-to-Arrive
3. Store Cash, Buy Put
4. Minimum Price Hedge-to-Arrive

right to sell Futures



Futures: (Now) Later
Basis: Now (Later)

July 2014 Corn Futures and Options

February 24, 2014

July 2014 Corn Futures $4.6225 (4.62 ¼)

cash Price $4.26   Forward contract June Delivery $4.37

July 2014 Corn Option Premiums

	Calls	Strike Prices	Puts
	.57'1	4.10	.05'0
	.49'1	4.20	.07'0
	.41'7	4.30	.09'6
	.35'1	4.40	.13'0
	.29'2	4.50	.17'0
(.24)	.24'0	4.60	.21'6 (.21 ¾)
(.19 ½)	.19'4	4.70	.27'2 (.27 ¼)
	.15'6	4.80	.33'4
	.12'5	4.90	.40'2
	.10'1	5.00	.47'6
	.08'1	5.10	.55'6

MINIMUM PRICE
Using Put Option
Basis Open

Hedge

Futures	4.62	+ Basis	-.20
-Str.	-.08	-Br.	-.01
Hedge Net Price	4.33		

Store cash
Buy Put

~~Sell cash~~
4.26
cash
Price

July (Month, Buy Put)	4.60 (Strike Price)
Expected Basis	-.20
Storage Cost	-.08
Put Premium	-.22 ≈ -.21 3/4 → all Time Value
Brokerage Cost	-.01
Expected Min. Price	4.09 ← assumes no Time Value

	Price up	Prices In-Between	Prices Down
July (Futures Month)	7.00	4.60	3.60
Actual Basis			
Cash Price			
Plus Net Returns from Put Option Buy and Sell			
Less: Storage Costs			
Brokerage Cost			
Equal Net Returns			
(Cash Price plus Net Returns) Equals Net Price Received			

MINIMUM PRICE
Using Put Option
Basis Open

Hedge

Futures	4.62	+ Basis	-.20
-Str.	-.08	-Br.	-.01
Hedge Net Price	4.33		

Store cash
Buy Put

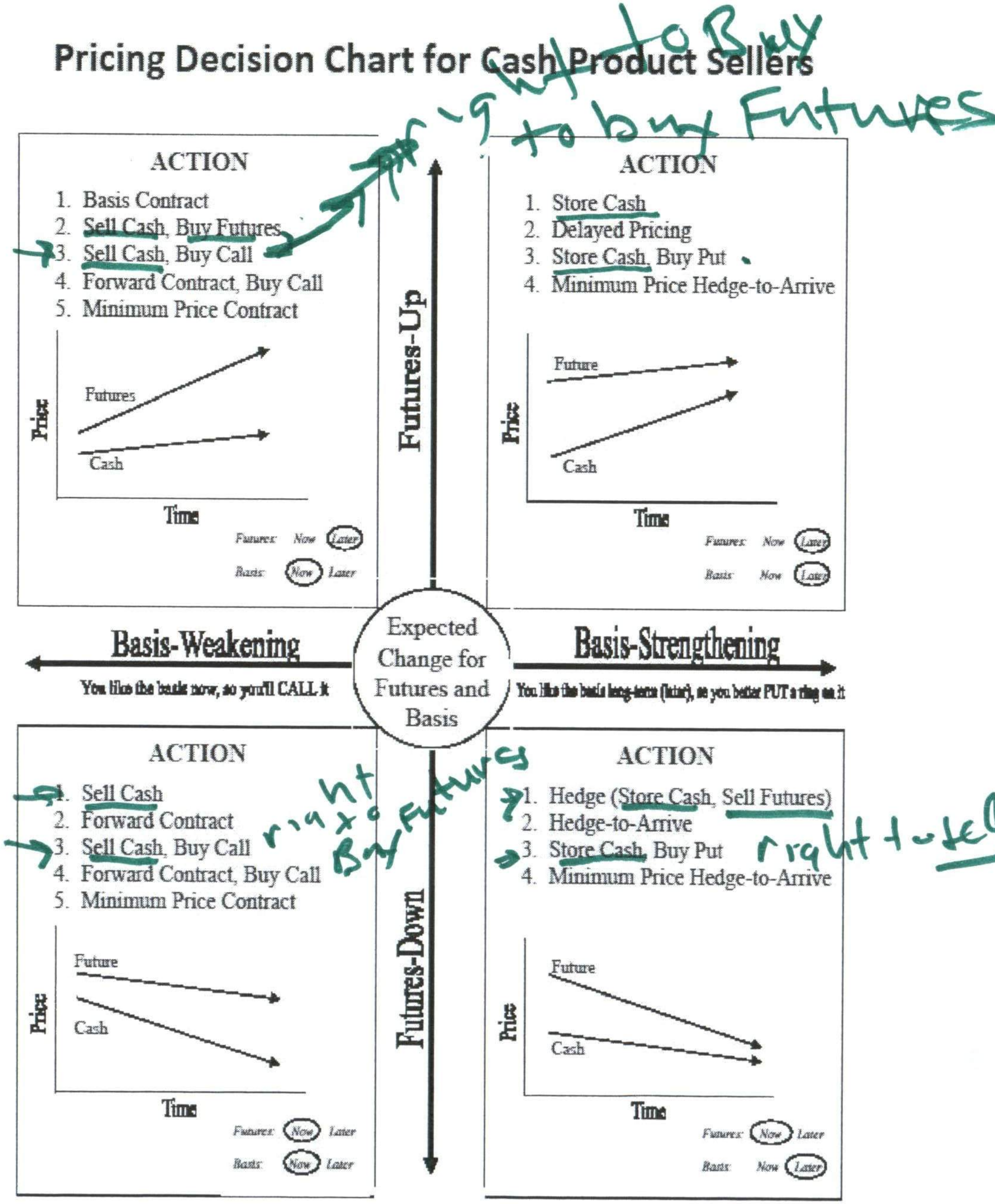
~~Sell cash~~
4.26
cash
Price

July (Month, Buy Put)	4.60 (Strike Price)
Expected Basis	-.20
Storage Cost	-.08
Put Premium	-.22 ≈ -.21 3/4 → all Time Value
Brokerage Cost	-.01
Expected Min. Price	4.09 ← assumes no Time Value

	Price up (T.V. 0)	Prices In-Between (T.V. 0)	Prices Down
July (Futures Month)	7.00	4.60	3.60
Actual Basis	-.20	-.20	-.20
Cash Price	6.80	4.40	3.40
	-.22+0	-.22-0	-.22+1.00 +/or T.V.
Plus Net Returns from Put Option Buy and Sell	-.22	-.22	+.78
Less: Storage Costs	-.08	-.08	-.08
Brokerage Cost	-.01	-.01	-.01
Equal Net Returns	-.31	-.31	+.69
(Cash Price plus Net Returns) Equals Net Price Received	6.49	4.09	4.09

6.80
-.08
6.72

Pricing Decision Chart for Cash Product Sellers



July 2014 Corn Futures and Options

February 24, 2014

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	.12’5	4.90	.40’2
	.10’1	5.00	.47’6
	.08’1	5.10	.55’6

MINIMUM PRICE
Using Call Option
Basis Set

right to buy

Futures 4.62 + Basis ______
Str. ______ -Br. ______
Hedge Net Price 4.33

F.C. 437-.08 = 4.29
Cash 4.26

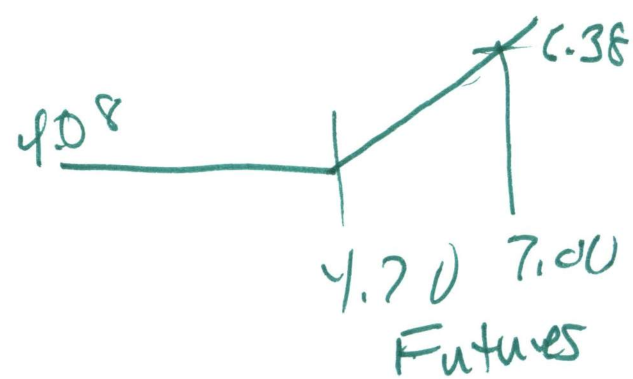
(Month, Buy Call)	(Strike Price)	
July	4.70.	sell cash
Cash Price or Forward Contract	4.37	4.26
Storage Cost	-.08	—
Call Premium	-.20	-.20
Brokerage Cost	-.01	-.01
Min. Price	4.08	4.05

assumes no T.V.

I.V. = 0

I.V. 0
T.V. = 0

	Price Up	**Prices In-Between**	**Prices Down**
July (Futures Month)	7.00	4.60	3.60.
Actual Basis	-.20 N/A	—	—
~~Cash Price or~~ Forward Contract	4.37	4.37	4.37
	-.20+2.30	-.20+0	-.20-0
Plus Net Returns from Call Option Buy and Sell	2.10	-.20	-.20
Less: Storage Costs	-.08	-.08	-.08
Brokerage Cost	-.01	-.01	-.01
Equal Net Returns	2.01	-.29	-.29.
(Cash Price plus Net Returns) Equals Net Price Received	6.38	4.08	4.08



MINIMUM PRICE
Using Call Option
Basis Set

Futures	________	+ Basis	________
-Str.	________	-Br.	________
Hedge Net Price	________		

(Month, Buy Call)	(Strike Price)
Cash Price or Forward Contract	________
Storage Cost	________
Call Premium	________
Brokerage Cost	________
Min. Price	________

	Price Up	**Prices In-Between**	**Prices Down**
(Futures Month)	________	________	________
Actual Basis	________	________	________
Cash Price or Forward Contract	________	________	________
Plus Net Returns from Call Option Buy and Sell	________	________	________
Less: Storage Costs	________	________	________
Brokerage Cost	________	________	________
Equal Net Returns	________	________	________
(Cash Price plus Net Returns) Equals Net Price Received	________	________	________

Pricing Decision Chart for Cash Product Sellers

Futures-Up

ACTION

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2. Sell Cash, Buy Futures
3. Sell Cash, Buy Call
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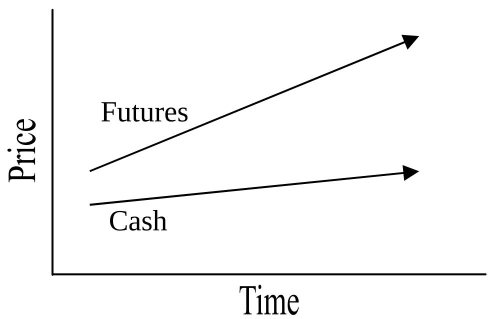
5. Minimum Price Contract

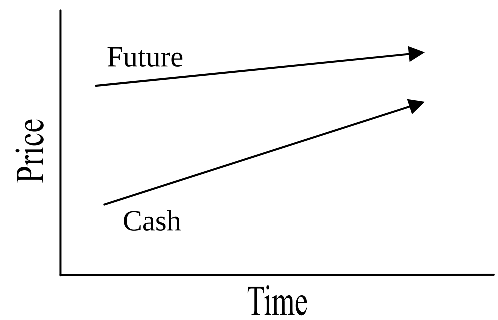


Futures: Now *Later*

Basis: *Now* Later

ACTION

1. Store Cash
2. Delayed Pricing
3. Store Cash, Buy Put
4. Minimum Price Hedge-to-Arrive



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You like the basis now, so you'll CALL it

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ACTION

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2. Forward Contract
3. Sell Cash, Buy Call
4. Forward Contract, Buy Call
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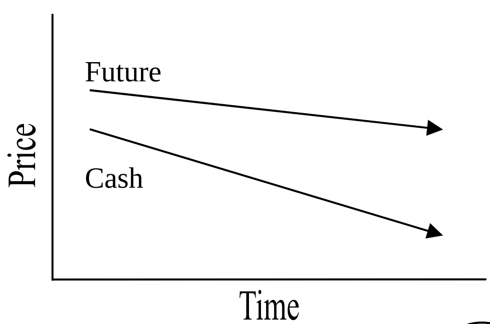

Futures: *Now* Later

Basis: *Now* Later

ACTION

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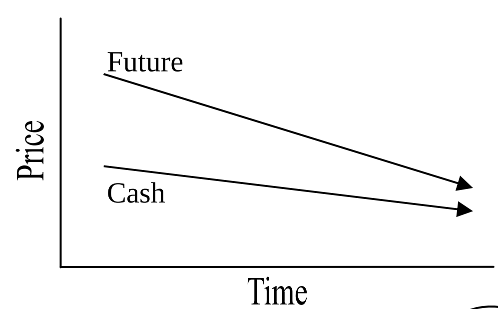
2. Hedge-to-Arrive
3. Store Cash, Buy Put
4. Minimum Price Hedge-to-Arrive



Futures: *Now* Later

Basis: Now *Later*

Futures-Down

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	.10'1	5.00	.47'6
	.08'1	5.10	.55'6

Forward Pricing Alternatives for ______________________________(crop) in Storage

Date	Cash Market	Hedge/Hedge-to-Arrive	Put Options (Minimum Price HTA)	Call Options (Minimum Price)
___	Current Price 1. Forward Contract Price for ____________ (Date) Less Storage Costs Equals Net Price From Forward Contract 2. Net Government Loan Rate 3. Basis Contract Relative to ____________ (Date) Expected Cash Price for ____________ (Date) Optimistic Average Pessimistic	____________ (Futures Month) ______ (Sell) Less: Expected Basis Storage Costs Brokerage Costs Equals Net Price Expected from Hedge	____________ (Futures Month) Strike Price Less: Expected Basis Storage Costs Brokerage Costs Option Premium Equals Minimum Selling Price Expected	____________ (Futures Month) Strike Price Cash Sale Forward Contract Less: Storage Costs Brokerage Costs Option Premium Equals Minimum Selling Price Expected
___	Cash Price Less Storage Costs Equals Net Price from Cash Sale 4. Net Price from Basis Contract = Futures today+ Basis Contract 5.	____________ (Futures Month) ______ (Buy) Actual Basis	____________ (Futures Month) Option Premium ______ (Sell) ______ (Sell) Intrinsic Value Time Value	____________ (Futures Month) Option Premium ______ (Sell) ______ (Sell) Intrinsic Value Time Value
Cash Price on ____________ (Date) Plus Sell and Buy Futures Less: Storage Costs Brokerage Costs Equals Net Returns Equals Net Price Received		6.	Cash Price Plus Buy and Sell Options Less: Storage Costs Brokerage Costs Equals Net Returns Equals Net Price Received 7. 8.	Cash Sale/Forward Contract Price Plus Buy and Sell Options Less: Storage Costs Brokerage Costs Equals Net Returns Equals Net Price Received 9. 10.

Forward Pricing Alternatives for Corn (crop) in Storage

Date: 2/24/14

Cash Market

Current Price	1. 4.26
Forward Contract Price for June (Date)	4.37
Less Storage Costs	-.08
Equals Net Price From Forward Contract	2. 4.29
~~Net Government Loan Rate~~	3.
Basis Contract Relative to July (Date) (426-4.62)	-.36
Expected Cash Price for ____ (Date) — wait to price	
Optimistic	
Average	
Pessimistic	

Hedge/Hedge-to-Arrive

July (Futures Month)	4.62 (Sell)
Less: Expected Basis	-.20
Storage Costs	-.08
Brokerage Costs	-.01
Equals Net Price Expected from Hedge	4.33

Put Options (Minimum Price HTA)

store cash, buy put

July (Futures Month)		
Strike Price	4.40	4.60
Less: Expected Basis	-.20	-.20
Storage Costs	-.08	-.08
Brokerage Costs	-.01	-.01
Option Premium	-.13	-.22
Equals Minimum Selling Price Expected	3.98	4.09

Call Options (Minimum Price)

July (Futures Month)		
Strike Price	4.70	4.70
Cash Sale	4.26	
Forward Contract		4.37
Less: Storage Costs	NA	-.08
Brokerage Costs	-.01	-.01
Option Premium	-.20	-.20
Equals Minimum Selling Price Expected	4.05	4.08

outcomes Prices ↓ Basis Stronger then Exp

Date: 4/15/14

Cash Market

Cash Price	3.85
Less Storage Costs	-.08
Equals Net Price from Cash Sale	4. 3.77
Net Price from Basis Contract = Futures today + Basis Contract (4.00 + -.36)	5. 3.64

Hedge/Hedge-to-Arrive

July (Futures Month)	4.00 (Buy)
Actual Basis	-.15

Put Options

July (Futures Month)		
Option Premium	.41 (Sell)	.61 (Sell)
Intrinsic Value	.40	.60
Time Value	.01	.01

Call Options

July (Futures Month)		
Option Premium	.01 (Sell)	.01 (Sell)
Intrinsic Value	0	0
Time Value	.01	.01

Results

Cash Market / Hedge

Cash Price on June 15 (Date)	3.85
Plus Sell and Buy Futures (S 4.62, B 4.00)	+.62
Less: Storage Costs	-.08
Brokerage Costs	-.01
Equals Net Returns	+.53
Equals Net Price Received	6. 4.38

Put Options

Cash Price	3.85	3.85
Plus Buy and Sell Options	+.28	.39
Less: Storage Costs	-.08	-.08
Brokerage Costs	-.01	-.01
Equals Net Returns	+.19	.30
Equals Net Price Received	7. 4.04	8. 4.15

Call Options

Cash Sale/Forward Contract Price	4.26	4.37
Plus Buy and Sell Options	-.19	-.19
Less: Storage Costs	—	.08
Brokerage Costs	-.01	-.01
Equals Net Returns	-.20	-.28
Equals Net Price Received	9. 4.06	10. 4.09

4.33+.05 = 4.38 3.98+.05 4.03 4.15

Forward Pricing Alternatives for Corn (crop) in Storage

Date	**Cash Market**		**Hedge/Hedge To Arrive**		**Put Options (Minimum Price HTA)**			**Call Options (Minimum Price)**		
	Current Price	4.26	July	4.62	July	4.40	4.60	July	4.70	4.70
2/24/2013	Forward Contract		Futures Month	Sell	Futures Month	Strike Price	Strike Price	Futures Month	Strike Price	Strike Price
	Price for:		Less:					Cash Sale	4.26	
	June 15, 2014	4.37	Expected Basis	-0.20	Expected Basis	-0.20	-0.20	Forward Contract		4.37
	Less Storage Costs	-0.08	Storage Costs	-0.08	Storage Costs	-0.08	-0.08	Storage Costs	N/A	-0.08
	Net Price From									
	Forward Contract	4.29	Brokerage Costs	-0.01	Brokerage Costs	-0.01	-0.01	Brokerage Costs	-0.01	-0.01
	Basis Contract				Options Premium	-0.13	-0.22	Options Premium	-0.20	-0.20
	Relative to:		Equals Net Price		Equals Minimum					
	July	-0.36	Expected From		Selling Price			Equals Minimum		
			Hedge	4.33	Expected	3.98	4.09	Selling Price	4.05	4.08
					OUTCOMES	***Prices down, Basis Stronger than expected***				
6/15/2014	Cash Price	3.85	July	4.00	July			July		
			Futures Month		Futures Month			Futures Month		
	Less Storage Costs	-0.08	Actual Basis	-0.15	Options Premium	0.41	0.61	Options Premium	0.01	0.01
	Equals Net Price									
	From Cash Sale	3.77			Intrinsic Value	0.40	0.60	Intrinsic Value	0.00	0.00
	Net Price From				Time Value	0.01	0.01	Time Value	0.01	0.01
	Basis Contract	3.64								
								Cash Sale/		
	Cash Price On	06/15/14		3.85		3.85	3.85	Forward Contract	4.26	4.37
					Plus Buy and			Plus Buy and		
	Sell and Buy Futures		0.62		Sell Options	0.28	0.39	Sell Options	-0.19	-0.19
	Less:									
	Storeage Costs		-0.08		Storeage Costs	-0.08	-0.08	Storeage Costs	N/A	-0.08
	Brokerage Costs		-0.01		Brokerage Costs	-0.01	-0.01	Brokerage Costs	-0.01	-0.01
	Equals Net Return			0.53	Equals Net Return	0.19	0.30	Equals Net Return	-0.20	-0.28
	Equals Net Price Received			4.38		4.04	4.15		4.06	4.09

Forward Pricing Alternatives for

Forward Pricing Alternatives for [redacted] (crop) in Storeage

Date	Cash Market		Hedge/Hedge To Arrive		Put Options (Minimum Price HTA)			Call Options (Minimum Price)		
	Current Price	4.26	[redacted] Futures Month	4.62 Sell	[redacted] Futures Month	4.40 Strike Price	4.60 Strike Price	[redacted] Futures Month	4.70 Strike Price	4.70 Strike Price
[redacted]	Forward Contract Price for: [redacted]	4.37	Less: Expected Basis	-0.20	Expected Basis	-0.20	-0.20	Cash Sale	4.26	
								Forward Contract		4.37
	Less Storage Costs	-0.08	Storage Costs	-0.08	Storage Costs	-0.08	-0.08	Storage Costs	N/A	-0.08
	Net Price From Forward Contract	[redacted]	Brokerage Costs	-0.01	Brokerage Costs	-0.01	-0.01	Brokerage Costs	-0.01	-0.01
					Options Premium	-0.13	-0.22	Options Premium	-0.20	-0.20
	Basis Contract Relative to: [redacted]	-0.36	Equals Net Price Expected From Hedge	[redacted]	Equals Minimum Selling Price Expected	[redacted]		Equals Minimum Selling Price	[redacted]	

OUTCOMES Prices Up, Basis a bit weak

Cash Sale		Hedge/Hedge To Arrive		Put Options			Call Options		
Cash Price	____	____ (Futures Month)	____ (Buy)	____ (Futures Month)			____ (Futures Month)		
Less Storage Costs	____								
Equals Net Price from Cash Sale	4.	Actual Basis	____	Option Premium	____ (Sell)	____ (Sell)	Option Premium	____ (Sell)	____ (Sell)
Net Price from Basis Contract = Futures today+ Basis Contract	5.			Intrinsic Value	____	____	Intrinsic Value	____	____
				Time Value	____	____	Time Value	____	____
Cash Price on ____ (Date)			____	Cash Price	____	____	Cash Sale/Forward Contract Price	____	____
Plus Sell and Buy Futures		____		Plus Buy and Sell Options	____	____	Plus Buy and Sell Options	____	____
Less: Storage Costs		____		Less: Storage Costs	____	____	Less: Storage Costs	____	____
Brokerage Costs		____		Brokerage Costs	____	____	Brokerage Costs	____	____
Equals Net Returns			____	Equals Net Returns	____	____	Equals Net Returns	____	____
Equals Net Price Received			6.	Equals Net Price Received	7.	8.	Equals Net Price Received	9.	10.

Forward Pricing Alternatives for Corn (crop) in Storage

Date	Cash Market		Hedge/Hedge To Arrive		Put Options (Minimum Price HTA)			Call Options (Minimum Price)		
	Current Price	4.26	July	4.62	July	4.40	4.60	July	4.70	4.70
2/24/2013	Forward Contract		Futures Month	Sell	Futures Month	Strike Price	Strike Price	Futures Month	Strike Price	Strike Price
	Price for:		Less:					Cash Sale	4.26	
	June 15, 2014	4.37	Expected Basis	-0.20	Expected Basis	-0.20	-0.20	Forward Contract		4.37
	Less Storage Costs	-0.08	Storage Costs	-0.08	Storage Costs	-0.08	-0.08	Storage Costs	N/A	-0.08
	Net Price From									
	Forward Contract	4.29	Brokerage Costs	-0.01	Brokerage Costs	-0.01	-0.01	Brokerage Costs	-0.01	-0.01
	Basis Contract				Options Premium	-0.13	-0.22	Options Premium	-0.20	-0.20
	Relative to:		Equals Net Price		Equals Minimum					
	July	-0.36	Expected From		Selling Price			Equals Minimum		
			Hedge	4.33	Expected	3.98	4.09	Selling Price	4.05	4.08

OUTCOMES Prices Up, Basis a bit weak

6/15/2014	Cash Price	6.75	July	7.00	July			July		
			Futures Month		Futures Month			Futures Month		
	Less Storage Costs	-0.08	Actual Basis	-0.25	Options Premium	0.01	0.01	Options Premium	2.31	2.31
	Equals Net Price									
	From Cash Sale	6.67			Intrinsic Value	0.00	0.00	Intrinsic Value	2.30	2.30
	Net Price From				Time Value	0.01	0.01	Time Value	0.01	0.01
	Basis Contract	6.64								
								Cash Sale/		
	Cash Price On	06/15/14		6.75		6.75	6.75	Forward Contract	4.26	4.37
					Plus Buy and			Plus Buy and		
	Sell and Buy Futures		-2.38		Sell Options	-0.12	-0.21	Sell Options	2.11	2.11
	Less:									
	Storeage Costs		-0.08		Storeage Costs	-0.08	-0.08	Storeage Costs	N/A	-0.08
	Brokerage Costs		-0.01		Brokerage Costs	-0.01	-0.01	Brokerage Costs	-0.01	-0.01
	Equals Net Return			-2.47	Equals Net Return	-0.21	-0.30	Equals Net Return	2.10	2.02
	Equals Net Price Received			4.28		6.54	6.45		6.36	6.39

~~Forward Pricing Alternatives for~~

See → previous page

Forward Pricing Alternatives for [redacted] (crop) in Storeage

Date	Cash Market		Hedge/Hedge To Arrive		Put Options (Minimum Price HTA)			Call Options (Minimum Price)		
	Current Price	4.26	[redacted]	4.62	[redacted]	4.40	4.60	[redacted]	4.70	4.70
[redacted]	Forward Contract		Futures Month	Sell	Futures Month	Strike Price	Strike Price	Futures Month	Strike Price	Strike Price
	Price for:		Less:					Cash Sale	4.26	
	[redacted] June	4.37	Expected Basis	-0.20	Expected Basis	-0.20	-0.20	Forward Contract		4.37
	Less Storage Costs	-0.08	Storage Costs	-0.08	Storage Costs	-0.08	-0.08	Storage Costs	N/A	-0.08
	Net Price From Forward Contract	[redacted]	Brokerage Costs	-0.01	Brokerage Costs	-0.01	-0.01	Brokerage Costs	-0.01	-0.01
	Basis Contract Relative to:				Options Premium	-0.13	-0.22	Options Premium	-0.20	-0.20
	[redacted]	-0.36	Equals Net Price Expected From Hedge	[redacted]	Equals Minimum Selling Price Expected	[redacted]		Equals Minimum Selling Price	[redacted]	

B = C − F

OUTCOMES Prices Up, Basis a bit weak

P↑ Basis, Basis weaker than Exp

6/15/14

Cash Price	6.75	July (Futures Month)	7.00 (Buy)	July (Futures Month)			July (Futures Month)			
Less Storage Costs	-.08									
Equals Net Price from Cash Sale	4. 6.67	Actual Basis	-.25	Option Premium	-.01 (Sell)	-.01 (Sell)	Option Premium	2.31 (Sell)	2.31 (Sell)	
Net Price from Basis Contract = Futures today+ Basis Contract 7.00-.36	5. 6.64			Intrinsic Value	.0	0	Intrinsic Value	2.30	2.30	
				Time Value	.01	.01	Time Value	-.01	.01	
Cash Price on June 15 (Date)		$4.62 $7.00 =	6.75	Cash Price	6.75	6.75	Cash Sale/Forward Contract Price	4.26	4.37	
Plus Sell and Buy Futures		-2.38		Plus Buy and Sell Options	-.12	-.21	Plus Buy and Sell Options	2.11	2.11	
Less: Storage Costs		-.08		Less: Storage Costs	-.08	-.08	Less: Storage Costs	—	.08	
Brokerage Costs		-.01		Brokerage Costs	-.01	-.01	Brokerage Costs	-.01	.01	
Equals Net Returns			-2.47	Equals Net Returns	-.21	-.30	Equals Net Returns	2.10	2.02	
Equals Net Price Received			6. 4.28	Equals Net Price Received	7. 6.54	8. 6.45	Equals Net Price Received	9. 6.36	10. 6.39	

4.33 - .05 4.28

Forward Pricing Alternatives for ______________________________(crop) in Storage

Date	Cash Market	Hedge/Hedge-to-Arrive	Put Options (Minimum Price HTA)	Call Options (Minimum Price)
___	Current Price 1. ____ Forward Contract Price for ____ (Date) ____ Less Storage Costs ____ Equals Net Price From Forward Contract 2. ____ Net Government Loan Rate 3. ____ Basis Contract Relative to ____ (Date) ____ Expected Cash Price for ____ (Date) Optimistic ____ Average ____ Pessimistic ____	____ (Futures Month) ____ (Sell) Less: Expected Basis ____ Storage Costs ____ Brokerage Costs ____ Equals Net Price Expected from Hedge ____	____ (Futures Month) Strike Price ____ ____ Less: Expected Basis ____ ____ Storage Costs ____ ____ Brokerage Costs ____ ____ Option Premium ____ ____ Equals Minimum Selling Price Expected ____ ____	____ (Futures Month) Strike Price ____ ____ Cash Sale ____ Forward Contract ____ Less: Storage Costs ____ ____ Brokerage Costs ____ ____ Option Premium ____ ____ Equals Minimum Selling Price Expected ____ ____
___	Cash Price ____ Less Storage Costs ____ Equals Net Price from Cash Sale 4. ____ Net Price from Basis Contract = Futures today+ Basis Contract 5. ____	____ (Futures Month) ____ (Buy) Actual Basis ____	____ (Futures Month) Option Premium ____ (Sell) ____ (Sell) Intrinsic Value ____ ____ Time Value ____ ____	____ (Futures Month) Option Premium ____ (Sell) ____ (Sell) Intrinsic Value ____ ____ Time Value ____ ____
Cash Price on ____ (Date) Plus Sell and Buy Futures Less: Storage Costs Brokerage Costs Equals Net Returns Equals Net Price Received		____ ____ ____ ____ ____ 6. ____	Cash Price ____ ____ Plus Buy and Sell Options ____ ____ Less: Storage Costs ____ ____ Brokerage Costs ____ ____ Equals Net Returns ____ ____ Equals Net Price Received 7. ____ 8. ____	Cash Sale/Forward Contract Price ____ ____ Plus Buy and Sell Options ____ ____ Less: Storage Costs ____ ____ Brokerage Costs ____ ____ Equals Net Returns ____ ____ Equals Net Price Received 9. ____ 10. ____

July 2014 Corn Futures

Table 1. Probability Futures Price @ Maturity Will Be Less Than Stated Value

Probability	Price
10%	$3.91
20%	$4.15
25%	$4.24
30%	$4.32
40%	$4.47
50%	$4.63
60%	$4.78
70%	$4.95
75%	$5.05
80%	$5.16
90%	$5.46

Forward Pricing Alternatives for Corn (crop) in Storeage

Date	**Cash Market**		**Hedge/Hedge To Arrive**		**Put Options (Minimum Price HTA)**			**Call Options (Minimum Price)**		
	Current Price	**4.26**	July	4.62	July	4.40	4.60	July	4.70	4.70
2/24/2013	Forward Contract		Futures Month	Sell	Futures Month	Strike Price	Strike Price	Futures Month	Strike Price	Strike Price
	Price for:		Less:					Cash Sale	4.26	
	February 13, 2014	4.37	Expected Basis	-0.20	Expected Basis	-0.20	-0.20	Forward Contract		4.37
	Less Storage Costs	-0.08	Storage Costs	-0.08	Storage Costs	-0.08	-0.08	Storage Costs	N/A	-0.08
	Net Price From									
	Forward Contract	**4.29**	Brokerage Costs	-0.01	Brokerage Costs	-0.01	-0.01	Brokerage Costs	-0.01	-0.01
	Basis Contract				Options Premium	-0.13	-0.22	Options Premium	-0.20	-0.20
	Relative to:		Equals Net Price		Equals Minimum					
	July	-0.36	Expected From		Selling Price			Equals Minimum		
			Hedge	**4.33**	Expected	**3.98**	**4.09**	Selling Price	**4.05**	**4.08**

OUTCOMES

Pricing Decision Chart for Cash Product Sellers

Futures-Up

Basis-Weakening

You like the basis now, so you'll CALL it

Expected Change for Futures and Basis

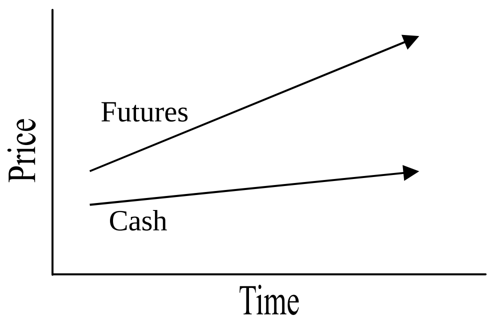
Basis-Strengthening

You like the basis long-term (later), so you better PUT a ring on it

Futures-Down

ACTION

1. Basis Contract
2. Sell Cash, Buy Futures
3. Sell Cash, Buy Call
4. Forward Contract, Buy Call
5. Minimum Price Contract

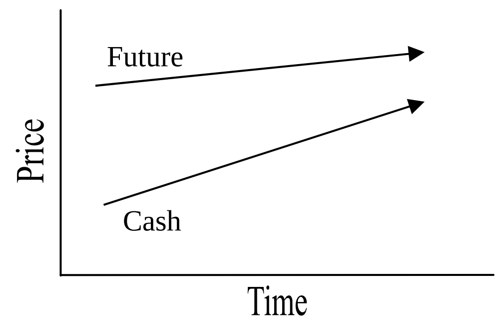


Futures: *Now* *Later*

Basis: *Now* *Later*

ACTION

1. Store Cash
2. Delayed Pricing
3. Store Cash, Buy Put
4. Minimum Price Hedge-to-Arrive

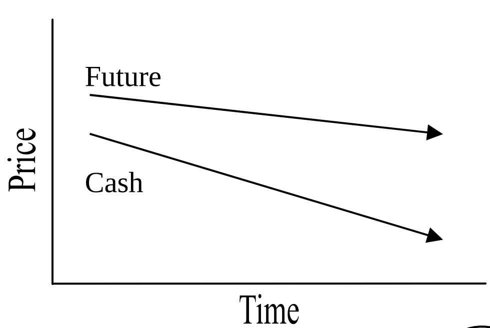


Futures: *Now* *Later*

Basis: *Now* *Later*

ACTION

1. Sell Cash
2. Forward Contract
3. Sell Cash, Buy Call
4. Forward Contract, Buy Call
5. Minimum Price Contract

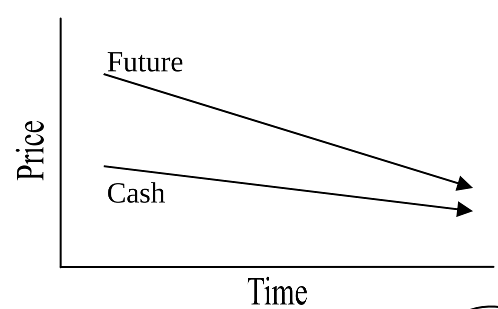


Futures: *Now* *Later*

Basis: *Now* *Later*

ACTION

1. Hedge (Store Cash, Sell Futures)
2. Hedge-to-Arrive
3. Store Cash, Buy Put
4. Minimum Price Hedge-to-Arrive



Futures: *Now* *Later*

Basis: *Now* *Later*