

# HEDGING dairy

Dairy Economist and Policy Analysts Workshop  
May 2017



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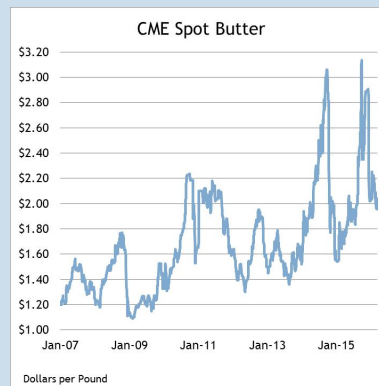
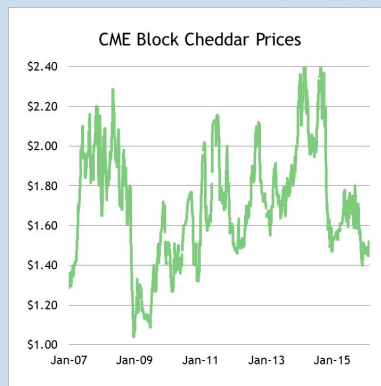
## There Are Many Options

- A focus on the tools accessed via the private sector (non-government programs)
- Some compare and contrast

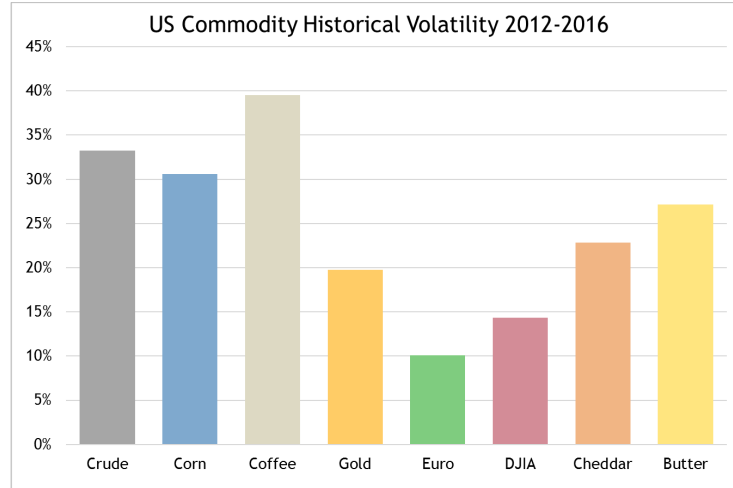


## The Reasons Are Clear

- A variety of supply and demand factors lead to major price swings in dairy products – and volatility shows no signs of going away
- The movements can be quite large and add chronic price uncertainty across the entire dairy supply chain



## Plenty Volatile



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## Who Hedges Dairy?

- Dairy Farmers
- Dairy cooperatives and processors
- Marketers/packagers with exposure at retail and restaurant chains looking to protect menu price
- Brokers/traders and speculators

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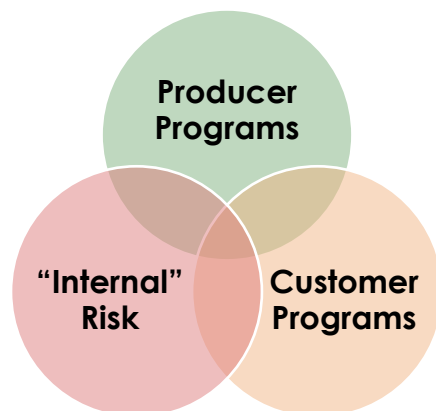
## Management Trends - Producer



- Dairy producers continue to approach the process tentatively
  - Many demands on time
  - Tools are not always the most straightforward
  - Ability to adequately hedge milk price in certain regions more complex
- We sense that producers know they need to manage risk more actively, but some lack confidence

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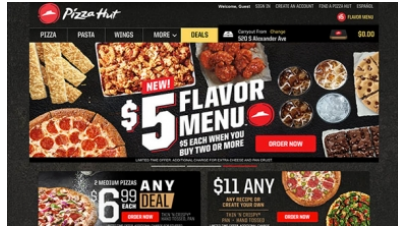
## Risk Management Trends: Co-op



- Seeing more and more co-ops taking an integrated approach to risk-management
- Full-time staff/team devoted to the effort
- Managing:
  - Inventory risk
  - Sales price risk
    - Offering more to customers
  - Producer price risk

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## Management Trends - Corporate



- Customers (CPG companies, restaurant chains, export partners) continue to seek wider risk management avenues
- More and more companies adopting a risk management culture
- New procurement personnel tends to have more risk management (but less dairy) experience


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 A background image of a stock market ticker board. The board is dark blue with green and red text. It displays various stock prices and changes, such as "6.36 2.78 56.39", "5.68 9.56 24.35", "32.23", "33 3.54", "38 7.63 44.45", "0 2.17 83.68 +80.25", "0 0.78 56.39 +74.36", "61.4", "3.35", "6.35", "132.1", "245.3", and "4.25". Green upward-pointing triangles and red downward-pointing triangles are interspersed among the numbers.
 

# We Have Markets!

## Multiple Months Trading All Day

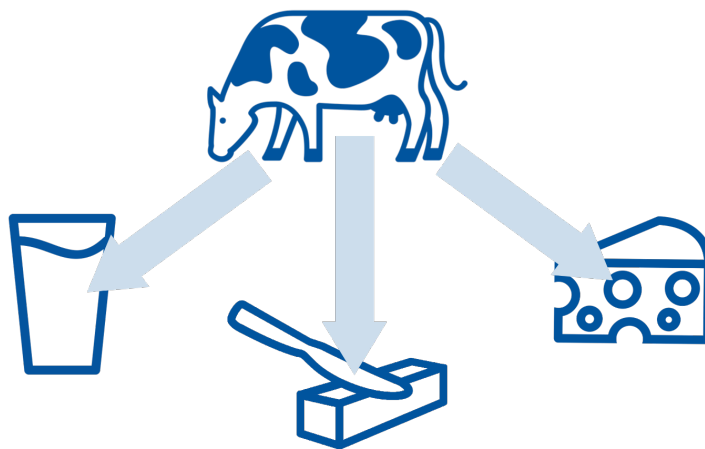
- Can use dairy futures to lock in commodity prices up to two years in advance
- During the week, dairy futures contracts trade 23 hours a day at the CME



| Symbol | Last  | Net Change | Bid   | Ask   |
|--------|-------|------------|-------|-------|
| DC J5  | 15.66 | -0.03      | 15.66 | 15.67 |
| DC K5  | 15.62 | -0.15      | 15.61 | 15.66 |
| DC M5  | 15.53 | -0.18      | 15.52 | 15.56 |
| DC N5  | 16.10 | -0.15      | 16.10 | 16.14 |
| DC Q5  | 16.69 | -0.11      | 16.68 | 16.69 |
| DC U5  | 17.04 | -0.08      | 16.96 | 16.97 |
| DC V5  |       |            | 17.06 | 17.10 |
| DC X5  | 17.10 | -0.13      | 17.08 | 17.12 |
| DC Z5  | 17.05 | -0.10      | 17.00 | 17.14 |
| DC F6  | 16.75 | -0.12      | 16.73 | 16.85 |
| DC G6  | 16.84 | -0.02      | 16.71 | 16.79 |
| DC H6  | 16.71 | 0          | 16.63 | 16.71 |
| DC J6  | 16.60 | 0          | 16.46 | 16.60 |
| DC K6  |       |            | 16.42 | 16.63 |
| DC M6  |       |            | 16.46 | 16.70 |
| DC N6  |       |            | 16.50 | 17.10 |
| DC Q6  |       |            | 16.58 | 17.10 |

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## Milk Can Take Many Paths



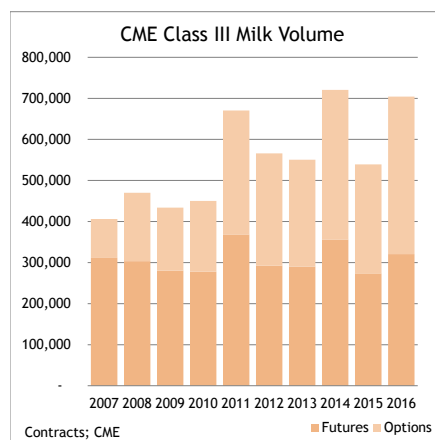
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## CME Dairy Contracts

- **Class III Milk**
  - Futures: 200,000 lb contracts
  - Options: 200,000 and 100,000 lb contracts
- **Cheese:** 20,000 lb futures and options contracts
- **Whey:** 44,000 lb futures and options contracts
- **Class IV Milk:** 200,000 lb futures and options contracts
- **Butter:** 20,000 lb futures and options contracts
- **Nonfat dry milk:** 44,000 lb futures and options contracts

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## Solid Participation

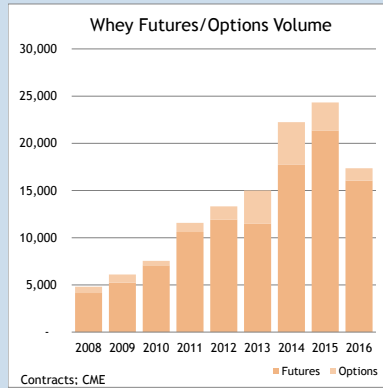
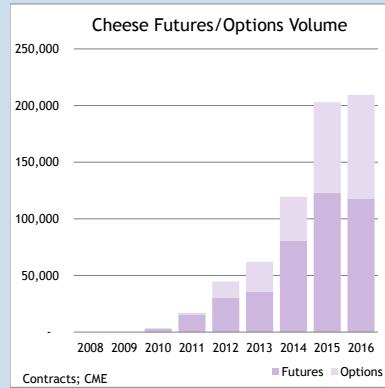


- Class III historically the most popular
- Options over half the volume in 2016

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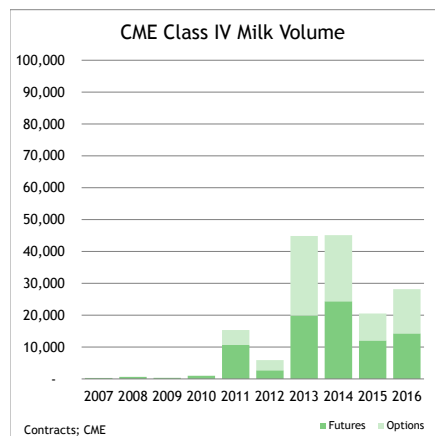
## Volumes Growing

- Participation in cheese futures contract has grown
  - Ability to isolate cheese risk
- Whey futures activity lighter but respectable growth too



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## From Nothing To Something



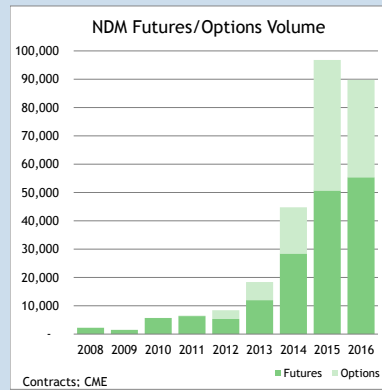
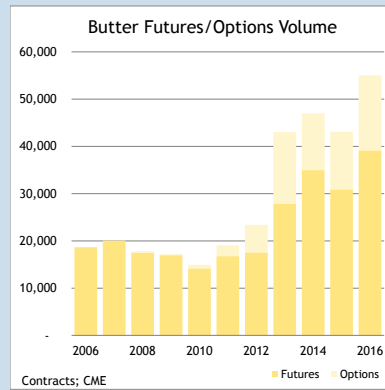
- Small compared to Class III
- Volume may be zapped to some extent by desire to target the components

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## Getting To The Components

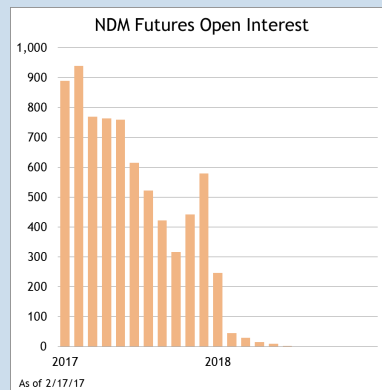
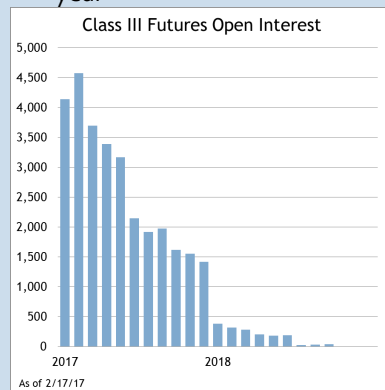
- Solid growth in butter interest
- Major surge in nonfat liquidity in 2014/2015



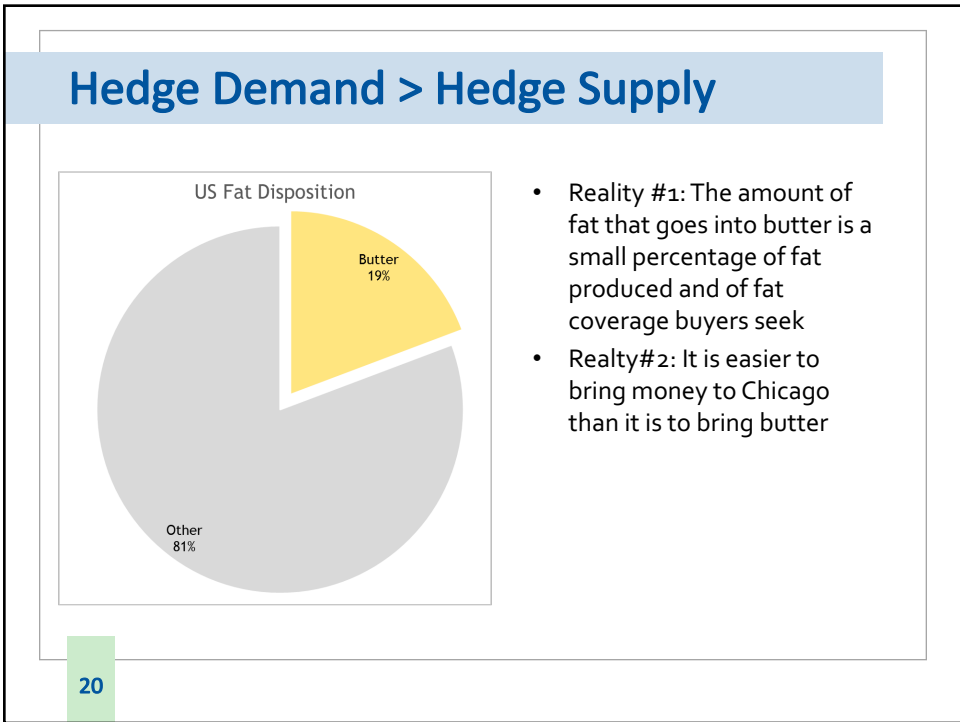
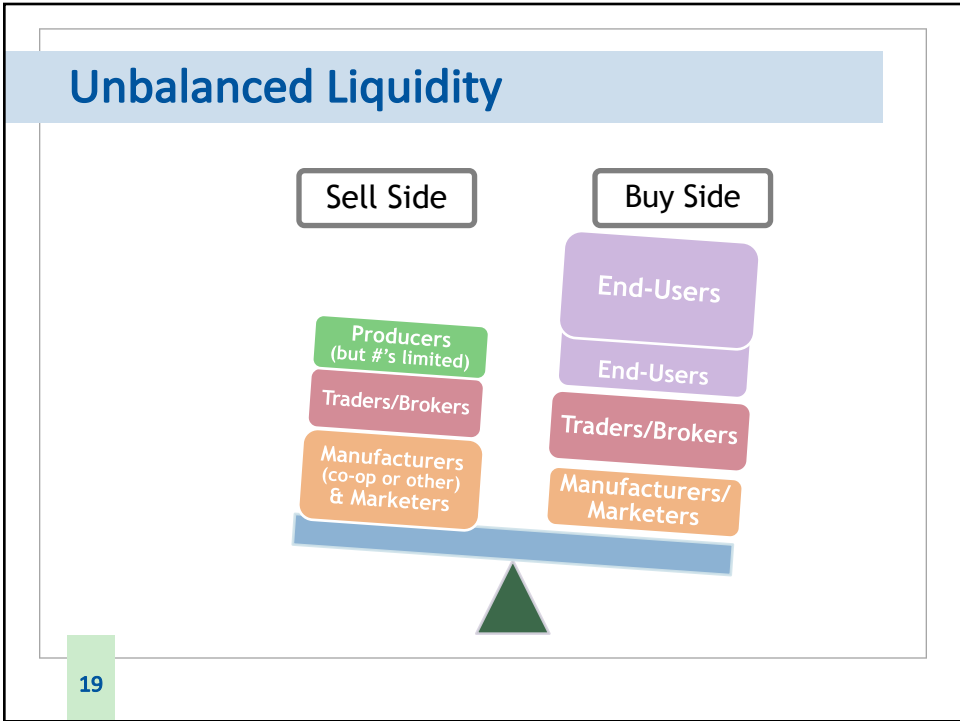
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## Timing for Forward Coverage

- Futures contracts available for the upcoming 24 months
- In practice, the majority of volume trades in nearby 12 months
- There is also a calendar element – trading drops off sharply into next year



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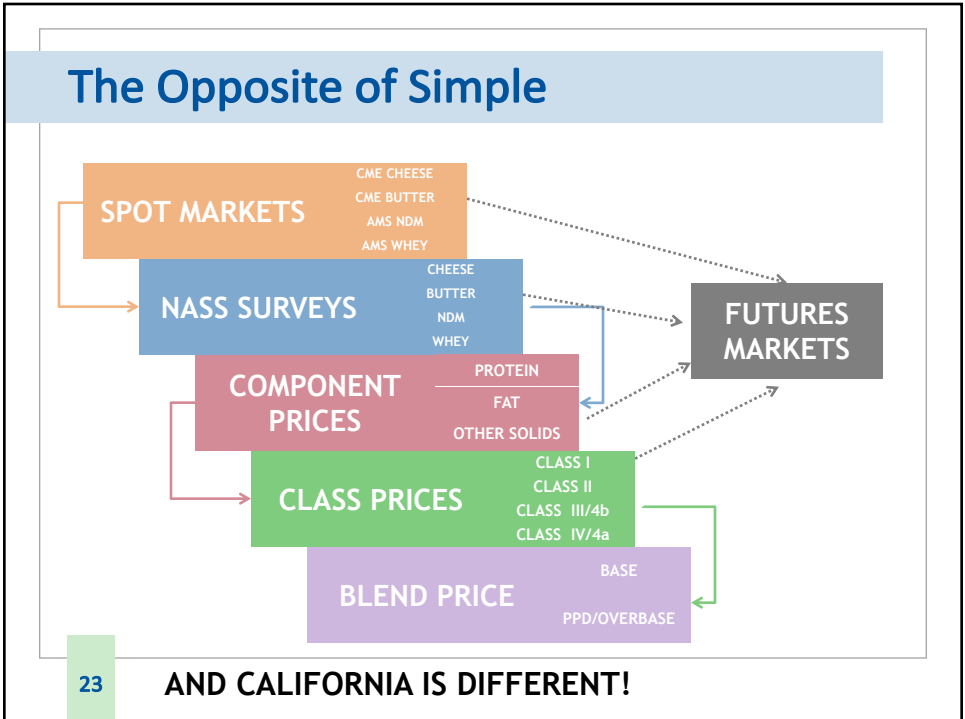


If Only It Were This Easy...

THE CORN MODEL

**FUTURES  
MARKET**

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## Paths of Execution

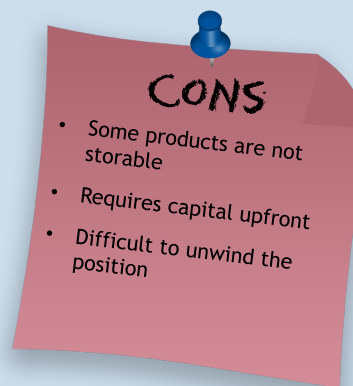
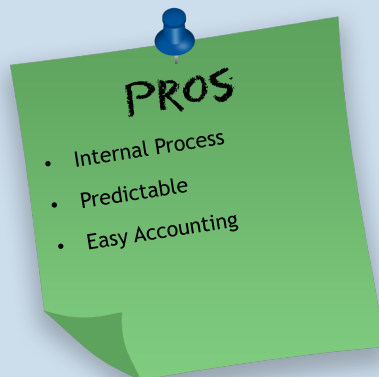


- There are many tools available to manage price risk
- The trick is deciding which one is best for the scenario
- As with most choices, there are trade-offs involved

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## Physical Purchases

- Buy product in the cash market today (commonly through suppliers) and store until it is needed in the future



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## Forward Contracts

- Arrangements between buyers and sellers regarding quantity/price
- Delivery in the future with terms negotiated by parties
- Suppliers will often use futures markets to provide the service

### PROS

- Specialized contracts in regard to quantity and delivery date
- No upfront capital required

### CONS

- Counter-party credit risk
- Limited ability to change the position
- Cost for coverage is typically higher

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## Futures Contracts

- Standardized, exchange-traded agreement to buy or sell a commodity at a time in the future
- A financial transaction to replicate the real business

### PROS

- Able to contract independently of supplier
- Comparatively low transaction costs
- Able to exit position

### CONS

- Standardization may not square with needs
- Margin calls
- Market liquidity can be a challenge, especially for large volumes

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## Options Contracts

- The right (but not obligation) to buy or sell a contract in an underlying futures market at a specific time and price

### PROS

- Protection in rising/falling market and downside opportunity/upside
- Availability of potential trading partners

### CONS

- Upfront cash required for some structures
- Limited liquidity in some contracts

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## OTC/Swaps Contracts

- Off-exchange. Specification of product, settlement and other provisions contained in agreement.
- Bank often serves as the counter-party guarantor.

### PROS

- Flexibility in terms
- Typically no margin calls

### CONS

- Cost for coverage is typically higher
- Limited trading partners
- Difficult to unwind positions
- Can be counter-party risk

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## Paths of Execution

- **Through a brokerage account**
  - Hedge line, premiums paid upfront
  - Generally \$0.02 to \$0.04/cwt brokerage fees
- **Through banking or other institution**
  - Hedging line of credit/paperwork
  - Settled with corresponding monthly milk check
  - No margining or upfront cost to purchase puts
  - Generally \$0.10 to \$0.12/cwt to execute
- **Through Cooperative**
  - Sign-up for the program
  - Settled with corresponding monthly milk check
  - No margining or upfront cost to purchase puts
  - \$0.10/cwt to execute

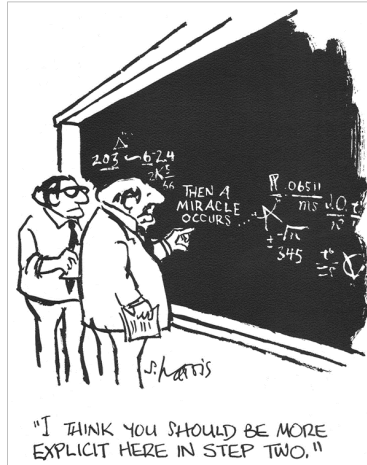
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## Private Sector Advantages



## Do You Believe in Magic?



- We don't.
- Money is involved...so it's emotional!
- Having a detailed plan is crucial for "success"
- Object is to manage margins, not maximize in one quarter only to slip the next
- The aim: Long-run profitability

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## There's No Easy Button



- Hedging requires
  - Time
  - A plan
  - Dedicated person/team
  - Consistency
- While it's not necessarily easy, what business decision is?

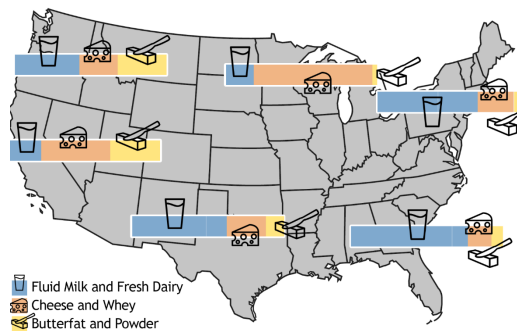
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## MPP Appealed To Some

- **A designed program:** people smarter than me have figured out the margin calculation
- **One stop shop:** milk and feed included
- **A Year Long Program:** could prove advantageous to secure a margin a year in advance. Who knows what will happen between now and then?
- **Options premiums can get expensive** the further out I buy
- **Posting margin** on both milk and feed for a full year could be problematic
- **Check the box:** I am hedged!

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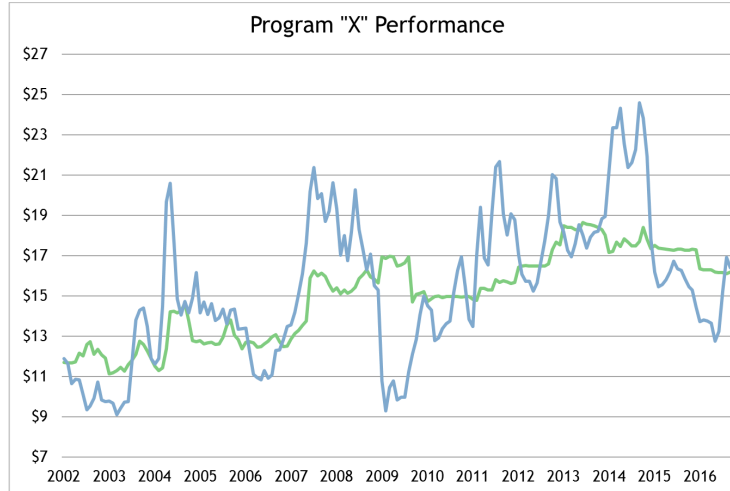
## The Reality of MPP



- Lack of flexibility – no two dairies the same
- What if I want to hedge only milk and not feed?
- One chance deal: get it done by the date and don't look back

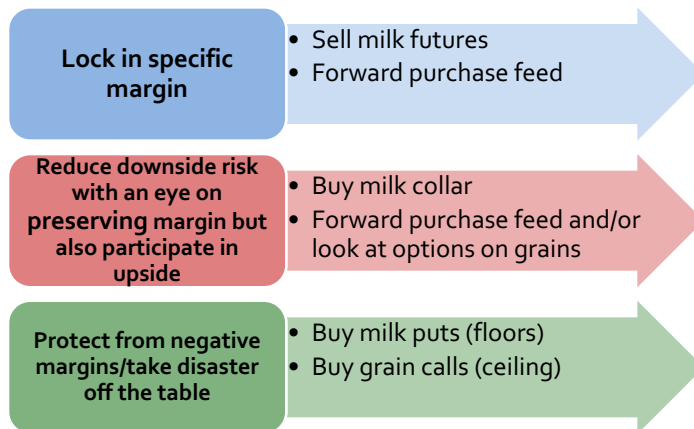
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## Hedging Works: Narrower Band



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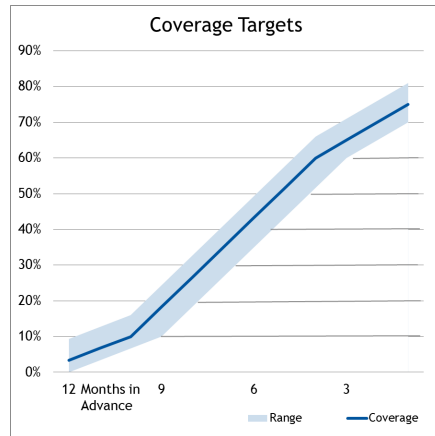
## Personal Preference Matters



*Or some combination*

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## Can't Time The Market



- Consistency is typically the best approach
- Provides a comfort level
- Develop the discipline to make active decisions
  - Flex the strategy depending on market conditions
  - Doing nothing is okay too – as long as it is part of the plan

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## Allows For Strategy

| Percentile | Strategy                  |
|------------|---------------------------|
| 100%       | Sell Futures              |
| 75%        | Sell Futures/Buy Call     |
| 50%        | Collar: Buy Put/Sell Call |
| Bottom 25% | Buy Put                   |

- Evaluate where futures price levels sit relative to history to determine strategy
- A percentile approach appeals to some:
  - Top 75 to 100% : Sell futures to lock in price
  - Bottom 25% of prices: Buy price floor to prevent further deterioration
- Flex strategy to fit needs

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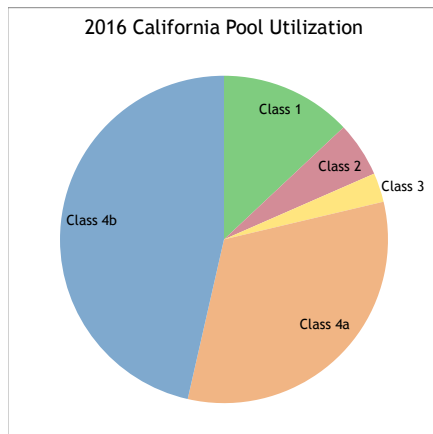
## Adjust to Changing Markets

| 2016 Futures | Jan      | Feb      | Mar      | Apr      | May      | Jun      | Jul      | Aug      | Sep      | Oct      | Nov      | Dec      |
|--------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Jan 1st 2015 | \$ 16.22 | \$ 16.34 | \$ 16.41 | \$ 16.50 | \$ 16.50 | \$ 16.45 | \$ 16.52 | \$ 16.60 | \$ 16.61 | \$ 16.50 | \$ 16.61 | \$ 16.72 |
| 1-Feb        | \$ 16.50 | \$ 16.50 | \$ 16.24 | \$ 16.25 | \$ 16.50 | \$ 16.30 | \$ 16.35 | \$ 16.35 | \$ 16.60 | \$ 16.50 | \$ 16.61 | \$ 16.50 |
| 1-Mar        | \$ 16.69 | \$ 16.65 | \$ 16.52 | \$ 16.45 | \$ 16.55 | \$ 16.60 | \$ 16.60 | \$ 16.50 | \$ 16.70 | \$ 16.70 | \$ 16.70 | \$ 16.60 |
| 1-Apr        | \$ 16.90 | \$ 16.90 | \$ 16.77 | \$ 16.55 | \$ 16.56 | \$ 16.60 | \$ 16.68 | \$ 16.58 | \$ 16.78 | \$ 16.76 | \$ 16.76 | \$ 16.65 |
| 1-May        | \$ 16.96 | \$ 16.95 | \$ 16.83 | \$ 16.68 | \$ 16.64 | \$ 16.63 | \$ 16.75 | \$ 16.75 | \$ 16.88 | \$ 16.90 | \$ 16.90 | \$ 16.85 |
| 1-Jun        | \$ 16.89 | \$ 16.81 | \$ 16.88 | \$ 16.89 | \$ 16.90 | \$ 16.88 | \$ 16.95 | \$ 17.00 | \$ 17.10 | \$ 17.00 | \$ 16.99 | \$ 16.90 |
| 1-Jul        | \$ 16.48 | \$ 16.48 | \$ 16.50 | \$ 16.47 | \$ 16.55 | \$ 16.79 | \$ 16.95 | \$ 16.95 | \$ 17.00 | \$ 17.07 | \$ 17.07 | \$ 16.99 |
| 1-Aug        | \$ 15.65 | \$ 15.50 | \$ 15.45 | \$ 15.52 | \$ 15.84 | \$ 16.14 | \$ 16.51 | \$ 16.78 | \$ 16.76 | \$ 16.78 | \$ 16.80 | \$ 16.80 |
| 1-Sep        | \$ 15.75 | \$ 15.65 | \$ 15.65 | \$ 15.70 | \$ 16.05 | \$ 16.33 | \$ 16.30 | \$ 16.45 | \$ 16.36 | \$ 16.30 | \$ 16.38 | \$ 16.26 |
| 1-Oct        | \$ 15.65 | \$ 15.70 | \$ 15.80 | \$ 15.94 | \$ 16.03 | \$ 16.31 | \$ 16.50 | \$ 16.53 | \$ 16.45 | \$ 16.43 | \$ 16.40 | \$ 16.24 |
| 1-Nov        | \$ 15.30 | \$ 15.58 | \$ 15.80 | \$ 15.95 | \$ 16.22 | \$ 16.52 | \$ 16.85 | \$ 16.97 | \$ 16.99 | \$ 16.95 | \$ 16.80 | \$ 16.79 |
| 1-Dec        | \$ 14.38 | \$ 14.69 | \$ 15.04 | \$ 15.30 | \$ 15.61 | \$ 15.87 | \$ 16.17 | \$ 16.42 | \$ 16.57 | \$ 16.54 | \$ 16.35 | \$ 16.38 |
| Jan 1st 2016 | \$ 13.56 | \$ 13.68 | \$ 14.08 | \$ 14.44 | \$ 14.81 | \$ 15.15 | \$ 15.56 | \$ 16.04 | \$ 16.33 | \$ 16.37 | \$ 16.29 | \$ 16.14 |
| 1-Feb        | \$ 13.73 | \$ 13.88 | \$ 13.85 | \$ 13.90 | \$ 14.25 | \$ 14.60 | \$ 15.00 | \$ 15.46 | \$ 15.69 | \$ 15.88 | \$ 15.88 | \$ 15.85 |
| 1-Mar        |          | \$ 13.56 | \$ 13.31 | \$ 13.28 | \$ 13.55 | \$ 14.01 | \$ 14.47 | \$ 14.84 | \$ 15.03 | \$ 15.07 | \$ 15.08 | \$ 15.08 |
| 1-Apr        |          |          | \$ 13.81 | \$ 13.98 | \$ 14.05 | \$ 14.29 | \$ 14.63 | \$ 14.85 | \$ 14.95 | \$ 14.95 | \$ 14.90 | \$ 14.90 |
| 1-May        |          |          | \$ 13.63 | \$ 13.03 | \$ 12.99 | \$ 13.31 | \$ 13.99 | \$ 14.55 | \$ 14.75 | \$ 14.78 | \$ 14.86 | \$ 14.86 |
| 1-Jun        |          |          |          |          | \$ 12.87 | \$ 13.09 | \$ 13.78 | \$ 14.55 | \$ 14.85 | \$ 14.95 | \$ 14.98 | \$ 14.98 |
| 1-Jul        |          |          |          |          |          | \$ 15.07 | \$ 15.89 | \$ 16.04 | \$ 16.13 | \$ 16.11 | \$ 15.89 | \$ 15.89 |
| 1-Aug        |          |          |          |          |          | \$ 15.26 | \$ 16.92 | \$ 16.91 | \$ 16.84 | \$ 16.43 | \$ 16.09 | \$ 16.09 |
| 1-Sep        |          |          |          |          |          |          |          | \$ 16.77 | \$ 16.84 | \$ 16.56 | \$ 16.15 | \$ 16.15 |
| 1-Oct        |          |          |          |          |          |          |          | \$ 16.39 | \$ 15.16 | \$ 15.44 | \$ 15.37 | \$ 15.37 |
| 1-Nov        |          |          |          |          |          |          |          |          |          | \$ 16.27 | \$ 16.01 | \$ 16.01 |

|                       |
|-----------------------|
| Sell Futures          |
| Sell Futures/Buy Call |
| Buy Put/Sell Call     |
| Buy Put               |

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## Adaptable: California Example

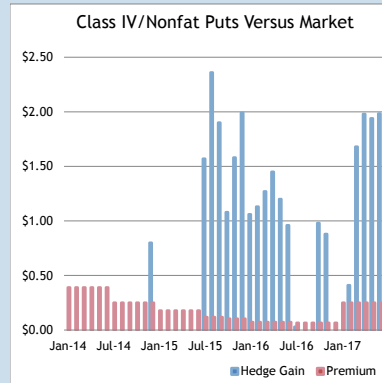
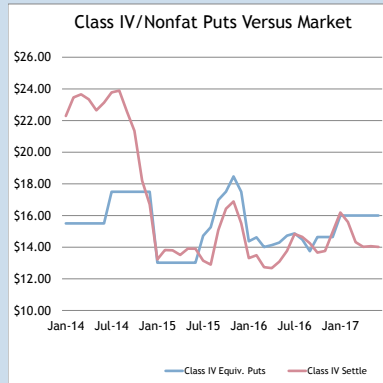


- Where's the Overbase contract?
- Milk can be broken down to address driving components

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## Class 4a Hedge

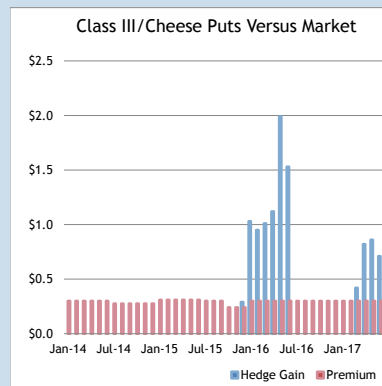
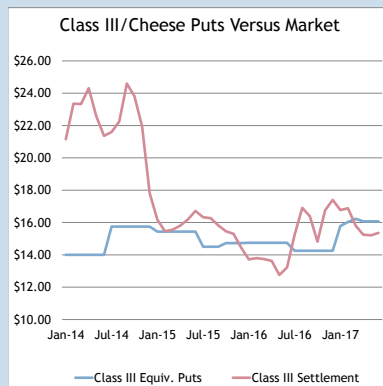
- 2015 & 2016: combination of Class IV and Nonfat puts
  - \$1.02 nonfat puts in second-half 2015 and \$0.90 puts in 2016
- 2017: Class IV \$16.00 puts



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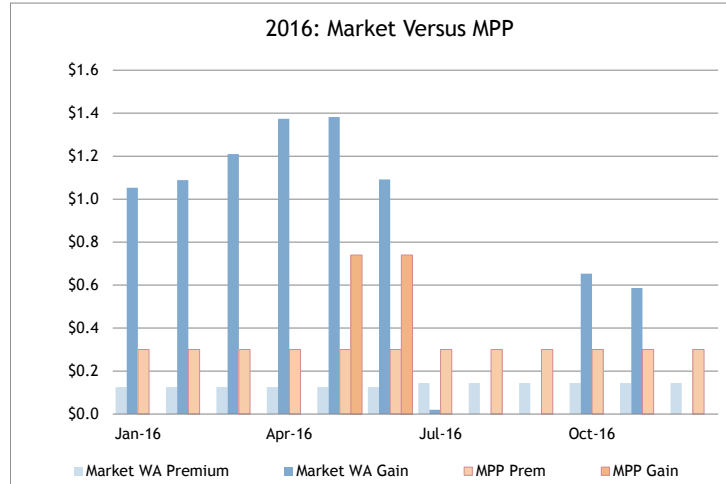
## Class 4b Hedge

- Cheese in 2014 and 2015, Class III in 2016, Cheese in 2017
- Why considerations taken into account



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## Market Versus MPP



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## A better way of doing business.

### Blimling and Associates

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