CME Group
A CME/Chicago Board of Trade/NYMEX Company

CME Dairy Markets

USDA Dairy Industry Advisory Committee
June 3, 2010

Paul E. Peterson
Director, Commodity Research & Product Development

Brief History of CME Group

Began as Chicago Butter & Egg Board in 1898

Became Chicago Mercantile Exchange in 1919

Merged with Chicago Board of Trade in 2007, formed CME Group

Acquired New York Mercantile Exchange in 2008

Key Events in CME Dairy Markets

Chicago Butter & Egg Board

Trading in “spot” or “cash” (physical) butter (1898)

Chicago Mercantile Exchange

Introduced trading in butter futures (1919-1976)

Also traded “spot” or “cash” (physical) cheese (1929-1941)

Re-introduced butter futures (1996)

Launched milk futures (1996); became BFP (1997), then Class III (2000)

Began trading in “spot” or “cash” (physical) cheese (1997)

Continued expansion into all major dairy products

Current CME Dairy Markets

Futures & Options

Class III Milk

Class IV Milk

Butter

Nonfat Dry Milk

Dry Whey

International Skimmed Milk Powder (new - May 2010)

Cheese (new - June 2010)

Spot (physical)

Cheese

Butter

Nonfat Dry Milk

CME Group
A CME/Chicago Board of Trade/NYMEX Company

Spot, Futures and Options

Spot

Transaction results in immediate (“on the spot”) payment and transfer of the product

Designed for trading small quantities to fill short-term needs or adjust inventories

Spot, Futures and Options

Futures

Transaction for a standardized contract; all details already established except the price

Obligation to make delivery (for a seller) or take delivery (for a buyer) at some date in the future

Contracts are identical and interchangeable , or “fungible”; can be offset

At final settlement, contract terms either call for the product (physical delivery), or call for money (cash settlement)

Designed to provide risk management (via hedging) and price discovery

Spot, Futures and Options

Options (on Futures)

Transaction for the right, but not the obligation, to receive a futures contract

Call = option to buy futures; Put = option to sell futures

Designed to provide risk management (via hedging) and price discovery

Spot, Futures and Options

Volume

Number of contracts traded

Open Interest

Number of contracts outstanding (i.e., that have not been offset, delivered or cash settled)

Does not apply to Spot contracts since each transaction results in immediate delivery

Volume & Open Interest

Volume

In 2009, Class III futures volume was 280,636 contracts (56 billion lbs)

Class III options volume was 153,513 contracts (31 billion lbs)

US milk production was 189 billion lbs

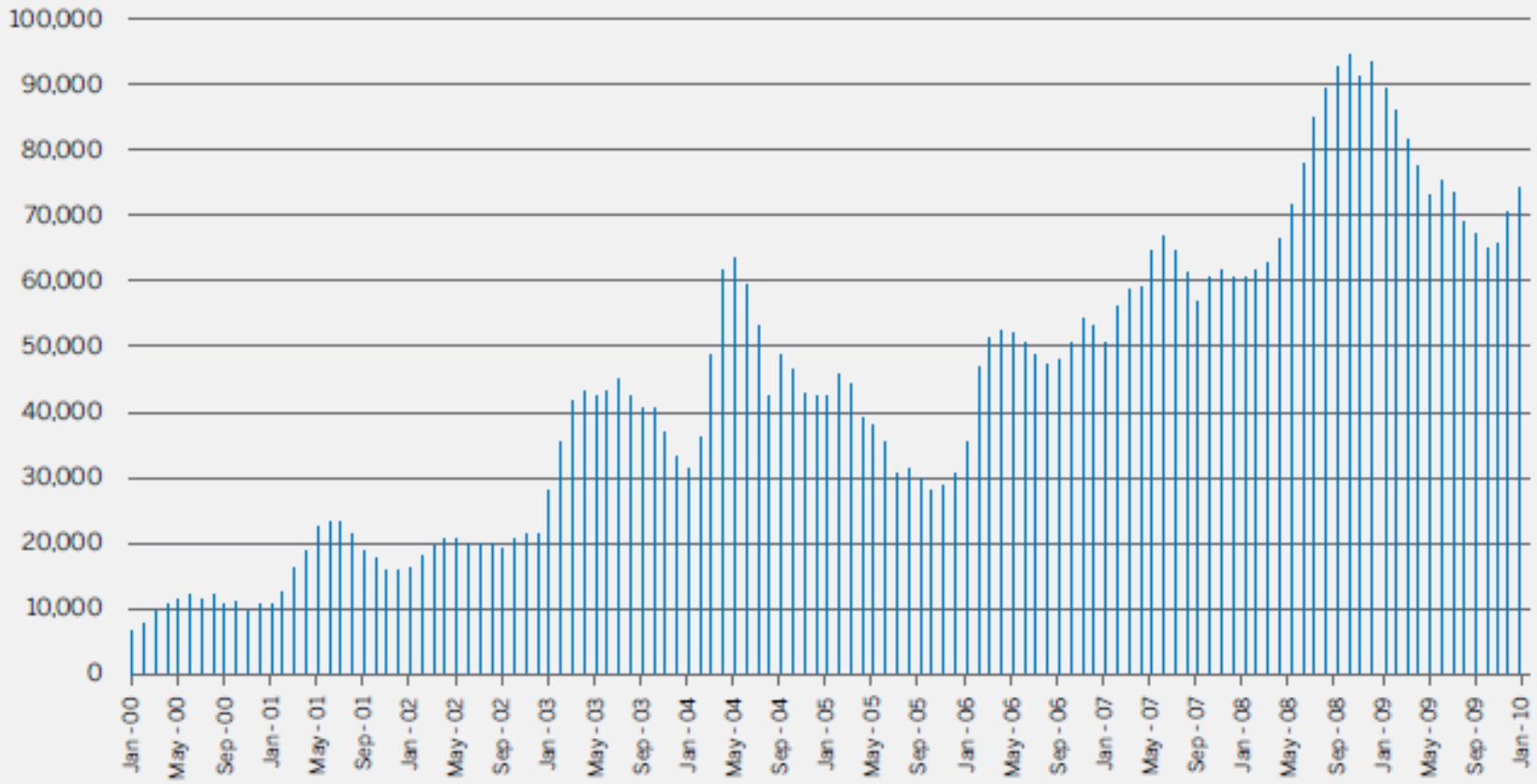
Open Interest

On Dec 31, 2009, Class III futures open interest was 27,773 contracts

Class III options open interest was 43,903 contracts

CME Group
A CME/Chicago Board of Trade/NYMEX Company

MONTHLY CLASS III MILK OPEN INTEREST (FUTURES AND OPTIONS)



CME Group
A CME/Chicago Board of Trade/NYMEX Company

Hedging

Price Risk Exposure

Buyers (such as food manufacturers) are at risk if prices go up

Sellers (such as producers) are at risk if prices go down

Others (such as processors) are at risk if input prices go up and/or output prices go down

Price risk can be managed by hedging

Hold offsetting positions in cash (physical) and futures/options

Hedging – Food Manufacturer

	Cash	Futures
June 1:	Sold product based on Sep milk price of $15.50 but now expects price to continue rising	Buy Sep futures at $15.00
Sep 1:	Price paid = $16.50	Sell (liquidate) Sep futures at $16.00
Profit:	($1.00)	$1.00

Net price paid for milk = $16.50 - $1.00 futures profit = $15.50

CME Group
A CME/Chicago Board of Trade/NYMEX Company

Hedging – Food Manufacturer

	Cash	Futures
June 1:	Sold product based on Sep milk price of $15.50 but now expects price to continue rising	Buy Sep futures at $15.00
Sep 1:	Price paid = $14.50	Sell (liquidate) Sep futures at $14.00
Profit:	$1.00	($1.00)

Net price paid for milk = $14.50 + $1.00 futures loss = $15.50

CME Group
A CME/Chicago Board of Trade/NYMEX Company

Hedging - Producer

	Cash	Futures
June 1:	Expanded herd based on average milk price of $15.00 but now expects lower prices	Sell 12-month strip of futures at average price of $14.75
Sep 1:	Average price received = $14.00	Buy (liquidate) futures at average price of $13.75
Profit:	($1.00)	$1.00

Net price received for milk = $14.00 + $1.00 futures profit = $15.00

CME Group
A CME/Chicago Board of Trade/NYMEX Company

Hedging - Producer

	Cash	Futures
June 1:	Expanded herd based on average milk price of $15.00 but now expects lower prices	Sell 12-month strip of futures at average price of $14.75
Sep 1:	Average price received = $16.00	Buy (liquidate) futures at average price of $15.75
Profit:	$1.00	($1.00)

Net price received for milk = $16.00 - $1.00 futures loss = $15.00

CME Group
A CME/Chicago Board of Trade/NYMEX Company

Hedging

Futures

"Obligation to do something" means price is locked in, regardless of whether the hedge results in a profit or a loss

If market doesn't move in the expected direction, hedger may feel that he/she would have been better off by not hedging

Options

"Right, but not the obligation, to do something" means hedger can choose whether to maintain or abandon the hedge

At worst, hedger will lose the premium paid for the option

Useful for establishing floor prices, ceiling prices, other strategies

Final Settlement

CME dairy futures/options are cash settled to USDA prices

Cash settlement = no physical delivery

- Can hold positions through final expiration (the day before USDA announcement)
- Options expire the same date and time as futures

Settlement to USDA prices means futures/options prices align with class prices (Class III and Class IV) and component prices (butter, powder, cheese, whey)

Announcement of Class and Component Prices for April 2010 1/
Release date: April 30, 2010

Class II Price: 2/	13.78	(per hundredweight)
Class II Butterfat Price:	1.5883	(per pound)
Class III Price:	12.92	(per hundredweight)
Class III Skim Milk Price:	7.65	(per hundredweight)
Class IV Price:	13.73	(per hundredweight)
Class IV Skim Milk Price:	8.49	(per hundredweight)
Butterfat Price:	1.5813	(per pound)
Nonfat Solids Price:	0.9435	(per pound)
Protein Price:	2.1449	(per pound)
Other Solids Price:	0.1702	(per pound)
Somatic Cell Adjustment Rate:	0.00069	(per 1,000 somatic cell count)
Product Price Averages:		
Butter	1.4773	(per pound)
Nonfat Dry Milk	1.1208	(per pound)
Cheese	1.3827	(per pound)
Dry Whey	0.3643	(per pound)

1/ See Price Formulas at www.ams.usda.gov/AMSv1.0/PriceFormulas2010.

Class Formulas

Class III:

Class III Price = (Class III skim milk price x 0.965) + (Butterfat price x 3.5)

where:

Class III Skim Milk Price = (Protein price x 3.1) + (Other solids price x 5.9)

Protein Price = ((Cheese price – 0.2003) x 1.383) + ((((Cheese price – 0.2003) x 1.572) – Butterfat price x 0.9) x 1.17)

Other Solids Price = (Dry whey price – 0.1991) x 1.03

Butterfat Price = (Butter price – 0.1715) x 1.211

which can be simplified to:

Class III Price = (Cheese price x 9.6398) + (Butter price x 0.4238) + (Dry whey price x 5.8643) – 3.1681

CME Group
A CME/Chicago Board of Trade/NYMEX Company

Class Formulas

Class IV:

Class IV Price = (Class IV Skim Milk price x 0.965) + (Butterfat price x 3.5)

where:

Class IV Skim Milk Price = Nonfat Solids price x 9

Nonfat Solids Price = (Nonfat Dry Milk price - 0.1678) x 0.99

Butterfat Price = (Butter price – 0.1715) x 1.211

which can be simplified to:

Class IV Price = (Nonfat Dry Milk price x 8.5982) + (Butter price x 4.2385) - 2.1697

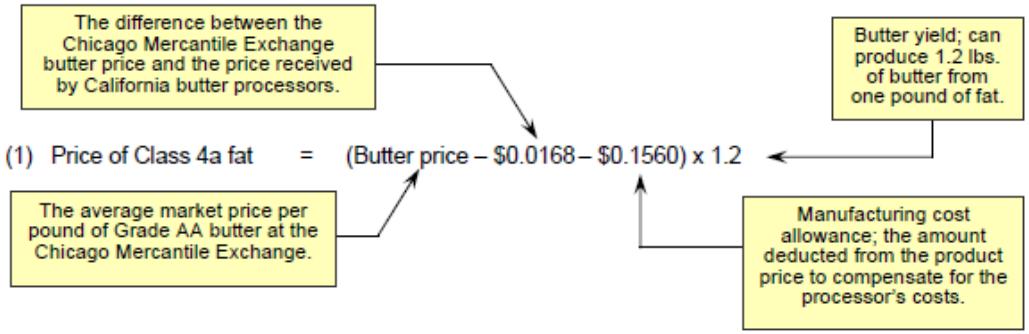
Class Formulas

Class III Price = (Cheese price x 9.6398) + (Butter price x 0.4238) + (Dry whey price x 5.8643) – 3.1681

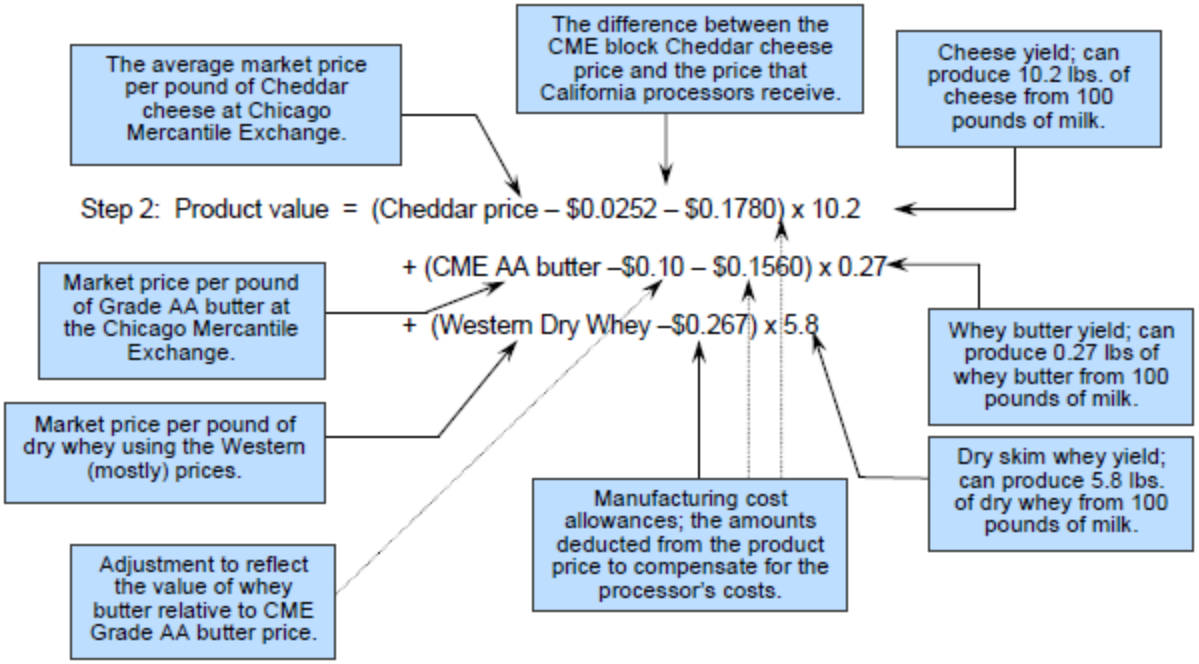
Class IV Price = (Nonfat Dry Milk price x 8.5982) + (Butter price x 4.2385) - 2.1697

- Dairy industry relies on CME Spot prices to establish wholesale Cheese and Butter prices
- Periodically, there are allegations that various large entities use the Spot Cheese and Spot Butter prices to move the wholesale Cheese and Butter prices that are captured in the USDA surveys, and thereby manipulate Milk prices
- California's milk pricing formulas directly reference CME Spot Cheese and Spot Butter prices

Class 4a Price Formula (butter and dry milk products)

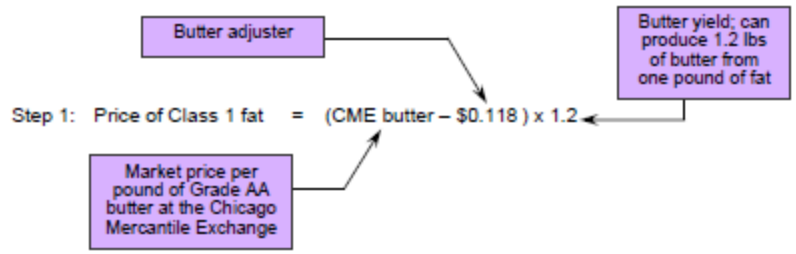


Class 4b Price Formula (cheese)

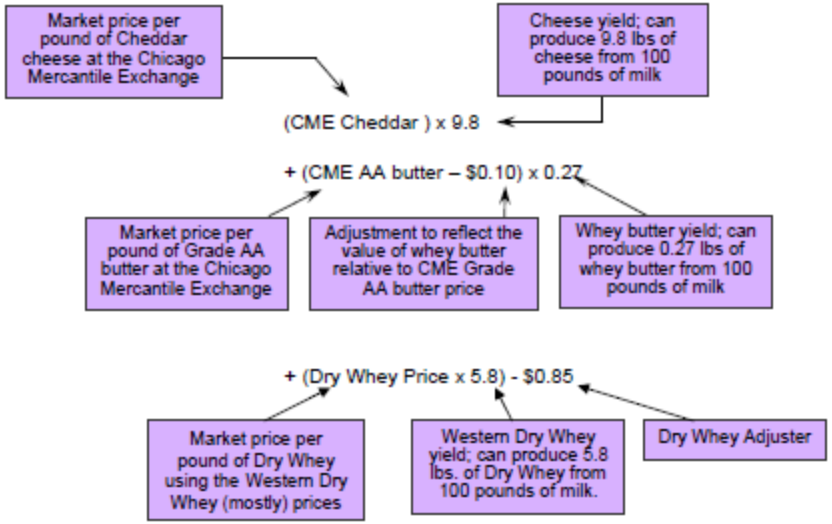


CME Group
A CME/Chicago Board of Trade/NYMEX Company

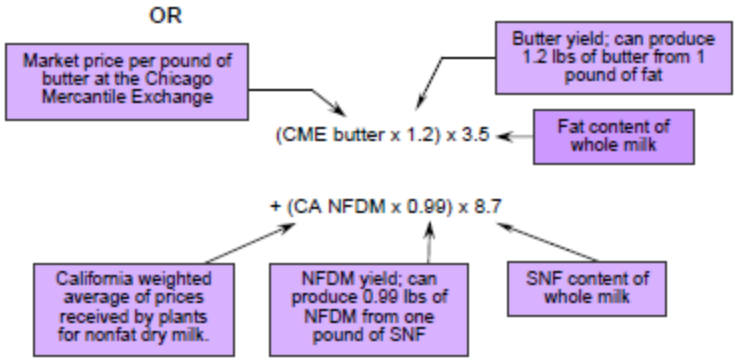
Class 1 Price Formula for Fluid Milk Products



Step 2: Commodity Reference Price = the **higher of** two price calculations:



OR



CME Group
A CME/Chicago Board of Trade/NYMEX Company

Observations

- From earlier in this presentation, recall that Spot markets are designed for trading small quantities to fill short-term needs or adjust inventories.
- CME has never condoned the use of its markets or prices for anything other than their stated purpose. Furthermore, it is unclear whether Spot prices reflect the equilibrium prices in the overall markets for these products.
- From the Class Formulas, notice that input prices (milk) are directly determined by final product prices (cheese, butter, dry whey, nonfat dry milk) – not the other way around, as is typically the case.
- Both CME Market Regulation and the Commodity Futures Trading Commission (CFTC) Division of Market Oversight monitor trading activity in the Spot dairy markets for any potential impact on CME's dairy futures markets.
- US Government Accountability Office (GAO) conducted an investigation in 2007 and found no evidence of manipulation.

Concluding Comments

- CME Group is proud to be an integral part of the dynamic US dairy industry. Our dairy markets have experienced rapid growth since we launched our first Milk contract in 1996, and we look forward to many new opportunities as we expand into the international arena.
- For over a century, the dairy markets have been an essential part of CME's product offerings. We will continue to provide the industry with world-class price discovery and risk management tools as part of our longstanding commitment to the agricultural sector.

Questions?

CME Group
A CME/Chicago Board of Trade/NYMEX Company

CME Group
A CME/Chicago Board of Trade/NYMEX Company

CME Dairy Markets

USDA Dairy Industry Advisory Committee
June 3, 2010

Paul E. Peterson
Director, Commodity Research & Product Development