



Udder Intelligence

March 19, 2020

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What you need to know

- GDT wasn't as weak as expected, but it was still down 3.9%, driven by SMP and WMP
- Jan. EU exports were better than expected thanks to cheese/butter, SMP was weak
- Covid-19 is changing consumption patterns in the US and Europe, which will likely be net negative for dairy demand
- Weaker global economic growth isn't good news for dairy demand either

Dairy Prices (USD)

Cheese	Last (lb.)	Chg.	Last (MT)	WMP	Last (lb.)	Chg.	Last (MT)
CME Blocks (Wk Avg)	\$1.86	\$0.07	\$4,101	US	\$1.70	-\$0.08	\$3,748
CME Barrels (Wk Avg)	\$1.45	-\$0.01	\$3,188	Dutch	\$1.46	-\$0.05	\$3,218
EU Gouda	\$1.61	-\$0.06	\$3,558	GDT (Avg)	\$1.27	-\$0.07	\$2,797
GDT Cheddar (Avg)	\$1.99	\$0.05	\$4,398				

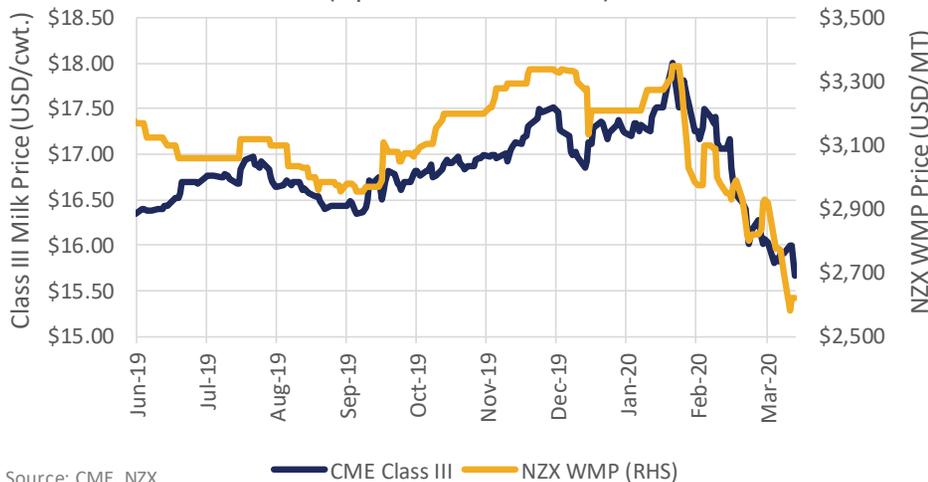
Butter	Last (lb.)	Chg.	Last (MT)	Dry Whey	Last (lb.)	Chg.	Last (MT)
CME Spot (Wk Avg)	\$1.72	-\$0.10	\$3,784	Central US	\$0.35	-\$0.01	\$772
EEX Index	\$1.69	-\$0.07	\$3,715	EEX Index	\$0.33	-\$0.03	\$732
GDT (Avg)	\$1.88	\$0.01	\$4,144	US WPC34	\$1.02	\$0.00	\$2,238
				US Lactose	\$0.31	\$0.00	\$683

SMP/NFDM	Last (lb.)	Chg.	Last (MT)	Rennet Casein	Last (lb.)	Chg.	Last (MT)
CME Spot (Wk Avg)	\$0.98	-\$0.08	\$2,169	US	\$4.53	\$0.03	\$9,979
EEX Index	\$1.16	-\$0.08	\$2,552	GDT (Avg)	\$4.53	\$0.04	\$9,987
GDT (Avg)	\$1.15	-\$0.10	\$2,527				

Sources: CME, USDA, EEX, GlobalDairyTrade, Dutch Dairy Board, FRED

USD/euro rate used: 1.087, -0.037

CME Class III and NZX WMP Futures Prices
(April 2020 Contracts)



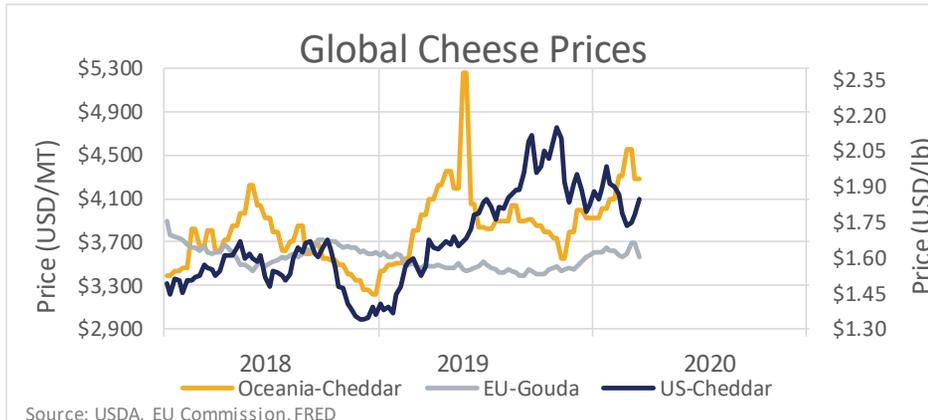
Source: CME, NZX

Market Summary

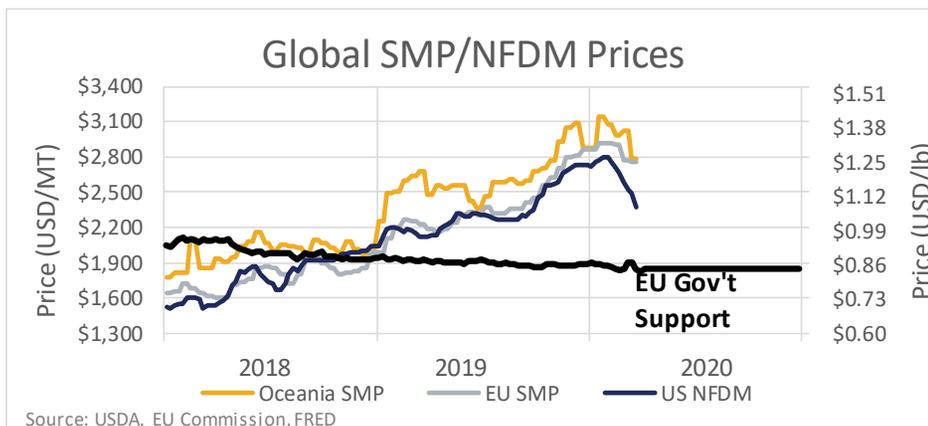
The tricky part is figuring out whether the 10% drop in prices today was the blow-off bottom or the 10% drop tomorrow will be the bottom. Very strong retail sales in the US are keeping physical supplies in balance or a little tight, but consumers are now stocked up and the retail side will cool down. About 24 states have temporarily banned dine-in service at restaurants. So food service demand will be dropping swiftly and significantly in coming weeks. [Black Box Intelligence](#) said foodservice sales were only down about 3% last week, but we're headed for at least a 10% decline and probably more like 20-30%. Butter prices have been hit hard, and with reduced cream going into foodservice and more cream coming from bottling operations the price drop makes some sense.



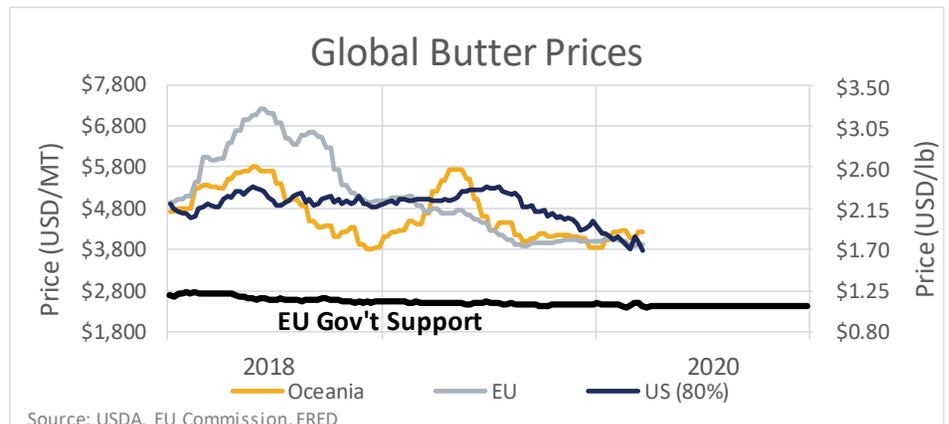
Product Markets



Butter: I can see the bearish story for butter with cream moving out of foodservice and more cream coming off bottling operations short-term. We could be looking at butter production up 10-15% or more in April/May. Even with that kind of production growth, the forecasted stocks/use still points to the possibility of a little price strength from current levels. Although if production is up 20-25%, the chances look slim.



Cheese: Some of our customers are telling us that retail cheese sales were double year-ago levels over the past week. That could temporarily help to keep the cheese market supported while the retail pipeline restocks. We think about 45% of US cheese clears through foodservice, with half of that being on pizza. We've heard anecdotally that pizza delivery has been very strong which could dampen the overall negative impact on cheese movement through foodservice but the CME block price is still expected to fall after retail refills.



Powders: NFDM/SMP prices have collapsed around the world. While I see a strong bearish story for butter (supply side), but the things driving the supply side for butter shouldn't drive powder production higher. So I think the powder weakness is due to global demand with a recession now expected and oil prices down 50% from the start of the year. Logistics issues with containers may be playing into it too, but if that were the case you would expect more downward pressure on whey prices which hasn't shown up yet.

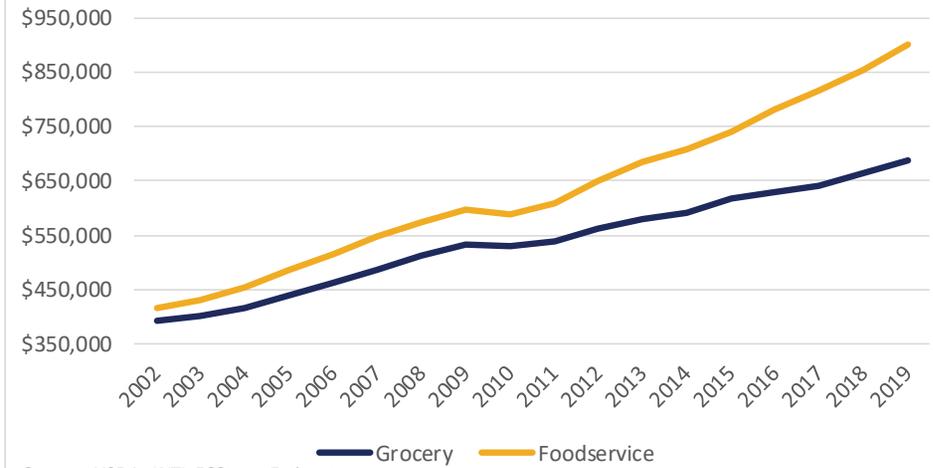


In-Depth Analysis - DRAFT - Coronavirus in the USA

The more I learn about any dataset, the less I like it. I had a mild epiphany Saturday night. I remembered that the US government released data on food expenditures broken down by food “at home” and “away from home”. So I got up Sunday morning, found the data, built some statistical models that connected the food expenditure data by category back to total dairy consumption and then ran some different scenarios given the expected sharp drop in food sales “away from home” and the increase in food sales at grocery stores to see what impact they would have on total dairy demand and prices. I did a very nice analysis and a write-up, then I went digging into the data a little closer and found that food “at home” included restaurant meals delivered to homes and burgers brought home from the drive through. So I scrapped the earlier analysis and put this together.

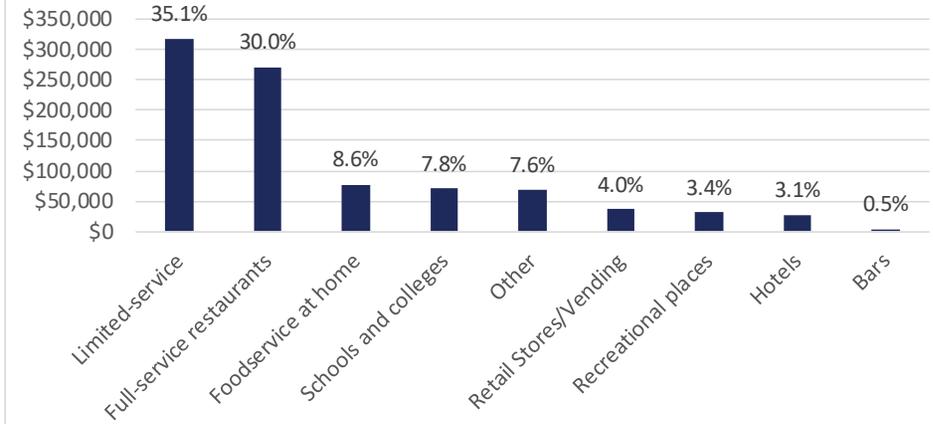
For this analysis I’ve re-organized the data and created two categories called grocery and foodservice. Grocery expenditures are pretty much what you would assume while foodservice includes food that is purchased from restaurants but consumed at home. With the data broken down this way, foodservice accounted for an estimated 56.8% of US food expenditures in 2019. If we break foodservice into smaller categories, limited-service restaurants are the single biggest category, followed by full-service and then foodservice at home and schools/colleges. With at least 24 states closing or restricting dine-in sales at restaurants we are going to see a significant drop in sales for all restaurants, but particularly for full service. Arguably, some of the decline will be offset by increased drive through and to-go orders. But having sat in a lines of cars trying to get through the drive through mid-day on a weekday, it’s clear that there are capacity constraints to the drive-through/curb-side delivery systems.

US Food Expenditures (Millions, USD)



Source: USDA, INTL FCStone Estimates

US Foodservice Expenditures (2018, Millions of USD and Share of Total)



Source: USDA, INTL FCStone Calculations



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In-Depth Analysis - DRAFT - Coronavirus in the USA (cont.)

I put together some models connecting expenditures on groceries/foodservice, dairy prices and total milk equivalent consumption in the US. I put together a baseline forecast based on trend increases for grocery/foodservice, and then I started plugging in different declines in foodservice/increases in grocery sales to see what would happen to total dairy demand and prices. I am NOT real confident in the models, but their output is interesting. For example, if restaurant sales are down 40% for 3 months, the models are saying total milk equivalent consumption in the US will be down 3.5% from trend, which would knock 23.2% off milk prices.

		Estimated Impact on US Milk Equivalent Consumption						
		Change in Restaurant Sales						
		-10%	-20%	-30%	-40%	-50%	-60%	-70%
Months of Impact	1	-0.3%	-0.6%	-0.9%	-1.1%	-1.4%	-1.7%	-2.0%
	2	-0.6%	-1.2%	-1.7%	-2.3%	-2.9%	-3.5%	-4.0%
	3	-0.9%	-1.7%	-2.6%	-3.5%	-4.4%	-5.2%	-6.1%
	4	-1.2%	-2.3%	-3.5%	-4.7%	-5.8%	-7.0%	-8.2%
	5	-1.4%	-2.9%	-4.4%	-5.9%	-7.3%	-8.8%	-10.3%
	6	-1.7%	-3.5%	-5.3%	-7.1%	-8.9%	-10.6%	-12.4%

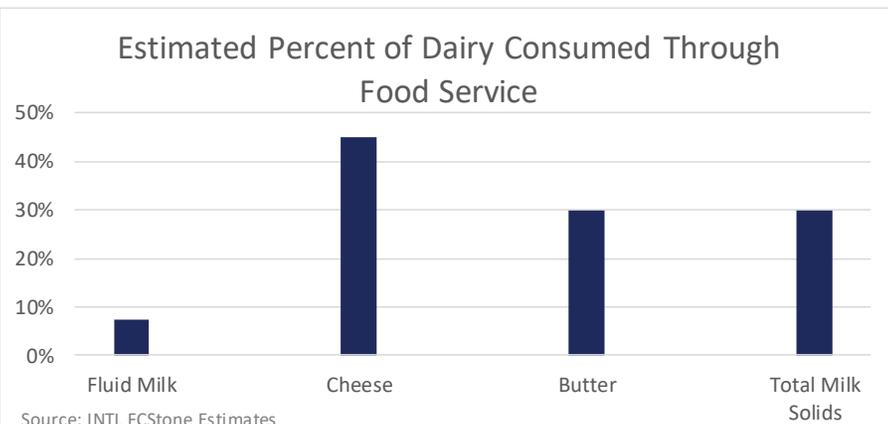
Source: INTL FCStone Calculations, Estimates and Wild Guesses

The numbers do look half-way reasonable, but I don't want to put too much faith in them. The numbers do not take into account how the lower prices will impact consumption or how the lower prices will impact milk production. Those shifts would take a few months to happen and there could also be some nonlinearities for larger sales declines so I have left some of the price impacts off the table.

		Estimated Impact on US Milk Prices						
		Change in Restaurant Sales						
		-10%	-20%	-30%	-40%	-50%	-60%	-70%
Months of Impact	1	-1.9%	-3.8%	-5.7%	-7.7%	-9.6%	-11.5%	-13.4%
	2	-3.8%	-7.7%	-11.5%	-15.4%	-19.3%	-23.1%	-27.0%
	3	-5.7%	-11.5%	-17.4%	-23.2%	-29.0%	-34.9%	-40.7%
	4	-7.7%	-15.4%	-23.3%	-31.1%	-38.9%		
	5	-9.6%	-19.4%	-29.3%	-39.1%			
	6	-11.5%	-23.3%	-35.3%				

Source: INTL FCStone Calculations, Estimates and Wild Guesses

One benefit to dairy demand might be the lower cost of dairy at retail versus foodservice. A glass of milk at a restaurant often costs the same as a gallon of milk at retail. Adding a slice of cheese to your burger might cost 50 cents at a restaurant while that 50 cents will buy you 3 slices in the store. Theoretically the model accounts for this, but I'm not sure how it plays out in the real world. Overall I think we have to assume the closed restaurants and restricted travel are going to reduce overall dairy consumption. Retail food sellers are short-term winners. Restaurants setup primarily for delivery (like pizza) will fare better than those focused on dine-in (steak houses). At least that is what the stock market is suggesting (graph next page).





In-Depth Analysis - DRAFT - Coronavirus in the USA (cont.)

I pulled stock prices for some of the larger publicly traded restaurant companies and sorted them into categories based on the volume of sales that likely happen in-restaurant. The overall decline in stock prices over the past month has been quite amazing, but companies focused on full service and dine-in service have generally been hit much harder than pizza and quick serve (QSR) chains.

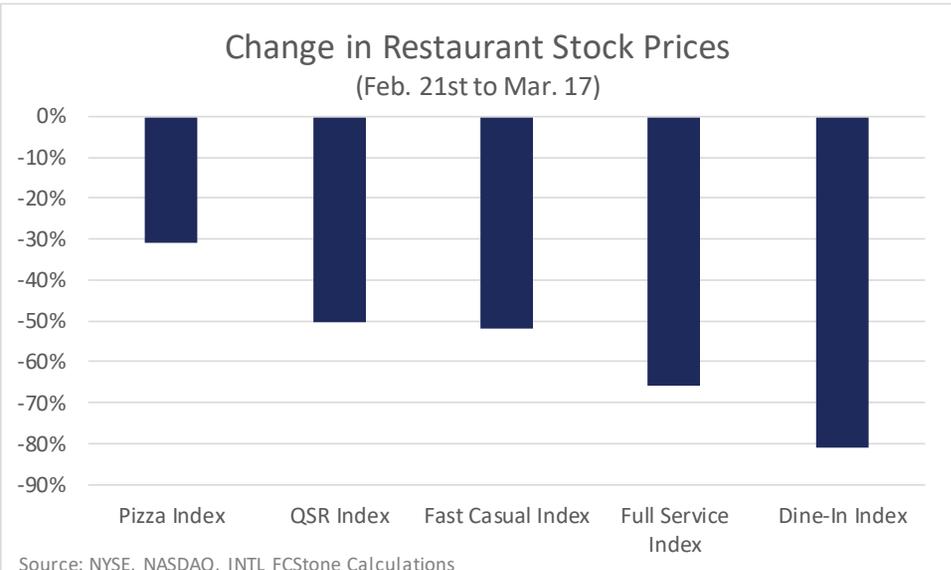
With a large number of schools closing down there have been a lot of discussion and concern about a drop in fluid milk consumption. I found some data on the number of school aged kids in the US and I made some assumptions about the percent of kids in each age group that are likely drinking milk at school. It looks to me like something in the range of 12-18% of liquid milk consumption was happening in schools. Anecdotally I've heard as high as 20%. Many of the kids no longer going to school will be drinking just as much or more milk at home. The biggest concern is proba-

Estimated Fluid Milk Consumption in US Schools

	Population (Millions)	Percent Drinking Milk at School (estimate)	Pounds of Milk/Month (Millions)
Ages 0-5	24.5	15%	59.3
Ages 6-11	24.3	75%	293.9
Ages 12-17	25.2	60%	243.8
Total			596.9
% of US consumption			15.6%

Source: USDA, US Census, INTL FCStone Calculations and Estimates

bly with low income households where milk might not be a regular staple. We've heard anecdotal comments that the USDA is searching out UHT milk to supply to schools who are planning on distributing bagged lunches to kids. Liquid milk absorbs less than 20% of total milk solids, which means liquid milk at school is absorbing less than 3% of total US milk. If none of the kids were drinking any milk at home, this would be a big deal, but I think the impact is going to be mild with many kids drinking just as much or more milk at home (I know mine are).



Pizza Index: Dominos, Papa Johns

QSR Index: McDonalds, Burger King, Taco Bell, KFC, Pizza Hut, Jack in the Box, Wendy's, Shake Shack

Fast Casual Index: Chipolte, Potbelly

Full Service Index: Outback, Chili's, Olive Garden, Cracker Barrel, Texas Roadhouse, Cheesecake Factory, Denny's, Red Robin

Dine-in: Dave & Busters, Ruth's Chris



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