



Global Investment Research

An Update on Food and Fuel

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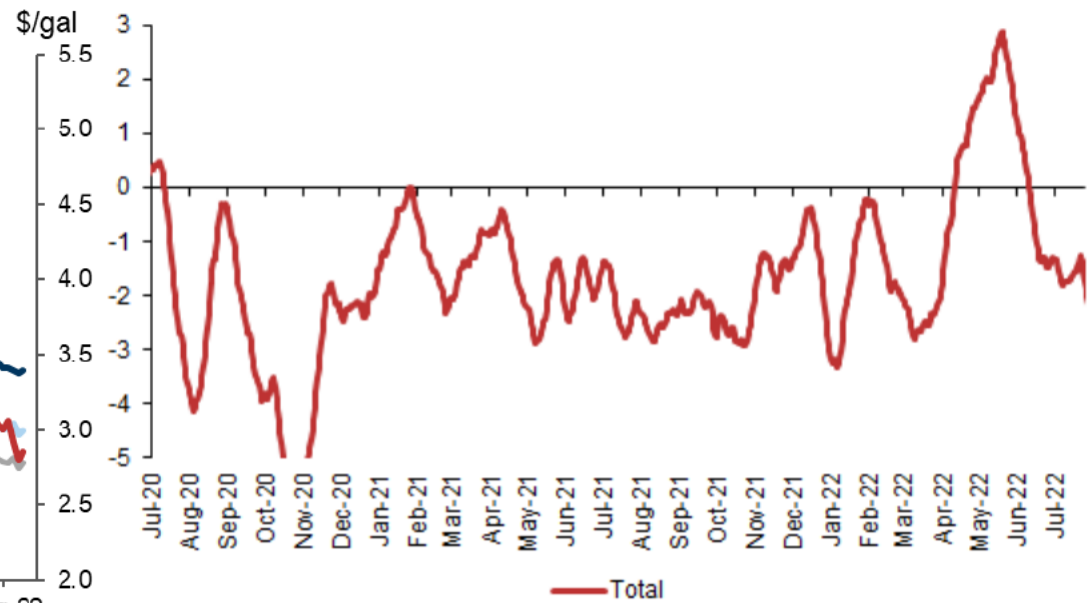
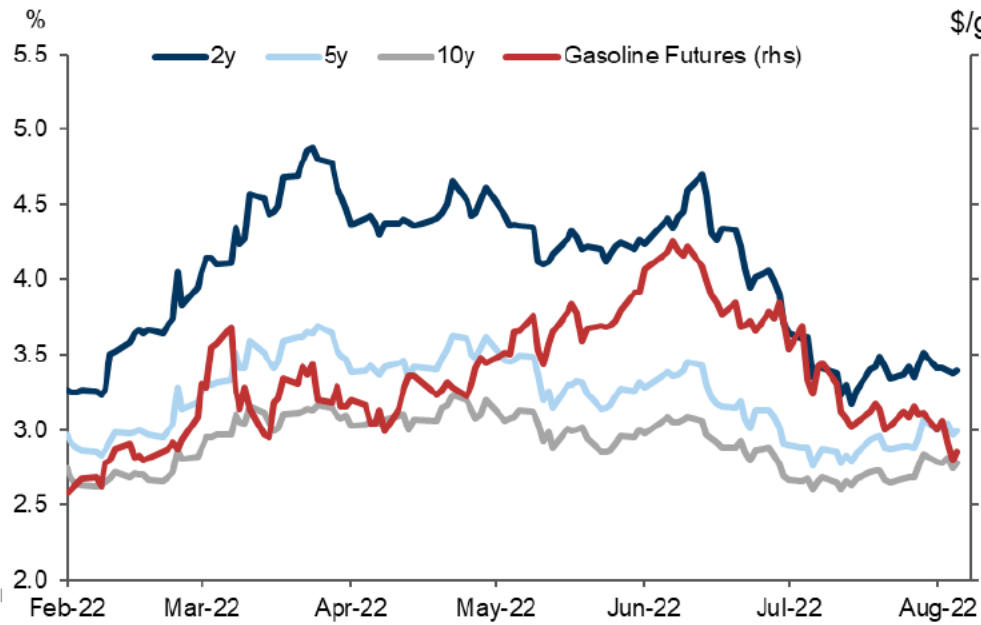
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Cross-Commodities: Irrational Expectations

Macro markets look mispriced

Inflation breakevens, UST, gasoline futures (\$/gallon)

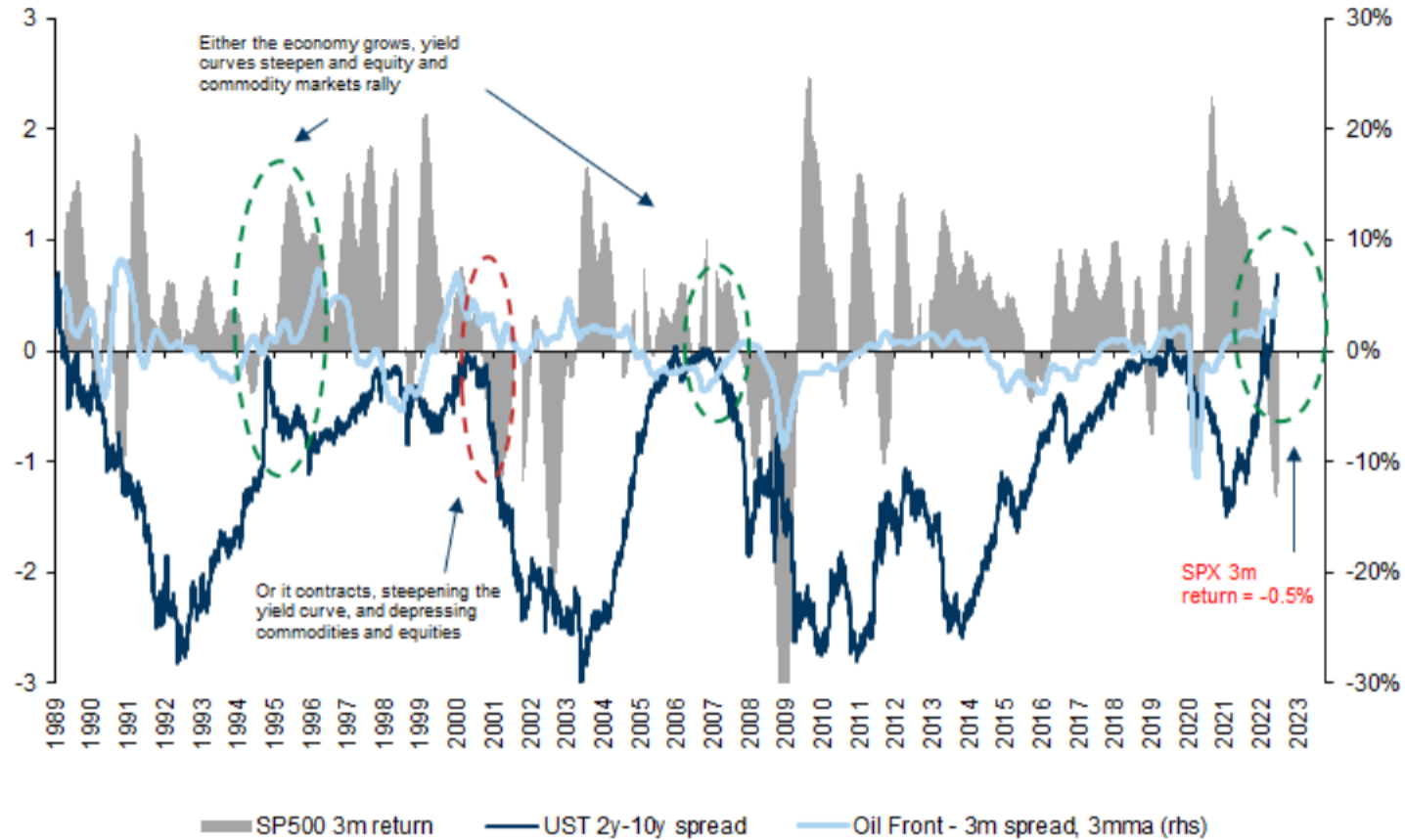
Rolling 4-week global observable inventory change vs. 2017-19 seasonal



Source: Bloomberg, Goldman Sachs Global Investment Research

Curves signal caution to investors

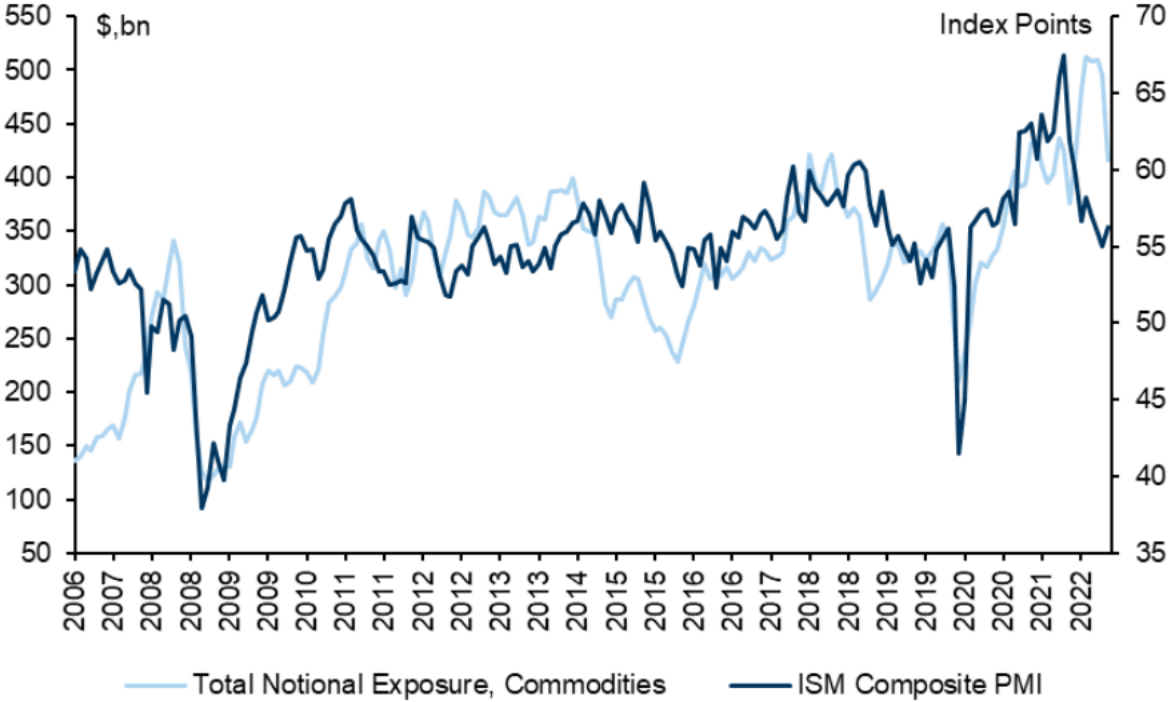
SP500 3m rolling return, oil timespreads and 2y10y UST spreads



Source: Bloomberg, Goldman Sachs Global Investment Research

Commodities are liquidating on growth fears

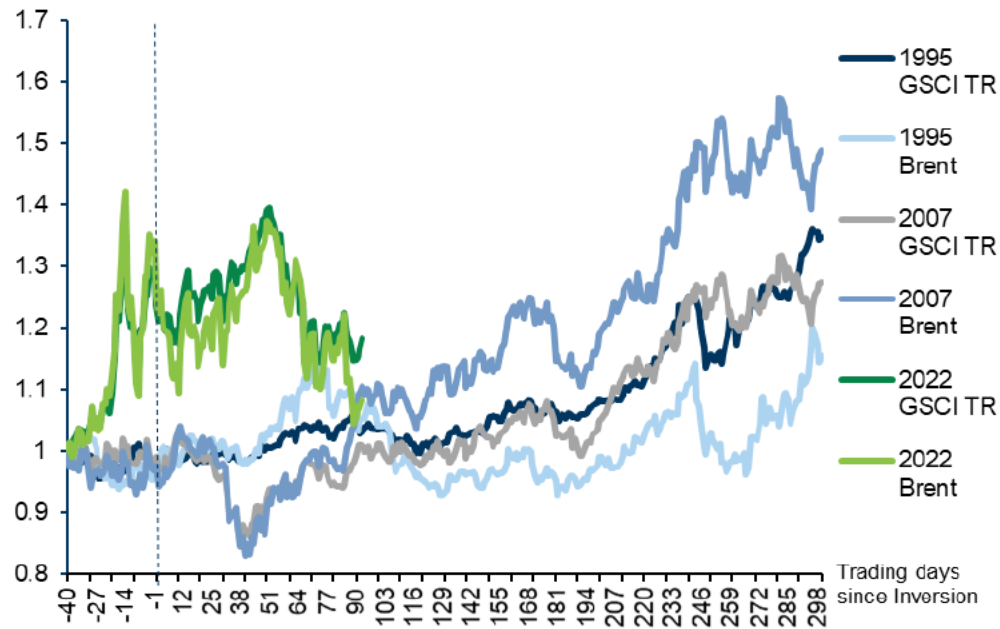
GSCITR, Brent front month performance, indexed 40 days before inversion



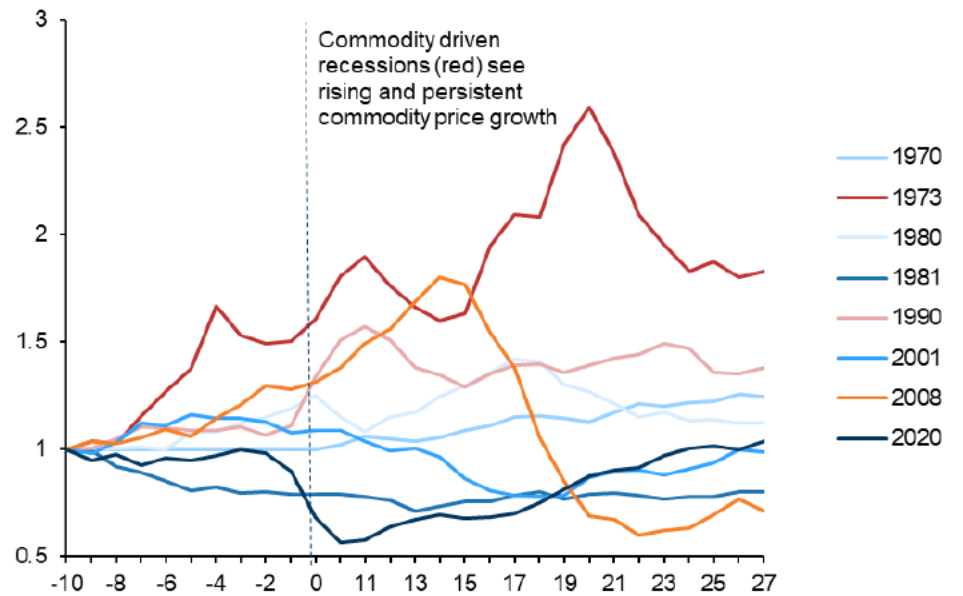
Source: Haver, CFTC, Goldman Sachs Global Investment Research

Commodities outperform post-inversion and into recession

GSCITR, Brent front month performance, indexed 40 days before inversion



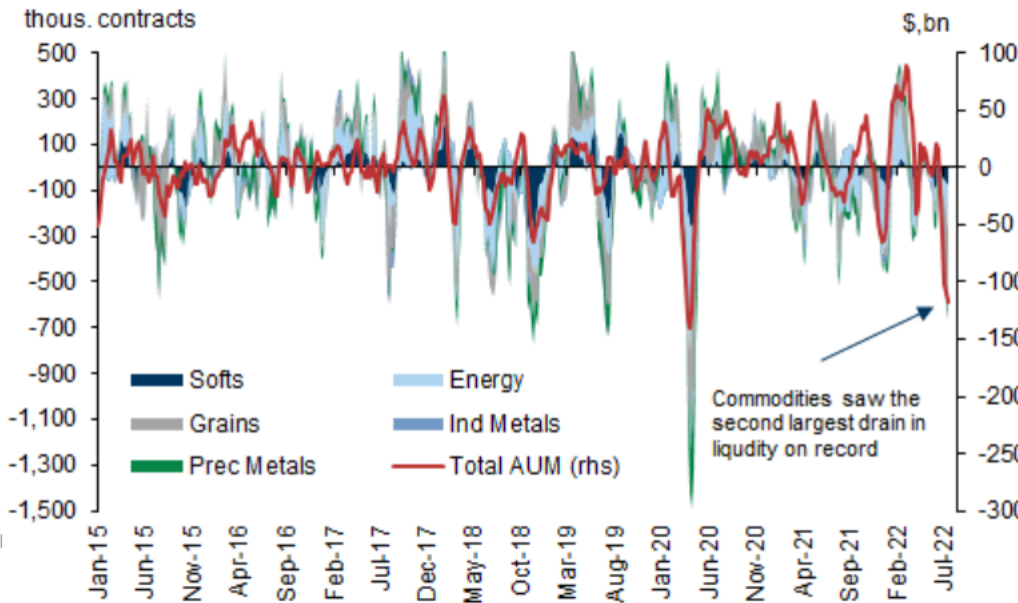
GSCITR, monthly index to US recessions



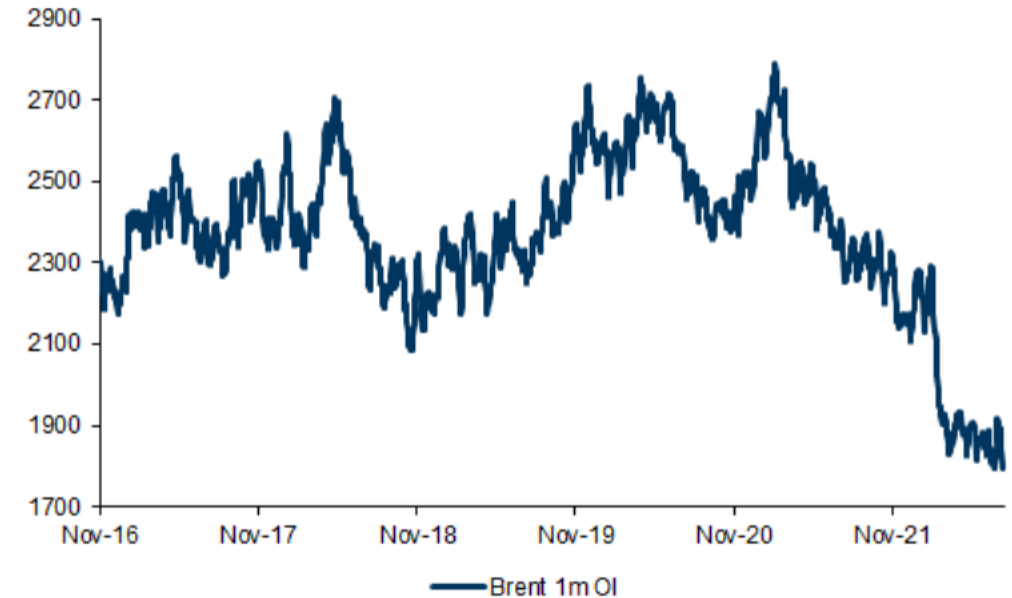
Source: Bloomberg, Goldman Sachs Global Investment Research

A low-liquidity, high-vol environment

6w change in total (long/short) Managed Money lots traded by commodity sector, and 6w change in total \$ AUM (long/short)



Prompt ICE Brent open interest (million barrels)

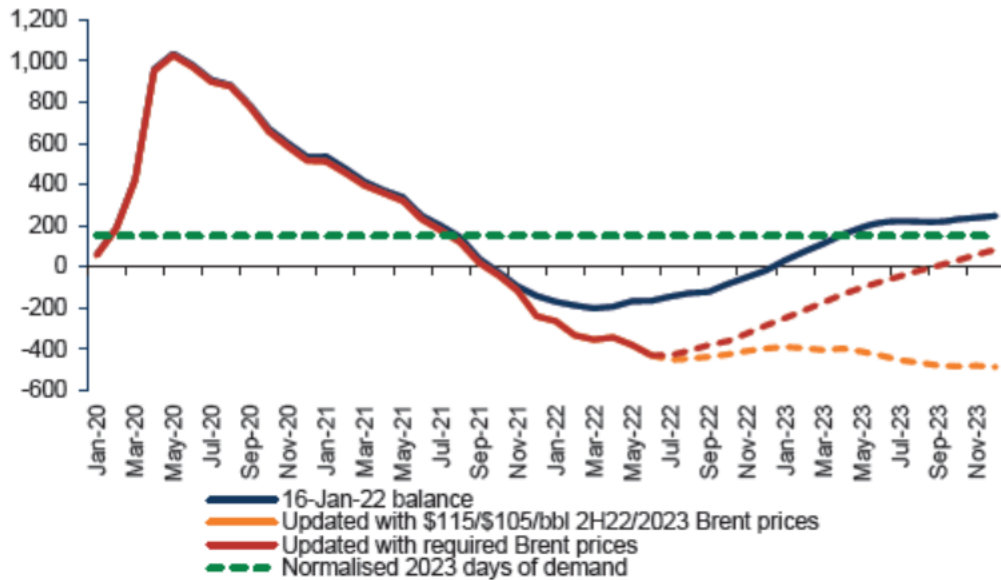


Source: CFTC, Bloomberg, Goldman Sachs Global Investment Research

Oil: Down but not out

The oil market keeps on getting tighter

Global stocks vs Dec-19 levels at previous assumed Brent prices before marginal demand destruction and shale growth (mb)



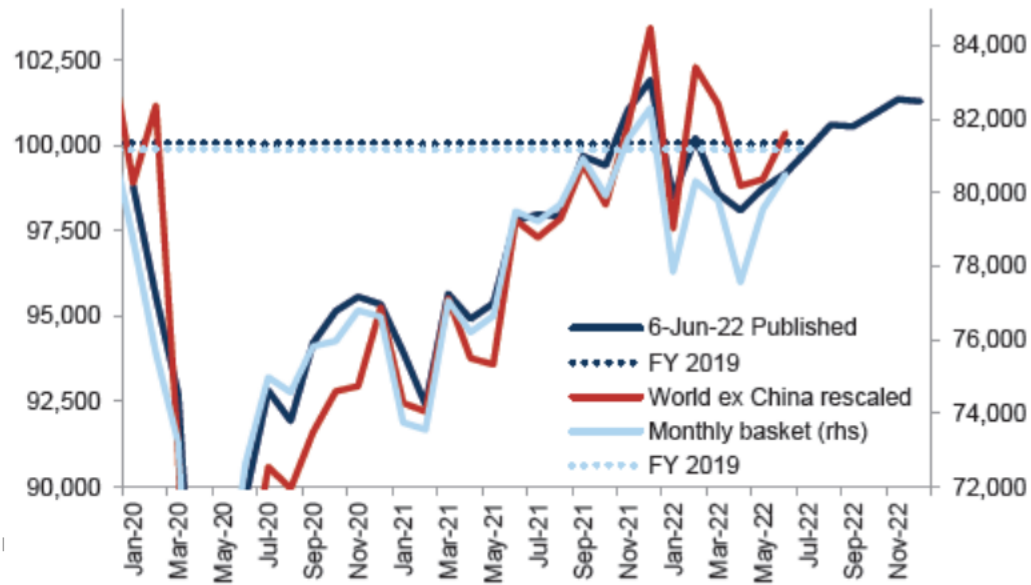
Global spare oil production capacity in mb/d (lhs) and % (rhs)



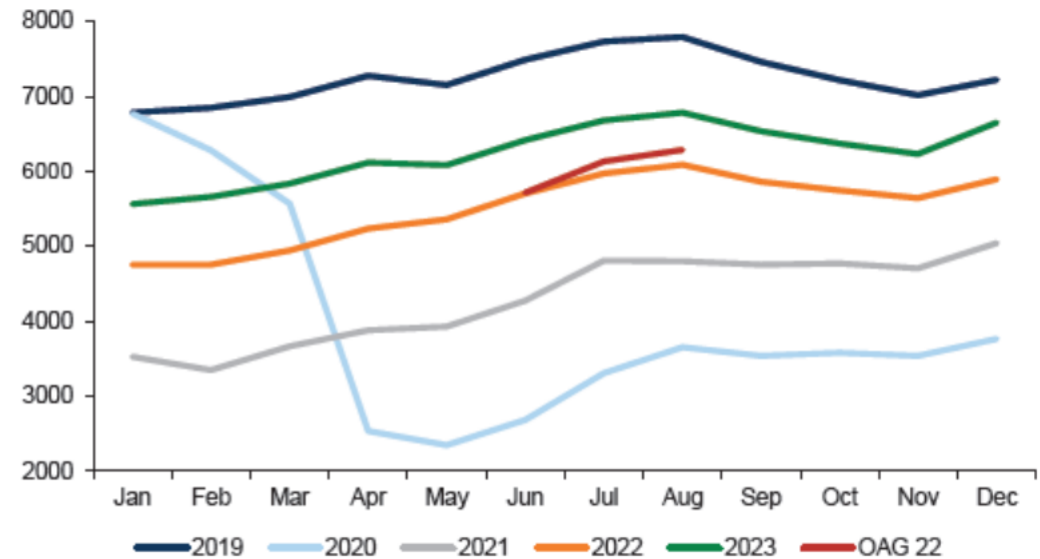
Source: EIA, Platts, Goldman Sachs Global Investment Research

Demand is holding up...

GS published global demand (kb/d, lhs) versus high-frequency monthly basket (kb/d, rhs)



Global jet fuel demand (kb/d), OAG is latest implied by flight schedules versus Jun-22 expectations

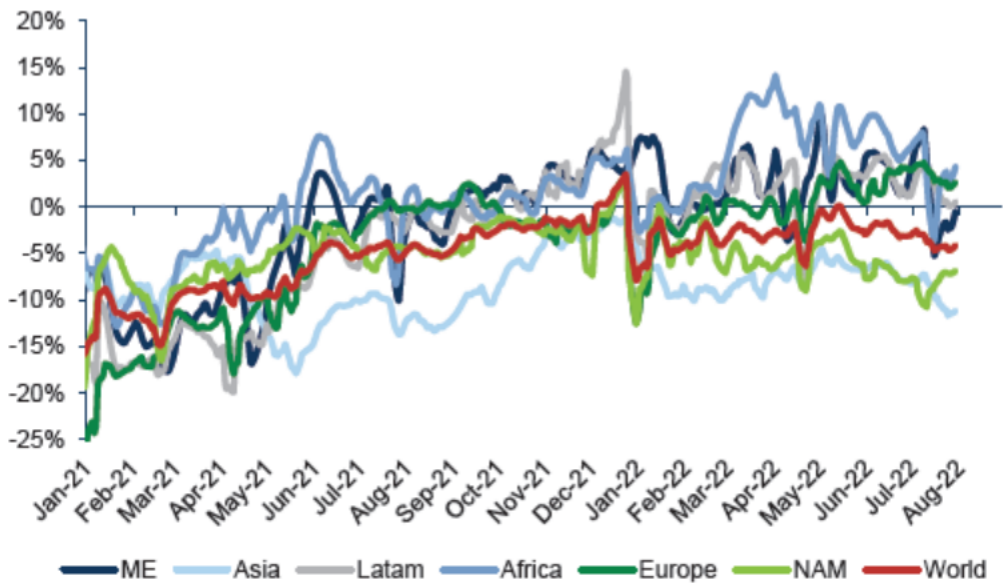


Monthly basket is sample of countries covering c.80% global demand through May, June extrapolated from higher frequency subsample for June covering c.55% global demand

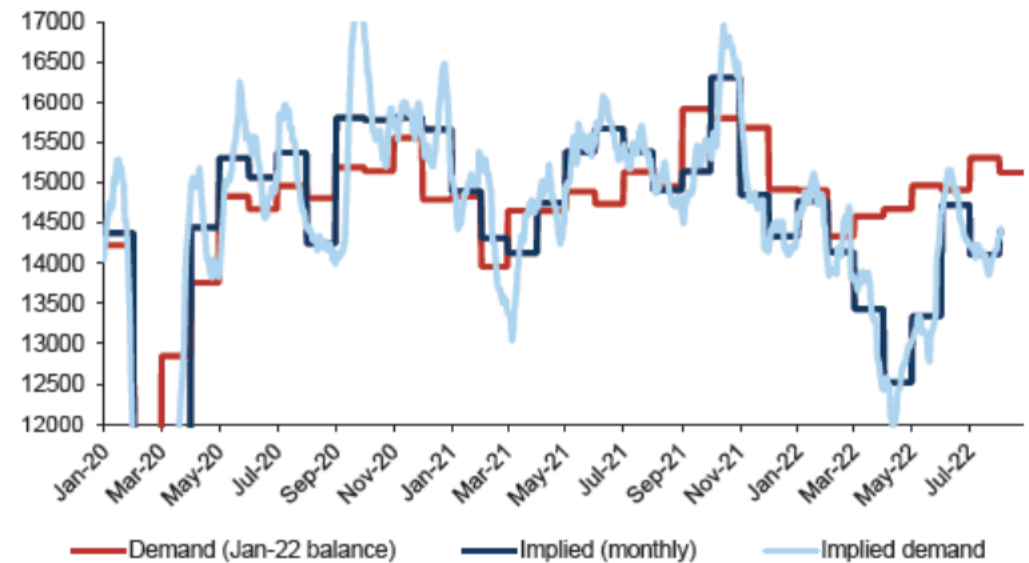
Source: EIA, Platts, Goldman Sachs Global Investment Research

... despite high prices and Chinese headwinds

Passenger vehicle demand vs. 2019 levels by region (seasonally adjusted)



High-frequency oil demand model (7dma, kb/d)

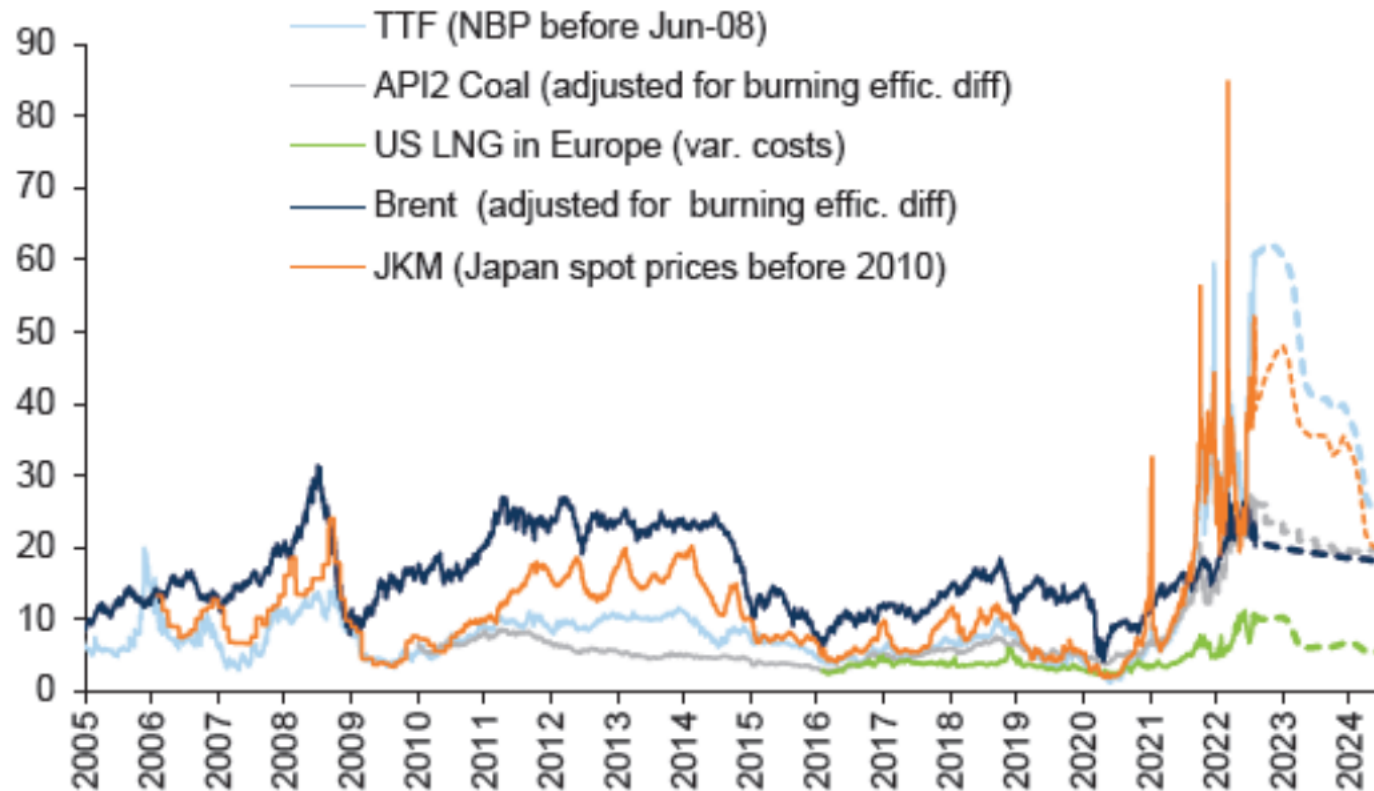


Eid will have sharply reduced mobility in Middle East and Africa in mid-late July. Google LLC
 \Google COVID-19 Community Mobility Reports\". <https://www.google.com/covid19/mobility/>
 Accessed: 02-Aug-22

Source: EIA, Platts, Goldman Sachs Global Investment Research

An unprecedented demand boost from natural gas

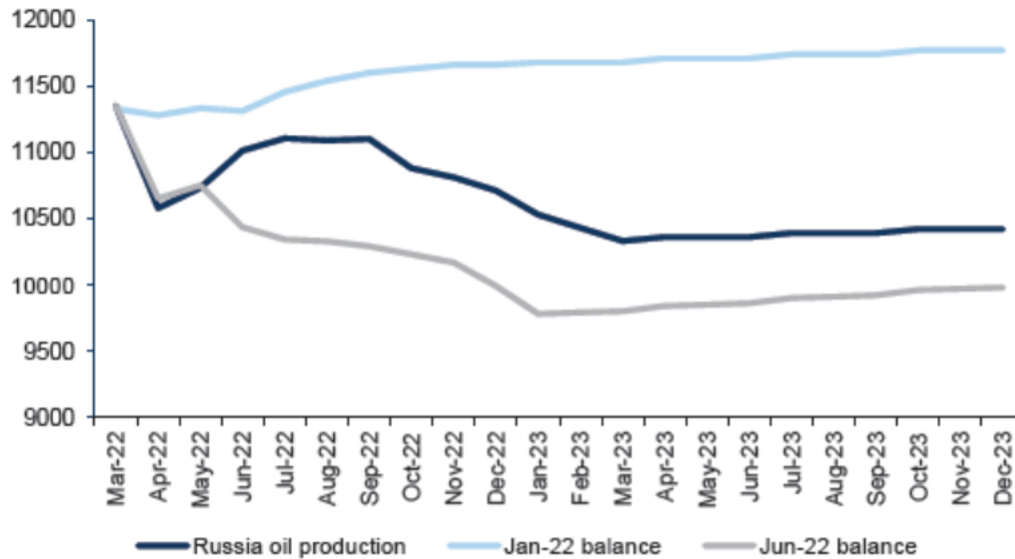
Power generation fuels in natural gas equivalent terms (USD/mmbtu, adjusted for heat rates, efficiency, and carbon costs)



Source: EIA, Platts, Goldman Sachs Global Investment Research

Smaller Russia loss but still cautious on Iran's return

GS Russia total oil production forecasts (kb/d)



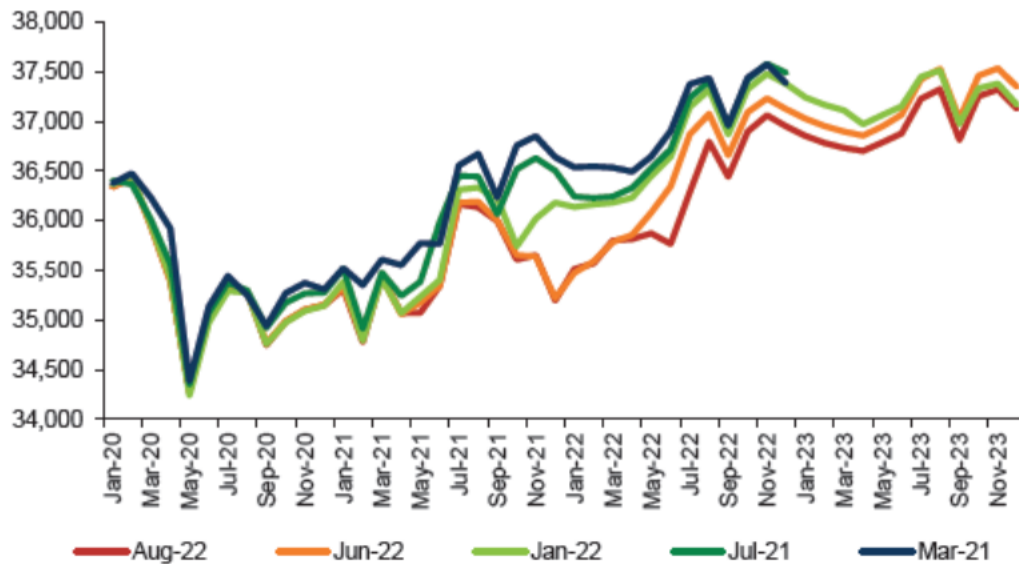
Estimated Iranian crude and condensate exports (kb/d)



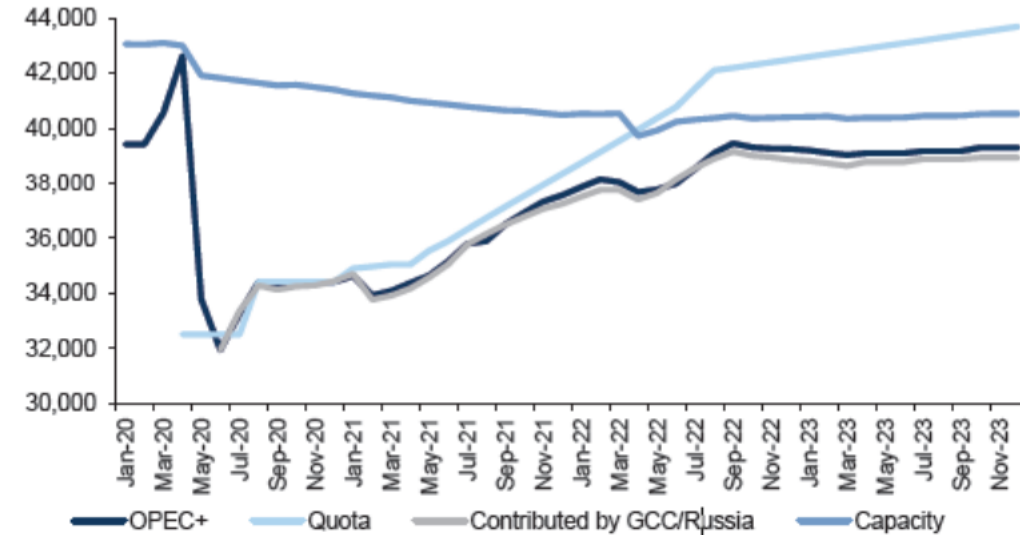
Source: EIA, Platts, Goldman Sachs Global Investment Research

OPEC running out of steam, non-OPEC disappointing

Global ex OPEC+/US oil production forecasts by GS published balance date (kb/d)



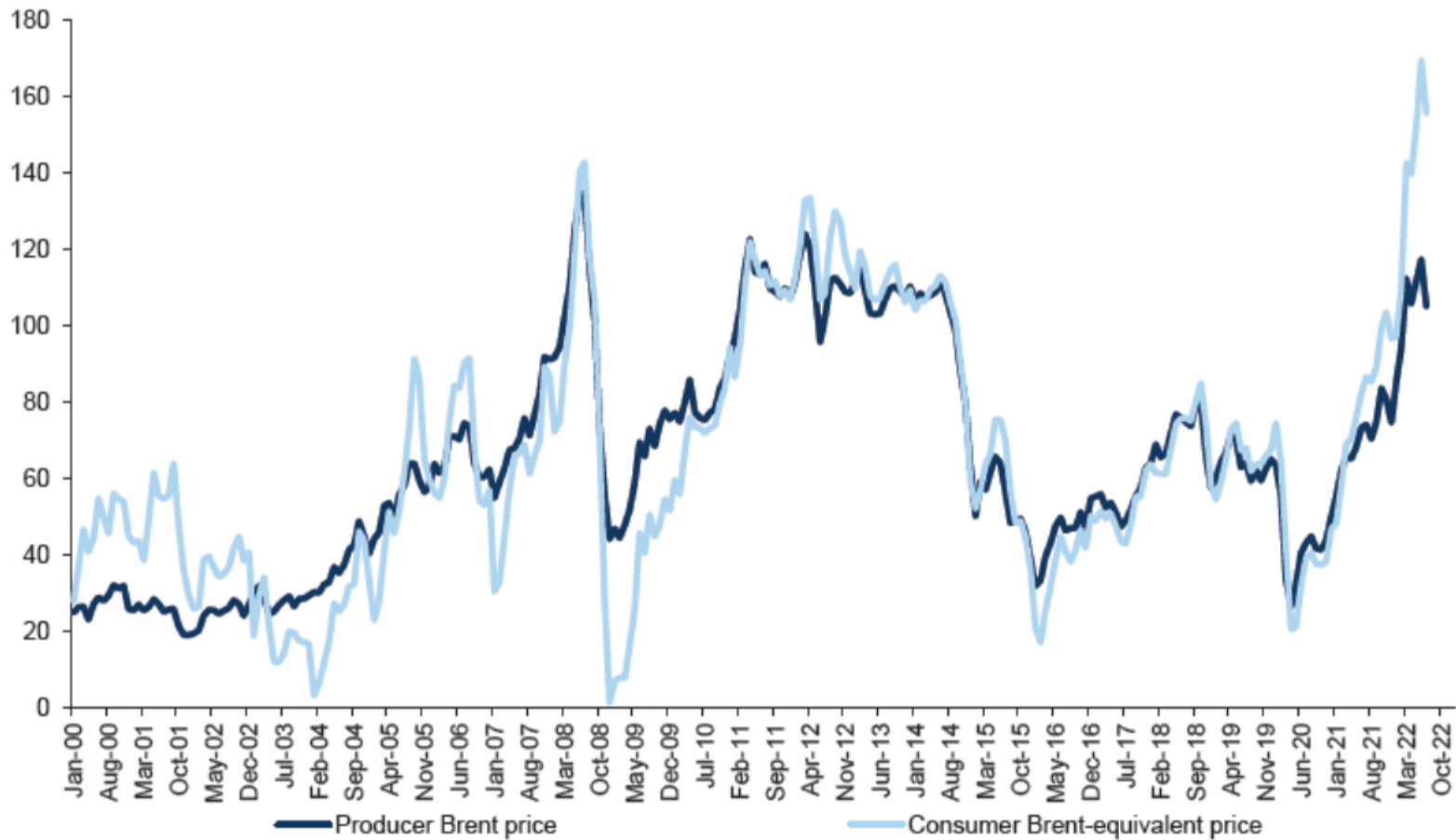
OPEC+ production, capacity, quotas (kb/d). Assume zero Russia spare capacity beyond current production expectations.



Source: EIA, Platts, Goldman Sachs Global Investment Research

Solving for 2 oil prices

Brent (producer) and implied (consumer) Brent price (USD/bbl)

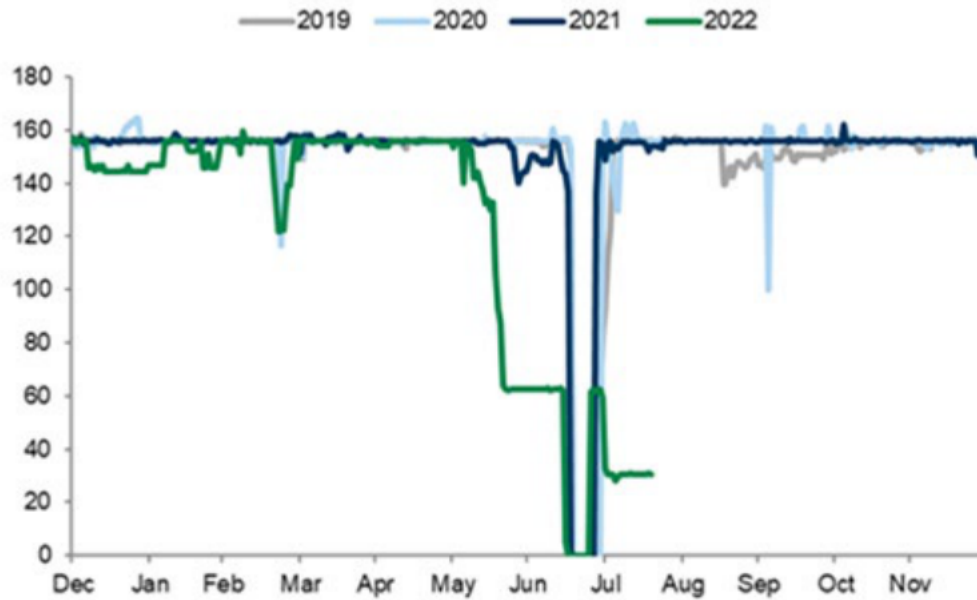


Source: EIA, Platts, Goldman Sachs Global Investment Research

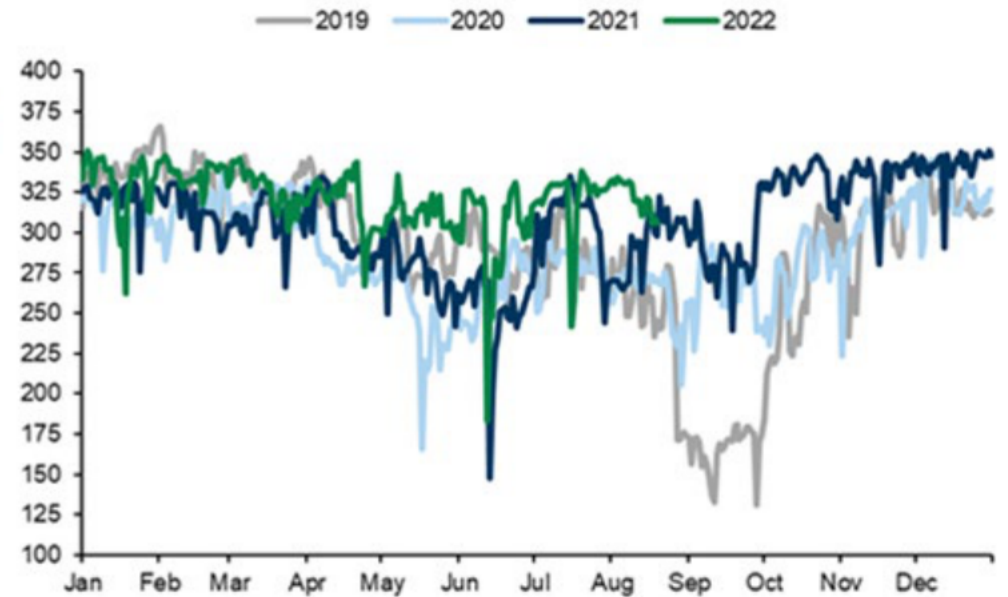
A still unresolved EU gas crisis

No improvement in European pipe gas imports

NS1 pipeline flows - Mcm/d



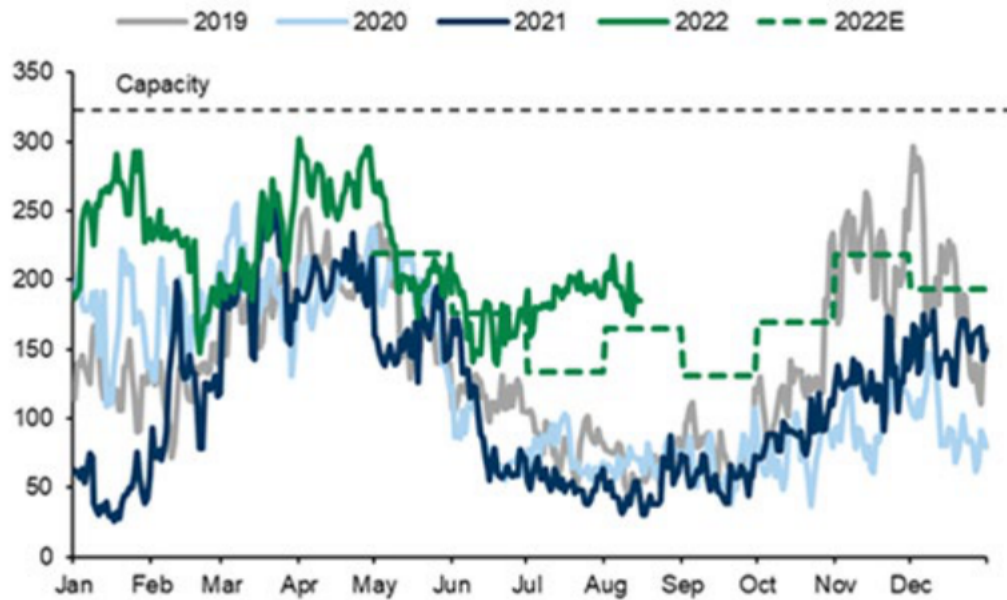
Imports from Norway, mcm/d



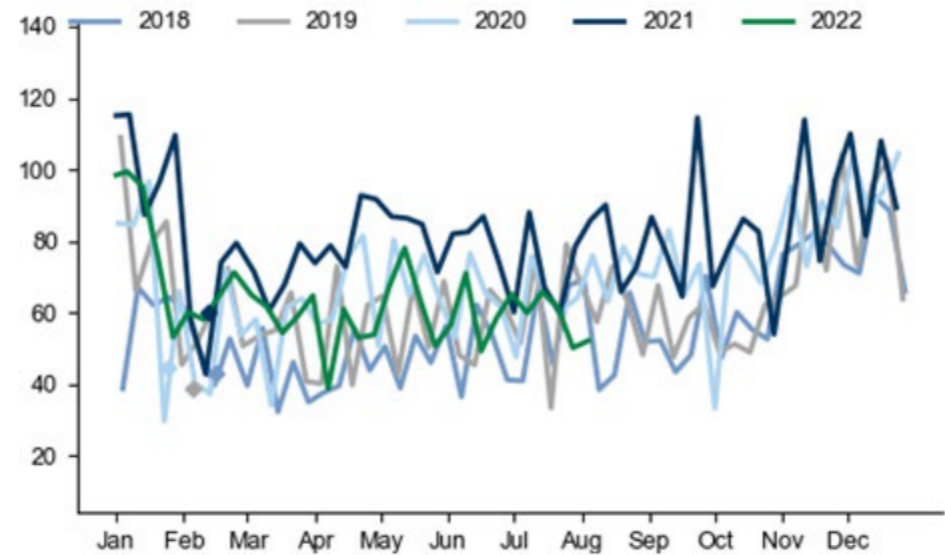
Source: ICE, Bloomberg

LNG imports helping for now

NW European LNG imports, mcm/d



China LNG imports, mtpa



Source: ICE, Bloomberg

European gas balance to remain in deficit

GSe NW Europe offsets and residual deficit through Mar23 if NS1 comes back from maintenance at a less-than100% run rate; mcm/d

	NS1 at 65%	NS1 at 40% (in line with current flows)	NS1 at 0
Coal restarts	22	22	22
Government-driven industrial demand reduction	3	5	9
Heating demand response	12	20	28
LNG import increases	10	15	20
Total offset	46	62	78
Remaining deficit in the balance	4	27	51

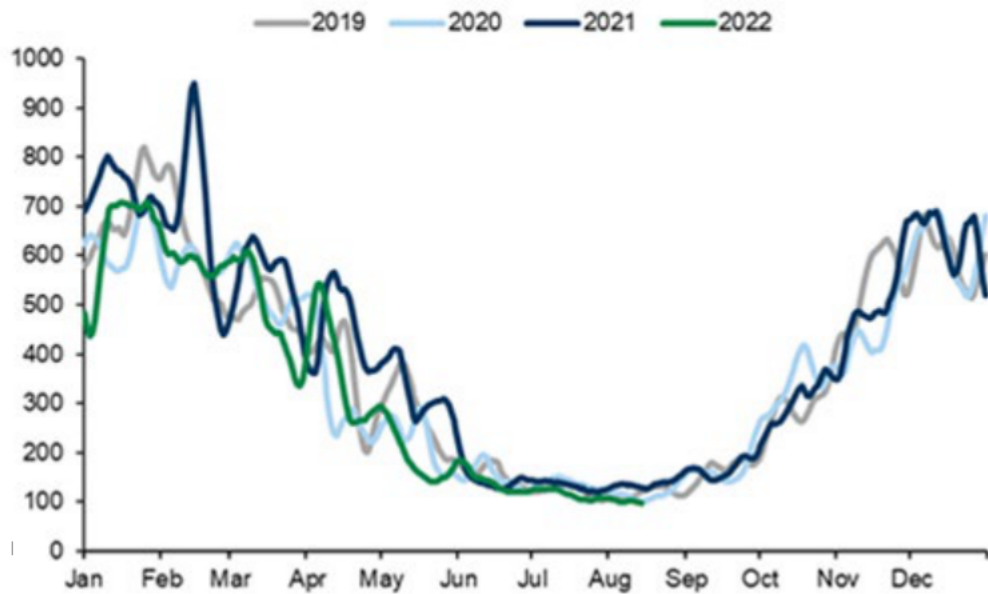
GSe TTF prices under different NS1 flow scenarios; prob.-weighted forecast highlighted in grey; EUR/MWh. Assumes end-Oct/end-Mar storage at 90%/20% full

Period	1. NS1 at 100% (back to normal)	2. NS1 at 65% (current state)	3. NS1 at 40%	4. NS1 at 0	Prob.-weighted ave price	Previous forecast	Market forwards
3Q22	106	129	171	212	153	104	163
4Q22	105	113	127	146	121	105	166
1Q23	76	76	76	84	77	76	159
2Q23	98	102	153	237	138	75	112
3Q23	98	102	153	237	138	75	102
Probability assigned	15%	30%	45%	10%			

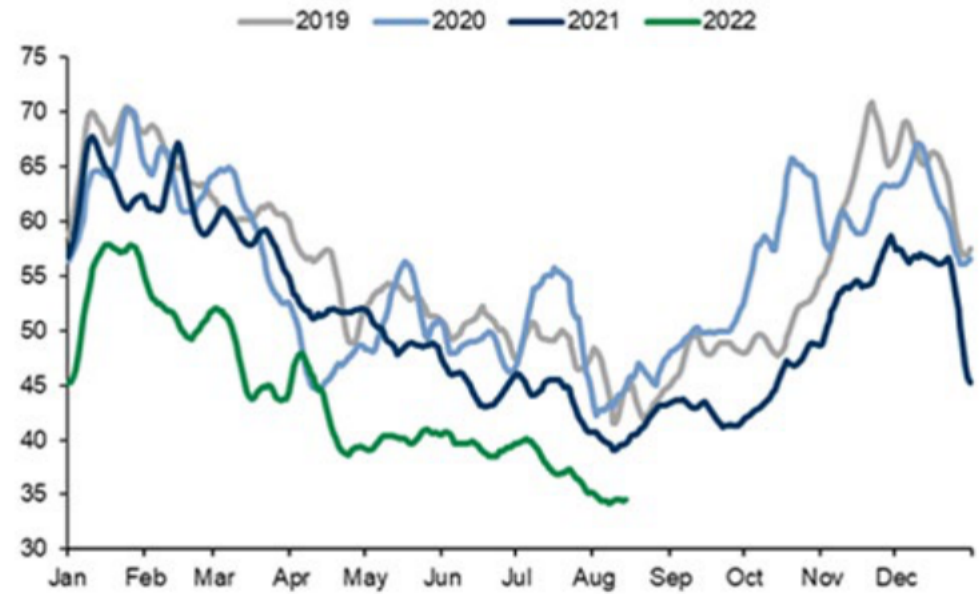
Source: Goldman Sachs Global Investment Research

More demand destruction needed into winter

ResComm demand, 7-dma mcm/d



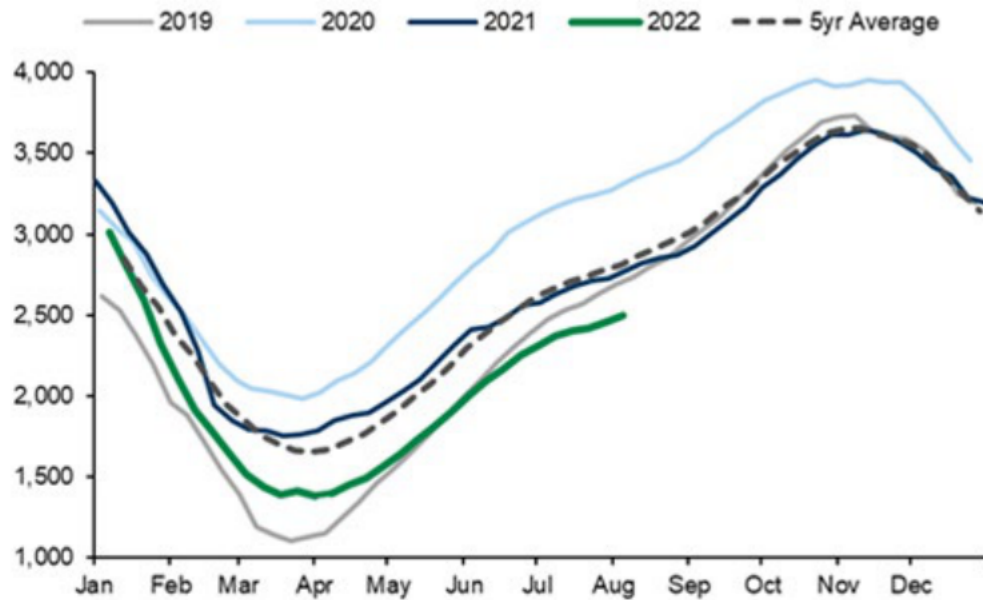
Industrial demand, 7-dma mcm/d



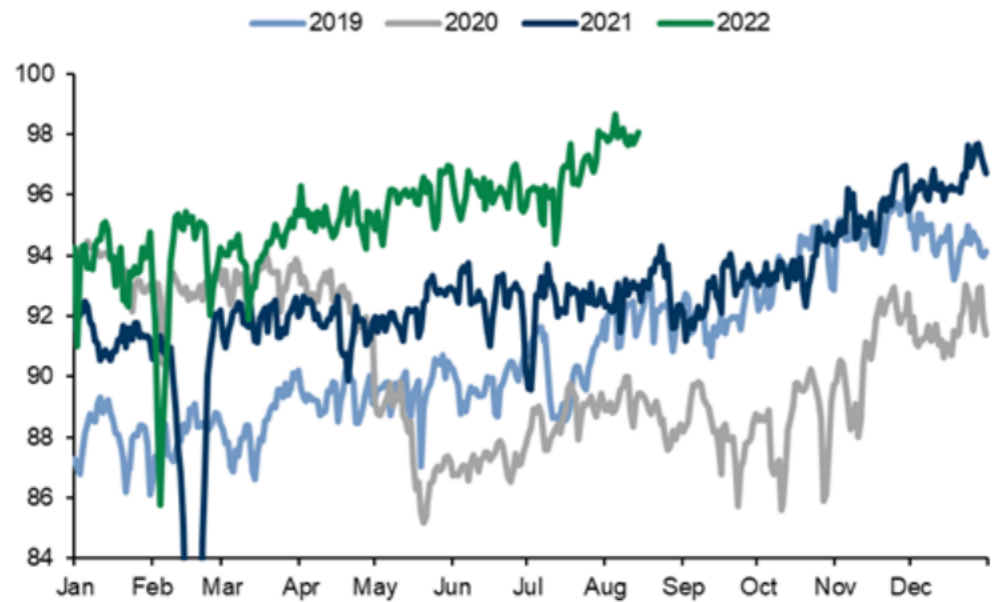
Source: Bloomberg, Goldman Sachs Global Investment Research

US gas – still tight, for now

US Storage, Bcf



US Production, Bcf/d

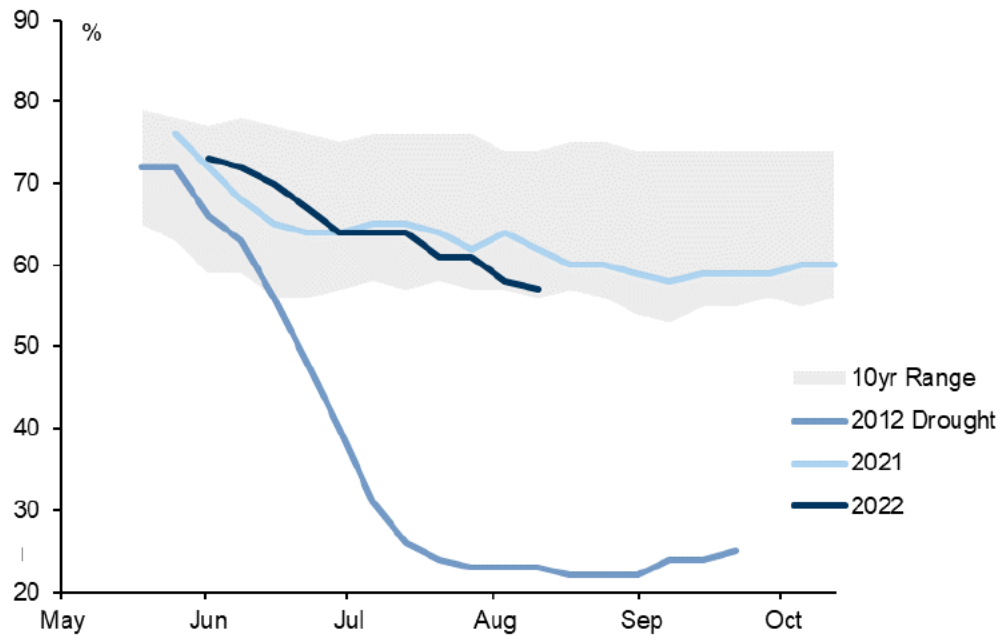


Source: ICE, Bloomberg

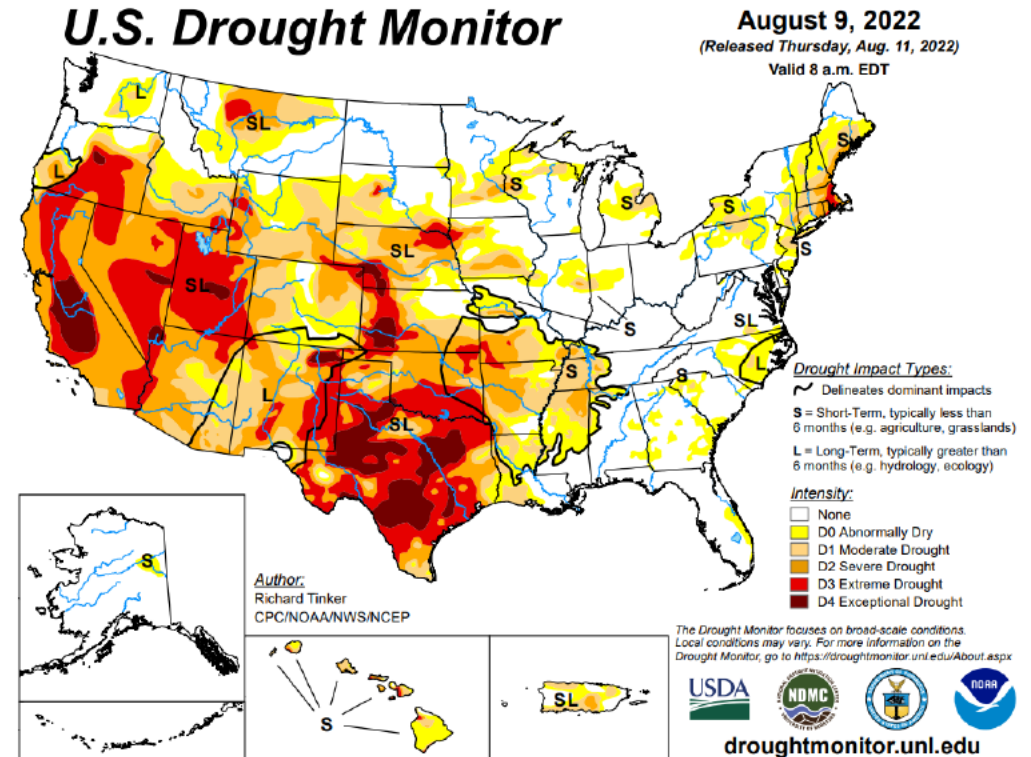
US Grains: Caught between drought and the dollar

Dry weather has capped US yields

US NASS Corn Crop Conditions, % Good/Excellent Conditions



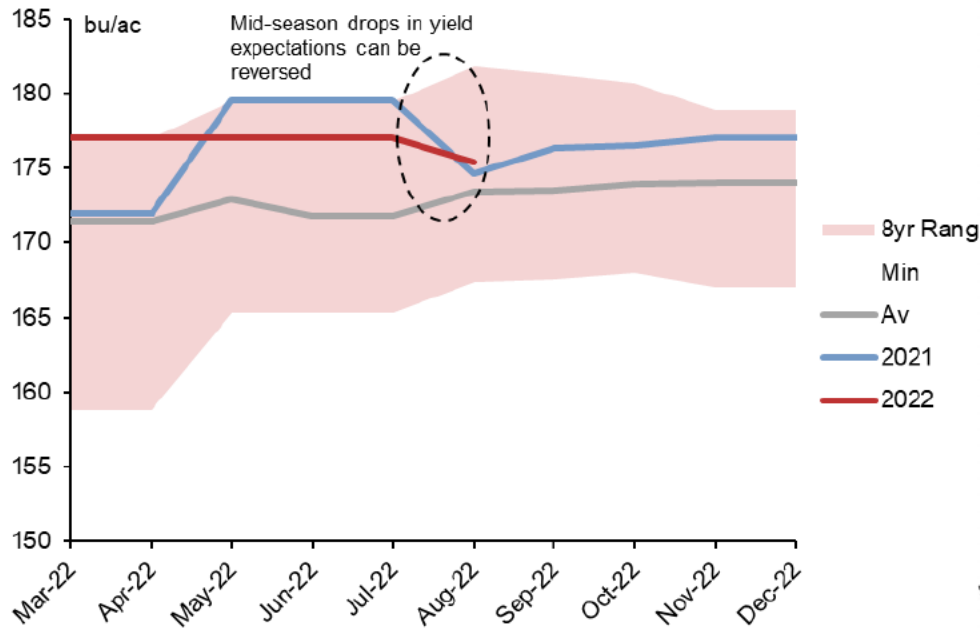
NOAA US Drought Map



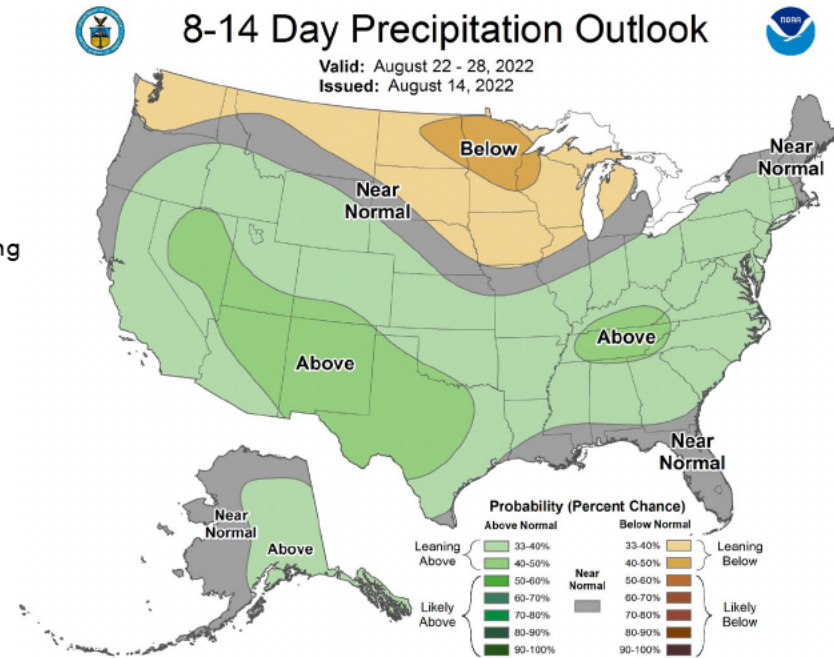
Source: EIA, Platts, Goldman Sachs Global Investment Research

More twists and turns for yield outlook

Corn yield USDA estimate, seasonal, bu/ac



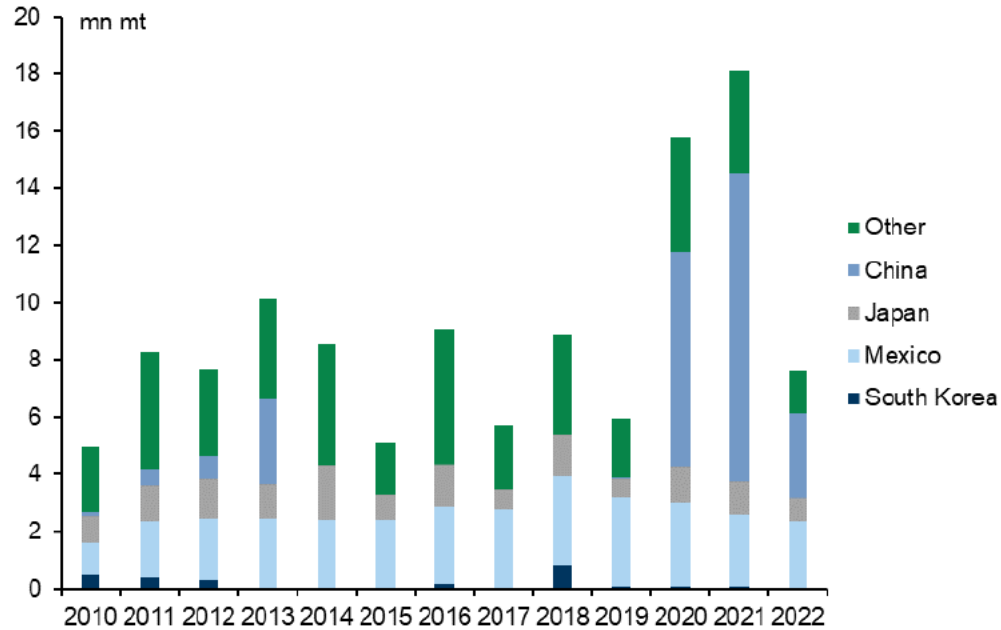
NOAA outlook, precipitation



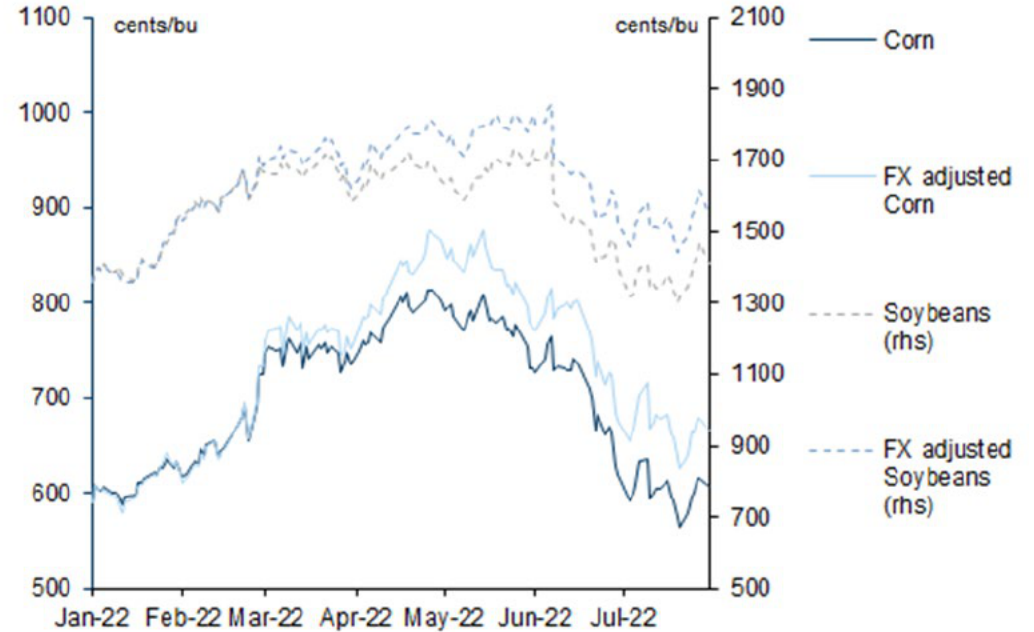
Source: EIA, Platts, Goldman Sachs Global Investment Research

A strong dollar drags on exports...

August next marketing year outstanding sales, US Corn



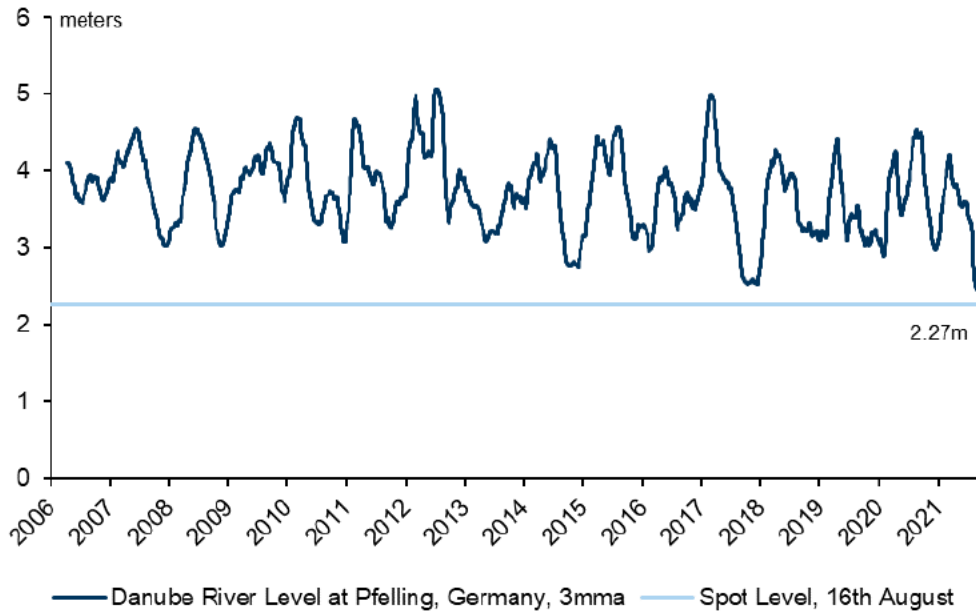
Corn and Soybean Prices, adjusted by Dollar TWI



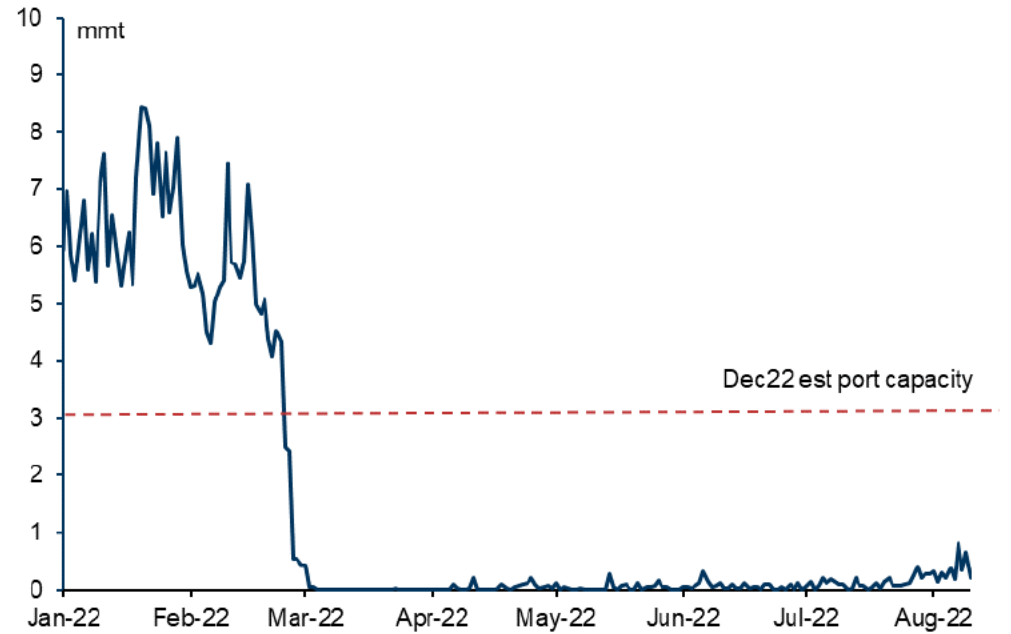
Source: EIA, Platts, Goldman Sachs Global Investment Research

...yet US grain may well be needed

Danube River Level, 3mma



GSDataworks Ukraine ports bulkers shipment tracker, Deadweight Tonnage



Source: Dataworks, IHS Markit, Goldman Sachs Global Investment Research

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As of August 17, 2022

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