GLOBAL COMMODITY MARKETS OUTLOOK

September 2022

MAREX
SOLUTIONS

Global Commodity Markets

Executive Summary

MAREX SOLUTIONS

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Our projections for global economic activity in the 2H-22 remain negative as trade friction, Chinese economic slowdown, and rising borrowing costs continue to take their toll. Marex CMS index confirmed that there was diminishing conviction in our models behind the Q2 rally with the Q3-Q4 correction expected – see data on Figure 1.

The data in September remains bearish which makes us believe that any attempt of price increases will come mainly on the back of supply constraints, not demand strength. One important positive development is the reduction on the supply chain stress which is likely to assist stabilization in supply. The Oil and Gas sector leads our bearish stance with 64% contribution, followed by Ags with 10% - see Fig. 2. The y-axis is inverted to demonstrate the relationship between components and price. Costs of doing business are rising but the macroeconomic backdrop is not favourable for borrowing costs to rise. This is because the causes for high inflation are not high productivity and strong economic performance. Most Central banks are tightening, but they are doing so to control inflation which is exogenous to individual economic performance factor. We remain of the opinion that tackling the supply squeeze for energy and agricultural commodities is likely to deliver better results.

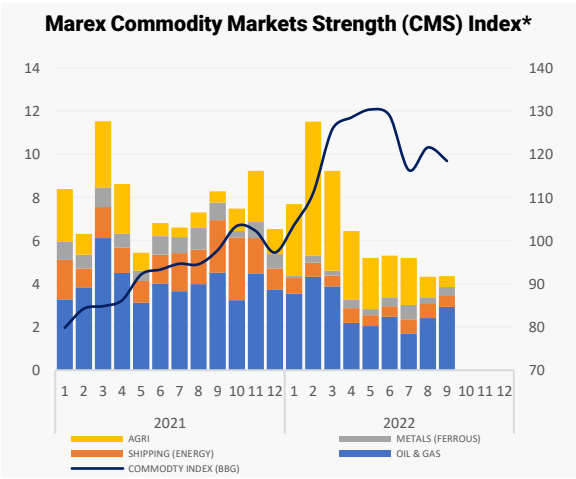

Figure 1. Source: Marex Research

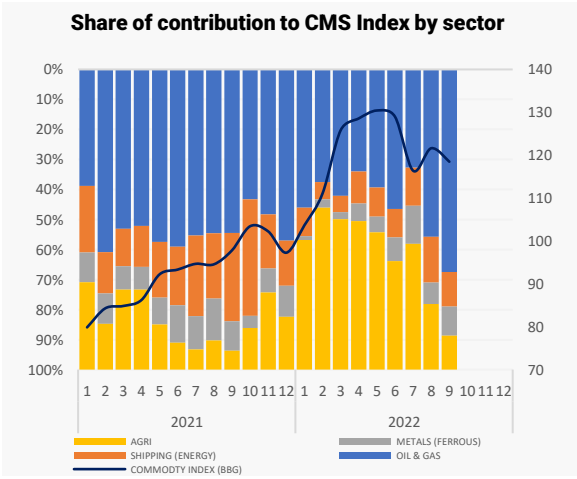

Figure 2. Source: Marex Research

Past performance is not indicative of future returns.

The momentum of Global GDP growth remains weak (Fig. 1) at +0.30/0.50% which is in stark contrast with the YtD performance of most commodity markets. It is clear that the 1H 2022 commodity markets rally had more to do with supply constrains than demand strength. Since commodities remain elevated, we remain of the opinion that the markets are not paying enough attention to the deteriorating demand across key consumption regions.

Disruptions to trade from the economic slowdown in China, trade friction due to sanctions on Russia, exorbitant energy prices and rising borrowing costs continue to distort the trade of raw materials, semi-finished and manufactured goods. This slowdown is also visible in the Economy Capacity Utilization data – see Fig. 2. Capacity at which the economy operates indicates the so called "output gap" e.g., the underutilized capacity of the economy.

It is evident from the data that the slowdown in Asia has now firmly taken place. The divergence with the USA and, especially, the EU is impressive and it focuses our attention on the real cause for concern, namely the weak economic performance of Asia, and in China in particular. The divergence also explains why the inflationary pressure in the EU and USA economies is significantly higher.

Not much is expected in terms of new economic policy in China until after the 20th Party Congress (2nd half October) but we continue to expect potential rebound in the Chinese economic activity in Q1-23 due to the wide output gap and policy shift after the congress. Should our expectation materialize, demand for raw materials in 1H-23 will intensify.

The stress on the global supply chain is starting to abate (see Fig. 3) which in turn is suggesting that supply-side bottlenecks are less likely to develop in Q4. Unfortunately, it is likely that the stress is lower due to the erosion of end-user demand which is ultimately causing a contraction of consumption and manufacturing activity (Fig. 4).

Apart from an anticipated central government intervention in China later in Q4-22, our high-frequency fundamental data also suggests that, the consumer demand in EU and US appears more resilient to the positive price shocks than initially thought –see next page for data and further discussion.

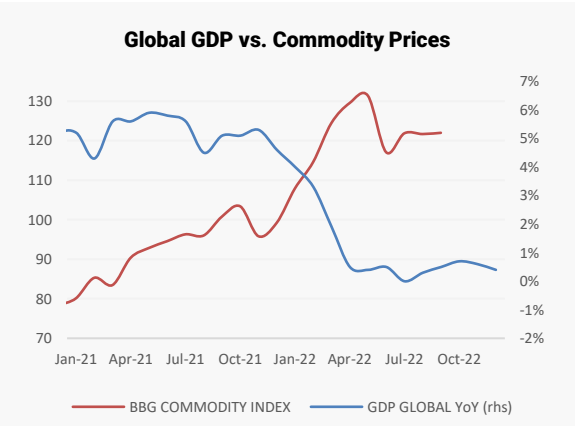

Figure 1. Source: Bloomberg, Marex Research

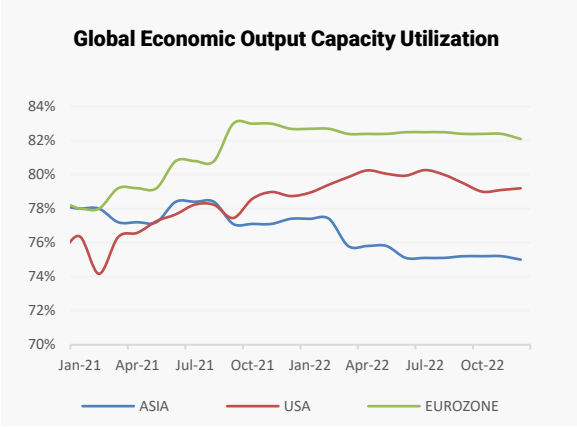

Figure 2. Source: Bloomberg, Marex Research

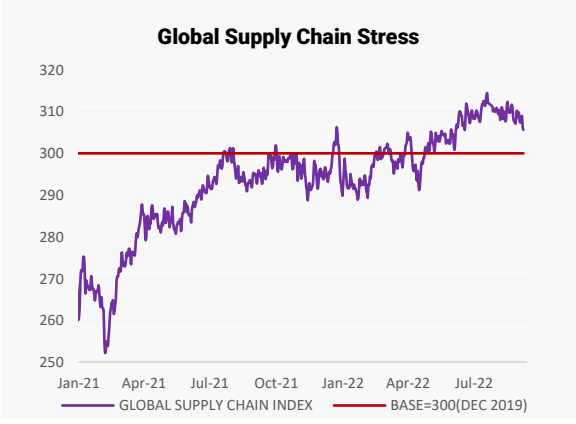

Figure 3. Source: Bloomberg, Marex Research

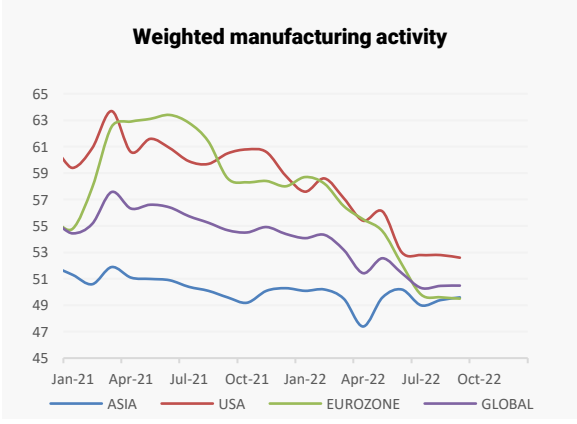

Figure 4. Source: Bloomberg, Marex Research

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High-frequency (HF) fundamental data plays an important role in our commodity market research and analysis. The four most powerful HF proprietary indices (daily and intra-day frequency) of such data are presented below. These are population mobility as well as air-traffic, land, and seaborne movements. We associate all four metrics with economic activity and, therefore, with the consumption of commodities.

In that sense, and as already discussed in the previous monthly report, economic activity continues to surprise to the upside with stronger reading of our indicators when compared to the same time last year. Such data, when combined with the high EU and USA economy capacity utilization discussed on previous page, come to suggest that the economies are absorbing the shocks better than expected.

We also take into account the different levels of population mobility across the world and the contribution these regions have to the overall commodity sector price formation.

Strong recovery of mobility year-to-date warranted the inflationary pressure experienced by the markets in 1H 2022. The latest data in hands suggest that Europe is the best performing region while Asia and N. America disappoint. The European data tends to be highly cyclical, and we expect sharp slowdown Sept onwards (already underway). Regardless of this cyclicality, HF data on consumer behavior in EU keeps suggesting that concerns are exaggerated as Q3 activity and spending was strong. We still expect the last quarter of the year to see weaker spending, and if Asia and N. America fail to recover, Q4-22 will be very challenging for global demand.

As anticipated, data on overall global logistical activity is stronger when compared to same period last year. The exception is the metric for land traffic (Fig 3) which is an indication of deceleration of on-shore economic activity. The global supply chain is highly integrated and demand-pull driven. In the absence of any aggressive inventory build-up, we think that the disconnect (higher seaborne and air, weaker land-based activity), is a temporary phenomenon.

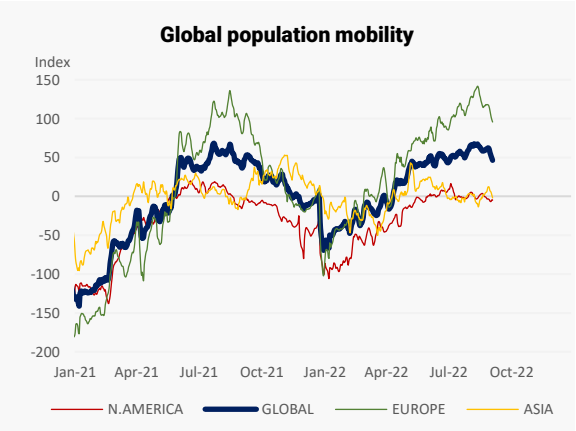

Figure 1. Source: Google, Marex Research

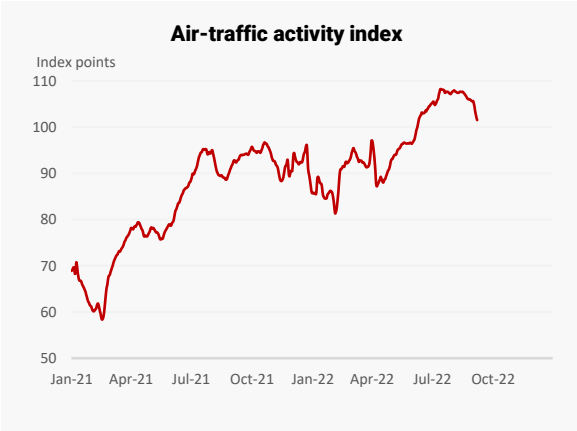

Figure 2. Source: Flightradar, Marex Research

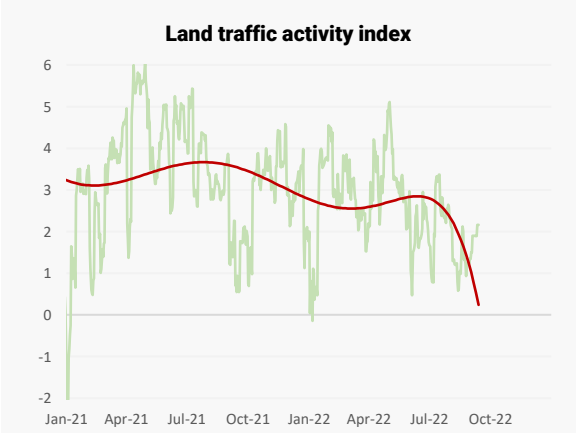

Figure 3. Source: Bloomberg, Marex Research

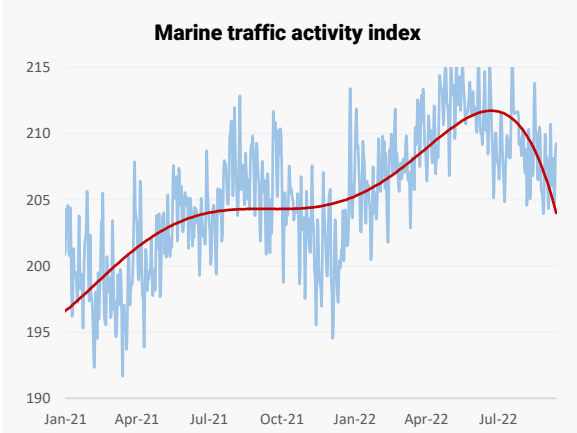

Figure 4. Source: AIS, Marex Research

Divergence in monetary policies of key economies contribute to the formation of the prevailing currency market trends. The US economy remains ahead in the monetary tightening cycle when compared to other major economies which defines the trend of the USD value in the short-term. Demand for USD remains strong in these turbulent geopolitical times. We continue to expect the inflation pressure in the US economy to ease as we approach 2023 which, together with anticipated convergence in monetary policy and rates with ECB is reflected in the forward value of the USD Index – see Fig 1. It is worth noting that the forward market displayed below has been consistently wrong about the timing of the turn for months.

The currency pairs presented in this report are selected on the grounds of their relevance in shaping global and regional commodities supply and demand. We display historical/past value, current spot rate, median forecast and the prevailing forward market.

The consensus of median forecasts has finally converged with the forward market for the CNY which is no longer seen as undervalued - see Fig. 2. Such convergence and relatively flat value of the USD/CNY cross is at least partially down to the lack of any meaningful forward guidance on the Chinese economy before the 20th Congress takes place in the 2nd half of October. Furthermore, divergence between forward market and predicted CNY value is starting to emerge for Q1-23 with predicted median value now stronger than the market consensus. The value of the EUR vs. USD is expected to bottom at parity, before very gradually increasing in early 2023 as the tightening policy of ECB gathers speed. The European monetary policy was, and still remains, the most uncertain variable in our FX model for months due to the heavy dependence on the outcomes from the Ukraine/Russia war. The divergence in views between forecast and forward market values for end of Q4-22 and Q1-23 has practically disappeared. Lower commodity prices have been continuously priced in by the AUD FX forward market (Fig. 4) until at least December 2022. The median forecasts for AUD Q1-23 onwards imply change in stance which is driven by the expected re-appearance of China on the global commodity markets.

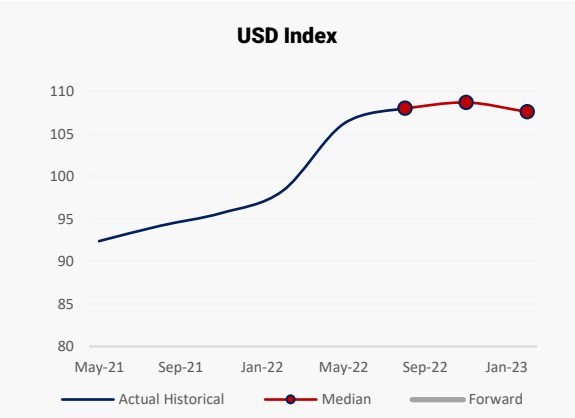

Figure 1. Source: Bloomberg, Marex Research

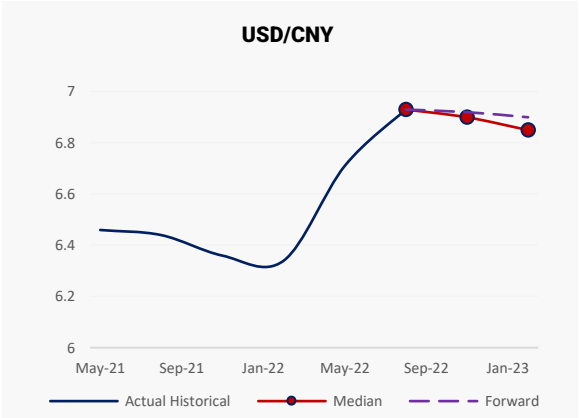

Figure 2. Source: Bloomberg, Marex Research

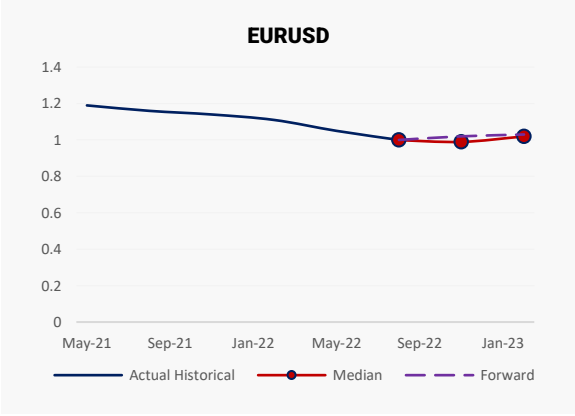

Figure 3. Source: Bloomberg, Marex Research

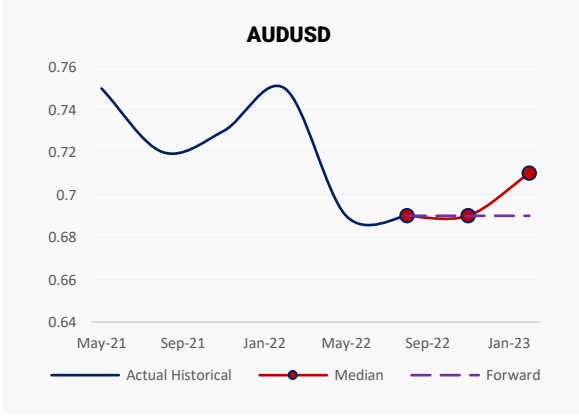

Figure 4. Source: Bloomberg, Marex Research

Past performance is not indicative of future returns.

Our Money Flow Analysis (MFA) is based on the COT reports as published by the CFTC as well as proprietary trade flow data. We use the COT report categories (Swap Dealers, Managed Money, Commercial Interest and Others) and we calculate the total long, short, and net positioning. Total long and short exposure is displayed on the lhs y-axis of the diagrams, while the net exposure is found on the rhs y-axis.

Using the above data and methodology, we conclude that the agricultural markets which are part of this MFA remain net long (NL, yellow line > 0) but the bullish conviction amongst the market participants continued to dissipate. Both long and short positions contracted in recent weeks for all 3 markets (corn, soybean, sugar), with corn and sugar aggressively liquidating NL. Soybean NL remains relatively stable which is likely to be linked to the anticipated shift in Chinese policy later in Q4 (soybean is the most exposed market to changes of Chinese demand).

The energy sector is represented by the Crude oil and Natural gas COT data where we notice that the US gas (Henry Hub) market remains net long, while Crude Oil (Brent) and European Gas (TTF) display the opposite trend of structurally short markets.

The divergence between NL trend and price for all 3 energy markets is staggering, and for the admirers of the Efficient Markets Hypothesis (clearly not us), difficult to explain.

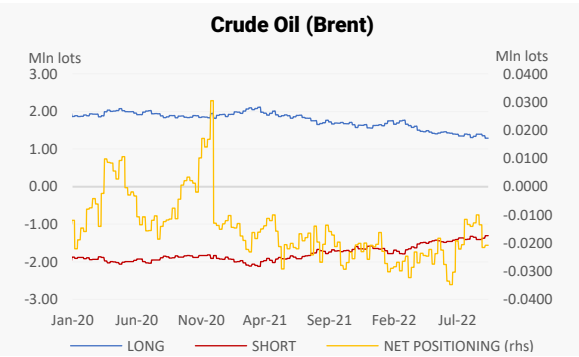

Figure 1. Source: Bloomberg, Marex Research

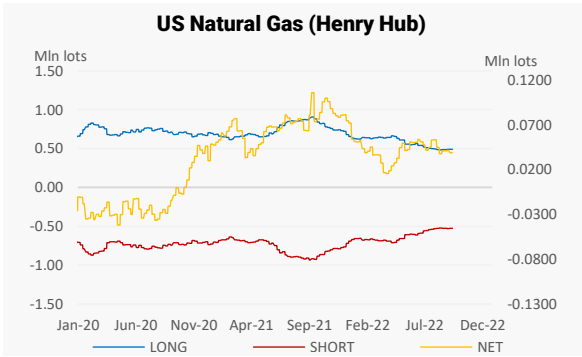

Figure 2. Source: Bloomberg, Marex Research

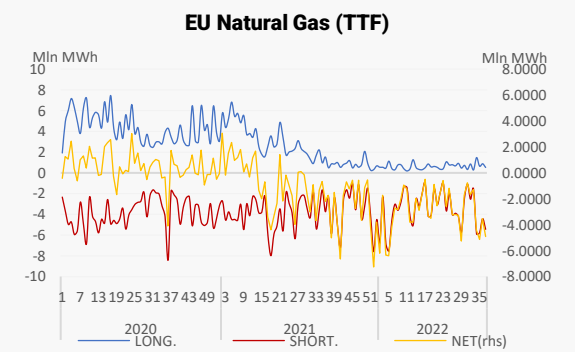

Figure 3. Source: Marex Research

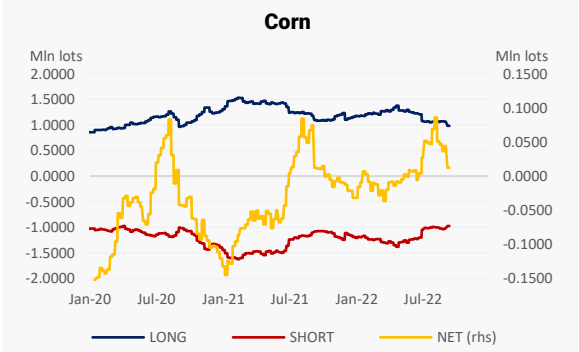

Figure 4. Source: Bloomberg, Marex Research

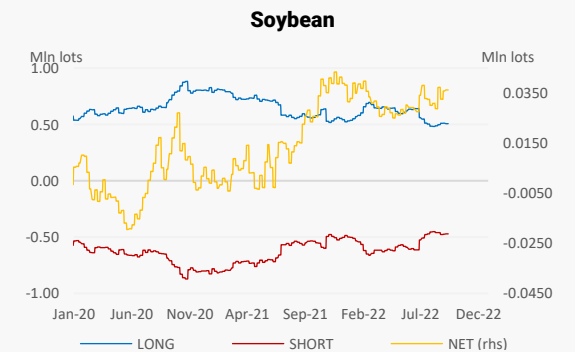

Figure 5. Source: Bloomberg, Marex Research

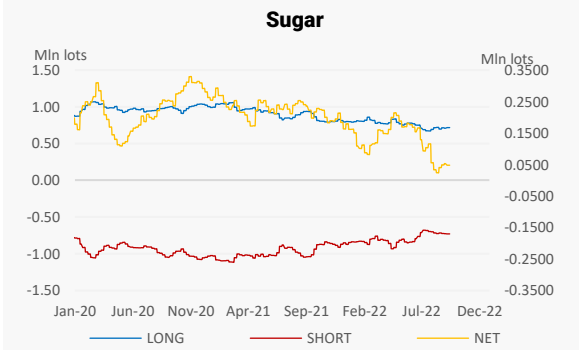

Figure 6. Source: Bloomberg, Marex Research

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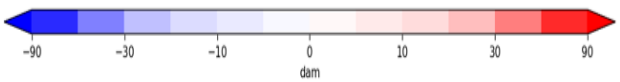
With respect to our last monthly update, we review herein the latest forecasts of the leading patterns in the global geopotential anomaly fields for the next 3 months, namely October, November and December. Again, we would like to gently remind our readers that, in the field of atmospheric science, the geopotential height variable is utilized as a surrogate for atmospheric pressure: Pressure anomalies (usually at 500 hPa) are able to distinguish the general, broader areas characterized by wetter/cooler (negative anomaly) and drier/warmer (positive anomaly) weather conditions. Anomalies are computed relative to the 30-year base period (1991-2020)

For October, most of the US will be under the influence of positive anomalies (high pressure) indicative of drier and warmer conditions. The northwestern tip of the of the US and AK will be dominated by a low-pressure system offshore, which are typical harbingers of wetter and cooler weather. The southeastern US and most of central and south America will be characterized by near average conditions. Over the eastern Hemisphere, most of southern Europe will continue to be dominated by ridging (positive anomalies) and, hence drier/warmer conditions. Northern Europe, from its part, will see wetter, windier and cooler weather. Most of Greenland will be under the influence of a pronounced low-pressure anomaly and, thus cooler and wetter conditions. Asia, Africa and Australia will overall see near average weather conditions (weak anomalies).

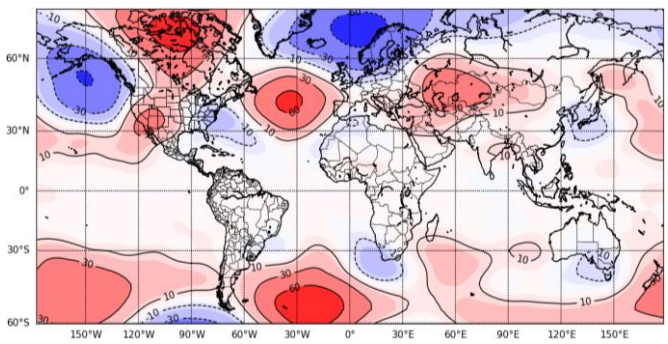
For November, the geopotential pattern of most of the western Hemisphere (Americas) remains overall similar. The noteworthy low-pressure anomaly anchored over Greenland back in October shifted sightly eastward, favoring moist, warm air advection over most of far eastern Europe (and, concomitantly, wetter conditions). Western Europe will see cooler, windier conditions and average rainfall. Over central Asia, a high pressure anomaly is evident over Kazakhstan synonymous of warmer and drier conditions.

Lastly, for December, the northern hemispheric geopotential wave train (alternation of highs and lows) seen back in October and November continues to shift eastward. The main effects from this pattern displacement are: wetter/cooler conditions over the east cost of the US, drier/warmer conditions over the west US coast, cooler and wetter conditions over Europe and warmer/drier conditions over far eastern Russia.

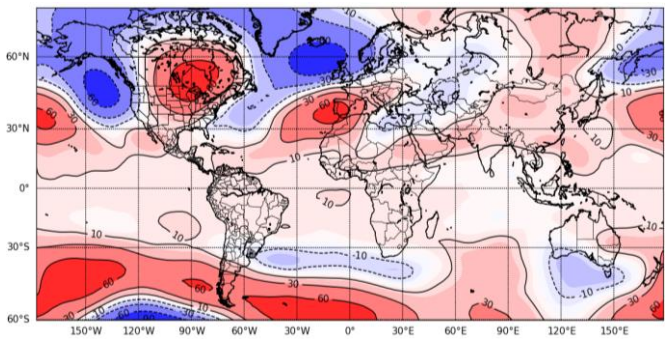
Geopotential Height anomalies for Oct | Nov | Dec 2022



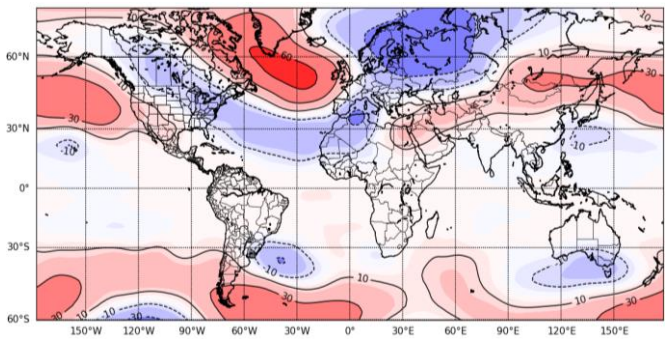
November



October



December



Figures 1-3. Source: Marex Research

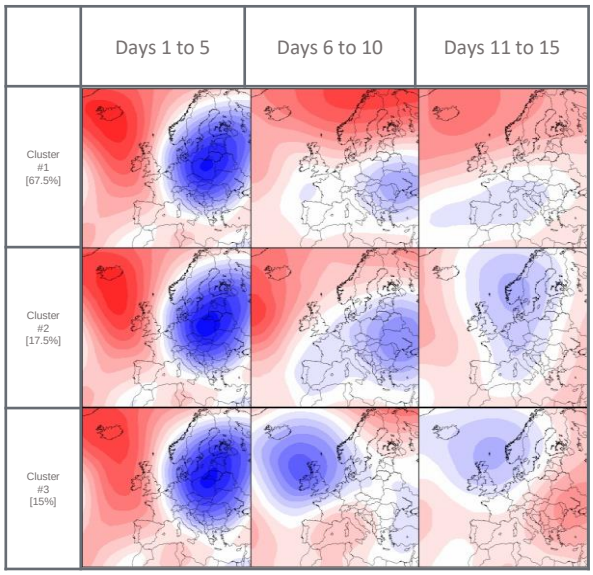
Past performance is not indicative of future returns.

Over most of Spring and Summer, many regions across the northern hemisphere have experienced above average temperatures due to persistent ridging (high pressure anomalies). Some of these high pressure domes lead to heatwaves and record-breaking temperatures in Europe and CONUS. Because high pressure systems are associated with low wind conditions and little—to-no rainfall, this imposed noteworthy/palpable pressure on the European energy mix. Droughts have lowered water levels in the Rhine, reducing access for shipping and over some rivers in France causing some nuclear power plants to shut down. Meanwhile, renewable power generation has also been hampered. High temperatures have particularly dominated over northern Spain and southern France, when considering the past 30 days on average. The last week has started to see a shift in pattern with successive pressure waves affecting northern Europe, leading to wetter, cooler and windier weather conditions. Our seasonal outlook also hints at a similar pattern change for the upcoming 3 months, which –if verified – will be a welcome relief for the energy market and the end-users across the board.

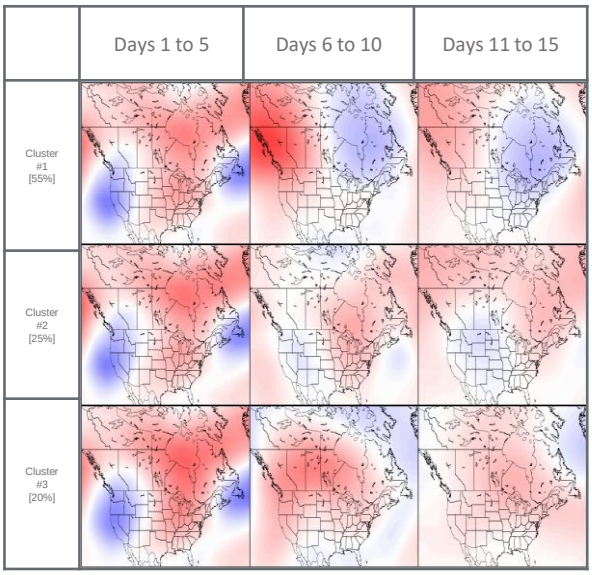
In the US, temperatures also been largely above average, specifically over the western states. The western half of the US has also been particularly strongly affected by severe drought and wildfires, although deficits are also being seen around the Great Lakes as well. The current synoptic pattern hints at a temporary relief with a low pressure anomaly on the west coast during week 1 and over the northeastern US on week 2. Still, our longer term outlook for October and November leans towards warmer and drier conditions. We note that at time of writing, one named storm developed over the tropical Atlantic. The current trajectory, however, takes this barotropic system northward and east owing to the influence of the low pressure anomaly over the northeastern US discussed earlier. La Ninha is typically associated with above average Atlantic hurricane activity and the National Hurricane Centre forecast a range between 14 to 21 named storms for this season. Although the peak of the season is typically around September, we have only seen four named storms thus far. Storm activity has been subdued owing to a drier midlevel Saharan airmass persisting over the tropical Atlantic and slightly cooler sea surface temperatures in the tropical Atlantic. As the hurricane season marches onward, October tend to typically see systems forming closer to home, down in the Caribbean and the Gulf of Mexico where SSTs are sufficiently appreciable (> 27C) for storms to intensify.

In East Asia, above average temperatures have prevailed over eastern China, including Shanghai, as well as further north, over Beijing. Temperatures over South Korea and Japan have been inline with the climatology.

Europe: Run 15th September 2022



USA: Run 15th September 2022



Figures 1 & 2. Source: Marex Research

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The extraordinary combination between perceived future and realized supply and demand has driven the price discovery of the crude oil market since the Russian invasion of Ukraine began in late February. Contraction of global end-user demand observed in Q2 2022 was the logical outcome from the positive price shock that followed the invasion. Initially, downstream demand coped well, in fact better than our expectations, but then the economic slowdown in combination with erosion in purchasing power started to influence the spending patterns of the end-users in Europe and USA. Key industrial areas of China remained restricted which further cooled the rally.

Last month we wrote "The latest data in hand for the Stocks-to-Use ratio suggests that further downward price pressure is likely as demand continues to weaken". We remain of the opinion that demand is likely to contract further for another 1-1.5 months before stabilizing and rising towards the end of Q4-22.

Supply helped the market to the downside, too. Russian exports were strong in Q1-22 and early Q2-22, but then weakness appeared as it became more difficult to place the seaborne shipments even at the discounts they were offered at. Exports from USA and Saudi Arabia more than compensated for the lost Russian volume. USA output breached the 12mbd level whilst the well-documented Saudi Arabian spare production capacity was put into use and exports increased. The widely announced 100k bpd cut resembled a PR stunt and it was never going to be sufficient to turn the S&D balance around.

The key argument in favour of further increases in supply remains the value of exports of the producers which was discussed last month, but this month we investigate the momentum of advance/decline (A/D) of supply and demand of crude oil.

We calculate momentum of A/D for supply and demand with the help of the slope gradient which gives us the steepness, or momentum, of advance and decline.

The result is displayed on Figure 1 where we see that the momentum of supply build-up was consistently above demand since Jan-22. Our data for October and November is suggesting that the trend will reverse as some supply is withdrawn from the market (either OPEC action or inability of Russia to place their crude).

Our long-term fundamental Supply & Demand model for the crude oil market is based on different dynamic scenarios of development for the supply, demand, and inventory flows. The probabilistic range is the widest on record which, as explained earlier, is related to the abnormally high risk of both supply and demand disruptions.

Our base case scenario for FY2022 has now evolved with the latest developments. It signals that demand growth will weaken further to merely 0.2%, while supply growth will increase to 1.5% - see Figure 2, red line with base case scenario.

The model also tested other outcomes. For example, we tested for different volumes of SPR releases as share of total global SPR. We also tested for various positive and negative demand shocks as well as supply shocks. Each development attracts a probabilistic outcome which allows us to calculate and display the Probabilistic Weighted Average (PWA) Forecast (Figure 2, dark red line).

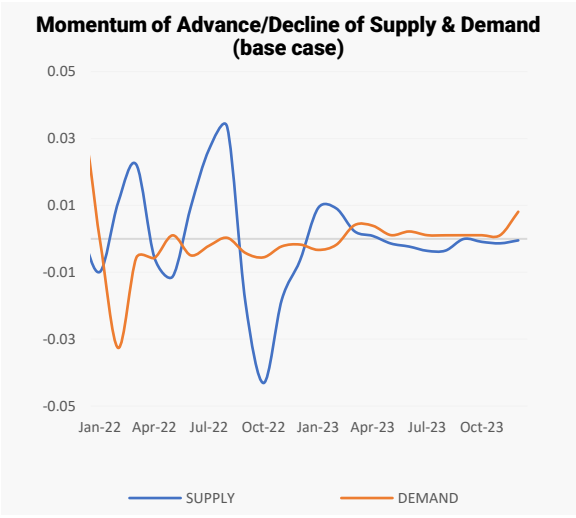

Figure 1. Source: IEA, DOE, Marex Research

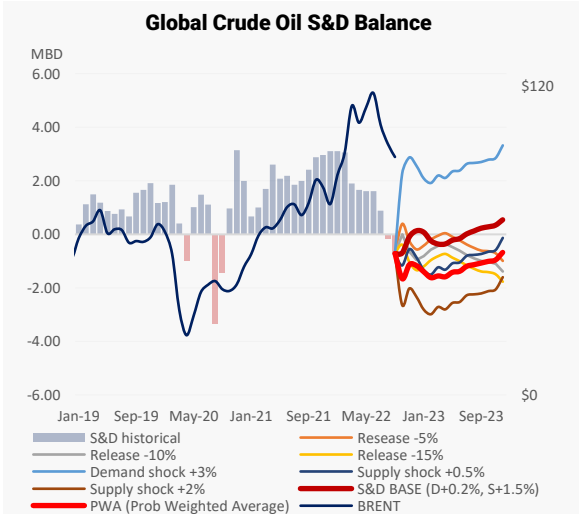

Figure 2. Source: IEA, DOE, Bloomberg, Marex Research

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In late August, as gas flows to Europe through NS1 came to a complete halt, Henry Hub prices edged above $9/mmbtu. This rally was further supported by elevated gas consumption over the same period, as high temperatures across much of the US (discussed in our Energy Weather Outlook) led to an increase in cooling demand.

Throughout the year, gas inventories have remained well-below average levels (see Figure 1). As of September 9th gas storage in the lower 48 States is estimated at 2,771 bcf, a deviation of 10.6% from the 5-year mean. This constitutes a significant contraction compared to the average of -11.5%, recorded over August. Yet, with 8 weeks left until the start of the destocking period, the market is expected to remain under severe tightness. Indicatively, EIA comments that If injection rates were to track the five-year average of 10.2 Bcf/d for the rest of the re-stocking season, end of October would still see inventories 9.7% below the five-year mean.

On the supply side, EIA's September update suggests an upward revision of dry-gas production rates compared to the August's release. Production in Q3 is now expected to average 97.85 bcf/day, 0.9% higher than the one forecasted in August. The first week of September alone has seen production reach 99.8 bcf/day, a 2% increase from August's average of 97.64 bcf/day. In a similar fashion, gas imports have also been revised upwards, mainly driven by an increase in pipeline imports.

Things appear less optimistic on the demand side, with average domestic consumption in Q3 revised to 77.83 bcf/day against 74.81 bcf/day projected in August. This has been mainly driven by a 18.3% increase in expected residential use, followed by a 13.3% increase in forecasted commercial consumption.

On the exports' front, Freeport LNG has remained closed since the explosion in June and total liquefaction rates have remained around 10.8 bcf/day. On August 23rd the operator of the plant announced a re-scheduling in the plant's reopening, originally aimed for early October, to early/mid-November. Production is set to reach 2 Bcf/day by the end of November, while full operation is planned to resume in March 2023 once the facility's second dock is reinstated. This plan remains subject to typical construction risks. As highlighted in our last publication, the final trains (10-18) of Calcasieu Pass are due to begin commercial operation in September this year. If all goes to plan, an additional 0.07 bcf/day per train (total addition of 0.66 bcf/day, or 5 mtpa) will be added.

Figure 2 presents our medium-term Supply and Demand balance. The concurrent revision of both supplied and consumed volumes to higher levels (discussed above) has resulted in a trajectory identical to the one included in our August release. As we can see, volumes are expected to remain tight until October, before entering a surplus during the winter season.

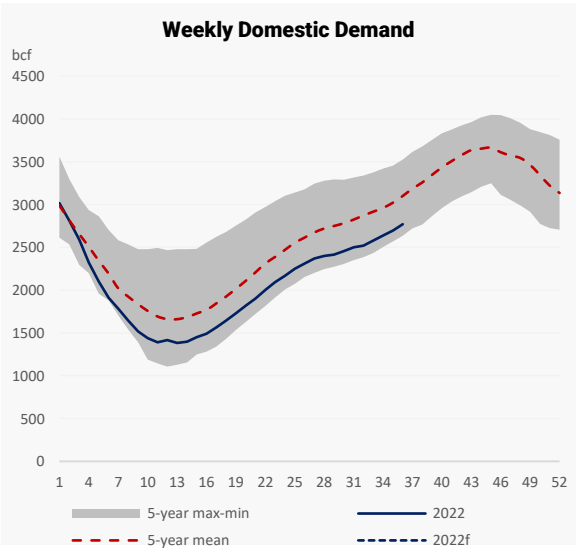

Figure 1. Source: Bloomberg, Marex Research

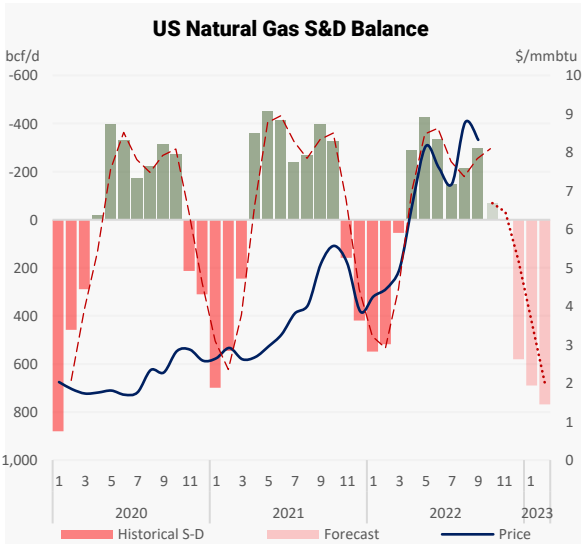

Figure 2. Source: EIA, Marex Research

Past performance is not indicative of future returns.

August saw the front month JKM contract approach the 70 $/mmbtu mark. Since its July update, our medium-term model points towards a record high volume deficit for August. Admittedly, this bullishness has been further exacerbated by record low pipe gas flows in Europe as in late August westwards flows via NS1 came to a complete halt, on grounds of an engine leak on Portovaya's compressor station.

As we enter the winter season, demand for the commodity is forecast to remain elevated. Figure 1 depicts the aggregated gas flow out of LNG facilities in the commodity's premium market, Europe, normalized by the Declared Total Reference Send-out (DTRS). This historical consumption pattern (red-dotted line) reveals that demand is set to gradually escalate before finally peaking in November. Assuming that the seasonal pattern is repeated, gas sent-out from LNG facilities could average 76% of DTRS in November, standing for 4315 GWh/d.

Things appear more optimistic on the supply side with September on course to see 6.5 mtpa of liquefaction capacity coming online. On September 6th Gazprom's Deputy Chief Executive Vitaly Markelov announced that the Portovaya LNG plant (1.5 mtpa) is preparing to load its inaugural cargo. Calcasieu Pass trains 10-18 in the US (5.0 mtpa) are also scheduled to start production during the month. On the flip side, reports have surfaced that Eni's Coral Sul in Mozambique (3.4 mtpa), also scheduled to come online in September, has faced technical issues which are likely to delay its in-service date. Eni has not provided any official announcements on the matter. In the US, on August 23rd the operator of Freeport LNG plant announced a rescheduling of the plant's reopening from early October to early/mid-November. Production is expected to reach 2 Bcf/day by the end of November, while 100% operation is planned to resume in March 2023, once the facility's second dock is reinstated.

Our medium-term view, displayed in Figure 2 sees no significant changes compared to the August release. The Supply & Demand balance places volumes in a deficit over much of the forecasted period (+3 months) with the first signs of a surplus only visible in December. The base Supply & Demand scenario, shown by the colored bars, considers the pipe-gas deficit caused by disruptions in the flows of NS1 since June, as well as the delayed re-opening of the Freeport LNG plant

The rapid inflow of LNG in the European market (according to our data 60% YtD increase vs 51% forecasted y-o-y) has led gas storage in the continent above the **80%** mark, originally set by the European Commission for November 1st. This continues to be the main reason behind the gradual correction of the volume deficit observed in the base scenario. We additionally present two case-scenarios regarding the future flows through NS1 over the forecasted period. It is worth noting that Gazprom's officials have announced that flows are unlikely to resume until the faulty equipment is repaired by Siemens, limiting the prospects of an imminent return of the partial flows seen over summer. As the Figure suggests, the operation of the pipeline at subdued levels (yellow line) will keep the market under severe pressure. The overall trajectory, however, remains unchanged.

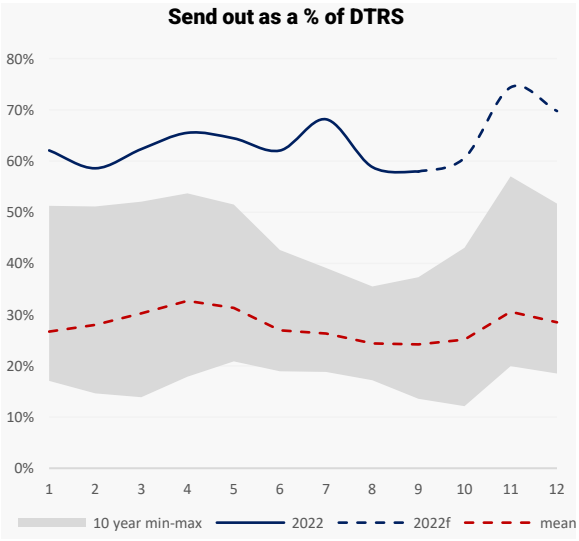

Figure 1. Source: Marex Research, GIE ALSI

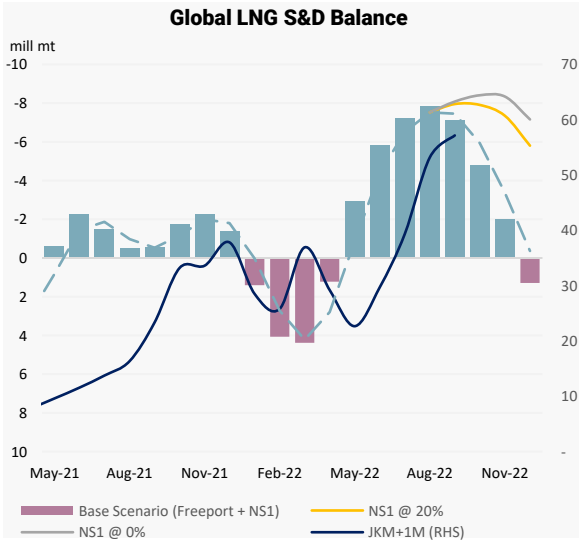

Figure 2. Source: Marex Research, Bloomberg, Reuters

Past performance is not indicative of future returns.

The European natural gas market is still a hostage to Putin's Russia, but evidently the table is rapidly turning.

The 2022 restocking rates have been overall higher than average, with subdued demand due to milder weather conditions in the Spring and weaker economic activity resulting in a noteworthy uptake in total EU capacity (now at about 82-84%).

LNG in-flow to Europe has been relatively stable despite Freeport LNG terminal still not operational. This too will change with the terminal coming on-line with reduced utilization in early November, then ramping up volume into Dec and Jan-March 2023.

Flow from Norway and N. Africa have also been strong with Norwegian gas in-flow up 9.2% YoY for the period Jan-Sep. Last, but not least, is the increasing availability of Azeri pipeline gas entering via Turkey into Greece and then Bulgaria (interconnector already operational with trial flow).

The result of all this is constantly and rapidly dropping dependency on Russian gas – see Figure 1. Europe started the calendar year with 42% dependency which in September is down to 14%. We expect the dependency to drop further to single digit within a month. When, and not if, this happens, the table would have turned.

Excluding the re-stocking cycle, structural demand for gas remained weak in Q3. This was helped by favorable climatic conditions, stable renewables output, and decline in industrial output on the back of the war, trade friction and spiraling inflation which is hurting end-user demand. The negative shock induced by the Russian-Ukraine conflict and subsequent trade friction is clearly visible in the European macro data discussed earlier in this document.

The result from the above developments and assumptions for supply and demand in 2022 is displayed with the help of the European Supply & Demand natural gas market balance in Figure 2. We also present our scenario analysis. Each development attracts a probabilistic outcome which allows us to calculate and display the Probabilistic Weighted Average (PWA) Forecast (red line).

The events described previously forced us to drastically change some of our assumptions. The base-case scenario we work with is for YoY supply decrease of -12% and demand decrease of -10%. The scenarios displayed below include supply decreasing by -10%, -20% and -30%, while Demand decreasing by -5%, -10% and -15%.

We also assign probability for any of these events to occur, and we calculate the PWA (red line). The outcomes are clearly displayed on the diagram below. Our base-case scenario (bars) returns bearish outcome, and the recent price action appears to be in line with our calculations. It is not a clear-cut outcome for the gas price if supply drops sharply. Our stress-testing shows that smaller drop in demand delivers stronger negative impact on price.

The PWA has re-aligned again with the base-case scenario since the last updates due to the more skewed distribution of probabilities across the different scenarios, e.g. higher probability of strong demand contraction assigned.

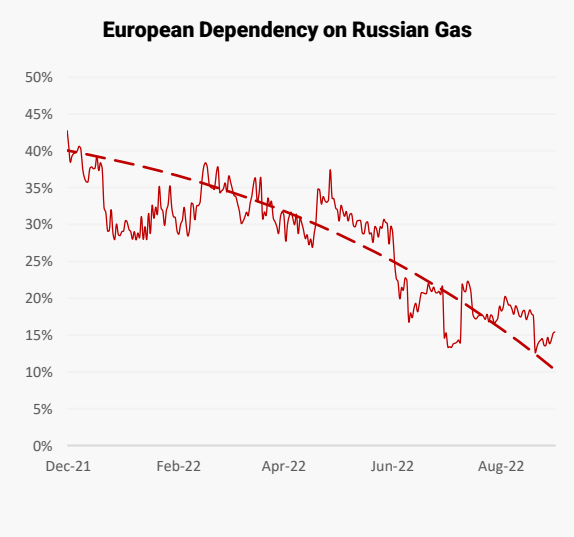

Figure 1. Source: Bloomberg, Marex Research

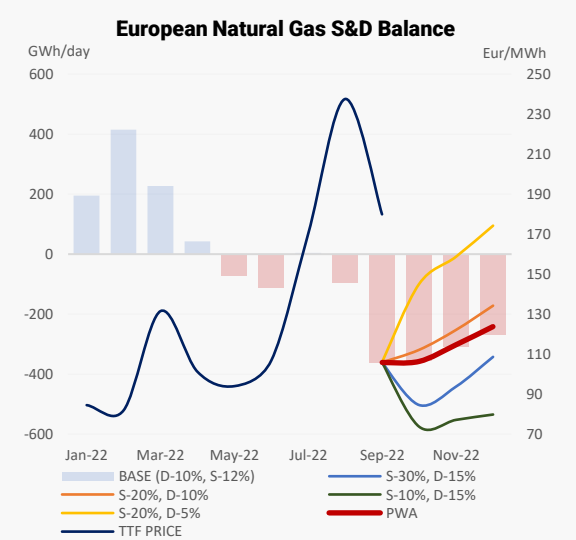

Figure 2. Source: Bloomberg, Marex Research

Past performance is not indicative of future returns.

Last month we introduced this new addition to our monthly outlook, our medium-term outlook for the EUA market. Owing to the format that the EUA market is designed (with annual announcements for the total number of available credits, additions to the reserve, dates and volumes of auctions, and deadlines for verified emissions reports), we will consider our emissions outlook on an annual basis. It is understandable in this case that supply-side updates will not be very frequent.

The supply outlook for the year is composed of auction data and free allowances. Auction volumes are announced by EEX at the start of the year. This year credits for over 400 million tonnes of CO2 equivalent are available. Free allowances are allocated (unevenly) across the sectors, with the aim of decreasing emissions each year. We have developed three estimations of the volume of free allowances, and as a result have three Scenarios for 2022 presented in Figure 2. In the first method, we use the previous year verified emissions volumes, the second uses the linear trend of the historic dataset (2013-2020), and the third uses the trend for the change over the past three years.

Demand, on the other hand, will be discussed on a regular basis since we capture the volumes bid at the auctions. We translate this into an estimate of the emissions volumes so far and project the data forward for the rest of the year.

When considering the demand drivers behind emission prices so far this year there are multiple considerations. One is the drastic reduction of Russian gas on the European market which has naturally led to higher gas prices which can help to pull up EUA prices overall. Attractive clean dark spreads has also led to an increase in coal consumption which gave the EUA demand another boost. Additionally, there is no free allocation for electricity production (although some member states re allowed to allocate free allowances to encourage the uptake of modern and greener technology), thus we find a stronger demand for EUAs.

The second consideration behind an increase in demand is the weather. The first half of summer for Europe was dominated by high pressure over southern Europe – driving up cooling demand at times of tight gas market. More recently, high pressure cells centred over northern Europe have exacerbated droughts in Spain, France and Germany. This has contributed to a lack of renewable power (as high pressure in this region also reduces wind power generation) driving demand towards fossil fuels.

All this is about to change. Our latest sub-seasonal outlook is pointing towards milder but windier start to the winter. The result should be higher supply of renewable power generation and lower demand for heating. Industrial demand destruction discussed earlier in this document also play an important role in the overall reduction of demand for EUAs.

Our quantitate fundamental EUA model allows us to identify groups of price drivers and thus further refine the process of modelling the outlook – see Figure 1. Macroeconomic considerations formed +37% of the EUA price until very recently but their share is now down to 14%. Unsurprisingly, demand for EUA currently forms almost half (47%) of the price, followed by Supply at 31%.

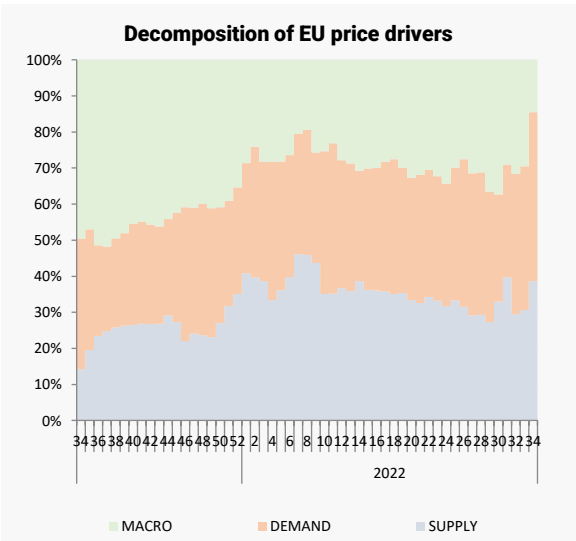

Figure 1. Source: Bloomberg, Marex Research

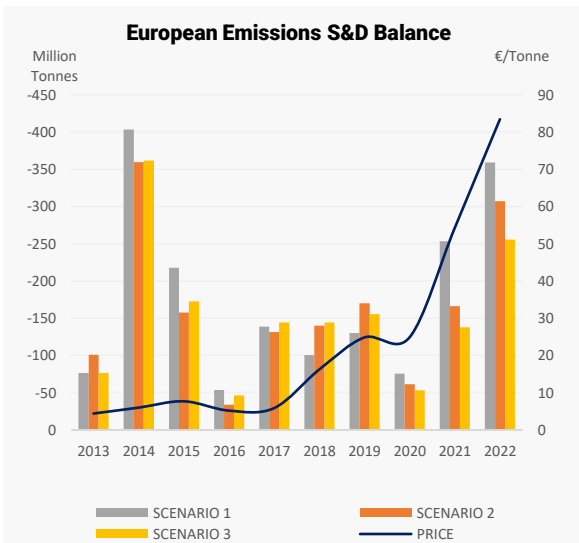

Figure 2. Source: Bloomberg, Marex Research

Past performance is not indicative of future returns.

The weather over the upcoming months will play a vital role for many crops across the globe from the planting of grains in South America to the harvest of crops in the US and Vietnam. On top of this the likelihood for La Ninha to continue through till the end of the year has increased since our previous outlook. The International Institute of Climatic Research favour La Ninha persisting until November – January with a 60-70% chance, making this the third consecutive year of La Ninha conditions. With this in mind, we present our global seasonal outlook for October/November/December (OND) from our proprietary seasonal model.

Figure 1 shows our OND rainfall anomalies outlook. Beginning with South America, our rainfall outlook points to wetter conditions over Central Brazil. This includes over grains regions in Mato Grosso where a timely start to the rainy season will be important for the planting of soybean and corn. A wet signal is also forecast over coffee and sugar regions in Goias and Minas Gerais. We forecast a dry signal over southern Brazil, including over Rio Grande do Sul which is a smaller producer of grains compared to Mato Grosso. The dry signal over southern Brazil is typical of La Ninha conditions and as is consistent with the consensus from other seasonal outlooks (IRI, C3S).

Over Central America the outlook points to a wet signal over some coffee regions including over Nicaragua and Costa Rica. The rainfall outlook over the key agricultural regions in the US does not point to a strong anomaly for the next three months. However, our temperature anomaly outlook does point to a warm signal over north-east US for October (See page 7 for more detail).

Turning our attention to the eastern Hemisphere, our rainfall outlook forecasts significant wet anomalies over the Philippines and Indonesia. There is also a strong wet signal forecast over the Central Highlands in Vietnam, which is coming to the end of its rainy season. The forecast suggests it could be a wet end to the rainy season and start of the coffee harvest in November.

Rainfall Anomalies: October/November/December

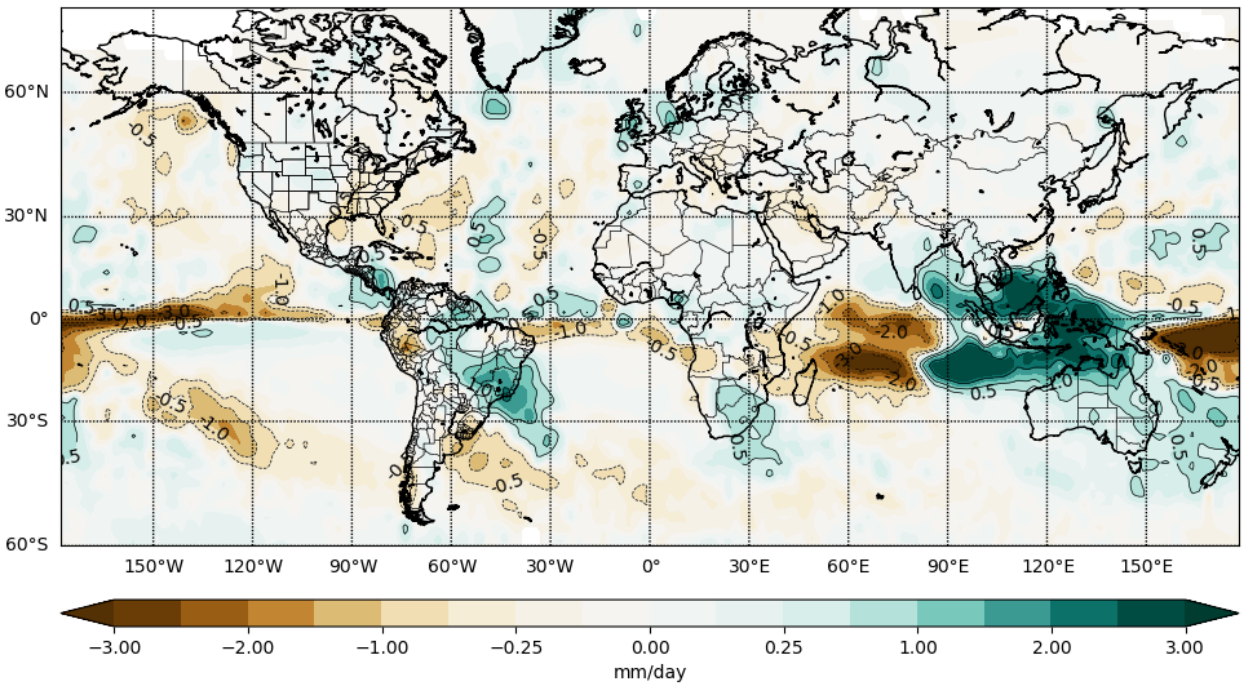

Figure 1. Source: Marex Research

We have previously followed the progress of the US spring wheat crop with a focus Hard Red Spring wheat and the weather conditions in the north-west and Northern Plains. We discussed the wet weather at the start of the season which delayed planting and crop development this year. However according to the USDA, the warm weather may have helped the spring wheat by accelerated crop development and harvesting.

The harvest of Hard Red Winter wheat is now complete and the latest estimates for HRW production, from the USDA, is at 576 million bushels down by 23% percent from 2021. This is a drop by 14 million bushels since we first discussed HRW production at the start of May. Despite this, overall wheat production in the US is forecast at 1.78 billion bushels, up by 8% YoY, largely due to improved spring wheat production this year. Russia and Canada are also expected to see YoY production increases, enough to offset decreases from other major exporters (Ukraine, EU, Australia).

As we are currently in the most important Black Sea export season (August to October) we wish to take a closer look at Russian exports so far this year. Following favourable weather conditions, the USDA revised Russian production up by 9.5 million metric tons from July estimates to 91 million metric tons, a record high for Russia. In Figure 1, we have displayed monthly Russian exports of wheat in 2022 and compared this to the average of the past 4 years (red dotted line). The grey area represents the maximum and minimum values corresponding to the monthly timestamp of the x-axis, as recorded throughout the period 2018-2021.

We can clearly see the seasonal trend in wheat exports, with exports at their highest between August to October. Looking at Figure 1, we see that since the start of 2022, wheat exports from Russia have been below the average of the past 4 years. This is most noticeable in the first three months of the year and more recently in July and August despite an increase in production this year.

We consider Import Arbitrage, displayed in Figure 1, which measures the difference between domestic wheat prices at key import regions (Med for wheat) and the CIF prices originating at key export regions. We have noted that the Black Sea import arb has remained competitive since the invasion and has become increasingly attractive since July, however, South American, US and French arbs have also become increasingly competitive following a decrease in freight rates on the international market. Although, recent data points to a weakening in French and US arbs (last couple of weeks in August).

Our Global Wheat S&D balance is displayed in Figure 2. Most interestingly, with our latest updates for 2022, our balance appears slightly bullish. Our view for 2023 remains bullish however our signal has weakened compared to our outlook in August. The major changes to our 2023 balance reflect revised upward estimates for global production of wheat this month, particularly as production for Russia and Ukraine for 2023 have been revised up, despite the ongoing war.

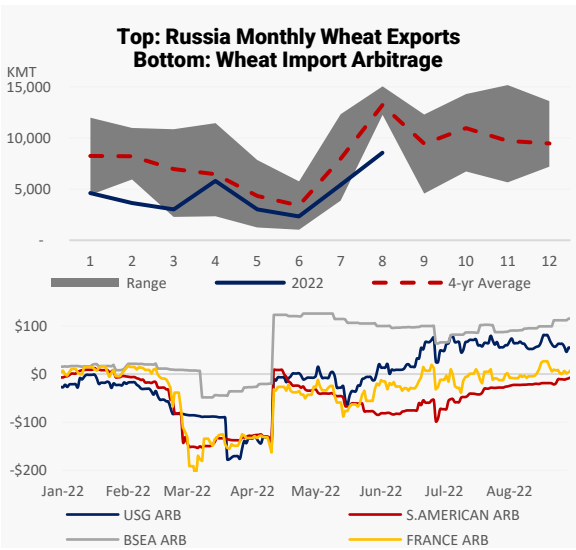

Figure 1. Source: Bloomnerg, USDA, Marex Research

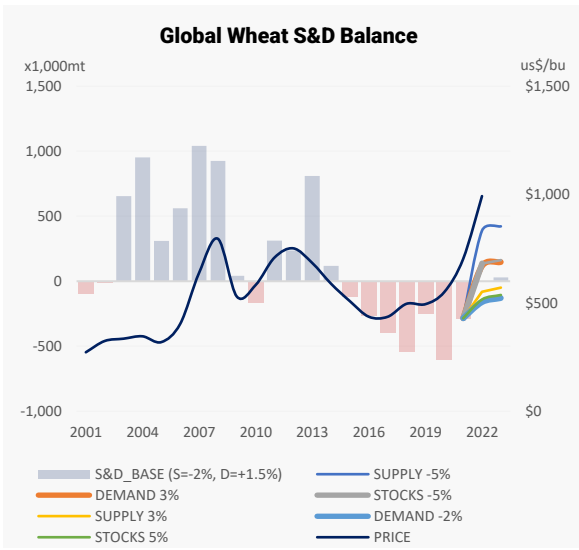

Figure 2. Source: USDA, Marex Research

Past performance is not indicative of future returns.

With the September updates, the USDA has revised down their global corn production estimates for 2022/23 by 7 million metric tonnes, a decrease of 47.2 million metric tonnes Y-o-Y. While production has been revised up this month for China, Ukraine, Canada and Mozambique, a reduction in US production by 10.5 million metric tonnes more than offsets this increase.

We also note a decrease in demand for global use and stocks of corn. Global coarse grains for 2022/23 is projected down by 3.5 million tons this month. Ending stocks are reduced given that reduction in production is greater than the decrease in use. Given these revisions we consider our supply and demand balance in Figure 2, where we have documented exceptional demand strength since 2020. An increasing tightness of supply does not appear to be placing upward pressure on the price as the demand strength appears to be weakening in Q4, suggesting that price gains will become increasing difficult.

The US is largely responsible for driving the changes in the September WASDE report. US 2022/23 corn production is currently estimated at 13,944 million bushels down by 415 million bushels from last month estimates. This reduction follows mixed weather over the US through August. While southern portions of the US saw some good rainfall in August helping to relieve drought conditions, drier than normal conditions and above normal temperatures were observed over the central Plains and western Corn Belt including over Iowa the largest producing state. The latest yield forecast for Iowa is 200 bushels per acres down 5 bushels from estimates in August.

We now consider US usage of corn. The reduction of 2022/23 estimates for both US exports and the use of corn to produce ethanol contribute to an overall reduction of 150 million bushels for domestic corn use this month compared to August. Corn use for ethanol 2022/23 is now estimated to decrease Y-o-Y, even following recent downward revisions to 2021/22 estimates for corn use. In Figure 1, we present the ratio of corn use for ethanol to corn production over the past decade and compare to average price. We see that despite a drop in total corn for ethanol use Y-o-Y, the ratio is projected to see an increase Y-o-Y, largely owing to significant reductions in production. The corn price appears to be partially driven by the ethanol market and the ratio of corn use in ethanol to production over the past decade. The demand for ethanol in combination with tighter supply of corn may increase demand for corn on a Y-o-Y basis.

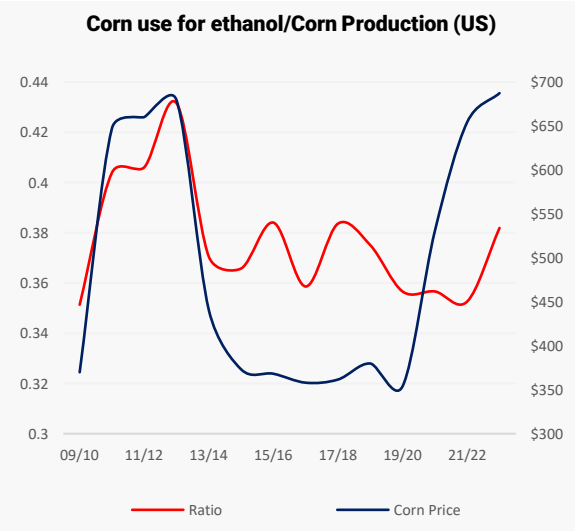

Figure 1. Source: USDA, Marex Research

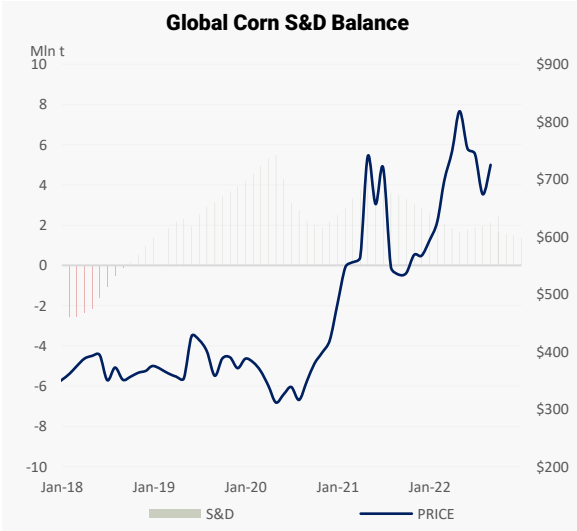

Figure 2. Source: USDA, Marex Research

Now we are in September, Brazil weather is back on our radar for soybeans, with the planting season soon underway. The rainy season is ahead for some of the large key central soybean states e.g., Mato Grosso, Mato Grosso do Sul, and Goias. It is important for these states to see a good start to the rainy season to boost soil moisture levels for the plantings.

In Figure 1, we present our rainfall index for Mato Grosso, the largest producing state, which looks at the running 30-day cumulative realised rainfall compared to the long-term mean. When the index is close to or above 0 this indicates a wet bias (i.e., conditions are favourable for the crop). The red box shows the rainfall index for the first half of the rainy season last year and the green box illustrates the rainfall index from September until present including forecast data for the next week (#38).

The onset of rains across the central states usually occurs in October. Last year saw a timely start to the rainy season, and the index grew increasingly positive between October to November, despite concerns of a La Ninha event which was linked to a delay and poor rainfall rates in 2020. During the 2021/22 season, the influence of La Ninha was primarily felt further south than Mato Grosso, in Mato Grosso do Sul and southern regions where reduced rainfall resulted in a decrease in productivity.

With the latest seasonal outlooks from the NOAA and the IRI/CPC, the likelihood of a third La Ninha event continuing through November-January is approximately 60-70% with the possibility of it continuing into the beginning of 2023. The outlook for Oct/Nov/Dec from the IRI/CPC points to drier than normal conditions persisting across southern Brazil. We present on page 14 our latest in-house seasonal forecast for October/November/December, where we see a wet signal forecast over Mato Grosso. Looking at each month individually we see this signal is strongest in the month of December. Therefore, Mato Grosso may see wetter weather over December during the peak of the rainy season.

This month, with the latest updates, our S&D balance remains firmly negative for Q4-22 (Figure 2). In fact, the outlook for Q4-22 appears more strongly negative compared to last month which represents steady supply growth and contraction in demand.

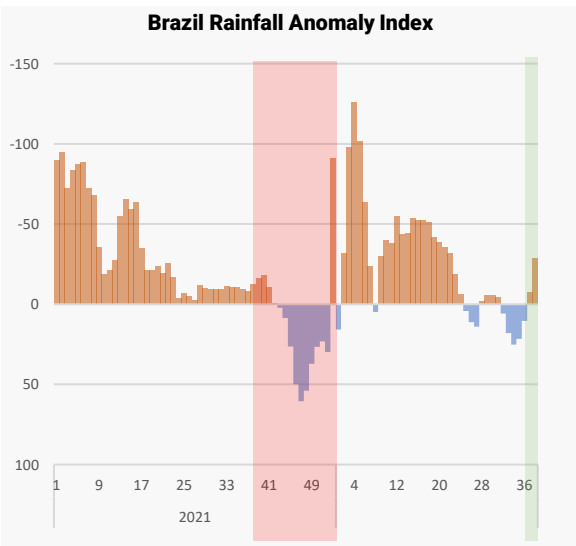

Figure 1. Source: CPC/NOAA, WSI, Marex Research

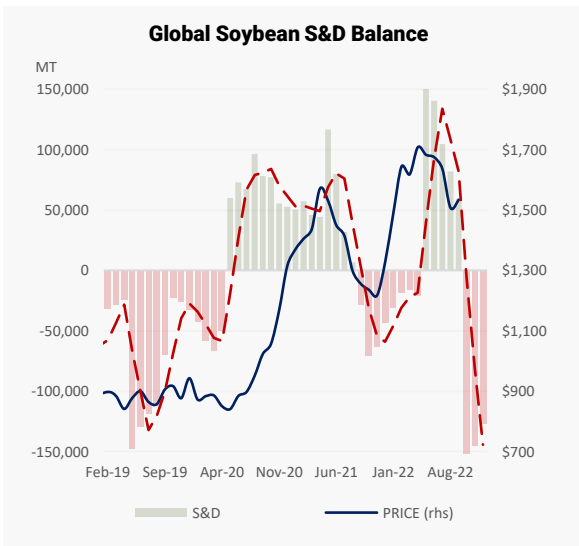

Figure 2. Source: USDA, Marex Research

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Our overall cumulative S&D balance remains firmly negative (Fig 2) and we have recorded a disconnect between the price of sugar and S&D balance since 2021.

We start our discussion this month by addressing the recent macroeconomic conditions. We focus on fluctuations in currency, and their impact on the global sugar market. In Figure 1, we display our Currency Impact Index. This indicator compares two groups of different countries currencies. One containing key exporters such as Brazil, Thailand and Australia and the other containing key importers such as Indonesia, China and Bangladesh.

If the spread between the two currency groups increases, there is greater purchasing power i.e., a greater incentive to buy and therefore a higher demand for sugar. Similarly, higher value of exporting currencies indicates weaker pressure on exporters to supply the seaborne market. Therefore, we deduce a higher Currency Impact Index would apply upward pressure on the sugar price and vice versa. This relationship is most apparent when looking at Figure 1, between weeks #20-23 in 2022. We have noted a divergence between the sugar price and our Currency Impact Index since week #35.

To explore the disconnect, we consider the supply of sugar. Firstly, we look at one of the most powerful factors in our model affecting the global sugar market – Brazilian ethanol parity. Our Brazilian Ethanol Parity Index (Fig 1) has seen an overall downward trend since the beginning of Q2. Following a decrease in ethanol parity since week #31, a recent uptick in ethanol parity has been observed. An increase in ethanol parity suggests that there is a stronger demand pull from the ethanol refineries and therefore reduced supply available on the spot sugar market.

We now turn our attention to the weather conditions in key growing regions, to consider global supply of sugar. In our last update we discussed the progress of the monsoon season in India, raising concern for weather over Uttar Pradesh where total rainfall since the start of the monsoon season (June) has been below normal. Our outlook for the next 10 days forecasts wetter than average conditions across the Uttar Pradesh particularly over eastern portions, providing much needed rainfall. Meanwhile in Pakistan the two largest producing sugarcane provinces Punjab and Sindh have seen large rainfall surpluses since June resulting in areas of significant flooding. In August, rainfall in Sindh was above average by approximately 750%. Much of the observed rainfall was concentrated in the second half of August and the largest rainfall totals were observed in the central and northern portions of Sindh. Since the end of August drier weather has returned to Sindh and Punjab, potentially allowing flood waters to recede. The outlook for the next two weeks looks to remain dry over these provinces. Since our last monthly report, rainfall across Europe has provided some relief following dryness concerns over UK, France and Germany.

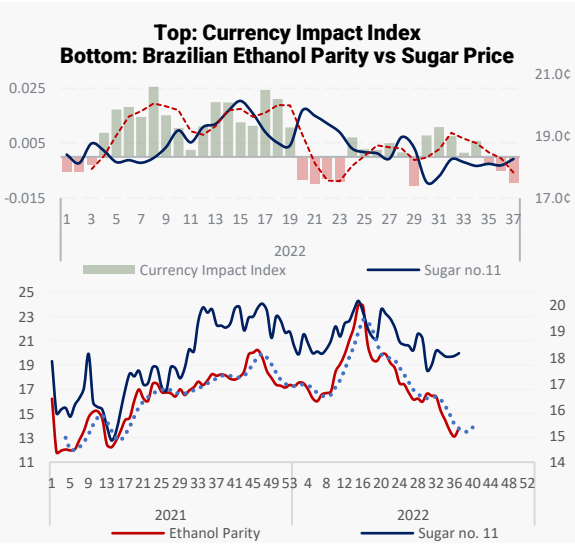

Figure 1. Source: Bloomberg, Marex Research

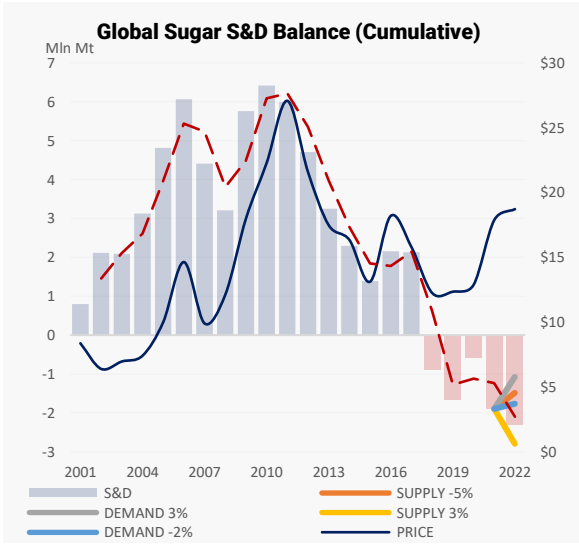

Figure 2. Source: USDA, Marex Research

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