Demand, Supply and the Next Price High?

What Moved Corn Prices Higher?

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Teucrium Fund Tickers:

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- Corn prices have risen nearly 18% year to date[1]
- Global grain demand is projected to hit an all-time high
- Production concerns have surfaced due to unfavorable weather in the US corn belt
- The USDA reports project an imbalance between supply and demand
- Expect price volatility to remain elevated

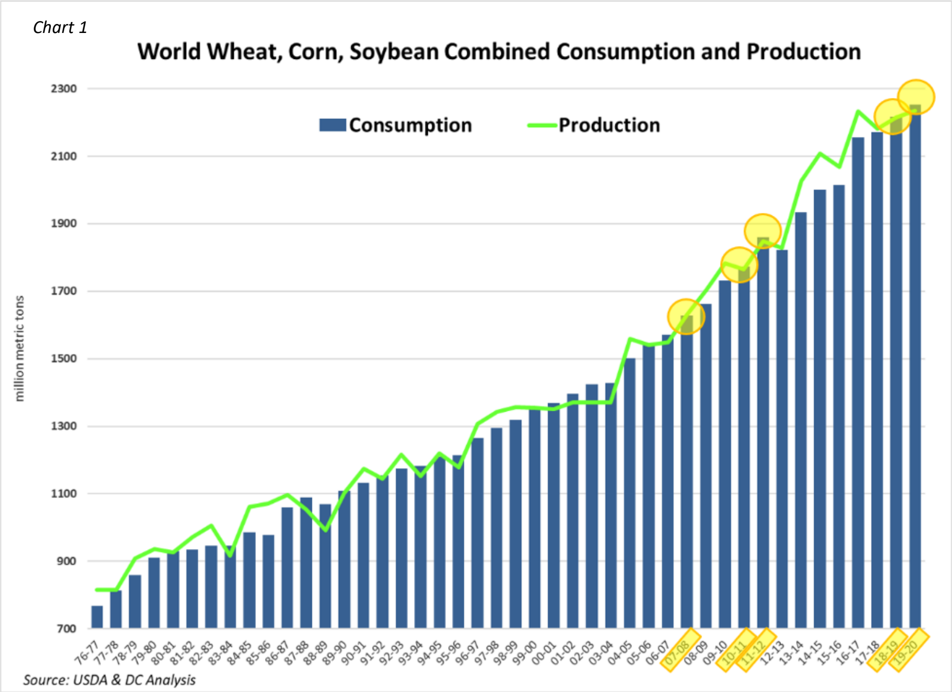
It's the Law

What happens when a steadily rising demand for a commodity meets an uncertain supply?

The theory of supply and demand reveals that when the two are in harmony a commodity will trade at the "equilibrium price"[2]. Alternatively, imbalances between supply and demand tend to result in price volatility. This can be seen when reviewing the supply, demand and price history of corn, wheat and soybeans.

Demand

World demand for corn, wheat, and soybeans has been growing steadily since 1976. The blue bars on *chart 1* below illustrate this point. Population growth and the expanding global middle class have been the primary drivers of demand over the past 43 years. This consistent growth has resulted in the USDA projecting record global demand for grains this year (crop year 2019-2020).



2007-2008
Corn prices rose approximately 147%

2010-2011
Corn prices rose approximately 127%

2011-2012
Corn prices drifted lower only to make another approximate 53% move to the peak price reached in September 2012

2014-2018
Corn prices traded near the cost of production because of near perfect growing conditions.

2019-2020
Year to date* corn prices have risen nearly 18% because the USDA continues to lower production expectations due to unfavorable weather in the U.S. Corn Belt. The full extent of the impact to corn production and prices is unknown and continuing to evolve.
*12/31/18 – 6/13/2019

Chart: DC Analysis LLC, using data from USDA through June 11, 2019. Used with permission from DC Analysis. https://apps.fas.usda.gov/psdonline/app/index.html#/app/home

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[1] Source Bloomberg Finance L.P. 06/13/2019
[2] *Supply and Demand* Encyclopedia Britannica https://www.britannica.com/topic/supply-and-demand

Supply

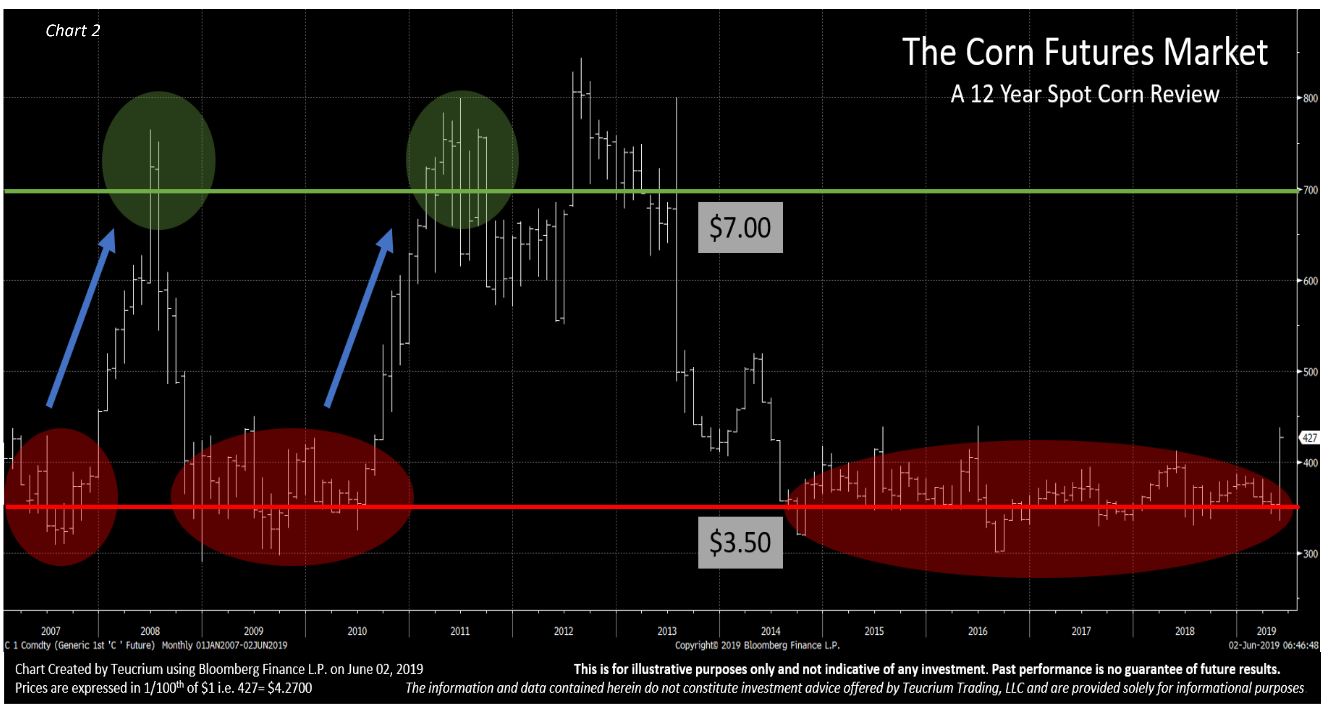
Supplies are inconsistent because crop production is largely dependent on the weather. There have been years where supply expectations do not meet demand expectations. This point is captured on *chart 1* when the green line (supply) touches or dips into the blue bar (demand).

In the past, droughts have been a catalyst for reduced production expectations. This year however, the US corn belt has suffered too much rain, delaying or preventing farmers from planting and giving rise to production and quality concerns. Looking at *chart* 1 you can see that once again the USDA is projecting that supplies may not keep pace with demand and therefore the green line is dipping into the blue bar.

Prices

Year to date spot[3] corn prices have risen by nearly 18%[4]. This has occurred as the expectations for production have been revised lower to account for the impacts of unfavorable (wet) early season weather. The rains and soil moisture have led to delays in planting this year.

As of June 9th, only 83% of expected corn acres had been planted versus the 5 – year average of 99%[5]. It is not yet known how many acres will be planted this crop year, and the USDA is projecting that the production (yield) per acre will be the lowest in 6 years. Note that on *chart 2* that the price pattern for corn aligns with the data on *chart 1.* Corn prices have moved higher when the green line has dipped into the blue line (see 2007-2008, 2010-2011, 2011-2012). In fact, spot corn prices have more than doubled twice in the last 12 years from roughly $3.50 per bushel to over $7.00 per bushel.



For this purpose, corn commodity values are representative of the futures (generic first corn futures contract - <C 1 Comdty>) spot continuation chart as defined by and sourced on Bloomberg: Generic contracts, such as C 1, C 2, C 3, ..., are constructed by pasting together "rolling" contracts, according to the pre-selected roll types on the commodity default page. The generic contract uses the value of a particular contract month until it "rolls" to the next month in the series. You can access a generic contract by replacing the month/year code with the number 1, i.e. C 1<CMDTY>. Replacing the month/year code with the number 1 will yield the spot contract."

[3] Spot refers to the nearest expiration and delivery month for futures contracts.
[4] Source Bloomberg Finance LP as of 06/13/2019
[5] Crop Progress Report 06/10/2019 https://www.nass.usda.gov/Publications/Todays_Reports/reports/prog2419.pdf

Corn is King

Corn, wheat and soybeans have similar uses throughout the global economy. Animal feed is the primary global use for corn. Corn is also used to produce ethanol, which is corn's second largest global use. Wheat and soybeans are also used in animal feed and biofuels. The fact that grains, in many cases, may be used interchangeably suggests that as the price of one moves higher, it may increase the demand for the others.

Continued supply concerns and the potential for higher corn prices may lead to increased expectations for the price of wheat and soybeans as well. In fact, in the June World Agricultural Supply and Demand Report (WASDE) the USDA lowered their expected corn production and increased their expected average price per bushel for wheat and soybeans by 8.5% and 1.8% respectively.[6] We believe that prices will continue to be volatile as the growing season unfolds. To be certain, favorable weather, higher yields and other factors could have a negative impact on prices.

Summary

Imbalances in supply and demand tend to result in price volatility. Over the last 43 years demand for grains has risen steadily whereas supply has not always met demand in some years. The USDA expects record global demand for corn, wheat and soybeans this year. Grain supplies are heavily dependent on weather and already this year weather has caused the USDA to lower their expected production figures for corn.

Corn prices have risen in years where the green line dips into the blue bars on *chart 1.* Actual corn production will depend on the total number of acres planted and the health of the crop moving forward.

The USDA is projecting the lowest corn yield per acre in 6 years. Weather will continue to be a key driver. Grains have similar uses throughout the global economy and in some cases may be interchangeable. The price of one may therefore be expected to have an impact on the price of another.

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- The Teucrium Soybean Fund (NYSE: SOYB) – provides exposure to soybean futures
- The Teucrium Wheat Fund (NYSE: WEAT) – provides exposure to wheat futures
- The Teucrium Sugar Fund (NYSE: CANE) – provides exposure to sugar futures
- The Teucrium Agricultural Fund (NYSE: TAGS) – provides exposure to four core agricultural commodities futures, namely, corn, soybeans, wheat, and sugar

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[6] World Agricultural Supply and Demand Estimate 06/11/2019 https://www.usda.gov/oce/commodity/wasde/wasde0619.pdf

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