The „big picture“ and current developments on agricultural markets

Ag Machinery International, AgriTechnica Hannover, November 13, 2019
Characteristics of the drivers of change in food systems

- Fast-moving
  - Market speculation
  - Climate variability and weather shocks
- Slow-moving
  - Trade restrictions
  - Monetary appreciation/devaluation
- Long-term
  - Biofuels policies
  - Growth in cereal and meat demand
  - Yield growth/agricultural productivity
  - Climate change

Quelle: FAO, 2011, Looking ahead in world food and agriculture: Perspectives to 2050, Commerzbank Research
Real agricultural prices tend to follow a declining trend over the long run

However, there are periods of high volatility and commodity-specific short-term rebounds (due e.g. to harvest failures or demand shocks).

**Long-term evolution of commodity prices, in real terms**
Demand side: Important drivers…

• Per-capita income
• Population growth
• Change in diets
• Biofuels (probably less so in the future)

… but the global economy is not supportive at the moment

• Downward corrections in world economic growth (e.g. by IMF in October 2019)
• Momentum in manufacturing activity, in particular, has weakened
• Rising trade and geopolitical tensions have increased uncertainty
• Global growth is forecast at 3.0 percent for 2019, its lowest level since 2008–09.

Source: FAO/OECD, Agricultural Outlook 2019-2028, IMF WEO October 2019, Commerzbank Research
Supply side: Growth in area, growth in yield…

Most of growth in area will probably take place by cropping intensification (double cropping, e.g. soybeans in Latin America and oilseeds in Oceania)

Growth in crop production 2016/18 to 2028

Source: FAO/OECD, Agricultural Outlook 2019-2028, Commerzbank Research
Supply side: Production is highly divers with respect to regional distribution...

Distribution of production of key food commodity groups by farm size

Source: Herrero et al., Farming and the geography of nutrient production for human use: a transdisciplinary analysis, 2017, Commerzbank Research
Supply side: .... and farm size...

Production of key food groups by farm size

Source: Herrero et al., Farming and the geography of nutrient production for human use: a transdisciplinary analysis, 2017, Commerzbank Research
... will (hopefully) lead to growth in output large enough to cover demand

Decrease in global corn stocks and SUR entirely due to China, stagnant in rest of world

Source: FAO/OECD, Agricultural Outlook 2019-2028, Commerzbank Research
Climate extremes influence agricultural commodity markets

- Projections typically assume average agroclimatic conditions.
- However: Extreme climate events will likely occur more frequently and last longer in many areas.
- In some key wheat exporters (Australia, Kazakhstan, Russia, Canada, and some EU countries), yields show particularly high sensitivity to heat and water stress.

Coefficients (dots within bars) show the average relative response of regional yields to a marginal increase in the corresponding Combined Stress Index (CSI). Bar shades represent 50%, 90%, and 95% confidence intervals around the point estimates. Red lines show the multi-country mean response from two pooled models. CSI Combined Stress Index: is a composite index that attributes yield anomalies (deviations from a baseline Trend) to climatic stress throughout the period 1980–2010. The CSI is based two other indices, a temperature-anomaly index (heat stress) and a soil-moisture index that quantifies persistent water stress on average national yields. CSI coefficients have the expected negative sign: positive (negative) CSI values are associated with a decrease (increase) in average national yields, ceteris paribus.

Source: Thomas Chatzopoulos, et al., Weather and Climate Extremes, EC JRC 2019, Commerzbank Research
This leads to significant differences in crop prices compared to an “average” situation

- The response of global wheat stocks-to-use ratios and prices stands out in the case of Russia (reasons: relatively high average sensitivity to weather extremes and large export volumes)
- Extreme weather events in Australia, Canada and other countries also have global impacts.

Bubbles show how regional extreme events may affect global markets (e.g., extremely unfavorable conditions for wheat production in Russia would lead the world price to rise by about 10% and the global stock-to-use ratio to drop to about 0.320).

Source: Thomas Chatzopoulos, et al., Weather and Climate Extremes, EC JRC 2019, Commerzbank Research
Let’s take Australia as an example…

- Huge drop in wheat production over the last years due to drought.
- Share in global wheat exports dropped from 12% in 2016/17 to 5% now.
- One main policy objective: increase the agricultural sector’s resilience to drought.

Source: Abares, Commerzbank Research
Expectations also drive prices ....

Source: USDA, Bloomberg, Commerzbank Research
... as do exchange rates ...

US Dollar has significant influence on commodity prices

Source: Barron's, S&P, Bloomberg, Commerzbank Research
... and the positioning of short-term oriented market participants

Source: CFTC, Commerzbank Research
Production growth went hand in hand with even stronger trade growth

Developments in agricultural markets and policies since 2001 (percent change)

Source: OECD, Agricultural trade and domestic policy reform: better together, Jan 2019, Commerzbank Research
However, global trade growth has halted and the world is divided into regional trade blocs

- The 2008/09 financial crisis marked the beginning of a phase of de-globalisation.
- Reasons: Protectionism is en vogue, regional trade on the rise, producers shorten value chains in reaction to higher uncertainty in international relations.
Trade coverage of import-restrictive measures implemented near record high

Source: WTO, WTS July 2019, Commerzbank Research
US – China trade dispute the main topic: Soybeans of major importance

Top U.S. agricultural export destinations, 2016, in billion USD

Source: USDA, PantherMedia, Commerzbank Research
US – China trade dispute: Soybeans of major importance (2)

Source: USDA, PantherMedia, Commerzbank Research

LME industrial metals index, left
Soybean price CBOT in USd per bushel, right

beginning of trade conflict
China increasing purchases as a gesture of good will. Uncertainty surrounding the October "Phase-one trade deal": (How) will Chinese ags imports from US reach a magnitude of up to 50 billion USD (twice the pre-trade war amount)?
FAO: „Climate change is increasingly affecting yields…”

Yield changes 2012/2050 due to climate change and technical progress (rainfed systems)

Source: FAO, 2018: The Future of food and agriculture. Alternative pathways to 2050, p. 81, Commerzbank Research
FAO: „...while agriculture continues to emit greenhouse gases (GHGs)”

OECD: agriculture contributed approximately 12% of anthropogenic greenhouse gas emissions over the period 2007 to 2016 and was responsible for an additional 9% of global GHG emissions each year from changes in land use.

Agricultural GHG emissions (2020, in MtCO2eq)

- CO2 fuel, 288
- N2O other, 347
- CH4 livestock, 2849
- N2O livestock, 1424
- CH4 other, 960
- N2O fertilizer, 807
- CH4 rice, 588

N2O = Nitrous oxide (laughing gas)
CO2 = Carbon dioxide
CH4 = Methane

Source: OECD, Enhancing climate change mitigation through agriculture, Oct 2019, Commerzbank Research
Regional differences in total GHG emissions from agriculture (MtCO$_2$eq)

Source: OECD, Enhancing climate change mitigation through agriculture, 2019, Commerzbank Research
Enhancing climate change mitigation through agriculture

OECD analysed several scenarios on a global level. While comparability across scenarios is limited, they conclude, that…

• **Benefits are highest** from the scenario „Influencing consumer preferences“ (a preference shift towards less ruminant products), but difficult to achieve.

• **Consumption taxes** are the **least effective**, especially when decoupled from the actual carbon produced.

• Supply side **carbon tax has a high potential** to reduce emissions from agriculture. However, global approach is needed to avoid carbon leakage.

• **Increasing productivity** could potentially reduce emissions, increase food availability and improved access via lower prices.

*Source: OECD, Enhancing climate change mitigation through agriculture, Oct 2019, Commerzbank Commodity Research*
Summary: The challenge is …

• … to increase agricultural production to cover demand while at the same time
• … make production systems more resource-saving and climate-friendly.

... and agricultural machinery will play a vital role in this process

• FAO 2019: “The digital revolution has thrust the agricultural machinery industry into a central position in the inputs sector…Intelligent machinery, drones, sensors and smart apps … will shift the focus … to services whose value lies in increasing the efficiency rather than the volume of inputs.”

Thank you for your attention.
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Appendix
Wheat prices in Chicago and Paris largely in sync

Source: Bloomberg, Commerzbank Research
Plenty of wheat on the global market

Global wheat stocks record high
End-of-season stocks in million tons

Russia winning export share at the expense of USA and EU
Share in global wheat exports

Source: USDA, Bloomberg, Commerzbank Research
Global corn market getting tighter, US crop revised downward

Global corn stocks have been shrinking for 3 years
End-of-season stocks in million tons

US corn crop smaller than last year and smaller than expected
USDA forecasts for 2019/20, in billion bushels and bushels per acres

Quelle: USDA, Bloomberg, Commerzbank Research
Russia

As previously, the State Programme is focused on increasing investments in agriculture and downstream industries and providing production stimulus to import competing sectors. The ban on agro-food imports from a number of countries imposed in 2014 was extended until end-2020.

On the export policy side, export development is a new policy priority (not only grain and oilseeds, but also pork and poultry meat). Russia wants to become a “global player”. The Chinese market is regarded as one of the key destinations for export development.

Strong increase in wheat exports was supported by big harvests led by yield increases and the steep depreciation of the ruble in 2014/15 after liberalisation of the currency regime. Difficulties going forward: huge distances (production potential > export potential).
Estimated paths of net trade in the „Business as Usual“ (yellow) and „Towards sustainability“ (green) scenarios

Source: FAO, 2018: The Future of food and agriculture. Alternative pathways to 2050, p. 81, Commerzbank Research