Document Number 2: Research Thesis Outline

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Subject or Field

Who Does What in the Corn Market: A Case on Financialization

This research project is located within broader research on the propagation to energy markets of agricultural commodities price change. The research is realized in collaboration with the Collège de France, within the Modeling Agricultural TransitionS (MATS) project.

Before addressing climate impact, it is crucial to better understand the commodity itself and its informational content.

Research Question

Who are the main players in the corn market, and how does financialization influence the behavior of corn futures prices?

Context and Literature Perspective

We can observe from the Commitment of Traders (COT) reports that there are several categories of participants in the commodity market: hedgers, speculators, small traders, and within speculators, spread traders. Spread traders engage in simultaneous trades across different maturities.

Spread trading has increased dramatically in oil markets, where it is easily identifiable. However, it is more complicated to observe in the corn market due to the unique characteristics of corn futures contracts.

The case of this research is to better understand how future markets behave in the case of corn, given the particularities of the grain. In the corn market, maturities do not exist for every month, and there is a seasonal pattern due to crop cycles. Corn futures have only five delivery months: March, May, July, September and December. September contracts also experience low trading volume as traders wait for the more liquid December contracts (Garcia et al., 2017).

This irregularity in maturities complicates time-series analysis. For instance, there are jumps in the time series: in one month we can go from 60 to 1 day to maturity and the day after we would get to 90

days.

To address this challenge, we will focus on analyzing individual contract prices up to maturity to understand the market behavior, instead of looking at it using continuous time.

Assumptions

- The corn market is influenced by both fundamental factors (such as crop cycles) and financial factors (such as financialization).
- The aggregation of data in COT reports across maturities presents challenges in identifying the specific maturities where spread trading occurs.

Objectives of the Research Thesis

The objective of this thesis is to analyze the behavior of corn markets and focus on the impact of financialization by studying:

1. The main players in the corn futures market and their roles.
2. The behavior of corn futures prices, with a focus on financialization and the term structure of corn.

Main Phases of the Research Work

1. **Who Does What in the Corn Market**

   This part of the research will focus on identifying the main participants in the corn market by analyzing CFTC daily data and COT reports on grain markets, specifically corn.

   The challenge with COT reports is that the data is aggregated across maturities. As a result, while we can observe spread trading activity, we cannot identify the specific maturities involved. This information will need to be retrieved manually.

2. **Behavior of the Corn Market**

   Starting with a database of daily prices and progressing to high-frequency prices, this phase will involve the analysis of stationarity, cointegration, and principal components, particularly around contract delivery dates.

   A central focus of the research will be the study of financialization and the term structure of corn futures. The research will gather data from the past 20 years to capture periods of increased speculation and analyze the impact of financialization on corn prices.

   Passive investors rolling over their positions in the corn market affect prices around contract maturity. The research will seek to separate price movements caused by crop effects from those caused by financialization.

Skills Required

This research requires: - Strong data analysis skills; - Knowledge of econometric methods, including stationarity, cointegration, and principal component analysis; - An understanding of commodity markets, futures contracts, and financialization.

Research Assistant Project

This research is part of a broader research collaboration with the Collège de France under the Modelling Agricultural Transition project.

References

Cheng, I.-H. and Xiong, W. (2013). The financialization of commodity markets. *SSRN Electronic Journal*, 6.

Fry-McKibbin, R. and McKinnon, K. (2023). The evolution of commodity market financialization: Implications for portfolio diversification. *Journal of Commodity Markets*, 32:100360.

Garcia, P., Hu, Z., Mallory, M., and Serra, T. (2017). Measuring price discovery between nearby and deferred contracts in storable and non-storable commodity futures markets. *Agricultural Economics*, 51.

Janzen, J. and Adjemian, M. (2017). Estimating the location of world wheat price discovery. *American Journal of Agricultural Economics*, 99:1188–1207.

Lautier, D. and Raynaud, F. (2012). Systemic risk in energy derivative markets: A graph-theory analysis. *SSRN Electronic Journal*.

Robe, M. A. and Roberts, J. S. (2019). 20 Years of CFTC Data: Who Holds Positions in Agricultural Futures Markets? 2021 Annual Meeting, August 1-3, Austin, Texas 313995, Agricultural and Applied Economics Association.