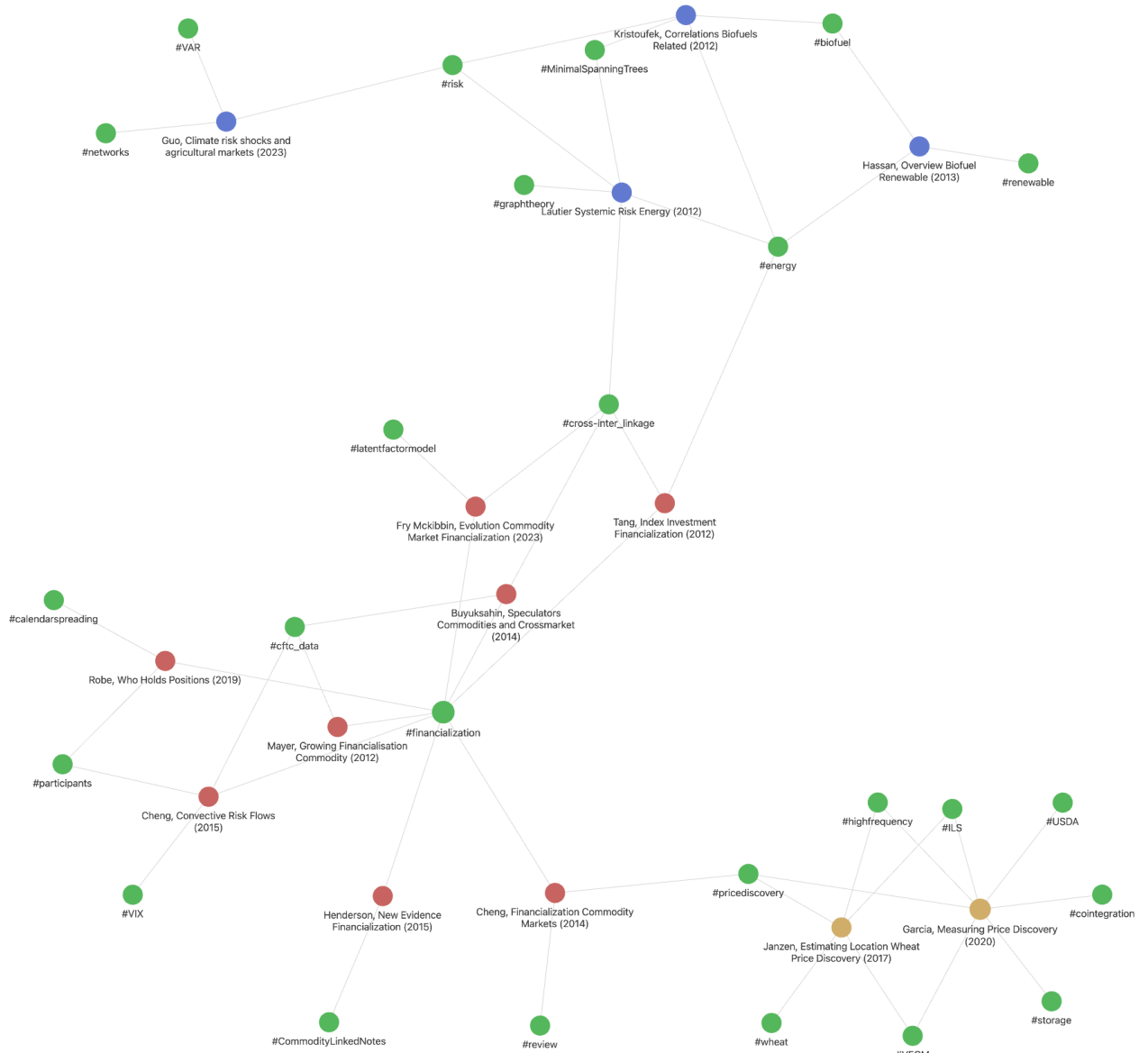# Document Number 3: Literature overview

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1 Who Holds Positions in Agricultural Futures Markets – (Robe, 2019)

1.1 Summary

- **Research Question**: What is the composition and behaviour of market participants in agricultural futures markets, and how do their strategies, particularly calendar spreads, contirbute to overall market activity?

- **Methodology**: Data used is non-public, disaggregated trader-level data for the CFTC between 2015-2018.
  Market participants classified in different categories.
  Focus on calendar spreading and use of correlation analysis to reflect opposing market strategies (speculation vs. hedging). ...

- **Main Results**: Financial players such as hedge funds, commodity index traders, swap dealers oftern exceed those of commerical entities (producers, merchants, and end-users).
  Calendar spreading accounts for more than a third of all agricultural futures large traders positions. This result is found thanks to the use of disaggregated trader-level data from CFTC, while aggregated COT reports would suggest a lower share ("None of these can be inferred from public data").
  Negative correlation between short positions held by hedge funds (speculative) and commerical dealers/merchants (hedge).
  Over 90% of all positions have maturities lower than 1 year.

1.2 Synthesis and Organization

- **Connection with Thesis**: The first part of our thesis focuses on the analysis of the main players in the corn futures market, their roles and behaviour. The article does the same by categorizing market participants in agricultural future markets using disaggregated data from CFTC.
  It highlights spread trading, showing that it is a dominant strategy in agricultural futures markets. The impact of financialization is the key question of our research and the articles by looking at the behavior of financial participants examines the behavior of key drivers of financialization in commodity markets, direclty contributing to understanding how financialization shapes market dynamics and trading strategies.
  It provides a broader contet on agricultural futures market, which is important for the specificity of the corn market in our research.
  Finally, it will be very important in terms of methodology used for the analysis

- **Does it contradict your assumptions?**: Not directly, but it does not put a lot of emphasis on the role of fundamentals, while in our assumptions we want to look at the impact of both fundamentals and financial pariticipants activities. The use of disaggregated CFTC data challenges what I say about the difficulty of catching spread activity because of aggregated data in COT reports.

- **Does it share your assumptions?**: Yes for what it concerns the emphasizing on the role of speculative trading and financialization (index traders), but a little less for looking more into fundamental factors (crop cycles, seasonality). It shares the same assumption on spread trading and we can clearly see the difficulties due to the aggregation of data in COT reports, the authors manage to use disaggreegated CFTC data to better address this

1.3 Critical Reading

- **Strengths**: The use of non-public trader level data from CFTC to identify specific categories. Even though calendar spreads are not the only trading strategy, it provides evidence that it accounts for over a third of future market positions, much higher than what public data suggests. The identification of key players and their behaviour is very important for analyzing for systemic risk for example, which will be key in our research too.

- **Weaknesses**: First of all the limited time period, 2015-2018, events before and after this period, like Crimea annexation in 2014, Covid in 2020 and the invasion of Ukraine by Russia in 2022 are important factors influencing the behavior of the market.

It only looks at calendar spreading, cross commodity spreading could be something interesting to look at too.
Fundamentals such as weather conditions, crop cycles, climate change, which are very important drivers in agricultural commodities are not central enough in the analysis.
Limitation of aggregated data in COT reports, something pretty difficult to address

- **Potential Biases**: The first bias I can think of is the focus on 2015-2018 data, which might not fully capture longer-term trends or shifts in market begaviour. This is especially important when we think of the period that succeeded the publication of the paper, with covid pandemic and geopolitical disruptions. Additionally the paper doesn't consider 2014, a fundamental year in the corn market because of Russia's annexation of Crimea.
  Something interesting could be to look at the possibility of participants being simultaneously engaged in hedging and speculative strategies, falling in both categories.

- **Importance of the Article**: The article is very central for our research since it directly addresses the identification of market participants in agricultural futures market, a first step to then focus on the corn market specifically.

2 Systemic Risk in Energy Derivative Markets: A Graph-Theory Analysis – (Lautier, 2012, 2019)

2.1 Summary

- **Research Question**: How price shocks propagate through the financial system, and how market integration contributes to this propagation. The aim is to understand conditions under which price shocks propagate across markets and analyze the role of energy markets (particularly OIL) in facilitating these connection

- **Methodology**: The study uses graph theory to analyse the integration of derivative markets and the propagation of price shocks. It collects data on 14 derivative markets (energy, agricultur and four financial assets) from 2000 to 2011. In the first part a fully connected graph is used with nodes that represent time series of future prices (daily price's returns) and links representing distances (function of correlation between returns). In a second part a specific type of graph is used: Minimum Spanning Tree (MST) which filters information from the full graph into a unique tree connecting nodes without loops and with the shortest path length (highlights the most relevant connections, representing the easiest path for transmission of price shocks). Finally a three dimensional analysis is used to inregrate both spatial and matuirty dimensions for a hilistic view of market integration.

- **Main Results**: The main finding is that commodity markets have become more integrated over time, with respect to each other and to other financial markets, increasing favourable conditions for systemic risk. \ Energy markets is seen at the heart of the financial system (crude oil in particular), meaning that fluctuations in these markets can have a big impact on other markets.

2.2 Synthesis and Organization

- **Connection with Thesis**: The larger question of our research will be to examine systemic risk, the study of participants and the behaviour of prices in the corn futures market is a step toward the broader research on financialization, systemic risk and climate impact. Understanding the cross-market linkages between commodities and between commodities and other markets is fundamental, as these relationships may be influenced my financialization. The article identifies soy oil as a link between energy (biofuels) and agricultural markets, our study focuses on corn, which is also a key biofuel input (ethanol), so likely connected to energy market dynamics too.

- **Does it contradict your assumptions?**: It doesn't contradict our assumptions, it does not look directly at financialization but states that this surely increased market integration. This is important as it reflects the importance of financial factors in influencing the behaviour of these commodities.

- **Does it share your assumptions?**: It confirms the assumption that financialization affects the behaviour of commodity markets and shows that one of the main effects is the integration between commodities markets and also to other financial markets.

2.3 Critical Reading

- **Strengths**: The novel application of graph theory to explore market integration and systemic risk in financial markets, which is a very interesting and clever way to understand the intricated relationships and connections between different these markets. \ The inclusion of the maturity dimension allows for a more comprehensive understanding of how price shocks propagate across different contract delivery dates (3-D analysis). \The extensive dataset. \The use of MSTs after a fully connected graph provides very interesting insights thanks to a clearer visualisation of the most critical connections within the market. The focus on policy implication is very important, showing how regulators should pay particular attention to central markets, the ones that are most likely to cause systemic risk transmission

- **Weaknesses**: The methods used are incredibly interesting in addressing the question, but they surely are more complex than traditional approaches, posing some challenges for readers. The only thing that comes to the mind is the possible endogeneity coming from unobserved factors that might also influence the propagation of price shocks

- **Potential Biases**: As above, endogeinity might be something to look at, with some unobserved factors that might influence market integration and propagation of price shocks

- **Importance of the Article**: The article focus on systemic risk and market integration is central in the broader picture of our research thesis. Understanding how price shocks propagates across markets is fundamental, given that financialization is central in our analysis, and financialization increases market integration, it is crucial to understand the systemic risk of certain commodities, especially for regulatory boards. \It identifies strong links between energy and agricultural markets, it is very interesting to see the influence of corn and energy to eachother

3 Estimating the Location of World Wheat Price Discovery – (Janzen, 2017

3.1 Summary

- **Research Question**: What is the contribution of different futures markets to the process of price discovery for global wheat prices? The articles finds some insight on whether or not the US futures markets still continues to dominate global wheat price discovery or if European markets (Paris) have gained dominance because of global supply and demand shocks

- **Methodology**: It uses intraday high frequency pricing data and market microstructure economics to estimate the contribution to price discovery.
Vector error correction model (VECM): an econometric model to assess the long-run equilibrium relationship and short term dynamics between multiple time series, in our case long run relationship between futures prices across markets and decompose price movements into permanent (fundamental) and transitory (noise) components.
Price discovery metrics: Hasbrouck's Information Share (IS) measures the proportion of variance in fundamental value of wheat prices that can be attributed to each market. \Component Share (CS): relative contribution of each market to common fundamental value.
Information Leadership Share (ILS), built on the previous two to separate the effect of transitory noise and provide a clearer picture of which market leads in incorporating new information.
Finally something very interesting is that they break down price discovery by specific trading periods (US overnight/daytime and Paris trading hours) to see the influence of these on price discovery.

- **Main Results**: First of all the study confirms the dominance of US Futures Markets in wheat price discovery, but they also find that the share of price discovery for the Paris market have increased a lot after 2010, coinciding with major supply shocks in Russia and Ukraine (e.g. major drought and wheat export ban from Russia). This is because Paris market can more closely track supply and demand conditions in Europe and especially in Ukraine, additionally the larger the global wheat supply and demand originating in this regiorn is correlated to a larger share of price discovery in the Paris market.
On average it finds that Chicago market still generates more than 80% of price discovery (2008-2013).

Time of the day analysis shows that during US overnight session Paris market contributes a higher share of price discovery, while during US daytime session Chicago dominates with a share reaching nearly 90%.

3.2   Synthesis and Organization

- **Connection with Thesis**: The article is particularly connected to the second part of the thesis, where we will look at the behavior of the corn market, when we will seek to separate price movements caused by fundamental effects from those cause by financialization.
  The article also highlights the role of market liquidity in determining price discovery, something that will be important in assessing the behavior of different contract maturities and trading volume in the corn market (as we know December contracts are way more liquid than September for example). The methodological tools used and the high frequency data analysis gives a lot of insights and techniques that we can apply to our research.
  Even though it is centred on wheat, it give a lot of insights on the importance and centrality of the different commodity futures market around the world

- **Does it contradict your assumptions?**: The article focuses on the importance of demand and supply shocks (fundamental factors) in price discovery of wheat markets, but it does not look at other factors such as financialization, in our assumption both are very important in influencing corn market.

- **Does it share your assumptions?**: as above

3.3   Critical Reading

- **Strengths**: The use of minute level high frequency data allowing for more precise analysis of how markets respond to new information.
  The use of several metrics and robustness chacks by also comparing different US markets, the analysis of different trading volumes and different trading hours

- **Weaknesses**: Something important in our research is to disentagle fundamental factors from financial factors, the article does not consider financial factors in the analysis, but these can have a big impact on price discovery.
  The specific time period used catches supply shocks in 2010, we now know that starting in 2014 these global supply shocks happening in the European region have increased massively, probably further increasing the importance of the Paris market in futures price discovery.
  Something mentioned by the author is that the Component Share metric is less reliable in cases of unequal trading activities, leading to misinterpretation. When comparing markets with different levels of trading activities, CS may attribute a large share of price discovery to a market simply because it exhibits low level of transitory noise, even though prices in another market may incorporate new information more quickly.

- **Potential Biases**: Similar to what we said above, in terms of data limitations the authors aknowledge that there is no definitive test for the correct sampling frequency, even though minute level seems quite good to my knowledge, higher frequencies might be even better at catching price movements. As above, an important bias might arise with the use of Component Share measure, additionally an omitted variable problem might arise from the bivariate comparision for the ILS. Differences in market structure or participant behaviour might influence price discovery in ways not fully captured by the metrics used.

- **Importance of the Article**: The research is important to our research as it shows how price discovery is measured and the importance of fundamentals shocks in increasing or deceasing the share of importance of different markets around the world. Even though the article focuses on wheat, the methodologies and findings can be directly applied to corn, given theshared characteristics of agricultural commodities.

4 Measuring price discovery between nearby and deferred contracts in storable and nonstorable commodity futures markets – (Garcia, 2020)

4.1 Summary

- **Research Question**: What is the contribution of price discovery between nearby and deferred contracts in the corn (storable) and live cattle futures market (non-storable)? Where along the curve prices adjust first to new information and which factors influence the dominance of price discovery between nearby and deferred contracts?

- **Methodology**: The authors use high-frequency data to capture real time dynamics and catch rapid shifts in price discovery leadership. The data is aggregated to one second frequency and uses the first transaction within the each second, or the most recent information if we no have transaction in that second.
  It uses five nearby contracts for corn and four for live cattle and they refer to them as nearby, deferred 1, 2, ... It is defined as nearby from the business dat after the previous nearby contract expires.
  As a measure of price discovery it applies Putnins 2013 Information Leadership Share (ILS) to quantify the proportion of contribution of each contract price to overall price discovery. To estimate this a Vector Error Correction Model (VECM) is used.
  After that a regression analysis is performed, including several factors potentially affecting leadership: trading volume, time to expiration, backwardation, USDA reports, market crashes.

- **Main Results**: Nearby dominance in corn (storable), the nearby contract usually leads in price discovery until 2-3 weeks before expiration. This aligns with the theory that deferred prices follow the nearby contract except in conditions where we have low inventories and backwardation. In fact, in the case of backwardation, we can see deferred contracts playing a bigger role than nearby. For non storable commodities, such as live cattle, there is less dominance of nearby contracts, with the switch in price leadership happening 5 to 6 weeks before expiration.
  This is important as it shows how non-storability weakens the inter-maturity linkage. It is indeed in line with older theories (Working), with storable commodities having stronger linkages between nearby and deferred contracts.
  Across both markets trading volume is the most influential factor in explaining shifts in price discovery leadership. Once volume moves from nearby to the deferred one, deferred takes over integrating faster new information into price.

4.2 Synthesis and Organization

- **Connection with Thesis**: It doesn't directly look at the participants in the market or the impact of financialization, but it provides important information about price discovery, showing the significance of contract maturity and liquidity in shaping price dynamics. This is fundamental for understanding speculative and hedging activities in corn. For example, as we see that volume shifts 2/3 weeks before expiration, we can suppose that financial players might roll earlier, influencing price discovery shifts.
  It is interesting to use USDA announcements, something that we can also use to see when major news events lead to changes in trading volume and price dynamics.

- **Does it contradict your assumptions?**:

- **Does it share your assumptions?**: By considering several factors affecting nearby and deferred contract lead in price discovery, such as volume, time to expiration, USDA announcements, they show that fundamentals matter and aknowledge that trading behaviour of market participants also shape which contract dominates.

4.3 Critical Reading

- **Strengths**: The use of high frequency intraday data and the use of Information Leadership Share method to catch price discovery which is specifically designed for this type of data.

The comparative analysis of storable and non storable commodites and the use of different factors affecting the share of price discovery in slightly different ways between the two.

- **Weaknesses**: Does not consider more specifically the impact of different financial operators in the market and so the impact of financialization in this, it would be interesting how financialization has impacted the price discovery mechanism. In the same reasoning, the switch towards electronic trading in the same period might have impacted price discovery, as reported by the authors, though they do not explore this.

- **Potential Biases**: As it is true for most research on price discovery, the focus on the pair nearby/deferred contracts could lead to bias by not capturing the full complexity of price discovery, given that multiple contracts are traded simultaneously

- **Importance of the Article**: The findings about when and why the nearby contract loses its dominance (when its volume share dips below 50%) have direct relevance to traders and hedgers who need to decide when to roll contracts, this is very important in our understanding of market participants, their behaviour and their impact on commodity prices.

5 The evolution of commodity market financialization: Implications for portfolio diversification – (Fry McKibbin, 2023)

5.1 Summary

- **Research Question**: How has financialization of commodity markets evolved in time and changed the role of commodities as an asset class, how these changes impact the effectiveness of commodities as a tool for diversification in investment portfolios, given the increased interdependence between commoditidies and other financial assets and between commodities themselves

- **Methodology**: It uses a latent factor model to analyse the interactions between commodity, currency and equity markets. The model is estimated over three periods: pre-financialization (1992-2003), financialization (2004-2013) and de-financialization (2014-2020).
  The data includes the return of global commodities indices (agricultural, food, metals, oil), nominal exchange rates, from IMF, and country specific equity prices indices from Morgan Stanley Capital International (MSCI).
  The laten factor model decomposes each return series into: Common factor (affects all returns across commodities, currencies and equities, so market wide shocks and trends); joint asset class factors (commodity-currency, commodity-equity, currency-equity, to detect comuvement specific to pairs of asset classes), Idiosyncratic factors (each individual series, like particular commodity).

- **Main Results**: There is a stronger integration over time, with increased market interdependence both across commodities and between commodities, equities, and currencies, reducing commodities traditional diversification advantages. This continues also during de-financialization period, contrary to what some literature suggests.
  Something very interesting is the difference found between commodity exporting and benchmark countries, with commodity exporters (Australia, Canada, New Zealand, Norway showing more pronounced interdependence between commodity returns and both currency and equity (OIL in particular shows persistent and strong integration with equity and currency returns.
  In contrast with some literature suggesting a de-financialization era, the articles shows that certain crisis episodes temporarely distort correlations, misleadingly suggesting de-financialization, once accounting for these turmoil periods the overall trend remains sustained and increasing commodity market integration with other asset classes.

5.2 Synthesis and Organization

- **Connection with Thesis**: The article shows that commodity markets have become more integrated with global financial markets over time, as our other key references also suggest, supporting the idea that corn, like other commodities is susceptible to non-fundamental factors.

It uses latent factor model to disentangle components driving returns, similar modelling perspective to detect whether corn prices are being influenced by financial markets or corn specific supply demand fundamentals (idiosyncratic factor)

- **Does it contradict your assumptions?**: The paper does not contradict our assumptions, it enhances and brings more knowledge around our questions on the impact of financialization

- **Does it share your assumptions?**: The article shows that as financial participation in commodity increases, commodity spot prices have become more correlated with equity and currency, emphasizing our assumption that not only fundamentals are important in the analysis of the behaviour of commodity markets, but also, and increasingly more, financial drivers.

5.3 Critical Reading

- **Strengths**: The sample used is very large, from 1992 to 2020, capturing three distinct eras, making the study very important in comparing how market correlation evolves over time depending on the level of financialization.
The use of a Latent Factor Model decomposing returns driven by different factors.
It makes a distinction between commodity exporting and other benchmark economies and it controls for global turmoil episodes, which I find fundamental, especially as it shows that de-financialization signals often reflect crisis-driven distortion.
It applies some robustness checks to find whether shifts in correlation are persistent trends or temporarily driven by major shocks.

- **Weaknesses**: By looking at spot returns it does not address how futures positions and term structures evolve, they indeed aknowledge that financialization actually originates in future markets. The use of IMF data shows the paper's broad macro level approach to the link between currency, equity and commodity, but this doesn't tell us about market participants and how they may drive these co-movements

- **Potential Biases**: We can think of some selection bias in the choice of countries. For example for what it concerns commodity-currency, other important commodity-exporting nations in emerging markets are not included. We may also think of some overgeneralized inferences when concedering commodity indexes instead of more specific commodities.
Finally something quite natural is the use of factors. In our research we also consider fundamental variables, here the authors do not explicitly model supply/demand shocks, technological changes (shale), or policy shift.

- **Importance of the Article**: The article is important to understand on a macro-level the context of financialization. The study supports the significance of financialization on commodity prices, which is what we will try to catch in the specific case of corn.

6 Financialization of Commodity Markets – (Cheng, 2014)

6.1 Summary

- **Research Question**: Does financialization distoret commodity prices? He

- **Methodology**: The article doesn't present a single study with a specific methodology, but a review of existing articles on financialization of commodity markets.
Some methods used in the literature are correlation and Granger Causality Tests to look at the relationship between financial investors trading and futures prices (although it points out issues due to simultaneity bias). Another cited method is the Structural Vector Autoregressions (VAR) to analyze the relation between commodity production, inventory, and prices, to determine the impact of speculation on spot prices.

- **Main Results**: It argues that "financialization has significantly changed commodity markets" through its impact on risk sharing and information discovery. On risk sharing the authors argue that financialization mitigate hedgin pressure by bringing more investors to the long side (lower risk premia to attract speculators), additionally, it brings up studies that show how commodity futures

markets have become more integrated, we see increased correlations between different commodities (particularly when popular in CFI) and between commodities and stock.

It brings up the role of informational frictions and price distorsion, pointing that financial investors can cause futures prices to deviate from fundamental values (example of price boom of 2008, informational frictions, producers mistaking future price increase as sign of economic growth when it was actually noise).

All trader groups, engage in speculation.

The informational role of prices means that demand may increase with price due to the signal that a higher price sends to producers about future economic strength.

6.2   Synthesis and Organization

- **Connection with Thesis**: It provides a broad overview of how financialization has transformed commodity markets and how it has been analysed in the literature. It discusses spillover effects of financialization on price behavior, highlights how index funds and speculative trading can distort traditional price discovery mechanism

- **Does it contradict your assumptions?**: It does not contradict our assumptions directly, given that it provides a literature overview on the subject

- **Does it share your assumptions?**: It shares the assumption that financialization has influenced the corn market, the behavior of market participants and price dynamics. \We find again the issue and limitation of publicly available sources like the aggregated data from the COT reports

6.3   Critical Reading

- **Strengths**: It provides a broad review of the finaincialization of commodity markets (causes, mechanisms and impacts). It is also interesting that they look into multiple commodity markets and not just one

- **Weaknesses**: Maybe some simplification of some theories?

- **Potential Biases**: Given that it is a review I will report here the biases cited as being present in research on the financialization of commodity markets:
  Simultaneity bias when analysing the impact of CITs on commodity prices, when treating CIT position as exogenous, correlation with price changes are likely downward-biased estimates of price impacts (difficult to determine wether price changes are causing changes in CIT positions or vice-versa.
  Exogeneity bias: when we assume position of one group of traders is independent of other market participants, many studies assume hedger positions are fixed and all varaition in speculative indices are driven by speculators, but changes in one group are often mirrored by changes in another group's position.
  Classification bias: when we classify all participants into hedgers and speculators assuming that all trading by hedgers is hedging and all trading by speculators is speculation.
  Aggrregation bias: when using aggregated data such as the COT report, it hides important differences inside the broad categories.

- **Importance of the Article**: Wide overview of financialization and of how it has been reviewed in the literature up to 2014. It is very important as a starting point to see how other authors have addressed the question of how financialization has impacted commodity prices. It provides with a lot of insight into methodological challenges and it synthetises some key empirical findings.

References

Büyükşahin, Bahattin and Michel A. Robe (Apr. 2014). "Speculators, Commodities and Cross-Market Linkages". In: *Journal of International Money and Finance* 42, pp. 38–70. ISSN: 02615606. DOI: 10.1016/j.jimonfin.2013.08.004. URL: https://linkinghub.elsevier.com/retrieve/pii/S026156061300106X

Abstract: We use a unique, non-public dataset of trader positions in 17 U.S. commodity futures markets to provide novel evidence on those markets' financialization in the past decade. We then show that the correlation between the rates of return on investible commodity and equity indices rises amid greater participation by speculators generally, hedge funds especially, and hedge funds that hold positions in both equity and commodity futures markets in particular. We find no such relationship for commodity swap dealers, including index traders (CITs). The predictive power of hedge fund positions is weaker in periods of generalized financial market stress. Our results support the notion that who trades helps predict the joint distribution of commodity and equity returns. We find qualitatively similar but statistically weaker results using a proxy for hedge fund activity based on publicly available data.

Cheng, Ing-Haw, Andrei Kirilenko, and Wei Xiong (Aug. 1, 2015). "Convective Risk Flows in Commodity Futures Markets*". In: *Review of Finance* 19.5, pp. 1733–1781. ISSN: 1573-692X, 1572-3097. DOI: 10.1093/rof/rfu043. URL: https://academic.oup.com/rof/article/19/5/1733/1587821

Abstract: We study the joint responses of commodity future prices and positions of various trader groups to changes of the CBOE Volatility Index (VIX) before and after the recent financial crisis. Financial traders reduced their net long positions during the crisis in response to market distress, whereas hedgers facilitated this by reducing their net short positions as prices fell. This "convective risk flow" induced by the greater distress of financial institutions led to a change in the allocation of risk with hedgers holding more risk than they did previously. The presence of such a risk flow confirms the market impact of financial traders conditional on trades they initiate.

Cheng, Ing-Haw and Wei Xiong (Dec. 1, 2014). "Financialization of Commodity Markets". In: *Annual Review of Financial Economics* 6.1, pp. 419–441. ISSN: 1941-1367, 1941-1375. DOI: 10.1146/annurev-financial-110613-034432. URL: https://www.annualreviews.org/doi/10.1146/annurev-financial-110613-034432

Abstract: The large inflow of investment capital to commodity futures markets in the past decade has generated a heated debate about whether financialization distorts commodity prices. Rather than focusing on the opposing views concerning whether investment flows caused a price bubble, we critically review academic studies through the perspective of how financial investors affect risk sharing and information discovery in commodity markets. We argue that financialization has substantially changed commodity markets through these mechanisms.

Fry-McKibbin, Renée and Kate McKinnon (Dec. 2023). "The Evolution of Commodity Market Financialization: Implications for Portfolio Diversification". In: *Journal of Commodity Markets* 32, p. 100360. ISSN: 24058513. DOI: 10.1016/j.jcomm.2023.100360. URL: https://linkinghub.elsevier.com/retrieve/pii/S2405851323000508

Abstract: The financialization of commodity markets is a well-documented phenomenon spurred by the massive growth of institutional funds directed into commodity indices from the mid-2000s. More recent research suggests that a subsequent era of de-financialization has coincided with the retreat of institutional investors. This paper uses a latent factor model to examine the dynamic impact of commodity market financialization on spot currency, commodity and equity market linkages, focusing on countries with 'commodity currencies'. The financialization period is characterized by increased interdependence of non-oil and oil commodity markets with each other and with other asset markets, implying reduced diversification potential. We find that commodity markets have become more highly interconnected with currency and equity markets of the large commodity exporters over the most recent sub-sample. We suggest that apparent de-financialization may be attributable to contagion effects from global crisis events, including the Great Recession and the European Debt Crisis of 2012.

Guo, Kun et al. (Dec. 2023). "How Are Climate Risk Shocks Connected to Agricultural Markets?" In: *Journal of Commodity Markets* 32, p. 100367. ISSN: 24058513. DOI: 10.1016/j.jcomm.2023.100367. URL: https://linkinghub.elsevier.com/retrieve/pii/S2405851323000570

Abstract: In the climate-sensitive agricultural sector, product prices are particularly susceptible to climate risks. In this study, we constructed three novel climate risk perception indices—a climate policy uncertainty index, a climate physical risk index, and a climate concern index—using natural language processing and text mining to investigate their differential effects on bulk agricultural prices. The findings indicate that the responses of agricultural product prices to climate risk perceptions are more pronounced in the short term than in the long term. Moreover, the impacts of climate-related concerns and physical risks have stronger impacts than climate policy uncertainty. The dynamic analysis results also indicate that climate-related events have a great impact on investors and financial markets. Overall, the findings suggest that climate risk perceptions have become a significant factor in agricultural product price changes, which has important implications for policy regulators and market investors.

Hassan, Masjuki Hj. and Md. Abul Kalam (2013). "An Overview of Biofuel as a Renewable Energy Source: Development and Challenges". In: *Procedia Engineering* 56, pp. 39–53. ISSN: 18777058. DOI: 10.1016/j.proeng.2013.03.087. URL: https://linkinghub.elsevier.com/retrieve/pii/S1877705813004414

Abstract: Depletion of petroleum derived fuel and environmental concern has promoted to look over the biofuel as an alternative fuel sources. But a complete substitution of petroleum derived fuels by biofuel is impossible from the production capacity and engine compatibility point of view. Yet, marginal replacement of diesel by biofuel can prolong the depletion of petroleum resources and abate the radical climate change caused by automotive pollutants. Energy security and climate change are the two major driving forces for worldwide biofuel development which also have the potential to stimulate the agro-industry. Nonetheless, there are other problems associated with biofuel usage such as automotive engine compatibility in long term operation and also food security issues that stem from biofuel production from food-grade oil-seeds. Moreover, severe corrosion, carbon deposition and wearing of engine parts of the fuel supply system components are also caused by biodiesel. Discussing all this advantages and disadvantages of biodiesel, it is comprehended that, a dedicated biodiesel engine is the ultimate solution for commercializing biodiesel. Brazil successfully boosted their bioethanol marketing by introducing flexible-fuel vehicles (FFV), which have a dedicated engine for both ethanol and gasoline. A similar approach can bring a breakthrough in biofuel commercialization and production. So dedicated biofuel engine is a challenge for mass commercialization and utilization of biofuel. In this lecture worldwide biofuel scenario is assessed by biofuel policies and standards. Different biofuel processing techniques are also summarized. Some guidelines on dedicated biofuel engine are prescribed. Minor modifications on the engine may not cost much; but continuous research and development is still needed.

Henderson, Brian J., Neil D. Pearson, and Li Wang (May 1, 2015). "New Evidence on the Financialization of Commodity Markets". In: *The Review of Financial Studies* 28.5, pp. 1285–1311. ISSN: 1465-7368, 0893-9454. DOI: 10.1093/rfs/hhu091. URL: https://academic.oup.com/rfs/article/28/5/1285/1867225

Abstract: This paper uses a novel dataset of commodity-linked notes (CLNs) to examine the impact of the flows of financial investors on commodity futures prices. Investor flows into and out of CLNs are passed to and withdrawn from the futures markets via issuers' trades to hedge their CLN liabilities. The flows are not based on information about futures price movements but nonetheless cause increases and decreases in commodity futures prices when they are passed through to and withdrawn from the futures markets. These finding are consistent with the hypothesis that non-information-based financial investments have important impacts on commodity prices.

Hu, Zhepeng et al. (Nov. 2020). "Measuring Price Discovery between Nearby and Deferred Contracts in Storable and Nonstorable Commodity Futures Markets". In: *Agricultural Economics* 51.6, pp. 825–840. ISSN: 0169-5150, 1574-0862. DOI: 10.1111/agec.12594. URL: https://onlinelibrary.wiley.com/doi/10.1111/agec.12594

Abstract: Futures market contracts with varying maturities are traded concurrently and the speed at which they process information is of value in understanding the pricing discovery process. Using price discovery measures, including Putniņš' (2013) information leadership share and intraday data, we quantify the proportional contribution of price discovery between nearby and deferred contracts in the corn and live cattle futures markets. Price discovery is more systematic in the corn than in the live cattle market. On average, nearby contracts lead all deferred contracts in price discovery in the corn market, but have a relatively less dominant role in the live cattle market. In both markets, the nearby contract loses dominance when its relative volume share dips below 50%, which occurs about 2-3 weeks before expiration in corn and 5-6 weeks before expiration in live cattle. Regression results indicate that the share of price discovery is most closely linked to trading volume but is also affected, to far less degree, by time to expiration, backwardation, USDA announcements and market crashes. The effects of these other factors vary between the markets which likely reflect the difference in storability as well as other market-related characteristics.

Janzen, Joseph P. and Michael K. Adjemian (Oct. 2017). "Estimating the Location of World Wheat Price Discovery". In: *American Journal of Agricultural Economics* 99.5, pp. 1188–1207. ISSN: 0002-9092, 1467-8276. DOI: 10.1093/ajae/aax046. URL: https://onlinelibrary.wiley.com/doi/10.1093/ajae/aax046

Abstract: The United States may be losing its leadership role in the world wheat market. Rising trading volume in foreign futures markets and shifting shares of world trade are suggested as evidence of this shift, but neither necessitates that futures markets in the United States are any less important for wheat price discovery. This paper applies high frequency pricing data and market microstructure methods, including the Yan and Zivot (2010) information leadership share, to estimate the proportion of price discovery occurring in wheat futures markets associated with Chicago, Kansas City, Minneapolis, and Paris. We find United States futures markets remain dominant, although the share of price discovery for the Paris market increased noticeably in 2010, coinciding with major supply shocks in Russia and Ukraine. Prior to August 2010, 91% of information about the common fundamental value of wheat was first revealed in United States futures markets in an average month. After August 2010, this share dropped to 75%.

Kristoufek, Ladislav, Karel Janda, and David Zilberman (Sept. 1, 2012). "Correlations between Biofuels and Related Commodities before and during the Food Crisis: A Taxonomy Perspective".

In: *Energy Economics* 34.5, pp. 1380–1391. ISSN: 0140-9883. DOI: `10.1016/j.eneco.2012.06.016`. URL: `https://www.sciencedirect.com/science/article/pii/S0140988312001259`

Abstract: In this paper, we analyze the relationships between the prices of biodiesel, ethanol and related fuels and agricultural commodities with a use of minimal spanning trees and hierarchical trees. To distinguish between short-term and medium-term effects, we construct these trees for different frequencies (weekly and monthly). We find that in short-term, both ethanol and biodiesel are very weakly connected with the other commodities. In medium-term, the biofuels network becomes more structured. The system splits into two well separated branches — a fuels part and a food part. Biodiesel tends to the fuels branch and ethanol to the food branch. When the periods before and after the food crisis of 2007/2008 are compared, the connections are much stronger for the post-crisis period. This is the first application of this methodology on the biofuel systems.

Lautier, Delphine and Franck Raynaud (2012). "Systemic Risk in Energy Derivative Markets: A Graph-Theory Analysis". In: *The Energy Journal* 33.3, pp. 215–239. JSTOR: `23268099`. URL: `http://www.jstor.org/stable/23268099`

Abstract: This article uses graph theory to provide novel evidence regarding mar- ket integration, a favorable condition for systemic risk to appear in. Relying on daily futures returns covering a 12-year period, we examine cross- and inter-market linkages, both within the commodity complex and between commodities and other financial assets. In such a high dimensional analysis, graph theory enables us to understand the dynamic behavior of our price system. We show that energy markets-as a whole-stand at the heart of this system. We also establish that crude oil is itself at the center of the energy complex. Further, we provide evidence that commodity markets have become more integrated over time.

Mayer, Jörg (June 2012). "The Growing Financialisation of Commodity Markets: Divergences between Index Investors and Money Managers". In: *Journal of Development Studies* 48.6, pp. 751–767. ISSN: 0022-0388, 1743-9140. DOI: `10.1080/00220388.2011.649261`. URL: `http://www.tandfonline.com/doi/abs/10.1080/00220388.2011.649261`

Abstract: Commodities are key for developing countries' economic integration. This article distinguishes two types of financial investors in commodities and emphasises differences in position taking motivation and price impacts. Index trader positions are positively correlated with roll returns, while money managers emphasise spot returns. During 2006–2009, index trader positions had a price impact for some agricultural commodities, as well as oil. During 2007–2008, money managers impacted prices for non-agricultural commodities, especially copper and oil. The financialisation of commodity markets may make it more difficult for developing countries to manage their resource sectors for sustained economic development.

Robe, Michel A. and John Spencer Roberts (2019). "Who Holds Positions in Agricultural Futures Markets". In: *SSRN Electronic Journal*. ISSN: 1556-5068. DOI: `10.2139/ssrn.3438627`. URL: `https://www.ssrn.com/abstract=3438627`

Abstract: We show, for the first time, that calendar spreads account for more than a third of all large trader positions; that much of the intra-year variation in the total futures open interest can be tied to changes in the extent of calendar spreading; that about half of all spread positions involve contracts expiring in 4 to 12 months (either spreading with shorter-dated contracts, or involving only maturities of 4 to 12 months); and that commercial traders who are not swap dealers (dealers and merchants, mostly) make up from a quarter to two fifths of all calendar spread positions. Again, commercial dealers' and hedge funds' shares of the spread open interest are negatively correlated. None of these patterns can be inferred from public data, as the CFTC's Commitments of Traders Reports (COT) do not break out spreads for "traditional" commercial traders in general and commercial dealers and merchants in particular.

Tang, Ke and Wei Xiong (Nov. 2012). "Index Investment and the Financialization of Commodities". In: *Financial Analysts Journal* 68.6, pp. 54–74. ISSN: 0015-198X, 1938-3312. DOI: `10.2469/faj.v68.n6.5`. URL: `https://www.tandfonline.com/doi/full/10.2469/faj.v68.n6.5`

Abstract: The authors found that, concurrent with the rapidly growing index investment in commodity markets since the early 2000s, prices of non-energy commodity futures in the United States have become increasingly correlated with oil prices; this trend has been significantly more pronounced for commodities in two popular commodity indices. This finding reflects the financialization of the commodity markets and helps explain the large increase in the price volatility of non-energy commodities around 2008.