

# Do commodity speculators cause hunger? Influence of speculators on volatility and tail events

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# Outline

1. Commodity markets
2. Motivation
3. Research question
4. Literature
5. Discussion



# Commodities



Figure 1: Commodities



## Commodity prices

- energy commodities (oil, gas) and agricultural commodities (grain, meat, coffee)
- dramatic rise and falls of commodity prices during past decade (boom-bust processes)
- increase in financial investor participation in futures markets (diversification benefits)
- financialization of commodity futures markets
- demand and supply fundamentals



## Commodity prices - Copper

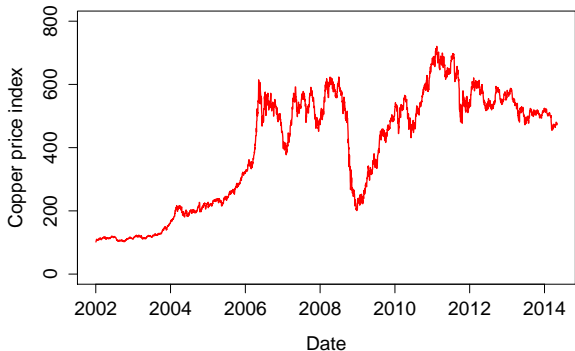


Figure 2: Copper price index (source: Bloomberg)



## Market participants

- Commercial traders
- Non-commercial traders
- Commodity Index Traders
- Who are speculators?



## Exposure channels to commodity prices

- Physical transactions of commodities
- Stock in companies depending on commodity prices
- Commodity futures and options
- Commodity indexes



## Commodity indexes

- Mayor indexes: SP-GSCI and DJ-UBSCI

Sector	SP-GSCI	DJ-UBSCI
Agriculture	15.6	34.1
Energy	69.0	30.7
Industrial metals	6.9	15.1
Precious metals	3.6	14.7
Livestock	5.0	5.4

Table 1: Weights of sectors in indexes (2013)





## Commodity prices - GSCI

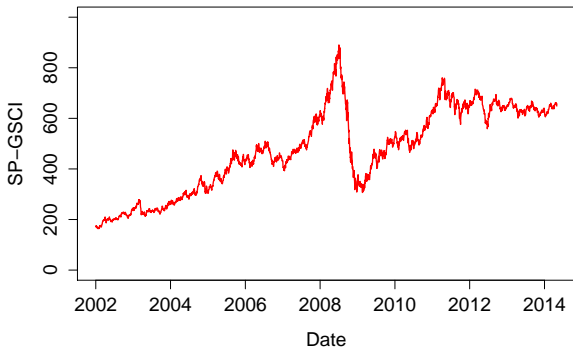


Figure 3: GSCI price index (source: Bloomberg)



## Commodity prices - DJ-UBSCI

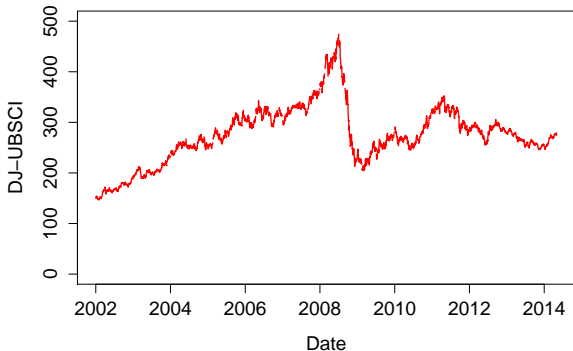


Figure 4: DJ-UBSCI price index (source: Bloomberg)



## Importance

- Policy makers: Should markets be regulated?
- Speculators: Can I participate in commodity markets?
- Consumers and producers: Does speculative trading provide liquidity in the market?



## What drives commodity prices?

- can tail events be explained by common demand and supply fundamentals?
- does speculative trading amplify the price movements (volatility)?
- how do futures prices influence spot prices?
- was there a bubble in commodity markets?
- current debate on causal effect



## Explanations

- Investor participation in speculation
- Economic growth of emerging economies
- Financial crisis
- Inflation
- Emergence of biofuel



## Literature I

Literature not finding evidence for financialization

- E.g. Irwin and Sanders (2012)
- Studies focussing on price levels
- No evidence for relationship (Granger causality)
- Speculators provide liquidity for the market



## Literature II

### Studies backing up the financialization hypothesis

- Tang and Xiong (2012)
  - ▶ Find increasing correlation between commodity prices and stocks and commodities
  - ▶ Focus on commodity indices
- Koch (2014)
  - ▶ Evaluating the relationship between price coexceedances and financial demand
  - ▶ Uses multinomial logit model on residuals
  - ▶ Finds positive relationship between long positions and number of coexceedances



## Factors influencing commodity prices (Koch)

- Real demand factors
  - ▶ Shocks in demand (high growth in emerging economies, economic crisis)
  - ▶ Shipping rates, emerging markets index, exchange rates, inventories
- Financial demand factors
  - ▶ Demand of hedgers and speculators
  - ▶ Long positions of traders (CFTC)
- Liquidity factors
  - ▶ Funding liquidity
  - ▶ TED spread (difference between interest rates on interbank loan rates and T-bills)





## Objective

- Hypothesis: Speculative investment increases the volatility of commodity prices and amplifies the tails
- Filter out the influence of price fundamentals
- Different approaches to test hypothesis



## Choice of methodology

- Is there a causal effect between speculative trading and the prices of commodities?
- Granger causality
- (Composite) quantile regression
- Tail dependence
- Single Index Model



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