**Impact of attention driven investments on agricultural commodity prices**

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**Abstract**
This paper investigates the causality between attention driven investments, traded volumes and the final price of agricultural commodities. Agricultural commodity price levels are created by the traditional merchants at the agricultural sector and by the speculative investors. We are focusing on the speculative investments driven by news related to the future commodity price movements. In comparison to the history, nowadays the relevant information are in majority spread by World Wide Web. It depends just on the traders which media they find reliable for their investments. In our case we are measuring the interest of the traders for investments to the agricultural commodities based on the number of keywords searched by Google’s search engine.

**Key words:** agricultural commodities, attention, investments, risk

**JEL Classification:** G11, G15, G23.

1. Introduction

Historically the agricultural commodities prices were created by natural supply of commodities by producers and demand from the processors of the commodities. Future contract to trade the commodities were used just to protect the farmers or producers from the unpredictable rising or decreasing of the commodity prices. Agricultural commodity price levels were moving due to the grown volumes of each crops over the year and over the season.

Nowadays the financial market and commodity market are linked by each other much tighter. Disturbances on one market affect the price levels on another markets and vice versa.

Traders at the financial market can place their capital to the government bonds, currency pairs, stocks of the companies or into the financial funds associating more companies.
Investors can trade at the spot markets for current prices or at the futures markets for future prices. All of this wide range of investing possibilities is useless in the period of recession, when the financial markets are falling. In general stocks values are decreasing and companies do not payout the dividends. Consequently values of the financial indexes are decreasing as well. The level of interest at which the stable countries borrowing capital is so low, that in some cases the are attacking negative values. The way out of this situation for traders who like to make profit from their capital or at lest don't miss their money is investing to the commodities.

Very famous investment commodities are precious metals like gold, silver and platinum. During the financial crisis between the years 2008 and 2009 investments to the precious metals dramatically increased. In 2007 total physical gold investment was 438 metric tons and silver investment was 1605 metric ton. In the next year investments to the gold more than doubled to the 913 metric tons and investments to the silver exploded to the 5826 metric tons. During one year 2009 the prices of gold increased by 24% (Carlson, 2014).

Speculative investments to the agricultural commodities are not that generally known, as investments to the precious metals nevertheless in recent years are very common. From 2005
till mid of the year 2008 the prices of food commodities doubled in real terms. The major increase were observed by soybeans + 86%, wheat +101%, maize + 102%, rice + 110% and palm oil + 140% (Gilbert, 2008).

It is clear that commodity investments are attractive scope for traders. Our goal is to find out based on what traders makes the decisions where to invest their capital. By our hypothesis in large extent their decisions are made according to the information about the predictions of future financial derivatives and commodity prices.

Information sources are far more extensive then they were in the past. In the past investors were taking actions based on the information from the TV, radio and newspapers (Mondria, WU, Zhang, 2009). Impact measurement of that information to the behavior of traders was virtually impossible. Nowadays people receiving most information from the Web by search engines. According to this knowledge we will use for our measurement of attention driven investments Google search engine, specifically its analytical tool “Google Trends” web page. Google Trends summarize all the searched words through Google from January 2004. Our objective is to find interconnection between number of searched keywords attached to the specific agricultural commodities and their price level movements and traded volumes of that commodity.

1.1. Attention driven investments

Theoretical studies show that there are many triggers, which lead traders from financial market to invest into agricultural commodities. Investors are buying commodities due to their price stability to make their investment portfolio more robust and resistant from financial market volatility. Investments that do not aim to purchase commodities physically are speculative investments. Investors from financial market do not want to own the agricultural commodities, they just want to make profit from price movements on the market and subsequently before the contracts expire they sell the commodities to the merchants from the agricultural sector.

Financial speculations:
Commercial speculations have been used since the 19th century to protect commodity buyers and sellers against price movements. Buyers at agricultural sectors are protecting against sudden price increases and sellers against sudden price falls. For those merchants are speculations a form of insurance. Gilbret (2009) explains that companies like agricultural cooperatives, sugar refinery, grain elevator companies or farmers are typical commercials. They operate with a small margin between sales and purchase prices, with the consequence that a small decrease of their products prices can eliminate profits on their inventories. To offset this price exposure they are selling futures contracts (short positions) and speculators on the other side buy those contracts with the expectations or hope that the prices will appreciate what will yield them the capital gain.

According to the U.S. Commodity Futures Trading Commission (2012) speculative investment is similar to hedging, but the objective is not to buy or sell real assets, while just making profit from the successful participation of price level movements.

Attention driven speculations:
Traders have wide spectrum of information channels by which information flows to them. Investing into the agricultural commodities based on the news about predictions of commodity price movements or based on the information about estimated size of the harvest is speculative investment.
By O’Hara (1995) markets allow traders to trade based on their information. In theory of finance we distinguish between informed and uninformed traders. Information about price movements may arise from research or knowledge of the market. In situation, when on the market are not many informed traders, they have an opportunity to make profit on their information, but when most of the traders are well informed, price of the information become inbounded in the market price.

Many investors have a problem with searching the right commodities to buy. Usually they are not searching the investment opportunities systematically, rather they consider to purchase just the stocks that first catch their attention. This effect causes that capital flow to stocks and other financial derivatives that are more attention grabbing. Selling process is affected by attention grabbing effect less, while individual investors own in general just a small number of stocks or financial derivatives and they are selling just stocks they have (Barber and Odean 2008). In reality investors are heavily influenced by news from the media. This attention-based trading leads investors to buy or sell too speculatively and in many cases information from have potential to shape the price levels of financial derivatives.

According to Barber and Odean (2011) in the fast changing world investors have many opportunities to reach the information but just a limited amount of attention what they can devote to trading. To reach the advantage from the acquired information investors have just a limited time to make their trading decisions. Investors’ behaviour is affected by attention in two ways. In the first case they devote little attention to the information (that is some times important) and in the other case they spend a lot of attention to information (that is some times irrelevant), which can lead to an overreaction.

In many cases investors are influenced by information from the entire environment around them, mostly by their vicinity and working place. They tend to invest to the stocks of companies where they are employed or to companies in their surrounding area (Kazantstev 2013).

Efficient market theoreticians led by Krugmann (2008) argues, that commodities prices rise is driven just by market supply and demand and information of the trades is always incorporated in the market price, meaning that speculators cannot make extra profit on their information.

From the professional perspective we can analyse impact of the information much deeper. According to Kazantstev (2013) news analytics refers to the quantitative analysis of news streams, what means to run procedural steps to turn the information to the time-series and quantitative metrics. Application of news analytics is used for the qualitative impact evaluation of events that have been previously ignored. Practical perspective is their utilization for creating new trading strategies and application set on the capability to plot the behaviour of the companies over time.

2. Data and methodology determination: Estimation dependence between information and agricultural commodity prices

We are treating news from Internet as a main source of the information according which investors making decisions where to place their capital. By Sterling (2015) the most popular search engine is Google with 65% followed by Bing from Microsoft (20,4%) and Yahoo (12,7%). Based on the information from World development indicator (The World Bank, 2015) number of Internet users from a whole world perspective rise from 17% in 2006 to 42% in 2014 and the number of internet users in developed countries is in general over 70%. Nowadays an important issue not access to the Web, but the information reliability of the
Web sites. For that reason we have chosen for survey Google, it is most widely used with reliable information and its Trends database counts number of searches.

3. Results and discussion

Based on the current study we did not observed significant correlation between number of searches by Google and spot commodity price changes. In the next step we have to calculate the correlation between the number of searches and prices in the time differences. As an example we show the time series of Corn prices and number of searches by Google in the chart number 1,2,3.

Figure n. 1 Corn Prices and Percentage of Searches

![Corn Prices & Percentage of Searches](image1)

Figure n. 2 Wheat Prices and Percentage of Searches

![Wheat price & percentage of searches](image2)
4. Conclusion

There is still a huge potential for investigating interconnection between attention driven investments and agricultural commodity prices. This paper is just a beginning of our research. In the next step we like to add more parameters to our model and investigate the significance of news driven investments.

References


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