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## The role of speculation in the change of market prices

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### Abstract

*For most people, the economy is embodied through the prices they pay for basic commodities like bread or rice. It is therefore important, that prices properly reflect supply and demand, so that they are predictable, and products are affordable considering the average salaries in each country. The aim of the research was to examine the movement of the market price of certain products, the events causing the price increase or decrease, and how the manipulative effect of speculation that preceded the price change may appear in the movement itself. In the secondary research, the importance of sustainable development, the balance of demand and supply is explored within the framework of a historical overview. In the primary research, the co-movement with a selected commodity index was tested graphically in order to showcase the relationship between S&P GSCI, and the development of the market price of crude oil. The available historical data, using the STATA program, from the financial crisis of 2008 to the present day, showcases the cointegration between the two, time series examined. The results of the research further confirms Lavan Mahadeva's 2012 study. As part of the general statistical analysis, the behavior of yields as a function of exchange rate fluctuations was explored, and the approach of skewness and peak in the financial area was presented in detail. The results obtained this way were processed from a market point of view, and the conclusion of the research was drawn.*

Keywords: speculation, prediction, investing, market, prices

### 1. Introduction

Commodities are a group of basic raw materials for which there is a constant demand from the side of customers and can be replaced in various ways with other products (Marx, 1859). They are aimed to accomplish basic human needs, from food, to construction raw materials and fuel used for transportation. "Sustainable development" is a strategy for improvement which allows to meet the needs of the present without compromising the same opportunity for future generations (World Commission on Environment and Development 1987). Today, considering the emission of large multinational companies and the overconsumption of first world countries, it can be stated that the sustainability of our environment seems like a dream for now. For most people, the economy is embodied through the prices they pay for basic commodities like bread or rice. It is therefore important that prices properly reflect supply and demand so that they are predictable and products are affordable

for most.

Moreover, prices are determined considering the cost of manufacturing, supply and processing sectors. End users, have a reasonable expectation that the price of the raw material can be forecasted and thus provide suitable conditions for price calculation, whether we are inspecting a construction or other projects. For example, building a wind turbine requires hundreds of tons of steel and about half a ton of copper (Vestas 2006; CDA 2012). If the price of these goods suddenly increases, the cost of the investment project will increase by the same proportion, which may result in a delay in completion or cancellation of the project.

In 2007-08, prices for all commodity exchange products increased to unprecedented heights before the market collapsed and prices plummeted to unpredictable depths. Similarly, the sudden rise in these prices recurred in 2010-2011, making long-term planning markedly more difficult. The significant increase in rice prices, for example, was driven by an increase in the world's starving population, which affected over one billion people. High food prices have led to unsustainable conditions across Africa and the Middle East, which eventually peaked in the Arab Spring (Lagi et al, 2011).

## **2. Secondary research**

The price of commodities that can be sold and purchased globally is determined primarily by commodity exchanges (Pirrong, 1994), so it is important to research that, what extent the speculations of the market triggers price fluctuations.

In fact, prices should play a role in reflecting the demand and supply for goods. The fact that commodities are traded on a daily basis and physically used in the economy, makes pricing extremely vulnerable and opens opportunities for manipulation. By general definition, speculators do not use (during construction, production) the products they record, but make a profit from the constant change in their prices. The extreme case of this, is excessive speculation, which means that a market player holds a dominant position in a commodity market, thus creating for itself the opportunity to manipulate the exchange rate (USSPSI, 2011).

### *2.1. Commodity markets*

The production of a significant part of the goods can take a long time. Producers and growers have been selling their products with forward transactions for centuries, which meant that prices were fixed on the day of the sale, but delivery took place at a pre-determined time in the future. Between the date of the price fixation and the pre-agreed future date, the price of the commodity may have moved up or down, but the price was already guaranteed to the customer and the seller. In fact, it meant a secure cover for both. When the goods were completed, the remaining goods not yet sold could be sold at a daily spot market price. If the buyer is unwilling or unable to commit his capital to a 3-month futures contract, instead of the buyer, an intermediate party, speculator or investor buys the futures contract from the extractor in the hope that he will sell it at a higher price (even to another speculator) as the delivery date approaches. It can be stated, as a positive effect of this, that speculators provide a kind of liquidity to the market. However, especially in a prosperous economy, speculators are able to increase the price to such an extent that it no longer reflects the true value of the product. This can lead to excessive price increase, and the catalyzation of a financial bubble on the market. In order to make the trading of futures and spot contracts more transparent, the commodity

exchange now provides all market participants with accurate information, transparent contract terms and insurance options that were not previously available.

## 2.2. *Purpose and function of the commodity exchange*

Commodity markets, unlike stock or bond markets, exist to provide public, uniform prices and contract terms to producers and users of physical products (Chang 1985; USSPSI 2011). The two most popular types of contracts in the commodity market are on the spot and future payed contracts (3-6 month futures). A spot contract “obliges the buyer and the seller to meet their obligations immediately” (Otto, 2011), while futures contracts require the two parties to complete the transaction at a specified time in the future. In the case of futures contracts, therefore, there is a risk that the transaction will eventually not be settled for some reason. The buyer or seller can reduce this risk by selling or buying a product equivalent to the original contract, before the date of transaction (Johnson 1960). This will allow the sellers to successfully secure their own liquidity.

The function of the futures market is to shift the risk from risk averse (most often commodity producers) to risk tolerant actors (investors or speculators). If a market participant wants to protect its own business from future price fluctuations, it has the option to incorporate the price in advance into the contract, that includes the production costs of the commodity as well as the option to resell the product later (Pirrong, 1994). There is no cash exchange at the time of the futures transaction. This means that the initial value of the contract is virtually zero (Gorton & Rouwenhorst, 2005).

According to Pirrong, the main function of commodity markets is to “convey valuable information about the state of supply and demand”. Market participants make a decision between buying and selling based on the private information in their possession, so in theory the price is forced to move to the right market level over time. At the same time, newly available, public information helps in making informed investment decisions (Pirrong 1994; UNCTAD 2011). This information helps producers, consumers and actors in logistics to make the right decision between resource allocation and investment.

## 2.3. *Hedgers*

Hedging transactions serve as a form of insurance against future price movements. A hedger is, in fact, a market commercial player whose strategy serves (not exclusively) the interests of producers and consumers who want to insure themselves against future fluctuations in the market price of the product in which they have an interest. For example, a potato grower knows in advance that the seed he has sown will yield a crop in 90 days, and in order to secure and predict the benefits of the harvest, he must sell the expected crop on future markets. End users think similarly and buy in advance to reduce their own risks. Based on their analyzes, they also predict, how the price of a commodity will develop in the foreseeable future, disregarding fluctuations.

Although it does not necessarily promise the highest return, a hedging transaction provides a more predictable outcome for players, (Hull, 1993). Financial hedging transactions are extremely popular in the stock and foreign exchange markets, as they may also need to be hedged against future fluctuations. However, the nature of commodities is fundamentally different from these assets, as, by their physical nature, shipping and warehousing costs are also built into their market prices. Nonetheless, a hedging of a commodity does not mean that

the product is physically bought and sold off in the future. Commodity-based hedging transactions are often entered into by swap managers in the hope of reducing risk from assets that correlates in the opposite direction with that commodity (Gorton & Rouwenhorst 2005). Stock exchange transactions like this have resulted in empirically proven links between stock and commodity markets that contributed greatly in 2008 to the chain-reactionary collapse of giant banks such as Lehman Brothers (Büyükaşahin & Robe, 2010). Büyükaşahin and Robe's theory also drew far-reaching conclusions that hedge funds are at fault for the volatility of commodity prices. The researchers point of view is that hedge funds, while fundamentally noble in their ability to reduce the exposure of traders, are in fact linking financial products to each other or to other commodities that are, completely different in nature. For example the, bad loans sold during the crisis, which some hedge funds linked to commodities such as copper or aluminum. Hedgers bought these loans to secure or reduce risks from stock market products. This phenomenon often causes a headache for the legislature, who identifies financial hedgers as commercial investors and thus is not subject to regulations that restrict non-commercial speculators.

#### 2.4. *Speculators*

While producers and consumers would be happy to reduce the risks of buying or selling futures contracts, they are often not open to direct cooperation. The root cause of this is the fact that the end user is often not liquid enough to execute this type of transaction. Therefore, the buyer of future contracts is mostly a speculator who wants to take a role, build a position in the market (UNCTAD 2011; Hull, 1993). This can be seen as speculators helping to create liquidity in markets (Friedman, 1953).

A joint study by Tilton, Humphreys, and Radetzki, classifies speculators into two main groups: long-short and long-only speculators. Long-short speculators are typically influential investors who, by using borrowed money, are willing to buy or sell products, depending on market conditions, and make a profit on positive or negative market fluctuations. These are most often traders of large investment banks, hedge funds and so-called technical investors who first test their strategy in a simulated, digital market environment and then make their decisions in reality (Tilton, Humphreys, & Radetzki, 2011). A long-only speculators is an index-interested investor. They tend to be less influential in moving their equity, and are much less sensitive to price fluctuations than long-short speculators (Tilton, Humphreys, & Radetzki, 2011). These type of speculators usually manage a portfolio of various commodities based on an index, holding long (expected to rise in price) position, which renews as the forward contract expires. Since 1990, both types of speculation have grown in number significantly and are often accused of being part of market manipulation.

The basic assumption is that a certain degree of speculation is essential in commodity markets. As it was mentioned earlier, the speculative process provides liquidity in the market on the one hand, and securely realizes the returns of risk-averse investors on the other (Irwin, Sanders, & Merin, 2009). According to Milton Friedman, speculation can stabilize market prices because otherwise investors will lose their money and therefore relocate their investments to other areas. According to Gilbert, while this view is thought-provoking, it is not necessarily convincing. He cites the example of gamblers playing in the casino. Although players regularly lose money, casinos still remain operational. Similarly, just as the market is a zero-sum game, advisors and money managers give advice, on which investors lose money. The consultant may go bankrupt and be replaced by other companies. However, while

commodities promise a sufficiently high rate of return and a sufficiently low correlation with other instruments, they are seen as a perfect tool to develop the overall risk / return characteristics of a portfolio and thus speculation can continue (Gilbert, 2010).

Modern finance researches are separating informed and underinformed speculators. According to this point of view, the informed speculator bases the information it holds on publicly quoted market prices, thereby helping to find the equilibrium price that is otherwise made up of supply and demand. According to modern theories, an underinformed speculator will have no effect on the market, as well-informed traders take opposite positions, thereby adjusting the market price of the product to the real price level (Gilbert, 2010). In practice, it is difficult to distinguish between these two types of speculators. Especially in a market where the composition of traders is constantly changing, while in volatile markets, well-informed investors are much more likely to wait until they perceive a return on the market. "There's no easier way to lose money than to make the right decision too soon." (Gilbert, 2010).

### **3. Conclusion**

Over the past decade, the volume of funds invested in commodity market products has increased significantly. While the exact impact of these investments remains controversial, mainly due to the geopolitical lobbyists of the industry and the uncertainty of the available data, based on the available literature, statements have been made and conclusions were drawn.

Following the crisis of 2008-09 and the increasing acceptance of subsequent money market regulations, both MiFID II in Europe and the Dodd-Frank Act in the United States are ready to regulate commodity markets. Regulations are extensive and are able to continuously monitor the majority of exchange-traded products, while reviving the institution of position limits and making efforts to encourage traders to engage in commodity exchange activity instead of over-the-counter trading. Fearing of a systemic risk inherent in derivative swaps, regulators are working to put all trades on the stock exchange and settle them properly in legal clearing houses. However, in an ever-globalizing world, it may be even more difficult for the regulatory side to enforce its will, globally and fully, avoiding loopholes caused by disagreements between countries. Therefore, while there are many options available to regulators on both sides of the Atlantic, two main obstacles remain to effective market regulation. One is the size of OTC markets, which makes it extremely difficult to trace trading, and the fact that financial markets in developing countries have not yet been properly regulated, providing many opportunities to find loopholes.

In recent decades, there has been a wealth of research on money and commodity exchange behavior, mostly because of the huge investments that are being made in this area every day. Pricing theories developed by Keynes, Friedman, or Fama are widely accepted by both academia and the financial sector and can be examined using statistical methods. During the preparation of the case study of the dissertation, the researchers also performed basic statistical analyzes in the study of volatility, cointegration and price fluctuation. The calculations were based on data from the New York Mercantile Exchange, NYMEX, and as a result of the study, it was found that price fluctuations in times of crisis significantly increase market yields, followed by economic stress on commodity market index and crude oil prices. In the case study, the historic price of crude oil was examined and found that excessive speculation can have an impact on the price of energy, while other literature processed refuses the relevance of the statement. In particular, the cointegration of price movements between commodity and

other markets was significantly high between the turbulent market conditions of 2007 and 2010.

Although the commodity financing process processed in the dissertation is already a well-known concept in the scientific field, it is actually a much lesser-known phenomenon in the investment sector. At this time, the work presented a new aspect of pricing basic commodities, such as crude oil, within a scientific framework. At the same time, the aim of the work was also to present in detail the basics of the speculative process and its effects on the commodity exchange.

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