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FINANCIAL INVESTORS IN INTERNATIONAL RAW MATERIALS AND FOOD MARKETS AND PRICE MOVEMENTS OF THOSE COMMODITIES

ABSTRACT. In the paper an attempt is made to analyse the impact of the involvement of financial investors on primary commodity prices in the international market. This phenomenon has been identified as a relatively new yet important attribute of the contemporary world economy. The activity of financial investors has affected the raw materials markets in a way that makes them resemble financial markets. As a consequence, the global financial crisis has been reflected not only in price drops for financial assets (shares, real estate) but also in a slump in the prices of raw materials and food in the international market.

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Introduction

An analysis of the recent price movements in raw materials and food markets reveals the surge was related to the globalisation and expansion of the financial sector in the global economy. Those new development tendencies in the world economy have recently received much attention in the world literature[1]. They have also been addressed in the latest reports of international organisations[2].

Even though the active role of the monetary factor in setting the direction and pace for international price movements had been recognised and emphasised in the literature for a long time, the phenomena reported since the mid-decade have been found to be of a new quality. They are related to the specific nature of expansion of the financial sector in the sphere of operation of international commodity markets.

The aim of the paper is to analyse how the activity of financial investors affects commodity prices in the international market, which has been identified as a relatively new yet important attribute of the contemporary world economy. The involvement of financial

[1] Cf. for instance D. Domański, A. Heath, *Financial Investors and Commodity Markets*, "BIS Quarterly Review", March 2007.
[2] Cf. for instance UNCTAD *Trade and Development Report*, New York 2009 and *World Economic Situation and Prospects 20*09, New York 2009.

investors has made raw materials markets resemble financial markets. As a consequence, the global financial crisis has been reflected not only in price drops for financial assets (shares, real estate) but also in a slump in the prices of raw materials and food in the international market.

Changes in commodity prices in the current decade

The price movements in commodity markets in the current decade have been very complex; the whole process may be divided into several distinct stages. In the first stage, which lasted till 2003 and was a continuation of the tendencies of the previous decade, the prices remained relatively stable. In the second stage, since 2003, the prices started to go up. The price rises were observed for two years in a row with a peak in July 2008, and their scale was alarming – the annual average commodity prices nearly tripled in that period (the index was estimated at 296 as compared to 2002). An extremely high rise was observed in the case of energy (with the index amounting to 396, the prices nearly quadrupled). The slowest increase was reported for the prices of food, which less than doubled (the index was estimated at 189)[3].

Table 1. Development tendencies of primary commodity prices in the years 2002-2009a (as %)

Commodities	**VII 2008 (2002=100)**	**II 2009 (VII 2008=100)**	**XII 2009 (II 2009=100)**
Total raw materials and food	375	43	142
of which: food and beverages	213	71	113
metals	348	50	160
energy	527	36	154
of which: crude oil	527	31	179

[a] IMF indices of primary commodity prices.
Source: own study based on the IMF data – www.imf.org/external/np/res/commod/table1a.pdf

It should be emphasised that the price rises till July 2008 were much higher (see: Table 1), since the average annual level of prices in 2008 was to a large extent affected by a slump in prices in the second half of the year. In the **third** stage, July 2008 – February 2009, the prices of primary commodities continued to plummet – cf. Table 1. This drop was reported – which should be emphasised – simultaneously to a similar dramatic fall in the prices of financial assets (shares and real estate). It was related to the outbreak of the world financial crisis. A particularly significant drop was observed in the oil market (where the prices declined by nearly 70%) and the energy market as a whole (natural gas and coal – a drop of more than 60%). Metals, too, reported a decline in their prices, although it was not so significant as in the case of energy (approx. 50%). Lower prices were also observed for food. This change was, however, less significant (as were the price rises reported earlier in this market), and amounted to approx. 30%.

In the **last** stage, since March 2009 till present, the prices of both raw materials and food have shown an upward trend, although it has not been continuous – in July, September and December 2009 abrupt changes were observed. From March throughout December the

[3] The IMF indices of primary commodity prices – www.imf.org/ external/np/res/commod/tablela.pdf.

total raw materials and food index increased by more than 40%, whereas the crude oil price index – by nearly 80% (II 2009 = 100). It is noteworthy that this phenomenon was accompanied at the same by an improvement in stock market indices in the US and other economies where those indices – just as prices of food and raw materials – had shown earlier a significant decline.

Financial investors in primary commodity markets

The activity of **financial investors** in commodity markets (both exchanges and the OTC markets) seems to be one of the most important factors explaining the above-presented price movements in the raw materials and food markets. Even though they had been present in those markets for a long time, it was not until 2005 that their involvement (in terms of both volume and value of transactions) became more significant. This process has been known in the latest literature as the **financialisation of commodity markets**[4]. This phenomenon has exerted a significant impact on the functioning of those markets thus affecting the prices of raw materials and food in the entire international trade. According to the opinions mentioned above, financial investors contributed to the general **rise in the prices of raw materials and food in the second half of the decade**, as well as to the abrupt fall in those prices at the end of 2008, which was directly related to mass withdrawals from commodity markets.

It is also noteworthy that the return of investors to financial markets in 2009 was followed by increases in the prices of raw materials and food in the international trade. This situation is best described by the fact that even though the Dow Jones Industrial index declined between January 2008 and January 2009 by 50%, whereas the IMF price index for primary commodities decreased by approx. 40% in the same period, later that year the two indices reported a simultaneous increase to reach in January 2010 the exact same value – approx. 80 (I 2010=100)[5].

In the literature, it is frequently pointed out that the relationships between the commodity and financial markets are best reflected by the changes in the oil price, and this price nearly quadrupled over the years 2002-2008 (if we take into consideration July 2008 – it increased nearly five times), whereas the world demand for oil and its supply increased in the same period by only 10.4% and 12.5%, respectively[6]. Later, along with the withdrawal of financial investors from commodity markets, within only seven months (July 2008 – February 2009) the price of oil decreased nearly threefold. In the last period, when financial investors returned to commodity markets, a significant price rise for oil was observed again, and it was accompanied by similar price movements for other primary commodities (cf. Table 1).

It seems particularly interesting that financial investors – who take open positions in commodity exchanges – treat those transactions as a purchase of financial instruments (e.g. in the stock exchange or the real estate market). What financial investors – unlike traditional stock market players – have in common is the motives of their decisions to purchase certain commodities. Those decisions are not based on the information about the relationship between the demand and supply in the market for a given commodity; financial investors treat the transaction as nothing more than a financial instrument which enables them to diversify their portfolio of assets. As a result, the investments in commodity markets (the number of futures and options contracts outstanding on commodity exchanges) are not related to the

[4] Cf. *The Financialization of Commodity Markets*, (in:) *Trade and Development Report*, op. cit and J. Mayer, *The Growing Interdependence Between Financial and Commodity Markets*, UNCTAD – Discussion Papers, UNCTAD No. 195, October 2009.

[5] Own calculations based on the IMF data, source: see footnote 3 and http://www.money.pl/gielda/swiat/usa_dow/ones.

[6] Cf. *Trade and Development Report*, op. cit., p. 10.

changes in the fundamentals of the market, i.e. the demand-supply relationships, but are driven by financial reasons, such as the desire to diversify the assets held by investors.

According to the findings from the analyses carried out in the literature, the above-mentioned phenomena have affected the commodity markets (futures and options contracts) – the turnover more than tripled as a result (cf. Fig. 1). At the same time, the notional value of those instruments in the OTC market increased more than fourteen times, reaching USD 13 trillion[7] (cf. Fig. 1). This figure is very close to the value of the total world exports. Even though the share of the OTC commodity derivatives in the total volume of derivatives in this market is still very low (approx. 1.7% in 2006), it should be pointed out that this turnover has been recently growing much more dynamically than the total turnover in derivatives, and has significantly increased its share (from 0.5% in 1998)[8].

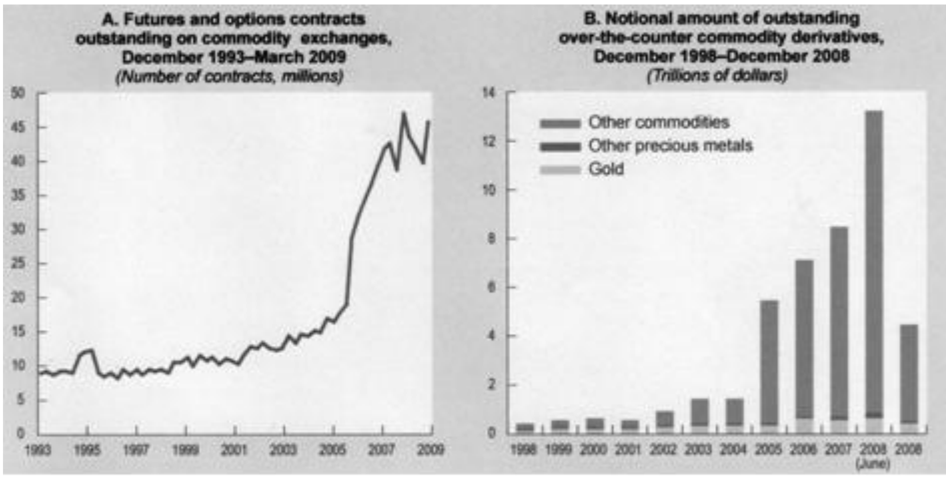

Fig. 1. Involvement of financial investors in commodity markets in the years 1993-2008
Source: The Financialization ..., op. cit, p. 55.

As mentioned above, the prices of primary commodities began to plummet in July 2008 as a consequence of massive withdrawals of financial investors from the markets resulting from the outbreak of the financial crisis[9]. Apart from commodity markets, this phenomenon was observed also in financial markets (stock exchanges or real estate markets).

It is noteworthy to point out another interesting phenomenon – the number of futures and options contracts outstanding on commodity exchanges significantly increased at the end of 2009 (cf. Fig. 1). At the same time, the announcement of a restriction plan limiting the operations of banks in commodity markets by the US president initiated price slumps in stock exchanges. This phenomenon was even named after the president and is known as the "Obama effect"[10]. It may be therefore concluded that the contribution of financial investors to the price tendencies in commodity markets is at present significant. It should be undoubtedly considered one of the symptoms of the aforementioned financialisation process, observed also in the markets for raw materials and food. Both direct and indirect effects of this process will be addressed in the next part of this study.

The literature distinguishes between two major categories of financial investors involved in commodity exchanges according to their motives and the type of transactions they

[7] *The Financialization...*, op. cit., p. 55, J. Mayer, op. cit., p. 3.
[8] Cf. D. Domański, A. Heath, op. cit. p. 53.
[9] Cf. e.g. P. Miekus, *Zmienność wyceny derywatów na rynkach finansowych*, Bank i Kredyt 2009, No. 9, p. 22.
[10] Cf. D. Walewska, *Amerykanie dusza ceny. Plan okiełznania sektora bankowego w Stanach Zjednoczonych przestraszył rynki surowcowe*, "Rzeczpospolita" of 23-24 January 2010, p. B-8.

make. The first group comprises money managers who close deals on both sides of commodity markets thus benefiting from both rising and declining markets. Some of those investors may analyse individual commodities and thus react accordingly to the changes in the commodity market fundamentals. The great majority, however, rely on computerised 'technical' tools (such as trend identification algorithms), which may perceive signals from commodity markets as well as other asset markets (such as the stock exchange or the real estate market). As a natural consequence, the signals from those markets may be transferred to commodity markets, which in turn may result in price bubbles[11].

Money managers had been active on commodity exchanges for many years. Recently, however, it is likely that they have changed their trading behaviour. Traditionally, they may have taken positions on commodity exchanges for strategic reasons with a view to diversifying their portfolios. Recently, however, they have been concentrating on maximising their returns instead.

Nevertheless, it should not be forgotten that the above-mentioned financial investors differ from traditional speculators, who have been operating in commodity markets for many years. The latter usually operate in one or two commodity markets and can boast extensive knowledge on the tendencies and mechanisms of those markets. They keep close track of all the information about those markets and use it to make their decisions. Unlike money managers, they do not transfer the signals from financial markets to commodity markets and hence they do not contribute to the spill over of the speculative bubble from financial markets.

The second group of financial investors in commodity markets is comprised of index traders. Their presence in commodity exchanges is a relatively recent phenomenon. They follow a passive investment strategy, taking usually long positions (i.e. pledges to buy commodities). What is important, they do not operate in individual commodity markets but treat all the commodities (components of a given index) as a kind of assets. At the same time, index traders enter into bilateral agreements (usually swaps) with banks in order to hedge their positions in the commodity market.

There are two most important commodity indexes: the Standard & Poor's Goldman Sachs Commodity Index (S&P GSCI) and the Dow Jones-Union Bank of Switzerland Commodity Index (DJ-UBSCI). The major group of components of the preceding is energy (with its weight of over 70%); and the major component – crude oil with a weight of nearly 40%. The second composite is more diversified – the weights of individual commodities are limited to 15%[12].

Apart from the above two major groups of financial investors involved in commodity markets, a third group can be distinguished, one which consists of investors who have relatively less impact on the global price tendencies (even though their role in individual markets may be sometimes relatively significant). This category includes investors in the spot market. Their activity is limited usually to relatively small markets for non-ferrous metals (such as gold or silver). The anticipated changes in the economy are reflected in the large amounts of stock they hold. As a consequence, the cost of storage and warehousing becomes at the same time a barrier which prevents the transmission of their involvement to other commodity markets.

The impact of index traders on the rises in commodity prices results mainly from the fact that those investors very often have large shares in individual exchanges. According to the estimates, while the number of index traders is relatively small, the total volume of their

[11] Cf. J. Mayer, op. cit., pp.4-5. For more on the theoretical foundations of a speculative bubble and the background of the present financial crisis, see e.g. W. Nawrot, *Teoria kryzysów finansowych Minsky'ego i jej odniesienie do współczesn*ości "Gospodarka Narodowa" 2009, No. 10.

[12] Cf. J. Mayer, op. cit., p. 5. For more details on the composition of the index, see the list of indices presented on: www.djindexes.com/ubs.

purchase transactions (i.e. their average long position) was sometimes more than 10 times the size of an average long position held by commercial or non-commercial traders[13]. The data clearly show that over the period 2006–2008, the relative shares of index traders in total long positions in many food products such as cotton, live cattle and wheat were significantly larger than the positions of commercial traders in those commodities, while they were roughly of equal size for maize, soybeans and soybean oil[14].

In this way, index traders exert a significant impact on commodity price movements thus affecting price tendencies regardless of the changes in the market fundamentals (i.e. the demand and supply relationships). In the literature of the subject the fact that those investors are able to “move” prices as a result of their operations in the market is known as the weigh-of-money effect. It follows that the prices of commodities in a given market are not a pure result of interactions between the demand and supply (as is the case in the traditional economy), but an effect of the inflow of money determined by the decisions of investors who optimise their portfolios.

The involvement of index traders in commodity exchanges – according to the estimates – doubled between January 2006 and May 2008 (in the same time recovery was observed also in financial markets). The number of contracts surged between the first quarter of 2006 and the second quarter of 2008, to plummet in the next two quarters of that year (which was accompanied by similar phenomena in financial markets). It is noteworthy to mention that – according to the evidence from the latest studies – the correlation coefficient between the number of transactions by the investors in question and the price indices for primary commodities (excl. fuels) amounted in the period January 2006 – June 2008 to as much as 0.93. A similar coefficient for energy prices was slightly lower, namely 0.84.

The effects of financial investors’ activity on price movements

One of the basic consequences of an intensified activity of financial investors in commodity markets was that – as mentioned above – those markets became similar to financial markets in many ways. One of its symptoms was, among others, the presence of similar or even identical price tendencies for raw materials and food in international commodity markets on the one hand and financial markets (stock exchanges, real estate markets) on the other. This issue was explored in the previous part of this study where the behaviour of financial investors in commodity markets was analysed.

The greater involvement of financial investors in commodity markets increased the volatility of primary commodity prices. Dramatic price changes observed for most of the commodities in the group of raw materials and food are one of the most important attributes of the primary commodity market which had been recognised in the literature for many years. This high price volatility was related in particular to the low short-term price elasticity of both the supply and demand for those commodities. The presence of financial investors in raw materials and food markets had been considered the major contributor to the increasing instability of prices in the present decade.

More detailed studies into this issue reveal that the scale of price volatility has visibly increased since January 2007 following the wave of investment made by index traders[15]. It refers in particular to the market for agricultural products where the role of index investors was relatively more important (lower price volatility was observed for crude oil in the

[13] Cf. C. Capuano, *Strategic Noise Traders and Liquidity Pressure with Physically Deliverable Futures Contract*, “International Review of Economics and Finance” 2006, No. 15(10), quoted after: *The Finalization...*, op. cit., pp. 62-63.
[14] Ibidem
[15] Cf. *The Financialization* ..., op.cit., pp.70-71.

presence of a continuous upward trend; in the case of this commodity, it is the OTC market which plays a more important role)[16].

Speculation is naturally more attractive when prices are unstable. It follows that the speculative activity may have been attracted by the ever higher price volatility. However, given that index traders generally follow a passive trading strategy, it is more likely that the growing participation of financial investors in commodity markets has increased price volatility (rather than been its effect)[17].

The next effect of the financialisation in exchanges was the greater co-movement of prices across individual commodities. It resulted from the aforementioned character of transactions closed by the analysed group of investors who consider the components of a given commodity index as a whole (i.e. for instance both fuels and agricultural products). As a result, the current or anticipated price movement related to the changing conditions in crude oil markets transferred automatically to other commodity markets even if it was not justified from the viewpoint of the interactions between the demand and supply in those markets.

The aforementioned studies carried out by UNCTAD experts reveal that this greater involvement of financial investors was accompanied by greater interdependence between the prices of all the analysed commodities (weekly averages of thirteen basic commodities in the groups: fuels, metals, agricultural products)[18].

This co-movement of prices had been observed also earlier in the past. According to the views presented in the literature, the current impact of the prices of fuels on the prices of food was related to higher costs of transport resulting from the rising price of crude oil and – more recently – a more extensive use of biofuels. (The greater scale of production of the latter, reported recently, raised the demand for agricultural products used in their production). According to the UNCTAD report in question, this higher co-movement of prices across individual commodities may have resulted to a large extent from the greater involvement of financial investors in those commodity markets.

Another consequence of this greater involvement of financial investors was the aforementioned phenomenon known as the price (speculative) bubble. In the food and raw materials markets it was caused by two major factors. The first one was the transfer of the speculative demand from the financial market (shares, real estate). Secondly, other market players perceived greater involvement of index traders (a greater number of open positions) as a new piece of information about the market. Based on this information, they anticipated upward price trends thus creating speculative bubbles.

Those issues were explored more deeply by C.L. Gilbert. The evidence from his study reveals the existence of the aforementioned phenomena in the market for non-ferrous metals over the period February 2003 to August 2008, grain markets in the period 2006-2008, and the market for soybean and soybean oil in the same period[19].

The activity of financial investors in primary commodity markets which increased the price volatility and led to a separation of both price level and tendencies from the economic fundamentals of individual commodity markets (the interactions between the demand and supply) has made the involvement of other market players (producers and buyers) more complex and difficult. In this situation, hedging against price risk has become much more difficult than ever. At the same time, the costs of this activity (the margin) have significantly increased. During the period January 2003–December 2008, margin levels as a proportion of

[16] Cf. D. Domański, A. Heath, op. cit., p. 54.
[17] Cf. *The Financialization*…, op.cit., pp. 70-71
[18] Ibidem, p. 72 and A. Mittal, *The 2008 Food Price Crisis*, UNCTAD, G-24 Discussion Paper Series, No. 56, June 2009, pp.5-6.
[19] Cf. C.L. Gilbert, *How to Understand High Food Prices*, University of Trento. Italy. Quoted after: *The Financialization...*, op. cit., p.72.

contract value increased by 142 per cent in maize, 79 per cent in wheat and 175 per cent in soybean[20]. This phenomenon has an undoubtedly negative effect on traditional exchange market players. It refers in particular to the producers who come from developing countries dependent on their production of raw materials and food. Apart from the rising costs, another factor is important – the exchange prices – separated from the actual fundamentals and the historic interactions between the demand and supply in the given market – no longer provide accurate information which the market participants may use in their decisions about investment or inventory policy, etc.

As UNCTAD presents in its latest report, the financialisation makes the operation of commodity exchanges a controversial matter[21]. A necessity appears to intensify the discussions concerning the improvement of their forms of operation. Those markets should send real price signals to both producers and consumers. Exchanges should also enable the achievement of objectives such as reduction of price risk (in the form of hedging transactions). It is pointed out here that new regulations for the functioning of exchanges should be developed and implemented by governments and international organisations (cooperation between institutions supervising commodity exchanges in individual countries).

Conclusions

Recently, we have been witnessing huge changes in price tendencies for raw materials and food in the international trade. Not only do the prices alone change but also new qualitative factors which determine those changes are observed. Those factors are related to the increasing importance of the financial sector in the world economy, a process which is more and more often known as financialisation.

In international markets for raw materials and food financialisation takes a form of a greater involvement of financial investors in the transactions made in commodity markets. The activity of those investors is distinctive – they treat commodity transactions as an alternative form of assets (like investment in shares or real estate). The price tendencies for raw materials and food in commodity exchanges and hence the international trade tend to resemble the price tendencies observed for traditional financial assets. It follows that the recent global financial crisis has been reflected not only in the movement of prices of shares and real estate but also the prices in international markets for raw materials and food.

Those phenomena have an important impact also from the theoretical point of view. The prices of individual commodities no longer reflect the real situation in a given commodity market (i.e. the real interactions between the demand and supply). Their movement becomes separated from the economic fundamentals of the market. It follows that at the moment, a price rise for a given commodity in the market no longer needs to be related to a higher demand for this commodity and may result from a positive opinion of financial investors on the profitability of the instrument in an asset market instead.

At the same time, we are witnessing a certain distortion of the informative function of commodity exchange prices, which in the classical economics was treated as the best reflection of the world price. The latter is understood in the theory of international economic relations as the best representative of a given commodity market and the most accurate reflection of the changes in the market conditions.

[20] Cf. *The Financialization*…, op.cit., p. 74.
[21] Ibidem.

References

1. Bryan M.F., S.G. Vecchetti, *Inflation and the Distribution of Price Changes*, "The Review of Economics and Statistics" 1999, May.
2. Capuano C., *Strategic Noise Traders and Liquidity Pressure with Physically Deliverable Futures Contract*, "International Review of Economics and Finance" 2006, No. 15(10).
3. Domański D., A. *Heath, Financial Investors and Commodity Markets*, "BIS Quarterly Review", March 2007.
4. Dudziński J., *Kurs walutowy USD a kierunki zmian cen w handlu międzynarodowym*, "Bank i Kredyt" 2000, No. 1.
5. Dudziński J., *Nowe zjawiska w ruchu cen handlu międzynarodowego*, "Bank i Kredyt" 2004, No. 4.
6. Exchange Rates, *Interest Rates and Commodity Prices*, ed. M. Manzur, Cheltenhan – Northampton 2002.
7. S. Fil-Pareja, *Exchange Rates and European Countries Export: An Empirical Test for Asymmetries in Pricing to Market Behavior*, "Weltwirtschaftliches Archiv" 2000, vol. 1.
8. Gilbert C.L., *How to Understand High Food Prices*, University of Trento. Italy 2008.
9. http://www.money.pl/gielda/swiat/usa_obw/ones.
10. www.djindexes.com/ubs.
11. http://www.imf.org/external/np/res/commod/tablela.pdf.
12. Maizels A., *The Commodity Collapse of the 1980's*, (in:) *The Economics of Commodity Markets*, Cheltenham – Northampton 1999.
13. Mayer J., *The Growing Interdependence Between Financial and Commodity Markets*, UNCTAD – Discussion Papers No. 195, October 2009.
14. Mittal A., *The 2008 Food Price Crisis*, UNCTAD, G-24 Discussion Paper Series, No. 56, June 2009.
15. Nawrot W., *Teoria kryzysów finansowych Minsky'ego i jej odniesienie do współczesności* "Gospodarka Narodowa" 2009, No. 10.
16. Singer H., *Terms of Trade: New Wine and New Bottles?* (in:) Growth, Development and Trade, Cheltenham-Northampton 1998, p. 118.
17. *The Financialization of Commodity Markets*, (in:) *Trade and Development Report*, UNCTAD, New York 2009.
18. *Trade and Development Report*, UNCTAD, New York 2009.
19. *World Economic Situation and Prospects 2009*, UN, New York 2009.
20. Żyżyński J., *Neoliberalizm jako strukturalna przyczyna kryzysu a poszukiwanie dróg naprawy*, "Ekonomista" 2009, No. 2.