

GLOBAL FOOD CRISIS – SYMPTOMS, IMPLICATIONS, CAUSES

Mariusz Hamulczuk✉

Szkoła Główna Gospodarstwa Wiejskiego w Warszawie

Abstract. This study was devoted to the global food crisis that took place after 2007. On the basis of the literature review and analysis of statistical data, we sought answers to questions about symptoms, effects and most of all causes of the crisis. Primary symptom of food crisis was the increase in world agro-food prices and their volatility. The strongest response of domestic consumer food prices on the increase in world agricultural commodity prices was observed in developing countries with high share of food expenditure in the total expenditure. A substantial coincidence of social unrests with changes in food prices indicates the political and social consequences of the food crisis. They are manifested not only in the decline in food security, but it could have political implications especially in Africa and the Middle East. There are various factors which influenced the unprecedented increase in prices of agro-food products. The most important ones include changes in energy policy, which led to lower inventories and increase of linkages in agricultural commodity prices to crude oil prices, increased food demand from developing countries, and macroeconomic factors as fluctuations in exchange rates and low interest rates.

Keywords: agro-food sector, food crisis, prices

INTRODUCTION

The last decade witnessed a spectacular rise in, and volatility of, the world food prices. The period of high and volatile food prices is frequently referred to as a “food crisis.” Timmer (2010) defines it as follows:

“A food crisis occurs when rates of hunger and malnutrition rise sharply at local, national or global levels. (...) A food crisis is usually set off by a shock to either supply or demand for food and often involves a sudden spike in food prices.”

Consumers, processors and farmers have been highly affected by a price surge. There were various implications of the rise and volatility of food price levels. Some of them, such as the decrease of food security, will be discussed in this paper. A broad debate about the root causes of the crisis is reflected in public discussions and in a number of publications (Prakash, 2011; Szydło, 2013; UNCTAD, 2008; Wright 2014). While some authors point to the demand factors, other mention the supply-side or the speculative background of the above-mentioned price changes. It also noted that market regulations could be the source of the crisis.

The purpose of this paper is an ex-post analysis of implications and factors behind the outstanding increase and volatility of agri-food prices during the so-called food crisis. The ex-post analysis is supposed to enable the verification of some hypotheses about factors affecting the rise in food prices in 2007–2012. Empirical analyses were based on various data sources: World Bank (price data: pink sheet, general database), FAO-OECD Agricultural Outlooks, USDA/WASDE database (agricultural commodity balance sheets), FAOSTAT (consumer food price indices), and Federal Reserve Bank of St. Louis (U.S. Dollar index). To enable the drawing of conclusions, a simple graphical analysis as well as

✉ dr inż. Mariusz Hamulczuk, Katedra Ekonomiki Rolnictwa i Międzynarodowych Stosunków Gospodarczych, Szkoła Główna Gospodarstwa Wiejskiego w Warszawie, ul. Nowoursynowska 166, 02-787 Warszawa, Poland, e-mail: mariusz_hamulczuk@sggw.pl

vector autoregressive (VAR) models were used. Conclusions from own empirical studies were supplemented with a literature review.

AGRICULTURAL COMMODITY AND CONSUMER FOOD PRICES

Prices are the key parameters that determine the decisions of producers and consumers, and therefore it is very important to identify and monitor changes in factors affecting them. A crucial role is played by prices of agricultural (food) commodities and the consumer prices of food. On the one hand, while being the most important driver of economic decisions made by agricultural producers, the prices of agricultural commodities directly affect the farmers' incomes. On the other, the prices of agricultural commodities are linked to food prices which affect the consumers' ability to address their food needs.

In recent years, a significant increase in the agricultural commodity prices has been observed (Fig. 1). This is true for both nominal and real prices presented in the form of price indexes. It may be concluded that in the early 2000s, there was a reversal of the downward trend in real prices and a shift from the horizontal trend to a growth trend in nominal prices.

Another noticeable aspect is the increase in volatility of agricultural commodity prices. After several years of

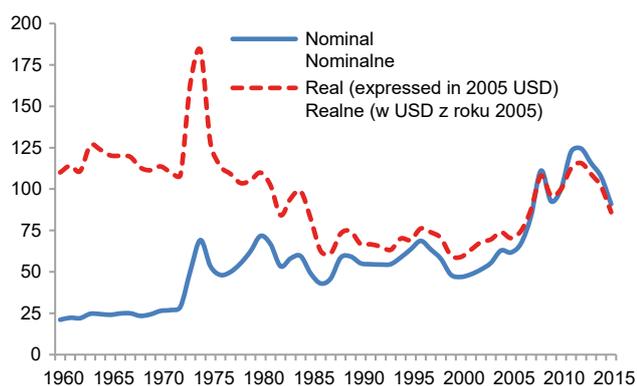


Fig. 1. Annual indices of world agricultural food commodity prices (2010 = 100)

Source: based on World Bank data.

Rys. 1. Roczne wskaźniki światowych cen surowców rolnych (2010 = 100)

Źródło: na podstawie danych Banku Światowego.

low volatility levels (accompanied by strong regulation of agricultural markets), in 2008–2009, the volatility rate more than doubled on a sudden basis. The greatest increase was reported in the cereals, oilseeds and sugar markets. The 2008–2009 spikes in price volatility were comparable to those recorded during the oil crisis in the 1970s. The increase in volatility has intensified the debate on the causes, consequences and regulations mitigating adverse effects of increased uncertainty, mainly experienced by agricultural producers (IATP, 2011; Prakash, 2011). What needs to be realized, is that the rising price volatility constitutes a greater price risk exposure for various players of agricultural markets (farmers, traders, processors, etc.) and generates higher transaction costs.

Any significant upward movement or shift in the level of volatility of agricultural commodity prices is eventually transmitted to **consumer food prices**. As a further consequence, this involves restricting the ability to address the consumers' food needs. Figure 2 shows the development of selected food consumer price indices (FCPI) against a background of agricultural food commodity price index, all of them calculated on a YoY basis. A certain degree of correlation and a time

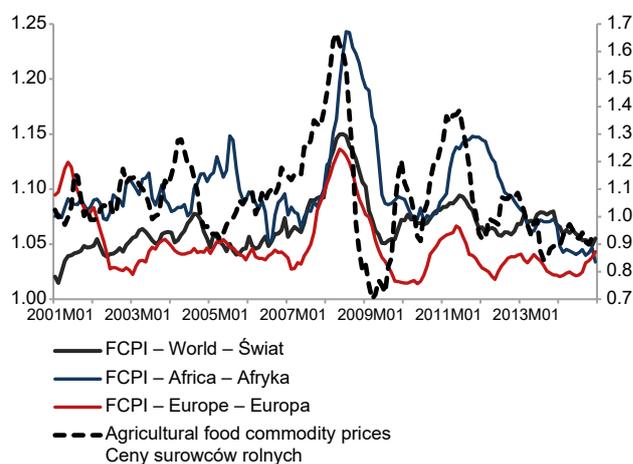


Fig. 2. Monthly indexes (YoY) of consumer food prices (left axis) and global agricultural food commodity prices (right axis)

Source: own calculations based on World Bank data and FAOSTAT.

Rys. 2. Miesięczne indeksy (r/r) cen detalicznych żywności (lewa oś) na tle światowych cen surowców rolnych (prawa oś) Źródło: obliczenia własne na podstawie danych Banku Światowego oraz FAOSTAT.

lag between the indices are noticeable. Also, Africa (developing countries) demonstrates a higher level of inflation and greater oscillations than Europe.

To further examine the relationship between global prices of agricultural food commodities (World Bank data) and consumer food prices on particular continents (based on FAOSTAT data), the vector autoregressive (VAR) model was applied. In VAR models, the current values of specific variables are explained by their past values. To learn more about the VAR model, see Tsay (2010). The analysis was based on logarithmic values of FCPI and of the agricultural commodity price index series measured on a YoY basis. In addition to these two variables, the estimated models included the global GDP (OECD indicator: OECD + Major Six NME) and the

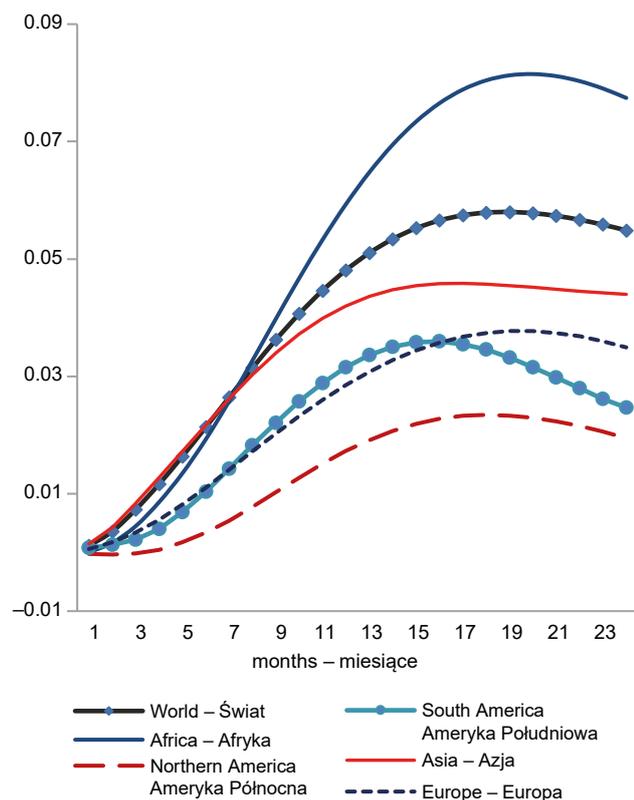


Fig. 3. Impact of world agricultural food commodity price changes on retail food prices; cumulative IRF from VAR models

Source: own calculations.

Rys. 3. Wpływ zmian światowych cen rolnych na ceny detaliczne żywności – skumulowane odpowiedzi na impuls z modelu VAR

Źródło: obliczenia własne.

index of global energy commodity prices (World Bank) to control the impact of economic growth and energy on food prices. The Johansen cointegration tests (with 4 lags) indicated that a full-rank matrix was dealt with in all cases. This suggests that VAR is the right model for the purposes of further analysis.

Seven VAR models for particular regions were estimated, each with 4 lags (according to the BIC information criterion). The strength of global agricultural commodity prices transmission on food consumer prices (FCPI) is shown in Figure 3, as determined with the use of IRF (Impulse Response Function). To calculate the IRF, the variables were structured as follows: GDP, Energy, Agricultural Food Commodity and FCPI. As shown by the results, the price transmission from farm to consumer prices is distributed over time. It takes more than one year to fully transmit the changes of global agricultural food commodity prices into domestic food consumer prices. The strongest response of domestic food prices to the increase in global agricultural commodity prices is observed in African and Asian developing countries. This evidence is consistent with intuition and is confirmed by the fact that the share of food in total expenditure in some developing countries goes even beyond 40%, while remaining below 7% in the United States, for instance (Fig. 4).

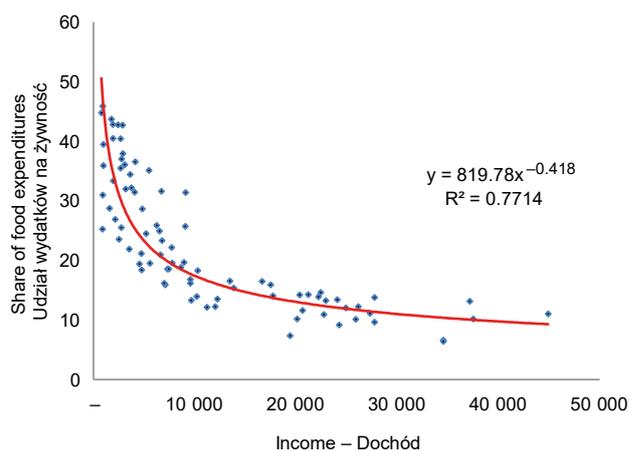


Fig. 4. Global relationship between the share of food expenditure (%) and income levels (USD)

Source: based on ERS-USDA data.

Rys. 4. Związek między udziałem wydatków na żywność (%) a poziomem dochodów (USD) na świecie
Źródło: na podstawie danych ERS-USDA.

ECONOMIC AND POLITICAL CONSEQUENCES OF THE INCREASE IN FOOD PRICES

The main consequence of the surge of agricultural commodity and food prices is the declining **food security**, as evaluated with various indicators. Defined by FAO, the determinants of food security include availability, access (physical, economic), stability, and utilization. Similar in nature, the Economist Intelligence Unit (GFSI) approach covers a number of indicators grouped into three categories: affordability, availability, quality and safety (EIU, 2014). The food price level (FPL) is the most important indicator used by FAO to evaluate food security from the economic accessibility perspective (FAOSTAT data). The data confirms that economic access to food in the developing countries is much more limited than in the developed ones. The increasing levels of FPL, observed notably in developing countries since 2008, clearly demonstrate the decline in the world food security from the economic accessibility perspective. On the other hand, in developed countries, the economic accessibility of food has not deteriorated despite high prices of food commodities.

As a result of the aforementioned price development, food has become less affordable in many countries. Notably, the impact of such changes is strictly related to food expenditure as an important item in total household spending. Obviously, consumers in countries or regions with higher levels of food expenditure are much more economically disadvantaged by the increases in prices of agricultural commodities caused by different factors (cf. Fig. 3 and 4). Affordability measures the individuals' ability to purchase food, their vulnerability to price shocks and the presence of programs that mitigate the adverse effects of such shocks. This is one of the aspects covered by the Global Food Security Index (GFSI), designed and developed by the Economist Intelligence Unit. GFSI data confirm that the lowest affordability of food to consumers is experienced in the developing countries. Those closest to the global poverty line and those where food consumption represents a significant share in the household expenditure are the most vulnerable to higher prices (EIU, 2014).

Note that low agricultural food commodity prices can also cause food insecurity, especially in low-income, agrarian economies. Cheap food may expose a larger part of the poor rural population to the risk of

food insecurity. Volatility is also one of the biggest concerns as regards short-term food security. Sudden price changes can often cause poor consumers or suppliers to sell important assets at low prices to maintain short-term food security. In the longer term, those actions keep families in poverty, and can also prevent the developing countries from increasing their agricultural productivity. Permanent price volatility reduces incentives for smallholders to invest in more efficient agricultural tools, as they cannot expect a return on their investment (FAO, 2011).

High food prices also have **social and political consequences**. As history shows, food scarcity accompanied by high prices was very often the source of unrests and revolutions. According to Lagi et al. (2011), the time of protests and unrests in North Africa and Middle East in 2007–2011 coincided with a global food price surge. During the first peak of food prices in 2008, over 60 food riots broke out worldwide in 30 different countries. Severe consequences, along with changes of governments and political systems, accompanied the second period of high world food prices, during the so called Arab Spring (2010–2011). The deterioration in food security led to situations where random events triggered widespread violence.

Lagi et al. (2011) identified a specific food price threshold which, if exceeded, makes the protests likely to occur. If the prices remain at high levels (above 210 on the FAO Index, adjusted with inflation rates), political and social changes in poor, developing countries become highly probable. This is an important finding for policy makers, especially in the case of the largest food producers in the world. However, because consumers in rich countries and regions (North America, Europe, Australia, Japan) are not severely impacted by rising and increasingly volatile agricultural prices (unlike consumers in poor and less developed countries), policy makers in developed countries rarely recognize the importance of global food problems.

STOCKS AND SUPPLY FACTORS

When considering the crucial factors in the growth of agricultural and food prices, the literature points to the supply-demand conditions (Trostle, 2008; Wright, 2011). This is consistent with the theoretical rationale according to which an increase in demand or a reduction of supply, *ceteris paribus*, result in an increase in prices.

The indicator which is the most complete reflection of the supply/demand relationship is the share of stocks in total consumption (stocks-to-use ratio, S/U). High levels of stocks are accompanied by low prices, and vice versa.

The stocks are playing a crucial role in crop production. Figure 5 shows the share of stocks in the consumption level for cereals, oilseeds and rice, on a worldwide basis, compared to the global price index of agricultural food commodities. Significant reduction in grains (wheat and feed grains) and rice inventories is noticeable. In the 1990–2000 period, the average S/U ratio for grains and rice was: 27.5% and 34.4%, respectively, whereas in the 2006–2013 period, it was 19.8% and 21.6%, respectively. The largest reduction in inventories took place mostly in 1999–2004. The reduction of S/U ratios for cereals was accompanied by an increase in real prices of world agricultural food commodities. A lead-lag relationship between S/U and prices is also visible because some products (e.g. meat) show a delay in their response

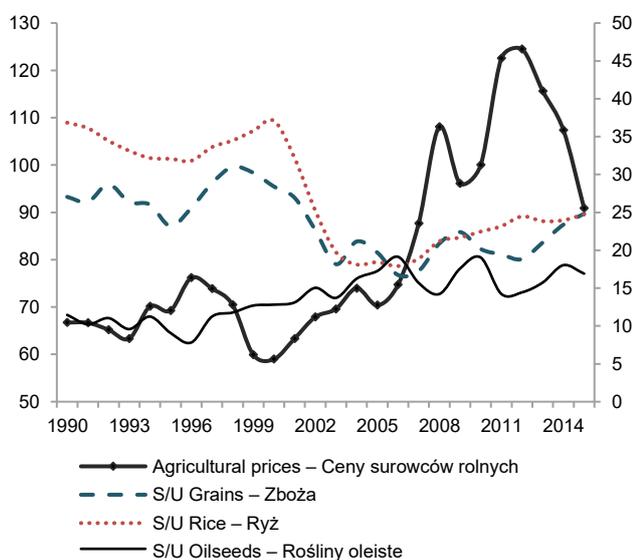


Fig. 5. Global stocks-to-use ratios of main crops (right axis, %) vs. the index of real agricultural food commodity prices (left axis; 2010 = 100)

Source: own calculations based on the World Bank data and USDA/WASDE database.

Rys. 5. Wskaźniki zapasów do zużycia najważniejszych produktów roślinnych w świecie (prawa oś, %) na tle indeksu światowych cen żywności (lewa oś; 2010 = 100)

Źródło: obliczenia własne na podstawie danych Banku Światowego oraz USDA/WASDE.

to an increase in feed prices, which are based on crop products. An adverse situation is observed in the oilseed market which demonstrates no negative correlation with the global food commodity prices.

The relationship between the S/U ratio and the prices of agricultural food commodities is non-linear in nature (Fig. 6). It may be noted that the empirical dependencies between the S/U ratio and the prices of agricultural commodities are arranged as per the theory of storage. At low inventory levels, the demand is very price inelastic. Thus, small changes in supply cause rapid price changes. The most extreme situation took place in the 1970s. Conversely, if the S/U ratios are high, the supply (or demand) shocks do not result in such a dramatic change in prices (Wright, 2011). Thus, low inventory levels entail an increase in the price level and volatility. In summary, it can be concluded that main causes for the current food price increases around the world include the decreasing S/U ratios of main food agricultural commodities. Previous years (2004–2007), where the global price levels remained relatively low despite low inventories, should rather be regarded as an exception.

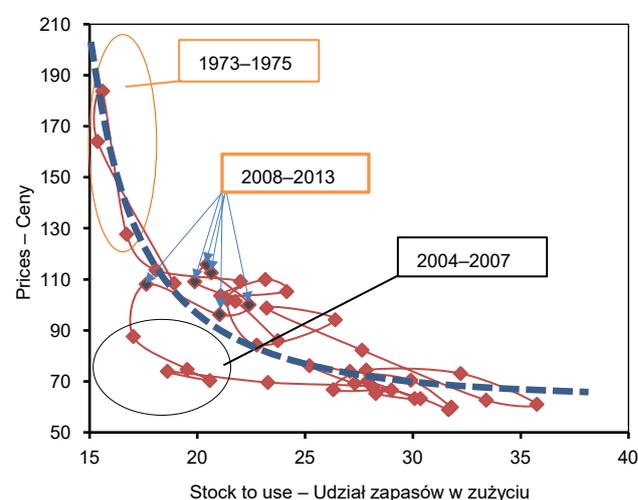


Fig. 6. Relationship between the global stock-to-use ratios of grains and rice and real food commodity prices in 1972–2015

Source: own calculations based on the World Bank data and USDA/WASDE database.

Rys. 6. Związek między wskaźnikiem zapasów do zużycia zbóż i ryżu w świecie a realnymi cenami surowców rolnych w latach 1972–2015

Źródło: obliczenia własne na podstawie danych Banku Światowego oraz USDA/WASDE.

In view of the above, the following question should be asked: what are the reasons behind the reduction of S/U ratios? The literature often points to the **supply-side determinants** of the current food crisis. This includes climate change, weather conditions and the associated decline in yields and production (Troester, 2012; Trostle, 2008). However, this assertion is not supported by World Bank data. There are no structural changes in crop or livestock production corresponding to the reduction of inventories or the increase in the prices of agricultural commodities. Note that in the case of cereal crops, the productivity is dropping and the output growth exceeds the growth of yields. This can be a problem in the context of a much larger increase in demand resulting from long-term demographic trends. Also, the variability of long-term yields after 2007 is not greater than in the earlier periods. Thus, the spectacular rise in agri-food prices in recent years cannot be attributed to weather anomalies, despite their growing number (Wright, 2011).

DEMAND CONDITIONS, BIOFUEL POLICY AND THE LINKAGE WITH ENERGY MARKETS

When analyzing the **demand conditions**, great attention is paid to the economic growth of developing countries (including BRICS) (Trostle, 2008). Figure 7 shows the development of self-sufficiency ratios for the world's two most populated countries, calculated as the relationship of production to consumption. The self-sufficiency indicators for cereals (grains and rice) and meat (beef, pork, poultry, lamb) markets did not undergo significant changes that would justify their impact on global prices within the last 6 years. The most significant impact of the increase in demand in these countries on the global markets is associated with the oilseeds (seeds, vegetable oil, and crush) market. However, the decreasing trend of self-sufficiency in oilseeds in China and India started in the early 1990s (and was correlated with the global S/U ratio, Fig. 5), and none of the indicators has been subject to any sudden variations after 2007. An increase in demand for dairy products (aggregated figures for butter, cheese, milk powder) from China and India can be observed since 2009 as a consequence of a significant decline in their self-sufficiency. This has affected the global prices of milk products in recent years. Hence, it can be concluded that the increase in global food prices,

which started in 2008, was only partially determined (to the extent of milk and oilseeds) by the situation in India and China. Szydło (2013) also indicates that the observed price spikes cannot be attributed to the situation in China.

Factors contributing to the increase of agricultural commodity and food prices include the policy for renewable energy sources. In this area, governmental policies are underpinned by various aspects, such as the environmental protection, energy self-sufficiency, or (in the most developed countries) surpluses of agricultural production. As a result of active economic policies in the United States, the EU, Brazil and several other countries, increasing volumes of agricultural commodities are allocated to the **production of biofuels**, namely bioethanol and biodiesel. Their production has increased rapidly, especially in the last ten years (McPhail and Babcock, 2012).

Corn, rapeseeds and sugar cane are the core ingredients used in biofuel production. According to estimates based on the OECD data, in 2008–2013, the average shares of ingredients used for biofuel production were as follows: 0.9% of wheat, 11.2% of feed grains, 10.7% of vegetable oil and 16.8% of sugar cane. Biofuel mandates

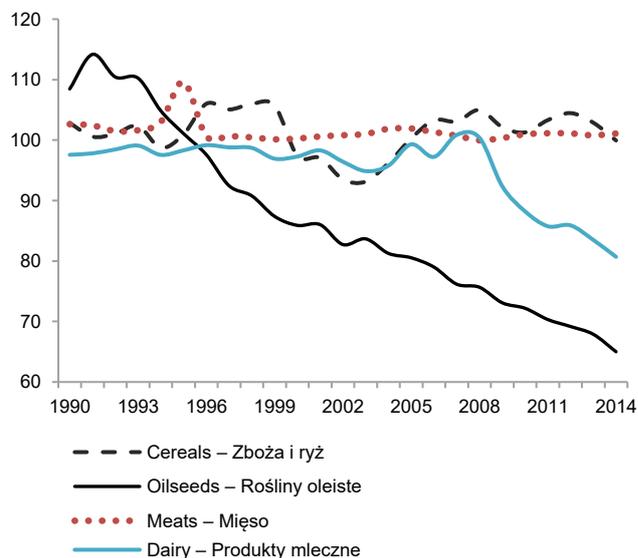


Fig. 7. Aggregated self-sufficiency ratios for China and India in 1990–2014

Source: own calculations based on OECD data.

Rys. 7. Wskaźniki samowystarczalności dla Chin i Indii w latach 1990–2014

Źródło: obliczenia własne na podstawie danych OECD.

and other measures resulted in a rapid production expansion (faster than the yield growth rate). The consequence was the depletion of stocks as well as the high level and volatility of prices. Positive correlation between the production of biofuels and the price level of agri-food products is emphasized by many authors (e.g. Tyner et al., 2012; Wright, 2011). The impact of biofuel production is not limited to the prices of the aforementioned crops. Additionally, it reduces the acreage of land available for other crops, thus affecting their production volumes and prices through the mechanisms of land substitution. The increase in crop products' prices entails higher costs of animal production, which is also reflected in their prices.

A rather unexpected and adverse effect of the increased utilization of biofuels is the increasingly strong relationship between the prices of agricultural commodities and oil prices. Traditionally, the prices of agricultural commodities and energy were only slightly or even negatively correlated. After 2005, the allocation of increasing volumes of agricultural crops for fuel production resulted in a positive correlation between agricultural commodity prices and oil prices. The increase in oil prices triggers an increase in demand for agricultural commodities intended for biofuel production and,

subsequently, an increase in their prices. The substitution effect between energy and agri-food products seems to be stronger than the cost effect associated to increases in energy prices. Some authors believe that oil and energy prices are probably the main causative factors behind the growth of food prices (de Gorter et al., 2013; Troester, 2012; Wright, 2011).

The empirical evidence for the above considerations is shown in Figure 8. It can be easily noted that the agricultural food commodity prices correlate strongly with Brent crude oil prices. It may be therefore concluded that state policies have led to strengthening the relationships between food and energy markets. As a consequence, food price levels and volatility may be explained to a large extent by the shock in energy markets.

THE ROLE OF EXCHANGE RATES, SPECULATION AND TRADE POLICY

One of the most important macroeconomic factors affecting the level of global agricultural commodity prices is the US dollar exchange rate. This is because the global prices are usually expressed in USD. Figure 9 shows

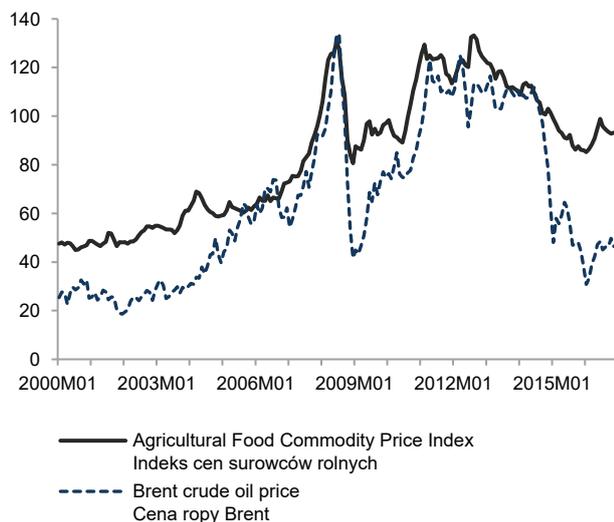


Fig. 8. Global agricultural food commodity price index (2010 = 100) and Brent crude oil prices (USD/bbl)
Source: based on World Bank data.

Rys. 8. Indeks światowych cen surowców rolnych (2010 = 100) oraz cena ropy naftowej Brent (USD/baryłkę)
Źródło: na podstawie danych Banku Światowego.

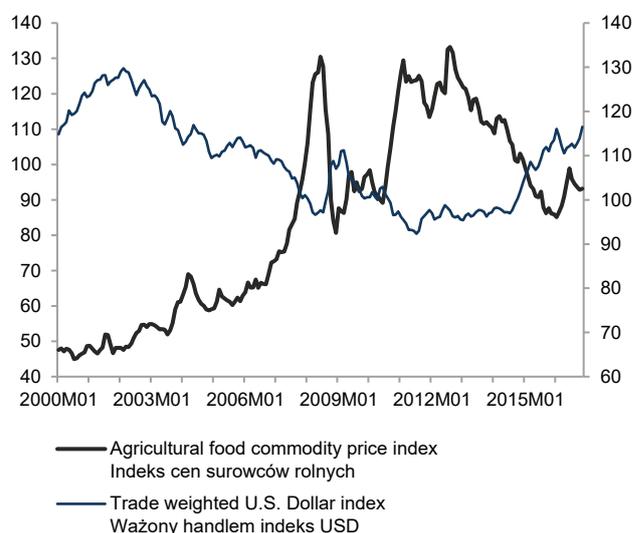


Fig. 9. The global agricultural food commodity price index (left axis) and Broad USD index (right axis; 2010 = 100)
Source: own calculations based on data of the World Bank and FRED data.

Rys. 9. Indeks cen surowców rolnych (lewa oś) na tle szerokiego indeksu dolara amerykańskiego (prawa oś; 2010 = 100)
Źródło: na podstawie danych Banku Światowego i FRED.

the agricultural food commodity price index and the US dollar exchange rate. A clear negative correlation can be seen between these two values (the Pearson's correlation coefficient is -0.93). Bearing in mind that exchange rates reflect the macroeconomic situation, it can be concluded that changes in GDP or interest rates also affect the global prices of agricultural resources and foodstuffs (Baffes and Dennis, 2013). However, in some countries, a negative correlation between the global commodity prices and domestic exchange rates may result in a reduction of volatility of agricultural prices (Hamulczuk and Klimkowski, 2012).

Speculation in the futures markets is frequently cited as a factor contributing to the increase in the agricultural price volatility (Cheng and Xiong, 2013; IATP, 2011; Zawojcka, 2011). Generally, speculators play a positive role by consuming liquidity and removing the price risk from the spot market players. As regards the futures market, the prices generally reflect the supply/demand conditions in real markets as well as the expectations of market participants. In other words, spot prices and futures prices develop in parallel. However, according to some studies, recent years might have witnessed an alienation of the futures market which was manifested by the fact that futures prices lead spot prices and by the persistence of an abnormally large gap between futures and cash prices. Also, in 2007 and 2010–2011, the commodity assets under management were twice and three times higher, respectively, than in 2005. These changes have led to a concern whether the financialization of commodity markets had contributed to surges of agri-food prices (Pies et al., 2013).

It seems that the main reasons for the substantial interest of funds and speculators in agri-food markets are fundamental in nature. They include the gradual withdrawal of the state from the regulation of agricultural markets (and price stabilization) or the reduction of stocks due to biofuel policies. New conditions clearly invited the speculators to enter the agri-food commodity futures market. Excessive speculation may also result from low interest rates, caused by the implementation of massive monetary policies by major countries of the world. One of the explanations for the rise in commodity derivatives trading is that it was simply part of a widespread increase in risky investing during the past decade (attributed to “a search for yield”). The investors (index speculators) consider commodity futures to be an asset, just as stock and bonds. They regard the

commodity market as a part of a broader portfolio strategy (Cheng and Xiong, 2013).

Many studies were carried out to answer the question whether index fund speculation might have had a harmful impact on agricultural commodity prices and thus on global food security. As shown by most of the econometric studies, futures market speculation by passive index funds had no significant impact on price levels and volatility as regards agricultural commodities (Will et al., 2012). One of the justifications for the lack of influence of the futures markets spot price level is that the increase in prices was also demonstrated by other commodities from outside the futures markets. For example, rice prices grew although index funds were not engaged in the futures market for rice. Others (Cheng and Xiong, 2013; IATP, 2011) suggest that financialization has substantially changed commodity market mechanisms leading to the drift of agricultural commodity futures, and spot prices as well, from fundamental values.

It seems that government actions taken all over the world in the 2007–2009 period had a more significant impact on agricultural commodity prices than the speculation on futures markets (Sharma, 2011). One of the most important illustrations was the rice market. In the first half of 2008, the world's largest exporters of rice imposed export restrictions to ensure sufficient supplies to feed their own population. At the same time, other (net importer) countries eased their policies. As shown by Demeke et al. (2009), in 2006–2009, 25 countries (among 81 analyzed) imposed export restrictions (or even prohibitions) while 43 other ones relaxed their import restrictions. Similar actions were encountered in many other commodity markets. This led to a sudden market imbalance and to a strong increase in prices despite the absence of other evidence. It can be thus concluded that there was also some kind of speculation carried out by governments.

SUMMARY

In recent years, there has been a significant increase in prices of agricultural commodities and food. However, the level and volatility of real prices did not exceed those observed in the 1970s. High food prices have adverse consequences for hundreds of millions of people all over the world. Particularly affected by the increase in world prices were the inhabitants of developing countries, demonstrating the highest share of food

expenditures in their total expenditures. These countries also witnessed the most severe protests and social unrests. As a result of a shortage of food, the possibility of anti-government riots and chaos poses a significant risk.

Multiple reasons behind the significant price increase in 2008–2013 can be listed. Timmer (2008) used the expression “a perfect storm” to emphasize the wide range of causes. It should be specifically noted that their importance varied throughout the above period. It seems that the key factors are fundamental and are associated with the widening imbalance between consumption and production. The substantial increase of biofuel demand caused by policy measures and extensive mandates has depleted stocks and caused a surge in agricultural and food prices. It should be borne in mind that stocks play a highly stabilizing role for the consumption and prices, thus enabling an improvement of food security.

The abovementioned policies also strengthen the linkage between food markets and energy markets (mostly crude oil markets) resulting in a spillover of price volatility from oil to food prices. According to research and literature reviews, agri-food prices also depend on exchange rates and economic activity. High price volatility observed in 2008–2013 may also be caused by protectionist tendencies during the crises. The study confirms that political measures impeded or even prohibited food exports, triggering the increase of agricultural commodity prices. The negative impact of speculation in futures markets might also be a reason behind the increased price volatility.

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GLOBALNY KRYZYS ŻYWNOŚCIOWY – SYMPTOMY, IMPLIKACJE, PRZYCZYNY

Streszczenie. Opracowanie dotyczy uwarunkowań globalnego kryzysu żywnościowego, jaki miał miejsce po roku 2007. Na podstawie przeglądu literatury oraz analizy danych statystycznych poszukiwano odpowiedzi na pytania na temat przejawów, skutków, a przede wszystkim przyczyn kryzysu. Podstawowymi jego przejawami były wzrost światowych cen żywności oraz ich zmienność. Wzrost cen surowców rolnych przełożył się na ceny żywności przede wszystkim w krajach rozwijających się, o wysokim udziale wydatków na żywność w całkowitych wydatkach. Znaczna koincydencja niepokojów społecznych ze zmianami poziomu cen żywności wskazuje na polityczno-społeczne konsekwencje kryzysu żywnościowego. Objawiały się one nie tylko spadkiem bezpieczeństwa żywnościowego, ale mogły mieć implikacje polityczne, szczególnie w krajach Afryki i Bliskiego Wschodu. Można wskazać wiele czynników, których koincydencja miała wpływ na bezprecedensowy wzrost cen w sektorze rolno-żywnościowym. Wśród najważniejszych należy wymienić zmiany polityki energetycznej, które doprowadziły do obniżenia stanu zapasów i wzrostu powiązań cen surowców rolnych z cenami ropy naftowej, zwiększenie popytu w krajach rozwijających się oraz uwarunkowania makroekonomiczne, takie jak wahania kursów walutowych oraz niskie stopy procentowe.

Słowa kluczowe: sektor rolno-żywnościowy, kryzys żywnościowy, ceny

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