

## POLISH CONSUMERS' REACTION TO CHANGES IN PRICES OF FOOD PRODUCTS DURING THE FINANCIAL CRISIS

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### Abstract

*The issue of consumers's reaction to changes in prices of food products is particularly important at the time of the global financial crisis. The research aimed at surveying the opinions of selected consumers and their reactions to changes in prices of food products during the financial crisis. The literature study reviewed the determinants of the financial crisis, identified its causes and effects, and also assessed changes in prices of food product in Poland over 2007-2012. From the literature it was evident that the global financial crisis was a result of many factors both microeconomic and macroeconomic, i.e. shortcomings of regulatory systems and the rapid growth of the consumption of households financed mainly by debt and the long-term persistence of (real) interest rates at a low level, which led to a rapid growth of credit and an increase in prices of many assets.*

*The questionnaire was conducted among 250 consumers comprising students of two selected universities in Poland and their families. 47% filled-in questionnaires were returned. Results of the analysis showed that during the financial crisis, the prices of most of food products have increased. In the opinion of the surveyed, in the previous 5 years the prices of the following food products increased the most: bread, meat, cold meat, sugar, fruit, and fish. On the other hand, the prices of the following food products dropped the most: water, potatoes and other vegetables.*

*Key words: consumers, prices of food products, financial crisis*

### 1. Introduction

According to literature, a financial crisis is a situation, in which there are serious disruptions in the financial market manifested through a significant fall in prices of assets and the bankruptcy of numerous financial and non-financial institutions (Wague, 2009, p.82).

The global financial crisis started before 2008 and was a result of many factors. However, the biggest significance can be assigned to the problems in the real estate market and the mortgage market in the United States as well as the abuse of complicated financial instruments, whose risk was neither correctly estimated nor treated with appropriate attention. Possessing an increasing number of outstanding credits and low valuation of foreclosed real property resulted in huge losses for mortgage institutions, and in consequence, in their downfall.

Simultaneously, the effects of the financial crisis spread to the real economy. The lack of orders for construction companies led to lay-offs and bankruptcies of many enterprises. It should be noted that primarily, as a result of the global financial crisis, there was a rising tide of bank and company bankruptcies. In a situation of global relationships and economic connections, the occurring domino effect may be a threat not only to transnational entities.

## 2. Methodology of research

The paper consists of a theoretical and an empirical part. It contains an overview of literature on the influence of the crisis on the food industry and changes in food products prices. This study was supplemented with the authors' primary research based on an online questionnaire sent to 250 students of two selected universities in Poland and their families. The rationale for selecting these two universities was that two of the Authors of the paper are employed at these universities. It was rational to send questionnaire to present academic year's students and their families. The Authors had a lecture for these students. One hundred and seventeen completed questionnaires have been returned. It constituted 47% of the total surveyed.

The research aimed at surveying the opinions of selected consumers and their reactions to changes in prices of food products during the financial crisis.

## 3. Causes and effects of the financial crisis

The outbreak of the financial and economic crisis in 2008 was preceded by a long period of prosperity, not only in the United States, but also in most of the countries of the European Union. The rise in work productivity and the import of cheap products stopped price increases, which in turn helped to keep inflation at a low level. Unemployment rates were also modest. The cause of the current financial and economic crisis was fluctuations in global financial markets and their spread to real economies. Minsky (2008) claims that these problems were caused by microeconomic factors (i.e. shortcomings of regulatory systems, inadequate corporate governance structures, errors in measurement techniques and in the valuation of risk and risk management) and macroeconomic factors (i.e. the boom in real property markets and the financial market, the rapid growth of the consumption of households financed mainly by debt and the long-term persistence of (real) interest rates at a low level, which led to a rapid growth of credit and an increase in prices of assets – shares, real property and certain minerals). It can be assumed, in line with Schumpeter (1954) that the fluctuating variable economic situation is a form of life of capitalism, and the only ultimate cause of every crisis and depression is prosperity and an implementation of innovations. A crisis is a process of adjusting the economy and societies to the results of development and quick transformations. According to Schumpeter (1954), it is “a normal process of absorption and liquidation”. Globalisation, the digital revolution, deregulation, privatisation, the weakening of the role of the state – these are the main innovations, as understood by Schumpeter, of our times. The current crisis is a period when the unsettled balance of the global economy is restored, which in turn will create conditions for a new phase of development caused by the implementation of new innovations, which today we are still not yet able to imagine (Glapiński 2009, p.51-52).

## 4. Price as a basic economic category

Price is the basic information coming from the market which determines the preferences of the buyers and sellers. Price dictates how much of a product will be on the market and how much of the product the consumers will want to buy. The lower the price of a product (service), the more of it the consumers will buy, whereas the higher the price of a product, the more of it the producers will supply to the market. It is in the interest of the buyer to buy at cheaper prices, and in the interest of the seller to sell at higher prices. The market sets the price at which the sellers are willing to sell their goods and the customers are willing to buy (Adamowicz, Gregorczyk, Romanowska, Sopińska, Wachowiak 2003, p.15).

Prices influence economic processes and are of interest to all individuals because they determine the scale of production and consumption and they explain the actions of producers and consumers (Marciniak 2001, p. 132). Demand is a function of price and even a small change in price will impact demand significantly. Price is a specified volume of customer spending and revenues of the seller. It contains information on the value of the product (Wyrzykowski 2007, p. 82).

Each change in the price of products influences the actions of consumers. Consumers are sensitive to changes in prices of expensive products and products used extensively, and they attach less importance to an increase in prices of cheap products which have many substitutes or in the prices of products rarely purchased. A decrease in the price of a product made by a producer may be interpreted differently by the buyer.

1. The product is in the decline stage of its life cycle and will be shortly substituted with a new product.
2. The product has some flaws and is not selling well.
3. The producer has financial problems and needs a quick inflow of cash.
4. The product price may fall even further, it is worthwhile waiting.
5. The product quality has decreased (Michalski 2009, p. 414).
6. On the other hand, an increase in the price of a product may be understood by the buyers in the following ways:
7. The demand for the product is rising and the producer has difficulties in meeting the demand.
8. The product is of high quality.
9. The producer wants to make more profit (Michalski 2009, p. 414).

The price policy, based on the development of demand, refers to the results of research on consumer demand from the point of view of its reaction to changes in prices, or the estimated price elasticity of demand. There are some useful procedures for planning a company price policy, which involves assessing the elasticity of demand in relation to the so-called degrees of price elasticity of demand. The price elasticity of the demand ratio for a given product should be determined on the basis of the following formula (Altkorn 2004, p. 202):

$$E_p = M\% : P\%$$

which means that the elasticity ratio  $E_p$  determines the quotient of the difference between demand at a given price and demand after the change in price, expressed in percentages, and likewise, the expressed change in the price of a given product. The price elasticity of the demand ratio answers the question of how demand will change if price changes by a given amount (Altkorn 2004, p. 202).

## **5. The influence of the crisis on the food industry and changes in prices of food products**

Lower household incomes and higher credit burdens contributed to a limitation of consumption during a crisis (Bartkowiak 2010). Investors started to sell shares of those entities, which no longer had investor trust, which affects the value of companies also from outside the sector. Investors who withdrew their funds from stock exchanges and the real property market invested them in derivatives based on natural resources and food products. It caused a rise in food prices and a rise, most severe for many sectors, in the price of crude oil in the world markets. The higher prices of crude oil contributed to the increase in costs of business activity and companies had to raise the prices of products and services to be able to cover the growing costs. In consequence, inflation rose in many countries (Bartkowiak 2010).

The food economy and the food industry in Poland are among the most important sectors of the national economy and branches of industry. In 2009, the food industry produced around 4% of the GDP, over 18% of production sold, and had around 16% of employees. Around 18,000 entities operated in this sector. It is also a significant producer of food and drinks on the European market (Chechelski, Judzińska 2011, p. 6).

According to Chechelski and Judzińska (2011, p. 8), the crisis in the financial market did not substantially contribute to changes in food production. There was a slow-down in the development of production and consumption in developed countries, which was compensated by an increase in the developing countries. The rising demand for food in developing countries may cause a rise in global prices, which may contribute to significant changes in the development of the global food economy, e.g. through the influence on the perspectives of the Common Agricultural Policy in the European Union, the imbalance arising between transnational corporations and other market participants.

Both in previous year, and during the crisis, many threats (Bartkowiak 2010) were seen in the global food economy. The main ones are the increase in protectionism and speculation. The increase in prices concerns all raw materials in the world. Price surges have also been reported in the agricultural raw materials market. There was a two-and-a-half fold increase in the price of cereals and rice, one-and-a-half fold rise in the price of meat, more than twofold in the price of sugar. According to Orłowski (2011, p. 105) 'the supply of raw materials did not keep pace with the rising demand'.

In the years 2007-2011, there was a tendency, observed from 2004, of relative rise in prices of food. In 2011, the rise in the retail price of food in comparison with 2008 amounted to 13% and was 2.2 percentage points higher than the inflation rate. There was a significant increase in the prices of, primarily: sugar (by 52.1%), beef (by 25.2%), fish and processed fish (by 19.5%), poultry meat (by 19.1%), cereal products (by 16.4%, including bakery products by 19.5%) (Świetlik 2012, p. 13). There was also a rise in the price of fats (by 15.6%, including butter by 21%), vegetables and fruit (by around 15%) and eggs (by 13%). The price of pork and dairy products rose less than the average food price ratio. The high average annual growth in food prices since 2007 stands at around 5%. In 2011, in comparison with 2003, the price of food and soft drinks rose by 36.9%, including food by 38.2%, compared with a rise in the average level of prices of consumption goods and services by 26.3%. This means a real increase in the price of food by 9.4%. In the post-accession period, in years 2004-2011 (2003 = 100), the price of the following products rose the most: potatoes (by 105.1%), beef (by 102.7%) and sugar (by 95.3%). Average prices of bakery and cereal products rose by 50.9%, including bakery products by around 60%. The price of edible fats increased by 47.6%, including butter by 61.6%. In 2011, consumers paid on average 46% more for fruit, including 82.5% more for apples, than in 2003. Meat, offal and processed meat prices rose by an average of 33.3%, including poultry meat by 32%, and pork by 27.1%. Egg prices rose by 32.5%, and prices of fish and processed fish by 31.7%. The products whose price rose the least were dairy products (by 28.1%), including drinking milk by 34.1%, yoghurts by 9.4% and vegetables (excluding potatoes) by 19.2%. In accordance with the methodology of the Eurostat, in 2011, in comparison with 2006, the rise in the prices of consumption goods and services in EU-27 amounted to an average of 12.9%, and in Poland 18.6%. In the periods under comparison, the prices of food and soft drinks in EU-27 increased on average by 16.3%, and in Poland by 24.9%. According to information provided by FAO, in 2011 global food prices were 79.5% higher than in 2006. In the years 2007-2011 (2006 = 100), global prices of oils and edible fats rose by 125%, cereal products by 102.5%, sugar by 75.7% and dairy products by 72.7%. Meat products rose the least – by 48.7% (Świetlik 2012, p. 15).

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Table 1. Retail prices of selected dairy products (PLN)

Years/ months	Processed milk (1 l)		Full powder milk (350 g)	Extra butter packaged (200 g)	Kefir (150 g)	Fruit yoghurt (150 g)	18% cream (200 g)	Semi-fat cottage cheese (1 kg)	Ripened cheese
	in foil	UHT							
2007									
I	1,59	2,38	10,73	3,02	0,63	1,06	1,35	9,65	15,95
XII	1,97	2,71	11,36	4,11	0,66	1,07	1,52	11,42	22,06
2008									
I	2,00	2,77	11,70	4,07	0,68	1,08	1,56	11,66	21,85
XII	2,05	2,70	12,86	3,50	0,71	1,10	1,59	11,84	17,08
2009									
I	2,05	2,71	12,84	3,49	0,71	1,09	1,59	11,85	16,80
XII	2,04	2,66	12,71	4,07	0,70	1,11	1,56	11,86	16,90
2010									
I	2,05	2,65	12,84	4,11	0,69	1,10	1,56	11,87	17,18
XII	2,45	2,67	13,03	4,27	0,69	1,09	1,59	13,08	17,97
2011									
I	2,47	2,71	13,20	4,31	0,69	1,09	1,58	13,19	18,10
XII	2,59	2,78	13,70	4,63	0,71	1,18	1,63	13,59	19,25
2012									
I	2,60	2,80	13,83	4,64	0,71	1,19	1,64	13,59	19,59
XII	2,61	2,73	14,94	4,29	0,70	1,22	1,67	13,55	19,87

Source: own study based on Rynek rolny, Analizy, tendencje, oceny, Biuletyn miesięczny grudzień 2006 – maj 2013, Instytut Ekonomiki Rolnictwa i Gospodarki Żywnościowej PIB

Table 2. Retail prices of selected meat products (PLN)

Years/months	Beef on the bone	Pork		
		loin on the bone	cooked ham	Toruńska sausage
2007				
I	17,11	13,09	19,69	11,73
XII	17,68	13,69	20,15	12,20
2008				
I	17,82	14,13	20,35	12,27
XII	18,42	14,62	21,06	13,04
2009				
I	18,61	14,94	21,11	13,13
XII	20,26	14,24	22,05	14,11
2010				
I	20,32	14,25	22,05	14,15
XII	20,54	13,68	21,65	13,93
2011				
I	21,09	13,92	21,64	14,09
XII	23,96	15,34	22,95	15,16
2012				
I	24,24	15,51	22,94	15,35
XII	26,18	15,96	23,88	16,10

Source: own study based on Rynek rolny, Analizy, tendencje, oceny, Biuletyn miesięczny grudzień 2006 – maj 2013, Instytut Ekonomiki Rolnictwa i Gospodarki Żywnościowej PIB

In the years 2007-2012, the price of dairy products increased (processed milk in foil by 64.15%, and UHT milk by 14.70%, full powder milk by 39.23%, extra butter by 42.05%, milk kefir by 11.11%, fruit yoghurt by 15.09%, 18% cream by 23.70%, semi-fat cottage cheese by 40.41% and ripened cheese by 24.58%) (Table 1).

In the years 2007-2012, the price of beef on the bone rose by 53%. In the years 2007-2009 (I), there was an increase in the price of loin on the bone (by 14.13%), in December 2009 and in 2010, the price fell (from PLN 14.94 to PLN 13.68), and in the years 2011-2012, there was another rise in prices (by 14.65%). In the analysed period (apart from December 2010 and January 2011), the price of cooked ham and Toruńska sausage rose by 21.28 and 32.25%, respectively (Table 2).

## **6. Changes in prices of food products in the opinion of the consumers – results of the questionnaire**

In May 2013, a questionnaire was conducted among 250 consumers comprising students of two intentionally selected universities in Poland and their families. It contained 19 closed questions and 3 open ones. 47% filled-in questionnaires were returned. Due to the lack of representative character of the research sample, the obtained results cannot be applied to the whole population. However, they may constitute source material of a cognitive nature. 74% of the survey participants were female, and only 26% male. The majority of the survey participants (71%) were between 19 and 30 years old. Consumers between 31 and 40 years old constituted 19% of the research sample. The majority of the survey participants had either a university degree (33%) or high school education (29%). The largest number of respondents lived in a city with more than 300 thousand inhabitants (35%) or in rural areas (28%).

In the case of 31% of the survey participants, the number of people living in the household was three, for 30% it was four. 23% of the respondents stated that the net monthly income per person in the household was between PLN 501 and PLN 1,000, and 22% – between PLN 1,501 and PLN 2,000. 19% pointed to a net monthly income per person of above PLN 2,500, and 5% – below PLN 500.

42% of the survey participants went shopping three or four times a week, and 27% of them daily. According to 28% of the respondents, the share of food expenditure in the household budget amounted to between 31 and 40%, according to 23% it amounted to between 41 and 50%. The majority of the survey participants (54%) indicated that in comparison with last year, the proportion of the household budget allocated to food expenditure increased, for 30% of them it remained unchanged. Should a decrease in food expenses be needed, 51% of the survey participants stated that they would look for a shop where they could buy products of the same quality but at a lower price, and 35% would curb food expenditure.

In the opinion of the survey participants, in the previous 5 years the prices of the following food products increased the most: bread, meat, cold meat, sugar, fruit, and fish. On the other hand, the prices of the following food products dropped the most: water, potatoes and other vegetables. According to 57% of the questioned, inadequate advertisement or a lack thereof may substantially contribute to bankruptcies of companies. The information of a potential bankruptcy has a deterring effect on 34% of the respondents, and an encouraging effect on 31% of the surveyed, primarily because consumers expect a sale of products. The vast majority of consumers (85%) stated that during the financial crisis, the prices of most of food products have increased and 58% of the survey participants have restricted the purchase of food products. The answers to the open questions appeared interesting. Among industries most prone to the financial crisis, the respondents

indicated, among others: the fishing, confectionery and meat industry. It was stated that, above all, the small local shops are unable to compete with the big chain shops and mega stores. Small farms are also vulnerable to crisis phenomena. According to the research conducted, the sectors least prone to crisis are primarily the bakery and dairy sector. One of the respondents indicated that the producers may use information about the crisis as a pretext to increase prices at every stage of trade.

## 7. Summary and conclusions

Several summarising remarks and conclusions can be made on the basis of the analysis conducted in the article.

Factors of both microeconomic and macroeconomic nature were underlined among the causes of the financial crisis.

Prices determine the scale of production and consumption and they explain the actions of producers and consumers. A change in the price of products influences the actions of the consumers.

In the years 2007-2011, there was a tendency, observed from 2004, of a relative rise in food prices. In 2011, the rise in retail prices of food in comparison with 2008 amounted to 13% and was 2.2 percentage points higher than the inflation rate.

The results of the conducted questionnaire confirm the upward tendencies shown on the basis of statistical data. The vast majority of consumers stated that during the financial crisis, the prices of most of food products have increased. In the opinion of the surveyed, in the previous 5 years the prices of the following food products increased the most: bread, meat, cold meat, sugar, fruit, and fish. On the other hand, the prices of the following food products dropped the most: water, potatoes and other vegetables. Among the branches most prone to the financial crisis, the respondents indicated, among others: the fishing, confectionery and meat industry.

The majority of the survey participants indicated that in comparison with 2012, the proportion of the household budget allocated to food expenditure increased, for 30% of them it remained unchanged. Should a decrease in food expenses be needed, 51% of the survey participants stated that they would look for a shop where they could buy products of the same quality but at a lower price, and 35% would restrict food expenditure.

## 8. References

- Adamowicz E., Gregorczyk S., Romanowska M., Sopińska A., Wachowiak P., 2003. *Ekonomia bez tajemnic*, Podręcznik Część I, WSiP, Warszawa.
- Altkorn J., 2004. *Podstawy marketingu*, Instytut Marketingu, Kraków.
- Bartkowiak M., 2010. *Kryzys finansowy 2008/2009, przyczyny, przebieg, zwalczanie*, <http://artelis.pl/artykuly/19346/kryzys-finansowy-2008-2009-przyczyny-przebieg-zwalczanie> (dostęp w dniu 15.05.2013).
- Chechelski P., Judzińska A., 2011. *Wpływ kryzysu na polski przemysł spożywczy*. Komunikaty, Raporty, Ekspertyzy nr 552, IERiGŻ-PIB, Warszawa.
- Głapiński A., 2009. *Obecny kryzys gospodarczy a nauka ekonomii*, Studia i Prace Kolegium Zarządzania i Finansów, Zeszyt Naukowy 94, SGH Warszawa.
- Marciniak M., 2001. *Makro i mikroekonomia, Ekonomia, Podstawowe problemy*, Wydawnictwo Naukowe PWN, Warszawa.
- Michalski E., 2009. *Marketing, Podręcznik akademicki*, Wydawnictwo Naukowe PWN, Warszawa.
- Minsky H.P., 2008. *Stabilizing an Unstable Economy*, McGraw-Hill, New York.

- Orłowski W.M., 2011. Świat do przeróbki. Speculanci, bankruci, giganci i ich rywale. Agora S.A., Warszawa 2011.
- Rynek rolny, Analizy, tendencje, oceny*, Biuletyn miesięczny grudzień 2006 - maj 2013, Instytut Ekonomiki Rolnictwa i Gospodarki Żywnościowej PIB.
- Schumpeter J.A., 1954. *The crisis of the tax state*, „International Economic Papers”, No. 4, Londyn, New York.
- Świetlik K, ARR, Biuletyn Informacyjny, nr 3/2012, [www.arr.gov.pl](http://www.arr.gov.pl)
- Wague M., 2009. *Międzynarodowe kryzysy gospodarcze i ich konsekwencje*. [w]: Zeszyty Naukowe Szkoły Głównej Gospodarstwa Wiejskiego w Warszawie, nr 78.
- Wyrzykowski K., 2007. Marketing nie tylko dla małej firmy, Hobby&Education, Warszawa.