UDS 664.1:336:061.1ЄС(475)

Piotr SZAJNER, PhD, head of market research department
Institute of Agricultural and Food Economics –
National Research Institute

Economic-financial situation of the sugar industry in Poland before the removal of sugar production quotas in the EU

The EU sugar market regulation reform of 2017

In 2017, the EU will implement the subsequent reform of the sugar market regulation system. The sugar market has been one of the most regulated food markets in the EU. The regulation system is based upon the production quotas, administrative prices, foreign trade regime and intervention system[1]. The market regulations create strong distortions to market mechanism and have got an extensive influence on the pace of competition within the sector. The 2017 reform concerns the abolishment of production quotas for sugar and isoglucose, minimum buying prices for sugar beet and super-levies. The remaining instruments will not change much, in particular when it comes to the trade policy. If the negotiations of WTO under the Doha Round and the TTIP Agreement are not finished, the EU will still import sugar within preferential tariff-rate quotas from LDC and ACP countries. The abolishment of production quotas will not result in the limitation of export of out-of-quota sugar. The reform will cause a crucial change in market conditions, with effects visible in the production of sugar beet, as well as in the manufacturing and distribution of sugar. It will also have a large impact on sugar balance sheet.

The sugar market in Poland, like in most EU countries, has a classic oligopoly structure. A small group of manufacturers producing a homogeneous product is confronted with a large group of consumers, i.e. numerous food industry plants and households. A market competition is a product of five forces which can be identified in the sugar sector as: competition between sugar producers, bargaining power of raw material suppliers (sugar beet producers), bargaining power of consumers, threat arising by substitute products (e.g. isoglucose) and hazard connected with entrance of new manufacturers [8]. The market regulations reduced the impact of some market forces. Production quotas imposed on manufacturers reduced the competition between sugar industry companies and created serious entry barriers entering for the newcomers. To some extent competition between sugar producers could be based on the production volume, as each manufacturer knew how many sugar its competitors are able to produce. The sugar oligopoly in the EU, including in Poland, could not operate according to the Stackelberg and Cournot model. Having a system of minimum buying price for sugar beet and the reference price for sugar the scope of price competition was very limited (Bertrand model) [15, 11]. As a result of that the competition strategy of sugar producers was based first of all on the leading position in respect of total production costs. On the market of homogenous product, strategies of product diversification and distinction, as well as the concentration on a specified segment of the market, may be implemented to a very limited extent. The elimi-

[1] Regulation (EU) No 1308/2013 of the European Parliament and of the Council of 17 December 2013 establishing a common organisation of the markets in agricultural products and repealing Council Regulations (EEC) No 922/72, (EEC) No 234/79, (EC) No 1037/2001 and (EC) No 1234/2007 (L 347/672 20.12.2013).

nation of isoglucose production quotas creates the possibility for a rise in output of substitute products and thus for a growing competition from this side. Despite inter-branch agreement and contracted production the position of the sugar oligopoly versus sugar beet producers was very strong. The elimination of minimum buying-in price made this position even stronger.

The regulation reform planned for 2017 will result in the EU market being more integrated with the global market. The situation on the global sugar market will have a greater impact on the situation on the EU market. The dynamics of global market development in the years to come will, similarly to what is observed now, amount to ca. 2% per annum, with most significant impact of the demand in developing countries [6]. Under the conditions of growing global demand, the European Union is one of the regions that can match growing demand [4]. Structural transformations and the production of sugar shall be, however, strongly dependent on the economic situation on the global market [3]. Production and export in the EU will grow if the world prices of white sugar will be relatively high (ca. EUR 500/t). If the prices drop below the actual reference price, the sugar sector will require deep structural transformations. The cultivation of sugar beet and the production of sugar will then be maintained only in the most effective and competitive regions [12].

Sugar industry in Poland

The sugar industry in Poland has been subject to considerable structural changes and as well as the modernisation processes. In the years 1989-1993 sugar factories (76) were adjusting to new conditions caused by a change in the political and economic system, i.e. transition from centrally-planned to the market economy [16]. In 1994 the sugar regulation system has been introduced[2] which resembled the regulations existing within the EU. Entities of the sector were adjusting to these conditions and, in the subsequent years, to the upcoming integration with the EU. Structural changes were accompanied by the privatisation process involving Western European sugar holdings [13]. As a result of foreign direct investments, the Polish sugar industry became one of the most globalised food industry [2, 14]. Accession to the EU overlapped with the reform of market regulations in the years 2006-2010[3] and in that very period the largest structural changes have occurred shaping current structure of sugar industry in Poland.

The sugar industry in Poland concerns four sugar companies under which 18 sugar mills are in operation:

KSC Polski Cukier – 7 sugar factories – ca. 40% share in the production,

Peifer&Langen Polska – 4 sugar factories – ca. 25% share in the production,

Südzucker Polska – 5 sugar factories – ca. 25% share in the production,

Nordzucker Polska – 2 sugar factories – approx. 10% share in the production quotas.

Structural changes and modernisation caused that, in spite of a reduction in the number of sugar mills from 76 to 18, the production capacity of sugar industry still reminds at ca. 2 million ton of sugar. A large growth occurred in the production concentration, as the average production of sugar per factory increased from 45 thousand t to 115 thousand t (Figure 1). As a result, the effectiveness production factors measured in terms of labour and capital productivity increased to a great extent. Despite a large growth in the concentration of production, sugar factories in Poland are small as compared to Western Europe. In Germany and France, the production of sugar per plant amounts to, accordingly, 210 thousand tons and 190 thousand tons [1].

Restructuring of sugar industry resulted in large changes in the production of sugar beet. The area of cultivation has significantly decreased, but the decrease has been compensated by a high growth in yields to ca. 60 t/ha. As a

[2] Act of 26 August 1994 on ownership transformations in the sugar industry. (Journal of Laws of 16 September 1994).

[3] Council Regulation (EC) No 318/2006 of 20 February 2006 on the common organisation of the markets in the sugar sector (L 58/1). Council Regulation (EC) No 319/2006 of 20 February 2006 amending Regulation (EC) No 1782/2003 establishing common rules for direct support schemes under the common agricultural policy and establishing certain support schemes for farmers (L 58/32). Council Regulation (EC) No 320/2006 of 20 February 2006 establishing a temporary scheme for the restructuring of the sugar industry in the Community and amending Regulation (EC) No 1290/2005 on the financing of the common agricultural policy (L 58/42].

consequence, the production of sugar beet was not as large as the area of cultivation. The number of growers declined to ca. 34,000, and the average area of plantation increased to ca. 6 ha[4]. In the recent years, the processes of restructuring and modernisation of raw material base have clearly slowed down. The number of growers and the average area of plantation demonstrate small changes, while the pace of growth in yields has diminished. Under the conditions of market liberalisation, it will be necessary to accelerate the concentration of sugar beet production and to improve its efficiency.

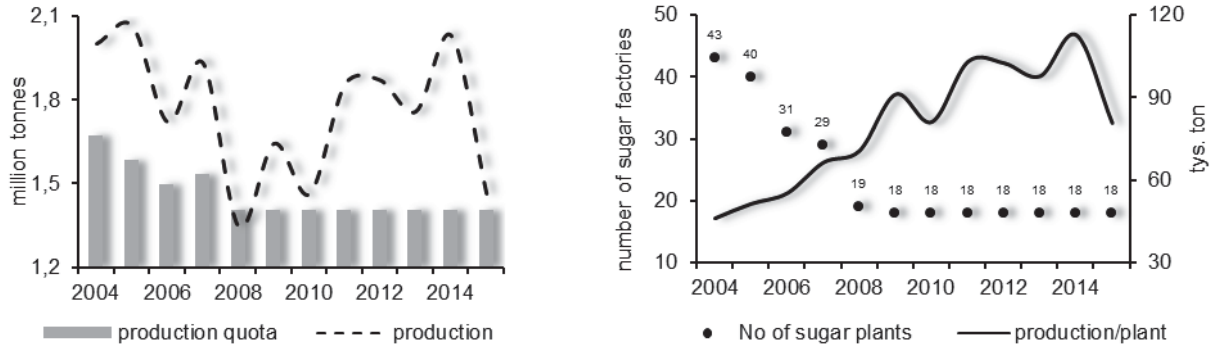

Figure 1. The production of sugar in Poland in the period 2004-2015

Source: Own elaboration, CSO data, Polish Association of Sugar Industry Engineers and Technicians.

In the long run, the production of sugar in Poland exhibits great fluctuations which are mainly caused by weather conditions. An important role in this respect was also played by the market regulations. Under the conditions of a large supply sugar, companies used to shift out-of-quota sugar for the next campaign and cut down the contracting of sugar beet. In 2015, the area of sugar beet totalled only 170 thousand ha because ca. 322 t of sugar from the 2014/2015 campaign were transferred to the 2015/2016 season. Over the period of 2004-2015 the production of sugar has significantly exceeded the production quota. Considerable decreases in production were recorded only in the years 2008-2010 and in 2015 and reflected mainly unfavourable weather conditions.

In 2016, the area of sugar beet in Poland increased up to 201 thousand ha, i.e. by ca. 18% on 2015. A large growth in contracting of raw material indicates that sugar companies started preparations for the removal of production quotas and the liberalisation of market. After the elimination of quotas there will be no out-of-quota sugar, the management of which was covered by highly restrictive conditions. Sugar producers will be able to sell production surpluses on the EU market or export without limitations.

Structural changes and modernisation of the sugar industry in Poland required high investment outlays. In the period 2004-2015 the total amount of investments amounted to PLN 3,250 million, i.e. 270 million in average per annum. The structure of investments was dominated by the purchases of machinery and equipment (67%) and modernisation of buildings (30%). Smaller funds were targeted at the purchases of transport means and other remaining assets. Larger investments in buildings were related mainly to sugar silos. Sugar plants invested a lot in power systems and environmental protection, which resulted in an improvement in their effectiveness as regards energy use and thus in a decrease in costs of energy. Over the period of 2001-2015 consumption of thermal and electric energy by sugar plants declined by 30-40%[2].

Over the period 2004-2012, investment outlays exceeded depreciation by 15-60% and the value of fixed capital was growing. Exceptional situation occurred only in 2007, which reflected the reform sugar regime which made the producers reluctant to invest. The reason for this was an high degree of uncertainty in respect of

[4] Rynek cukru. Stan i perspektywy, nr 43, IERiGŻ-PIB, ARR, MRiRW, Warsaw.

[2] Lechowski M. (2016), Przebieg i wyniki kampanii 2015/2016 w Nordzucker Polska S.A, the lecture on „XXVIII after-campaign conference", STC, ZPC, 25.02.2016, Warsaw.

the shape of the sector after the reforms and the need for payment of large charges to restructuring fund. Another slowdown of investment pace occurred in 2013-2015 when the value of investments decreased to ca. PLN 200 million per annum and investments were smaller than depreciation (Figure 2). The reduction in investments before the reform of the market regime in 2017 is a very serious concern. If such tendency is maintained in the future it would result in the depreciation of fixed assets. It can be assumed that sugar producers do not undertake investment decisions, as they are waiting for decisions concerning changes in the market regulation system. It should also be stressed here that in the years 2014-2015 the profit of sugar industry significantly decreased and investment activities were limited under conditions of uncertainty. Currently sugar companies refrain from investing, because the reform can triggers further restructuring processes, which, would be largely dependent on the market situation [12].

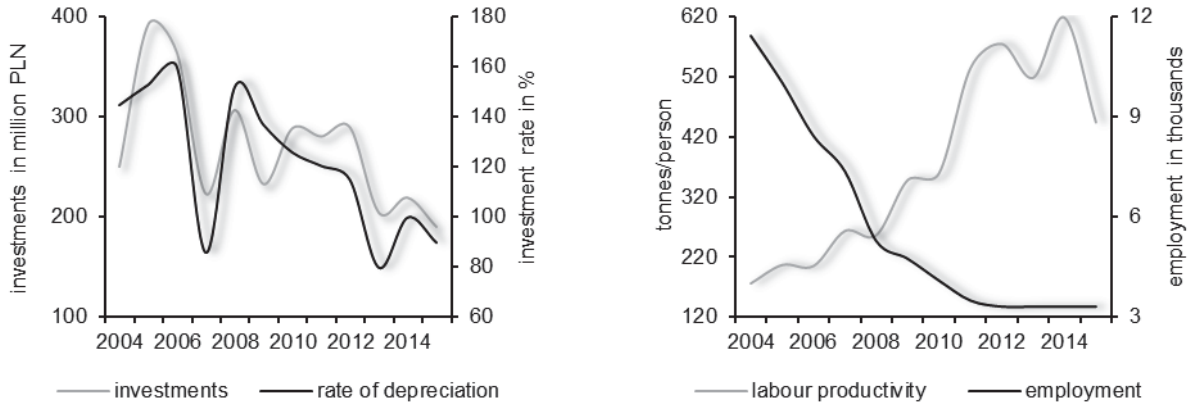

Figure 2. Investments and employment in 2004-2015

Source: Own elaboration, unpublished CSO date.

A slowdown in restructuring and modernisation is also mirrored in a stabilisation of employment and impeding of growth trend in work efficiency. In terms of full-time equivalent the employment in Polish sugar industry has fluctuated around 3,300 staff. In the years 2004-2011, the efficiency of work, measured by production of sugar per one employed showed a clear upward trend from and increased 175 to 580 tons. In subsequent years the growth in work efficiency has been stopped. A decrease in revenues in 2014-2015 at stable remuneration costs (EUR 270-280 million) caused the deterioration of work efficiency. In 2015, the employment efficiency ratio, measured by relation of net revenues versus costs of remuneration, amounted to 16 as compared to 22 recorded in 2012.

Financial standing of the sugar industry

In the long run financial standing Polish sugar industry has been subject to considerable changes which reflected a high variability of total revenue determined first of all by the market situation. In the period 2011-2013, net revenues in the sugar industry were high (PLN 6,287.1-7,617.2 million, and were underpinned mainly by high prices of sugar in Poland as well as on the world markets. Due to a decrease in prices in 2014-2015 gross revenues decreased to PLN 4,371.4-5,251.1 million (Table 1). Under conditions of good economic situation, revenues on sales of products (sugar, molasses, beet pulp energy, etc.) accounted for ca. 80% of gross revenues. In 2014-2015, the proportion declined to 71-73% of gross revenues, which means that a more significant role was played by sales of services as well as financial revenues.

Export of products plays a relatively small role in revenues. Over the period of 2004-2015 it accounted for 7-13% of gross revenues (Figure 3), which means that the most of sugar, molasses, beet pulp and other products is exported via commercial companies. Therefore they overtake certain part of economic rent arising from foreign trade. Sugar companies in Poland should independently export larger quantities of products, which will have a positive impact on their financial results.

Table 1. The financial situation of the sugar industry in Poland

Specification	2011	2012	2013	2014	2015
Net revenues [PLN million]	6,540.6	7,617.2	6,287.1	5,251.1	4,371.4
Revenues on sales [PLN million]	4,839.6	5,903.0	5,371.9	3,935.7	3,511.1
Net profit [PLN million]	1,269.9	1,669.6	1,228.5	562.1	279.9
Net profitability [% of net revenue]	19.4	21.9	19.5	10.7	6.4
Financial costs [% of net revenue]	3.0	1.9	0.9	1.7	1.9
Financial liquidity	3.0	3.4	3.6	3.3	3.5
ROE [%]	23.6	26.4	21.0	10.2	5.0

Sources; IERiGŻ-PIB calculations, unpublished CSO data.

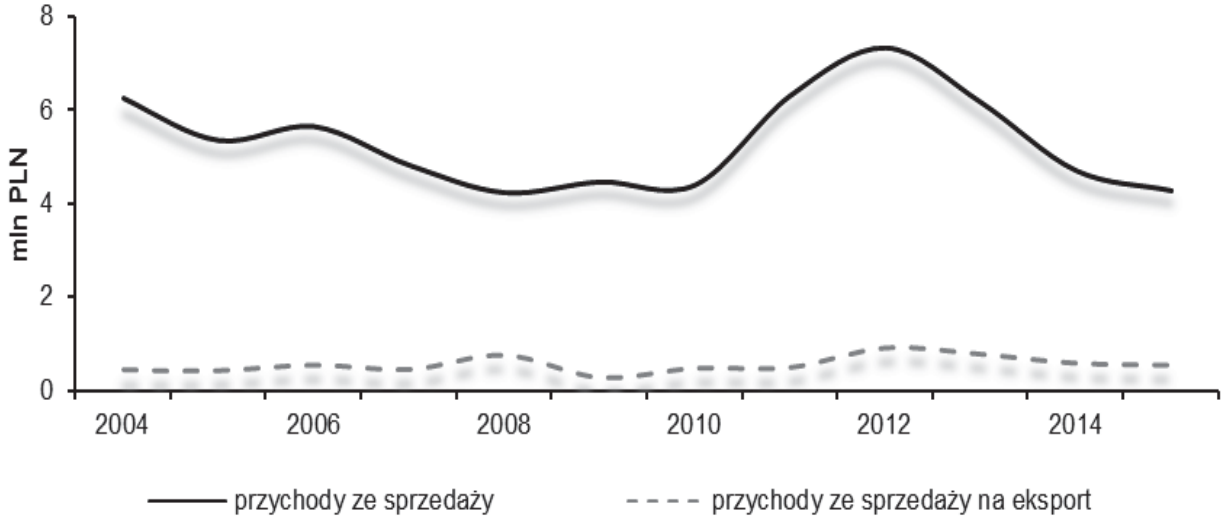

Figure 3. Revenues of the sugar industry

Sources: IERiGŻ-PIB calculations, unpublished CSO data.

Net profit of the sugar industry is characterised by a similar pattern to the changes in revenues. Over the period of 2011-2013, larger revenues were transferred into a large net profit which amounted to PLN 1,228.5-1,669.6 million. A decrease in sugar prices and revenues led to a decline in the net profit to PLN 562.1 million (2014), and to PLN 279.9 million in 2015. The net profitability index is a ratio of net profit to net revenue on sales and shows the proportion of profit retained in a company coming from sales. Larger profits in the period 2011-2013 pushed net profitability to a very high level of 19.1-21.5% (Figure 4). For comparison, the profitability index of the whole food industry amounted then to 4-5%. Due to a large decline in revenue and net profits observed in 2014-2015 the net profitability index decreased to 10.7% and 6.4% respectively, but still was much above the index for food industry as a whole. The comparison of the profitability indices clearly indicates that the production of sugar in recent years was one of the most profitable sectors of food processing.

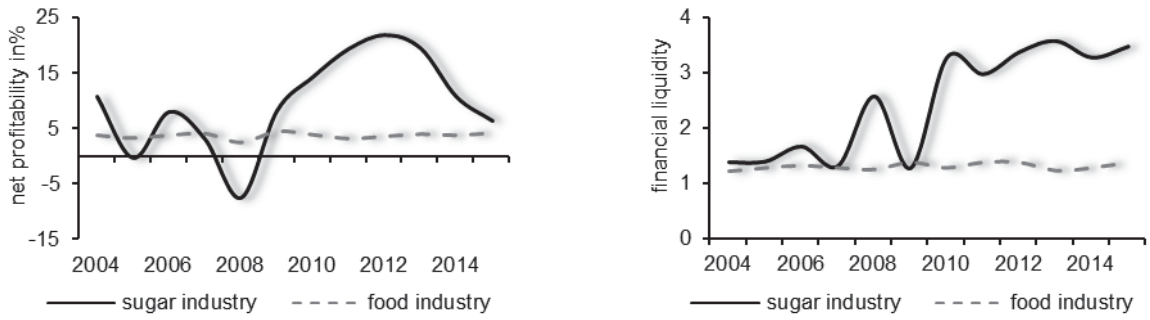

Figure 4. Net return and financial liquidity in 2004-2015

Source: Own elaboration, unpublished CSO data.

An important element of evaluation of financial standing of the sugar sector is also the financial liquidity ratio which interpretation enables the assessment of the enterprises' ability to timely settle current liabilities. Optimum values of the current financial liquidity ratio are 1.2-2.0. Polish sugar industry is characterised by high values of financial liquidity indices (3.0-3.5), which may indicate an excessive liquidity (also unfavourable). The excess liquidity proves an ineffective management of working capital. It may be caused by too high level of cash reserves that were not invested or large inventories (possibly reflecting difficulties with sales), as well as the low fulfilment of current liabilities. Low effectiveness of working capital management may lead to an unproductive accumulation of cash and high level of receivables. In Polish sugar industry the excess liquidity means that the companies have substantial resources of working capital but at the same time reduced investments. Therefore, due to favourable financial condition sugar plants may conduct active investment activities facing even declining profits.

An indicator allowing for an assessment of economic situation of the sector is a return on equity ratio (ROE), which is shows rate of return from own equity. The ratio is measured by relation of net profit to the value of equity at the beginning of the year and indicates how effectively the capital of investors works. ROE provides a significant source of information about the sector for potential investors. ROE values in the sugar industry in the period 2011-2013 amounted to 21-26 and the rate of return on the invested capital was significantly higher from the interest rates of safe ways of investment (e.g., government bonds, bank deposits). In 2014-2015, the value of ROE significantly decreased and the industry was less profitable for investors.

Financial results of the sugar industry in Poland are primarily determined by revenues, as high fluctuations on the side of costs relate only to buying price of sugar beet which mirrors considerable changes in supply and thus prices of raw material. The remaining items in the cost structure demonstrate small changes, because they are significantly limited as a result of restructuring and modernisation processes. The revenues of the sugar industry recorded are determined first of all by sugar prices. There is an explicit correlation between the level of revenues and the prices of sugar. In the years of high sale prices of sugar, the revenues and profits in the sugar industry were high. Such a situation was observed in the period of 2011-2013 when sale prices of sugar were close to PLN 3.20/kg. A reverse situation occurred in 2014-2015 when sugar prices decreased to about PLN 1.70/kg which led to a significant decrease in revenues and profits.

The sugar market in Poland is a part of the EU common market, strongly integrated with the global market. The integration with the EU market is strengthened by a large share (ca. 60%) of German sugar companies in Polish sugar sector. The integration of domestic and global market is apparent through the price linkages [10]. A statistical analysis showed that in the years 2011-2016 the directions of sale price changes in Poland were similar to the pattern observed in the case of the prices of white sugar contract on the commodity exchange in London (LCE-Contract No 5). World prices are characterised by great variability with the business cycle lasting ca. 5 years [5]. In recent years, this cycle shortened to 2-3 years [10]. The reason for this is a large share of foreign trade in the sugar balance sheet in Poland (12-40%). The production of sugar usually exceeded the production quota and large quantities of out-of-quota sugar were exported at the world market prices. Since the production quota was smaller than the domestic consumption (1,650-1,700 thousand tons), and out-of-quota sugar was exported or transferred for the next season, it was necessary to import ca. 250 thousand tons. The share of import in the supply on the market is estimated at ca. 15%.

In the years 2005-2015 sugar prices on the domestic market were characterised by great variability at relatively small changes of inflation rate. Annual fluctuations of procurement price of sugar beet and sale prices of sugar amounted to ±20-40%. Indices of procurement and sale prices were characterised by similar pattern of changes. A growth or decrease in sale prices of sugar was transferred into a growth or decrease in the prices paid to sugar beet producers. An exceptional situation occurred only

in 2006, when a deep decrease in procurement prices of sugar beet (by 27%) overlapped with a stabilisation of sale prices of sugar. A long-term variability of prices is demonstrated by cumulative price indices. In the years 2005-2015, the cumulative sugar beet price index totalled 66%, and the cumulative index of prices supplemented with sugar payments - 87%. In the same period the rate of inflation amounted to 123.8%, and the food prices index to 129.7%. Accordingly cumulative index of wheat and rapeseed procurement prices amounted to 194.2 and 219.8% respectively, which was determined by a good situation on the market of cereals and oilseeds, arising from among others implemented biofuel policies. Cumulative indices of sale prices and retail prices of sugar amounted, accordingly, to 75.4% and 99.6% and were higher than procurement prices of sugar beet (Table 2). A rise in the prices of sugar versus the prices of sugar beet in real terms along with positive effects of restructuring process led to an increase in profitability of sugar industry. It has to be underlined that resulting from the reforms conducted over the period of 2006-2010 decrease in procurement prices of sugar beet was compensated in the form decoupled of sugar payments (50-56 PLN/ton). In 2015, farmers received production payments in the amount of ca. 2,140 PLN/ha. Payments to sugar beet have a significant effect on the profitability of production and in some regions of the country enabled to maintain the production, which was also favourable for the sugar industry.

Table 2. Cumulative price indices on the domestic market of sugar

Years	Inflation	Food	Sugar beet	Sugar prices	
				Sale prices	retail prices
2005	100.0	100.0	100.0	100.0	100.0
2006	101.0	100.6	73.5	102.9	99.6
2007	103.5	105.6	61.8	95.8	96.1
2008	107.9	112.2	59.2	85.5	86.5
2009	111.6	116.8	66.1	99.0	99.7
2010	114.4	120.0	64.6	87.2	87.0
2011	119.4	126.8	82.3	133.8	129.8
2012	123.8	130.2	78.4	132.6	126.4
2013	124.9	133.1	82.2	114.0	107.5
2014	124.9	131.9	69.6	74.1	100.5
2015	**123.8**	**129.7**	**66.1**	**75.4**	**99.6**

Source: Own elaboration, unpublished CSO data.

In 2016 the market situation on both the world and domestic markets improved. The global prices of white sugar increased to ca. USD 520/ton and sale prices in Poland to PLN 2.30-2.50/kg (Figure 5). The increase gives a basis to forecast a rise in revenues and profits of the sugar sector which would enable for a recovery of working capital reserves so as to facilitate further adjustment process.

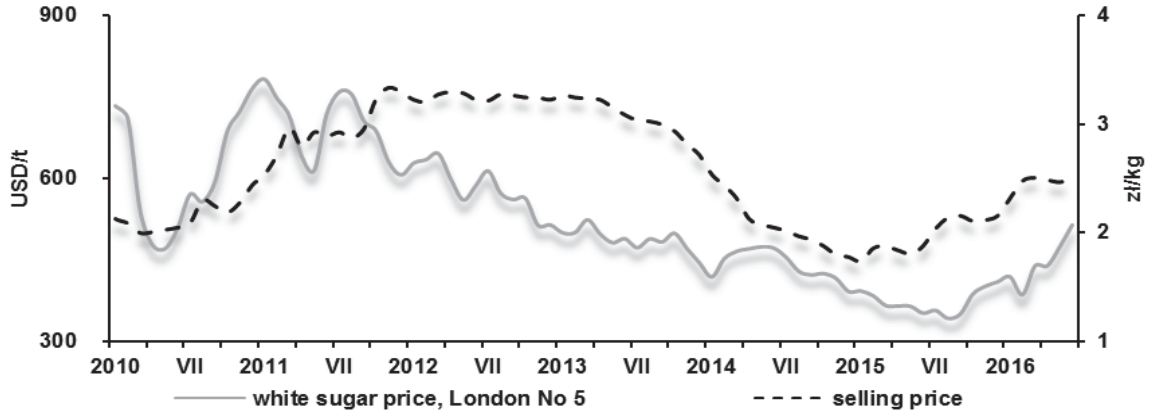

Figure 5. Sale prices of sugar in Poland and global prices of white sugar

Source: Own elaboration, unpublished CSO data, URS USDA.

Conclusions

The sugar market regulation reform of 2017 will result in considerable changes in market conditions of the sugar industry in Poland. A removal of production quotas for isoglucose and sugar and minimum buying-in (procurement) prices for sugar beet will contribute to the intensification of competition forces. Polish food industry has undergone the process of deep structural changes and modernisation. Nevertheless further adjustment to new conditions will still be required. As a result of market liberalisation, the situation on the Polish market will be still to a great extent dependent upon the situation on the European and global market. The sugar industry and its raw material basis must be prepared for such changes. Over the period of 2014-2015, the economic situation of the sector in the world and in Poland was difficult as low prices of sugar resulted in a significant reduction in revenues and profit. One can say the situation of the sugar industry deteriorated on the eve of the reform. A slowdown in modernisation process is very alarming, since investments in the recent years were below the depreciation. The slowdown of structural changes was also visible in the production of sugar beet. The entities of the sugar sector should actively adapt to changing market conditions, and investments should play a crucial role in this regard. In the first half of 2016, a certain improvement in the economic situation on the world and Polish market was observed. As a result of that an improvement in the financial situation of the sugar industry is expected, which, consequently, would facilitate adjustments necessary to cope with the challenges arising from current reform.

References

1. CEFS (2014), CEFS Sugar Statistics 2014, Brusesels.
2. *Chechelski P.* (2008), Wpływ procesów globalizacji na polski przemysł spożwyczy, IERiGŻ-PIB, Warsaw.
3. European Commission (2015), Prospects for Agricultural Markets and Income in the EU 2015-2025, Brussels.
4. *Gocht A., Albrecht R., Gömann H.* (2012), Analyse des Vorschlags zur Reform der Zuckermarktordnung, Johan Heinrich von Tühnen-Institut, Braunschweig.
5. *Isermeyer F., Kleinhanβ W.* (2005), Vergleichende Analyse verschiedener Vorschläge zur Reform der Zuckermarktordnung: eine Studie im Auftrag des Bundesministeriums für Verbraucherschutz, Ernährung und Landwirtschaft, FAL, Breunschweig.
6. OECD-FAO, (2015), Agricultural Outlook 2015-2024, FAO, OECD, Paris.
7. OECD (2007), Sugar Policy Reform in the European Union and in World Sugar Markets, Paris.
8. *Porter M.E.* (2008) The Five Competitive Forces That Shape Strategy, Harvard Business Review, January.
9. *Skarżyńska A.* (2013), Nadwyżka bezpośrednia z wybranych produktów rolniczych w 2012 roku oraz projekcja dochodów na 2015 rok, IERiGŻ-PIB, Warszawa.
10. *Szajner P. Hamulczuk M.* (2015), Sugar prices in Poland and their determinants, Problems of agricultural economics, 4 (345), Warsaw.
11. *Szajner P, Hryszko K.* (2013), Situation on the world market of sugar and its impact on the possibilities of sugar beet cultivation in Poland, IERiGŻ-PIB, Warsaw.
12. *Szajner P, Wieliczko B., Hamulczuk M., Wigier M., Wrzaszcz W.* (2016) Research for Agri Committee - The Post-Quotas EU Sugar Sector, Brussels.
13. *Urban R.* (2004), Przemiany przemysłu spożywczego w latach 1988-2003, IERiGŻ, Warszawa.
14. *Urban R.* (2008), Wpływ integracji z UE na polską gospodarkę żywnosciową, IERiGŻ-PIB, Warsaw.
15. *Varian H.R.* (2010), Intermediate Microeconomics: A Modern Approach, W.W. Norton&Company, New York, London.
16. *Wykrętowicz S.* (1997), Najnowsze dzieje cukrownictwa w Polsce (1944-1998), MNRiPR-S, Poznań.
17. *Zimmer Y.* (2013), Isoglucose – how significant is the threat to the EU sugar industry? Sugar Industry 138 (2013) No. 12.

The article has been received 11.10.2016

* * *