

dr inż. Robert Mroczek
Food Industry Economics Department
Institute of Agricultural and Food Economics –
National Research Institute, Warsaw, Poland

To the problem of the development of food industry in Poland: investments, assets of enterprises

Topicality of the article. An article considers and characteristics investments, assets of enterprises in the food industry and its main sectors in Poland.

Investments are usually identified with purchase, manufacture or improvement of fixed assets. Thus both the value of fixed assets and the overall value of enterprises' assets increase. Capital assets and deposits may be transferred to other entities, which is known as capital investments. The companies make investments with a view to different objectives to be achieved, e.g. improvement of production efficiency by replacing live labour with new, more efficient machines, increasing the scale of production, strengthening their position and winning a new outlet market, or increasing the company value.

1. Value of investments in food industry

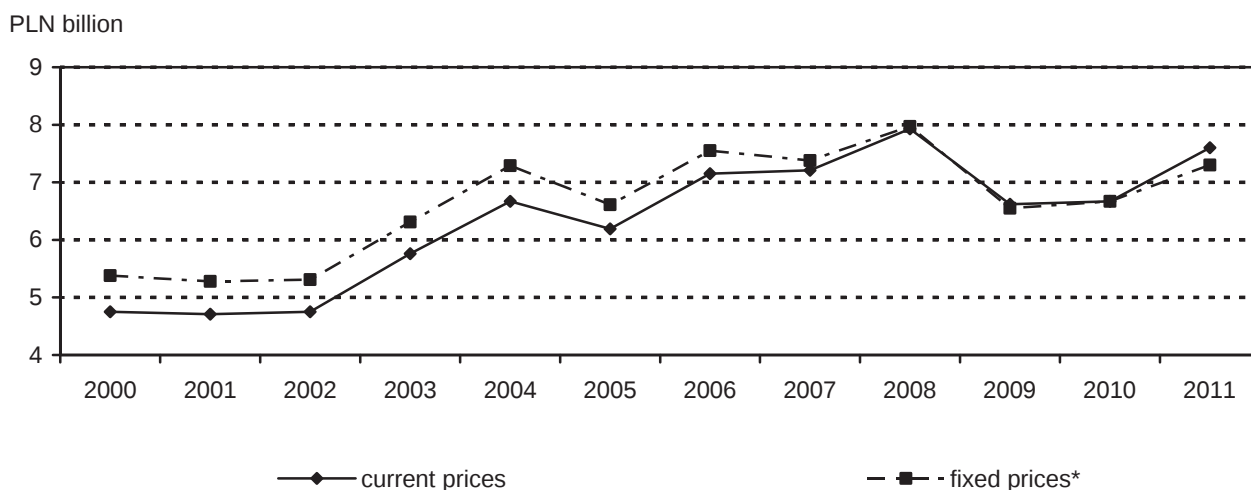
In the investments area, the effects of the global crises were felt in 2009, when the investment outlays in the Polish food industry dropped by 17.5% to PLN 6.6 billion, still being 40% higher than in 2000-2002 (Figure 1). At the times of the economic downturn, processing companies made more sensible investments. Financial institutions (banks) were also more rigorous and inquisitive in analysing credit applications or recovery plans of enterprises. Investment restriction were not dictated by lack of financial resources, as in 2009-2010 profits from the food industry amounted to ca. PLN 7.9 billion respectively, and belonged to the highest in the past decade. The uncertainty

on the market stopped new investments [Mroczek 2012].

In 2009-2010, investment outlays in food industry amounted to PLN 6.7 billion per year. Along with economic recovery, food industry companies started to make bolder investments and in 2011 investment expenditure amounted to PLN 7.6 billion, i.e. they returned to the level from before the last global economic crisis. Most of the food industry companies showed great moderation regarding investments at the times of uncertainty, but some took the risk and used the so-called currency options. Instead of the expected returns and profits these resulted in losses, in some cases, quite severe. Acceleration of consolidation processes in processing plants in individual food industry sectors did not take place, though it might seem that difficult times are a good moment for such actions.

Increase in investment outlays of the Polish food industry in the period of the EU integration resulted, above all, from the need of meeting the EU veterinary, sanitary and hygiene standards by processing plants. These adjustments contributed also to the improvement of competitiveness of the Polish enterprises as compared to their competition from other Community states and third states.

Figure 1. Capital investments in the Polish food industry (PLN billion)



*Current prices corrected by the investment goods index

Source: Own elaboration based on the CSO Statistical Yearbooks 2001-2012.

1. Investment outlays in food processing enterprises (PLN million)

Sector of industry	2000-2002 ^b	2004	2006-2008 ^b	2009-2010 ^b	2011	Total 2000-2011
Meat	572	1,551	1,048	699	804	10,536
Poultry	93	259	233	183	299	2,237
Dairy including ice-cream	507	982	882	768	704	8,875
Fish	72	164	231	165	285	1,892
Milling (excluding starches)	130	184	205	163	230	2,067
Oil-mill	68	77	98	82	137	1,014
Sugar	135	251	299	282	281	2,952
Potato	39	120	39	42	53	566
Fruit and vegetable	144	549	386	279	468	3,853
Juice production	104	171	258	134	170	2,043
Non-alcoholic beverages	278	350	332	289	325	3,718
Fodder	178	208	276	226	329	2,781
Bakery	171	183	297	315	324	2,938
Confectionery	53	107	95	97	118	1,047
Sweets	145	296	493	562	412	4,392
Pasta	15	32	31	41	48	351
Coffee and tea processing	68	79	61	63	322	1,016
Food concentrates	188	195	338	592	345	3,679
Spirits	47	86	118	80	59	954
Brewing (including malt)	643	614	683	343	361	6,850
Wine	57	40	28	28	34	442
Tobacco	297	190	470	495	581	4,604
Total food industry	4,003	6,688	6,901	5,926	6,534	68,646

^a which submitted financial reports; ^b on average per year

Source: Own elaboration based on unpublished CSO data.

High level of investments in food industry enterprises, in particular in 2007 and 2008, resulted from good economic situation of agricultural products on the global market. Another factor affecting the increase in investment came down to concluding transitional periods for the

so-called sensitive sectors, namely meat, dairy and fish sectors. The drop in investment outlays in 2009-2010 resulted from the global economic crisis. The receding economic crisis and, more to that, “controlled” mitigation of its effects led to an economic recovery and,

once again, growth of investment outlays. In 2011, food industry companies invested ca. PLN 7.6 billion, i.e. by 1/10 more than in 2009-2010 [Mroczek 2012].

In the 2000-2011 period, the greatest investment outlays were made by the meat sector (PLN 10.5 billion), i.e. 15.3% of investment in the whole food industry and dairy sector including ice-cream (ca. PLN 8.9 billion), brewing sector (ca. PLN 6.9 billion), as well as sweets and tobacco sectors ca. PLN 4.5 billion each (Table 1).

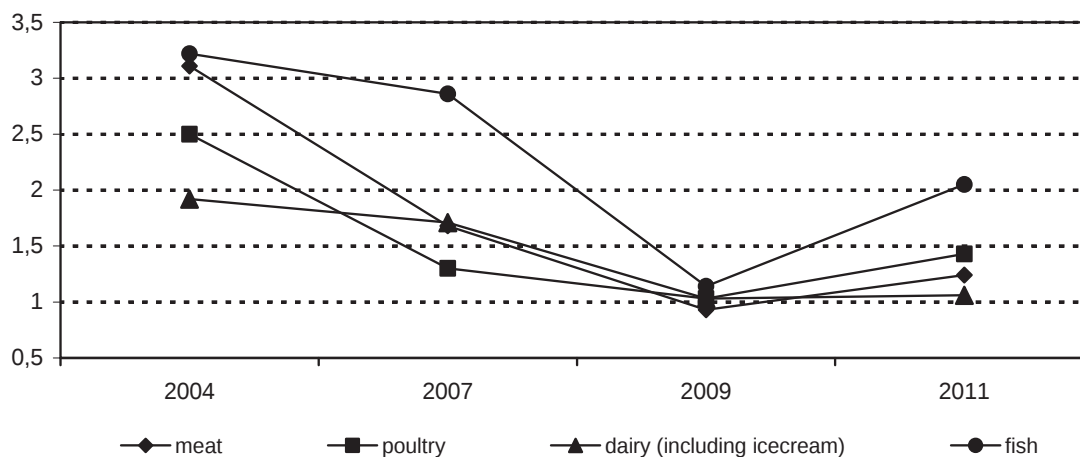
In the past decade, the food industry companies used assistance funds from the European Union, which were available both in the pre-accession period, and throughout the entire period of our membership in the Community. The funds were available under the following programmes: SAPARD (launched at the beginning of July 2002, ended 2006), Sectoral Operational Programme 2004-2006 (SOP) or Rural Development Programme 2007-2013 (RDP). Funds granted under these programmes amounted to a small proportion of investment outlays made by the food industry. It means that the main burden

of investment expenditures was incurred by companies using the assistance in the form of bank loans [Mroczek 2011].

2. Investment rate

Investment rate is one of the measures of investment activity and indicates the degree of replacement of the company's assets. When depreciation deductions are higher than investments, depreciation of fixed assets of an enterprise occurs, since it is not being replaced to an adequate extent. In 2004, the highest investment rate was noted in the fish sector (3.2) followed by meat (3.1), fruit and vegetable (2.6), poultry (2.5) and dairy (1.9) (Figure 2 and Figure 3). In the years to follow investment rate in these sectors decreased and it was levelled with other food industry sectors. At the times of the global economic crises, sectors of high investment activity level seriously limited their investments, and in 2009 the investment rate fluctuated around 1. In 2011, the investment rate in the dairy sector remained low, and it slightly increased in meat and poultry sectors (to 1.2 and 1.4), and exceeded 2 in the fish sector.

Figure 2. Food industry sectors of high investment rate

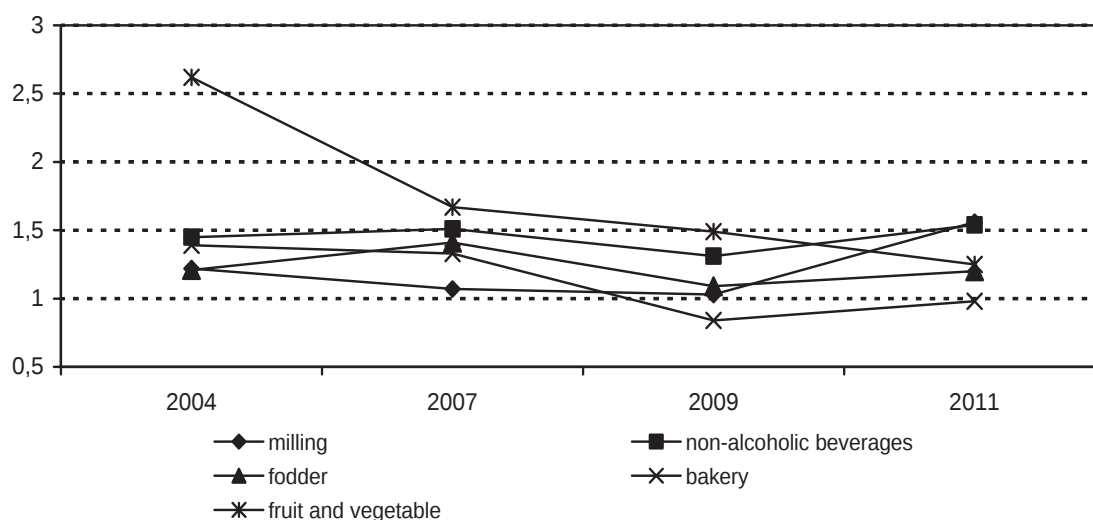


Source: Own elaboration based on unpublished CSO data.

The group of industry sectors of moderate investment rate (at the level of ca. 1.5) included, *inter alia*, the following sectors: milling, non-alcoholic beverages, fodder and bakery (Figure 3). Here, though to a lesser extent, the decrease in the investment rate in the period of the last world economic crisis is also notice-

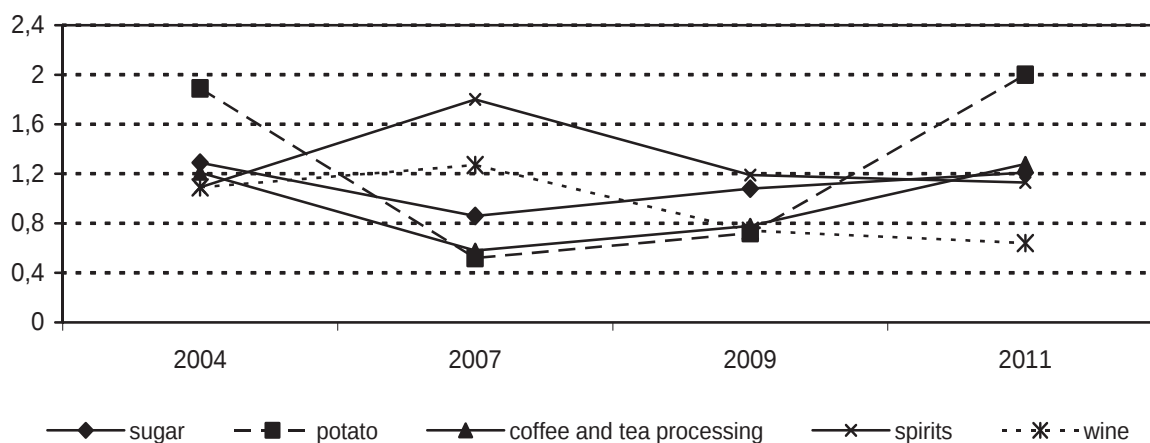
able. Fixed assets were depreciated, or replaced only to a small extent, in such sectors as: sugar, potato, coffee and tea processing, spirits and wine (Figure 4). The impact of the global crisis on the amount of investment rates in sectors of average and low investment rate was very low.

Figure 3. Food industry sectors of moderate investment rates



Source: as in Figure 2.

Figure 4. Food industry sectors of low investment rates



Source: as in Figure 2.

3. Fixed assets and its structure

In 2003-2011, the gross value of fixed assets in food industry (including micro-enterprises) in current book-keeping prices grew by 68% from PLN 52.2 billion to PLN 87.7 billion. Growth in the value of fixed assets was relatively stable, as in 2003-2007 the value of fixed assets increased by 31.5% from PLN 52.2 billion to PLN 68.7 billion PLN, and in 2007-2011 the value of fixed assets grew by 27.7%

from PLN 68.7 billion to 87.7 billion PLN. At that time, the structure of fixed assets was subject to slight changes (Table 2). The share of buildings and structures was practically unchanged – ca. 35%. The share of machines, equipment and tools increased by 2.2 p.p. from 56.7% (in 2003) to 58.9% (in 2009-2011), and the share of means of transport decreased by 2.5 p.p. from 8.4% to 5.9% [Mroczek 2012].

2. Value and structure and use of fixed assets in food industry

Specification	2003	2007	2009	2010	2011
Gross value (PLN million)					
Including (%)	52,206.4	68,657.0	77,561.0	81,843.0	87,680.0
• buildings and structures	34.8	35.9	35.4	35.4	35.2
• machines, equipment and tools	56.7	57.6	58.7	58.6	58.9
• means of transport	8.4	6.5	5.9	6.0	5.9

Net value (PLN million)	29,353.9	37,388.0	40,353.0	42,422.0	44,341.2
The use of fixed assets (%) including:	43.8	45.5	48.0	48.2	49.4
• buildings and structures	26.5	26.3	29.0	28.7	29.1
• machines, equipment and tools	53.1	56.3	58.0	58.7	60.2
• means of transport	52.3	60.2	62.0	61.0	62.9

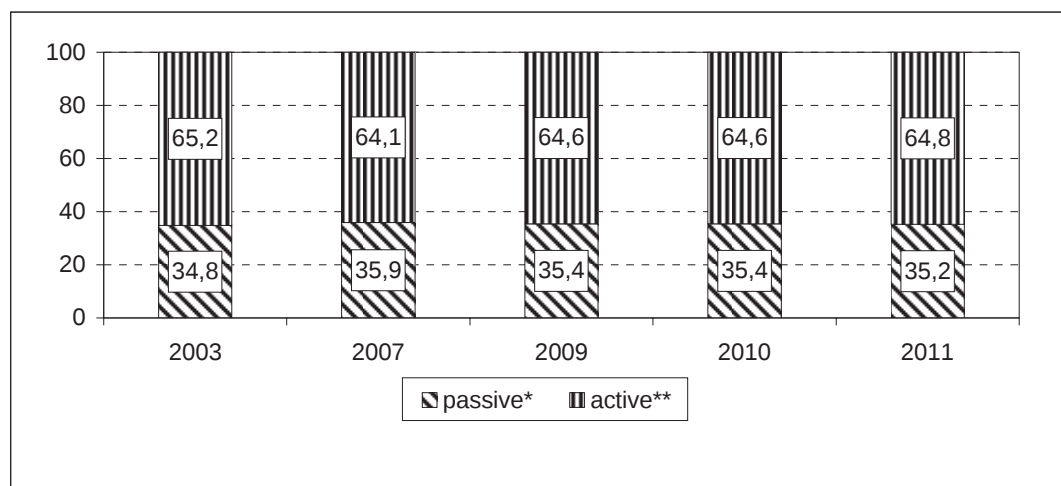
Source: Own calculations based on CSO Statistical Yearbooks 2004 and 2008-2012.

In 2003-2011, the use of active fixed assets in food industry increased, including, to the greatest extent, in relation to means of transport, by 10.6 p.p., and machines, equipment and tools by 7.1 p.p. The part of the fixed assets depreciated to a largest extent was means of transport. The index of their use in 2011 amounted to 62.9%. Machines, equipment and tools were depreciated to a slightly smaller degree, as the index of their use amounted to 60.2%. The use of passive assets (buildings and structures) in 2011 amounted to 29.1% and was twice lower than of active assets. Significant

differences between the use index of passive and active assets result, above all, from the longer lifecycle (depreciation period) of buildings and structures than that of machines and means of transport.

In 2011, the net value of fixed assets amounted to PLN 44.3 billion and was higher by 51% than in 2003 (Table 2). This increase was, however, lower by 17 p.p. from gross fixed assets, due to the increasing use of active assets, exceeding 60%. In 2003-2011, the use of fixed assets in food industry grew from 43.8% to 49.4%, i.e. by 5.6 p.p.

Figure 5. The structure of fixed assets of enterprises of food industry (including tobacco) (%)



* Passive assets (buildings and structures), **active assets (machines, equipment, tools and means of transport)

Source: Based on Table 2.

Assets of an enterprise consist of net fixed assets (machines, equipment, means of transport and buildings and structures) and current property. i.e. savings, liabilities and cash. The value of total assets of enterprises of the food industry submitting financial reports (Table 3)

grew by 89.5% from PLN 67.4 billion in 2003 to PLN 127.7 billion in 2011, with value of fixed assets (in current, book-keeping prices) doubled from PLN 34.8 billion to PLN 71.5 billion, and of current assets grew by 72% from PLN 32.6 billion to PLN 56.2 billion (current prices).

3. The value of assets of food industry enterprises submitting financial reports

Specification	2003	2007	2009	2010	2011
Fixed assets (PLN million)	34,852.2	49,500.1	61,835.1	62,007.4	71,530.2
Current assets (PLN million)	32,560.2	46,803.6	47,029.6	48,816.3	56,202.3
Total (PLN million)	67,412.4	96,303.7	108,864.7	110,823.7	127,732.5
including: fixed (%)	51.7	51.4	56.8	56.0	56.0

Source: Own calculations based on unpublished CSO data.

The share of current and fixed assets in the value of assets of food industry enterprises in 2003 was quite similar (the difference amounted to 3.4 p.p.) and was maintained at the same level in the following years. Only at the end of the previous decade the difference grew in favour of fixed assets, of which the share increased to 56% in 2009-2011.

Changes in asset value in individual sectors of the food industry had different paces (Table 4). In the majority of the industry sectors (12 of 22) – the company's assets are based on the fixed assets. These sectors are: meat, dairy, milling, non-alcoholic beverages, bakery, confectionery, sweets, pasta, coffee and tea processing, spirits, brewery and tobacco. The share of fixed assets in this group varied between 53.4% in the pasta sector and 72.8% in the spirits sector. Also the juice and potato sectors had a slightly higher value of fixed assets than

current assets. In such sectors as: fish, oil-mill, sugar, fruit and vegetable, fodder, wine and poultry, the current assets usually had several percentage advantages.

In 2003-2011, the most significant structural changes in company assets took place in oil-mill, sugar, sweets, coffee and tea processing, spirits, tobacco and brewery sectors. The share of fixed assets grew by over a half in these sectors. The highest growth of the share of these assets took place in spirits industry (by 2.5 times), followed by tobacco (by 60%), coffee and tea processing (by 38.6%), oil-mill (33.5%),d sweets (30.6%) and milling (16.8%). Some sectors witnessed a drop in the share of fixed assets. Among these were the following: pasta (19.9%), confectionery (16.4%), juice (12.4%) and brewery (11.3%). Stable assets structure was retained in potato, fruit and vegetable, fodder and wine sectors.

4. Assets of food industry companies submitting financial reports

Sector of industry	Value of assets in PLN million		Share of fixed assets in %		Dynamics indexes (2003 = 100)		
	2003	2011			total assets	fixed assets	current assets
			2003	2011			
Meat	7,653.2	13,026.7	62.1	56.7	170.2	155.4	194.5
Poultry	1,642.4	4,416.3	49.8	47.3	268.9	255.4	282.3
Dairy	6,291.0	13,327.8	52.7	57.8	211.9	232.4	189.0
Fish	1,175.3	4,287.8	42.5	44.0	364.8	377.7	355.3
Milling ^b	2,596.7	3,993.6	46.4	54.2	153.8	179.6	131.4
Oil-mill	1,459.1	3,079.3	32.5	43.4	211.0	281.8	177.0
Sugar	6,203.7	8,544.5	46.3	38.7	137.7	115.1	157.2
Potato	1,082.9	1,282.3	50.9	51.3	118.4	119.3	117.4
Fruit and vegetable	4,653.0	6,546.2	38.4	39.4	140.7	144.4	138.4
Juice production	2,388.6	4,866.5	58.1	50.9	203.7	178.5	238.7
Non-alcoholic beverages	2,845.9	7,753.4	61.9	69.7	272.4	306.8	216.7
Fodder	3,830.1	6,143.7	42.3	43.2	160.4	163.8	157.9
Bakery	1,619.7	3,634.2	68.9	66.3	224.4	215.9	243.1
Confectionery	1,033.5	1,556.7	58.0	61.1	150.6	158.7	139.5
Sweets	3,257.0	11,448.5	49.4	64.5	351.5	458.9	246.6
Pasta	435.6	864.9	66.7	53.4	198.6	159.0	277.9
Coffee and tea processing	948.3	2,878.4	44.0	61.0	303.5	420.8	211.4
Food concentrates	2,829.1	7,084.9	44.6	48.9	250.4	274.6	231.0
Spirits	2,559.9	9,027.8	29.5	72.8	352.7	870.3	136.1
Brewing	6,986.0	7,072.7	74.5	66.1	101.2	89.8	134.6
Wine	752.1	905.9	34.3	35.7	120.4	125.4	117.9
Tobacco	4,465.9	4,933.1	42.4	67.7	110.5	176.4	61.9
Food industry	67,412.4	127,732.5	51.7	56.0	189.5	205.2	172.6

^a excluding ice-cream, ^b excluding starch, ^c including malt

Source: Own elaboration based on unpublished CSO data.

Dynamics of growth of total asset value in the analysed food industry enterprises was differentiated, since:

- at least 3-time growth of property value was reached in the following sectors: fish, sweets, coffee and tea processing, and spirits

sectors (from PLN 7.9 billion to PLN 25.7 billion),

- double and slightly greater increase was noted in poultry, dairy, oil-mill, juice, non-alcoholic beverages, bakery and food concentrates sectors (from PLN 19.1 billion to PLN 44.2 billion),

- assets increased, in most times by several dozen percent, in meat, milling, sugar, potato, fruit and vegetable, fodder, confectionery, pasta, wine and tobacco sectors (from PLN 32.7 billion to PLN 47.8 billion).

Much more differentiation between sectors was observed in the field of changes in the value of fixed assets in food industry companies, as:

- at least 3-time growth of the value was reached in the following sectors: fish, non-alcoholic beverages, sweets, coffee and tea processing, and spirits (from PLN 5.0 billion to PLN 23.0 billion),

- growth of fixed assets, in most cases by several percent, was noted in meat, milling, sugar, potato, fruit and vegetable, juice production, fodder, pasta, wine and tobacco sectors (from PLN 16.5 billion to PLN 28.1 billion).

Changes of value of current assets were smaller, as only in the fish sector their value grew by over three times. In eight sectors (poultry, juice production, non-alcoholic beverages, bakery, sweets, coffee and tea processing and

food concentrates) the value of current assets doubled.

4. Asset intensity of food industry

One of the measures of technical and economic effectiveness of an enterprise operation is asset intensity of production. This is a ratio of outlays for the creation of company assets to the volume of production obtained with the use of this assets. In the analysis performed, the ratio of the value of fixed assets of companies to the value of sold production (at basic prices) was used to calculate asset intensity of the production, which may be presented in a following formula:

$$\text{Asset intensity of production} = \frac{\text{value of fixed assets}}{\text{value of production sold}}$$

In 2003-2011, the asset intensity of production grew in the majority of food industry sectors. It means that per each zloty of production sold, a bigger part (value) of fixed assets of an enterprise was distributed. One of the factors that could impact the growth of asset intensity of production is substitution of live labour by machines and equipment. In 2003-2011, the number of persons employed in the food sector decreased by 6% from ca. 468 to 439 thousand, and the value of machines, equipment and tools grew by 175% resulting from the undertaken investments (see Table 2).

5. Asset intensity of production and assets productivity in enterprises submitting financial reports (PLN/PLN)

Sector of industry	Asset intensity of production		
	2003	2007	2011
Meat	0.29	0.31	0.25
Poultry	0.20	0.21	0.17
Dairy	0.27	0.21	0.32
Fish	0.25	0.34	0.31
Milling	0.40	0.39	0.39
Oil-mill	0.20	0.32	0.30
Sugar	0.82	0.75	0.59
Potato	0.44	0.34	0.48
Fruit and vegetable	0.33	0.35	0.36
Juice production	0.59	0.48	0.50
Non-alcoholic beverages	0.55	0.64	0.79
Fodder	0.26	0.24	0.22
Bakery	0.52	0.45	0.43
Confectionery	0.44	0.55	0.45
Sweets	0.45	0.44	0.74
Pasta	0.69	0.41	0.46
Coffee and tea processing	0.27	0.41	0.62
Food concentrates	0.35	0.30	0.38

Spirits	0.39	0.51	2.23
Brewing	0.86	0.74	0.54
Wine	0.34	0.42	0.44
Tobacco	0.56	0.51	0.98
Food industry	0.40	0.37	0.43

^a excluding ice-cream, b excluding starch, c including malt

Source: Own elaboration based on unpublished CSO data.

Asset intensity of the production in individual sectors of food industry was much differentiated. It was the highest in spirits, tobacco, coffee and tea processing, non-alcoholic beverages, sugar, sweets, brewery and juice production sectors amounting from 0.5 to 2.2. This ratio was therefore at least twice higher than in such sectors as: poultry, meat and fodder (Table 5). Depending on the direction and pace of changes of the ratio of the fixed assets to the sold production, following groups can be distinguished:

- sectors with high growth of asset intensity (more than 2-times), include: spirits and tea and coffee processing sectors,
- sectors with significant growth (of over 40%) include: oil-mill, non-alcoholic beverages, tobacco and sweets,
- sectors with moderate growth include: dairy, fish, potato, fruit and vegetable, food concentrates and wine,
- industry sectors with diminishing asset intensity of production include: meat, brewery, poultry, confectionery, juice production, fodder, bakery and pasta.

Conclusions

1. In 2000-2011, investment outlays in entire Polish food industry (including tobacco) amounted to PLN 76 billion. It transpires from financial reports submitted by food industry enterprises that the highest investment outlays were spent by the meat industry (PLN 10.5 billion), and dairy sector including ice-cream (ca. PLN 8.9 billion), brewery (ca. PLN 6.9 billion) and sweets and tobacco ca. PLN 4.5 billion each. In the period of the last global economic crisis, there was a slowdown of investments in the food industry. This phenomenon was temporary and in 2011 the level of investment outlays returned to the level noted in 2006-2008.

2. The fixed assets of food industry enterprises was replaced the fastest in meat, poultry, dairy and fish sectors, however, at the times of the global economic crisis, the dropdown of

investments in these sectors was significant. Among the sectors of average investment rate (at the level of ca. 1.5) were: milling, non-alcoholic beverages, fodder, fruit and vegetable and bakery. At the lowest, and often inadequate level, fixed assets were replaced in the following sectors: sugar, potato, coffee and tea processing, spirits and wine.

3. Investments carried out in the last years significantly increased the gross value of fixed assets or food industry companies. In 2003-2011, its value grew by over 2/3 from PLN 52.2 billion to PLN 87.7 billion. The part of the fixed assets depreciated to a largest extent was means of transport. The index of their use in 2011 amounted to 62.9%. Machines, equipment and tools were depreciated to a slightly smaller degree, as the index of their use amounted to 60.2%. The use of passive assets (buildings and structures) in 2011 amounted to 29.1% and was twice lower than of active assets. Significant differences between the use index of passive and active assets result, above all, from the longer lifecycle (depreciation period) of buildings and structures than that of machines and means of transport.

4. In 2003-2011, the highest, over three times growth of fixed assets was noted in fish, non-alcoholic beverages, sweets, coffee and tea processing, and spirits sectors, and over 2-times growth was noted in poultry, dairy, oil-mill, bakery and food concentrates sectors.

5. In the last years asset intensity of production in the Polish food industry grew. The growth resulted, for instance, from the fact that live labour was substituted with machines and equipment. In 2003-2011, the number of persons working in the food industry decreased by 6.2% (from 468.2 thousand to 439.2 thousand) and the gross value of machines, equipment and tools in current fixed prices grew by 2/3 (from PLN 34.0 billion to PLN 56.8 billion). The fastest growth of asset intensity (by more than 2 times) was noted in spirits and coffee and tea

processing, and significant (over 40%) in oil-mill, non-alcoholic beverages, tobacco and sweets sectors. Sectors with decreasing asset

intensity include: meat, brewery, poultry, confectionery, juice production, fodder, bakery and pasta.

References

1. Praca zbiorowa pod redakcją R. Mroczka "Procesy dostosowawcze polskiego przemysłu spożywczego do zmieniającego się otoczenia rynkowego (1)", seria Program Wieloletni 2011-2014 nr 4, IERIGŻ-PIB, Warszawa 2011.
2. Praca zbiorowa pod redakcją R. Mroczka "Procesy dostosowawcze polskiego przemysłu spożywczego do zmieniającego się otoczenia rynkowego (2)", seria Program Wieloletni 2011-2014 nr 35, IERIGŻ-PIB, Warszawa 2012.
3. Roczniki Statystyczne GUS 2001-2012.

The article has been received 11.04.2013

*

УДК 657.1:631.11

В.Б. МОССАКОВСЬКИЙ, доктор економічних наук,
головний науковий співробітник
Національний науковий центр „Інститут аграрної економіки”

Особливості управлінського обліку в сільськогосподарських підприємствах

Постановка проблеми. Законом України «Про бухгалтерський облік і фінансову звітність в Україні» введено поняття внутрішньогосподарського (управлінського) обліку як системи обробки та підготовки інформації про діяльність підприємства для внутрішніх користувачів у процесі управління підприємством. Оскільки кожне підприємство має особливості в організації діяльності, здійсненні технологічних операцій, збуті продукції й т.п., йому надано право розробляти систему і форми управлінського обліку, звітності та контролю господарських операцій, а також права працівників на підписання господарських документів тощо.

Метою управлінського обліку є збір і наступний контроль за виробничими і збутовими процесами у підприємстві для підвищення його прибутковості, але підприємства певної галузі, зокрема сільськогосподарські, мають свої особливості, що вимагає перегляду основних положень і приведення їх у відповідність до потреб управління витратами.

Аналіз останніх досліджень і публікацій. В економічній літературі вітчизняні дослідники та зарубіжні вчені [3–5] останніми роками досліджували, як правило, основні положення формування управлінської інформації й наступний її аналіз із метою виявлення шляхів поліпшення діяльності конкретного підприємства при застосуванні загальноприйнятої методики обліку та контролю витрат. Для транснаціональних і подібних компаній [5] запропонована інша система обліку й контролю, наприклад DSC. Однак для сільськогосподарських підприємств вони не зовсім підходять через відмінності організації їхньої діяльності.

Мета статті – визначити особливості діяльності сільськогосподарських підприємств, які мають бути взяті до уваги при формуванні управлінської інформації з метою поліпшення визначення результатів діяльності.

Виклад основних результатів дослідження. У середині 80-х років XX ст. виникла потреба істотної перебудови управлінського обліку, зумовленої й тим, що перегляд методики розподілу непрямих витрат вже не задовольняв управлінський персонал. На підтвердження цього Дж. Шанк і В. Гавидарджа [6, с.10] наводять цікаве висловлювання