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ORIGINAL PAPER

TYPES OF RESPONSES OF THE EU LABOUR MARKETS IN THE EARLY COVID-PANDEMIC PERIOD

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A b s t r a c t

The dual impact of the COVID-19 pandemic (simultaneous demand and supply shocks) was manifested by values of the economically important indicators, including measures applied to the labour market. The magnitude and scope of the response on the European Union labour markets were significantly country-specific parameters. The purpose of this article is to identify the types of responses of the EU labour markets in the early phase of the COVID-19 pandemic. One of the agglomeration clustering methods, namely the Ward approach, has been applied to create groups of the studied labour markets. The application of this method led to the identification of 4 clusters of economies, characterized by different types of response in terms of the direction and intensity of changes on the labour market during the COVID-19 pandemic.

TYPY REAKCJI UNIJNYCH RYNKÓW PRACY W POCZĄTKOWYM OKRESIE PANDEMII COVID-19

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Abstrakt

Dwutorowe oddziaływanie pandemii COVID-19 (jednoczesny szok popytowy i podażowy) znalazło swoje odzwierciedlenie w kształtowaniu się istotnych dla gospodarki wskaźników, w tym mierników rynku pracy. Siła oraz zakres reakcji unijnych rynków pracy były jednakże istotnie zindywidualizowane. Celem artykułu jest identyfikacja typów reakcji unijnych rynków pracy w początkowym okresie pandemii COVID-19. Do grupowania gospodarek pod względem zmian warunków na rynku pracy wykorzystano jedną z aglomeracyjnych metod grupowania, tj. metodę Warda. Zastosowanie tej metody pozwoliło na identyfikację czterech grup gospodarek cechujących się odmiennymi typami reakcji pod względem kierunku i intensywności zmian sytuacji na rynku pracy podczas pandemii COVID-19.

Introduction

Nowadays, the labour market is exposed to constant changes, and finding a proper way to follow such changes is a true challenge. New trends associated with automation, cutting-edge technologies or the use of artificial intelligence seem to have a direct influence on the shape and functioning of labour markets on an everyday basis. They determine the number of work places, evolution of jobs, development of new competences or the way people work. Sometimes, however, economies are forced to deal with events that are hardly predictable and unlikely to happen (Taleb, 2007, p. 10; Mączyńska, 2020, p. 1), and which cause negative consequences and disrupt the proper functioning of labour markets. An example of a rapid external shock to the whole world was the outbreak of the COVID-19 pandemic (McKibbin & Fernando, 2020, p. 45), the main consequence of which was the slowdown of economic activity. It evoked the simultaneous occurrence of shocks in the demand, supply and financial spheres of economy (Sieroń, 2020, p. 1, 2; Rio-Chanona *et al.*, 2020, p. 95, 96; Wang & Enilov, 2020, p. 6, 7). Through many channels, the pandemic hit individual economies (Vogt-Hajder & Górny, 2020, p. 197; Szczepański, 2020, p. 8). It either slowed down or completely halted production and consumption, broke supply chains, and disrupted trade flows. It effectively shook many markets, including the crude oil market, and troubled stock markets. It undermined the solvency of some companies and even countries (Nelson & Weiss, 2020, p. 1). The pandemic led to higher unemployment and professional inertia, which in turn caused instant and permanent changes on labour market, decelerated some ongoing trends and induced new ones.

The consequences of restrictions imposed by governments in order to counteract the spread of the pandemic (Galbadage *et al.*, 2020, p. 1; Açikgöz & Günay, 2020, p. 521) affected both employers and employees. Employers fought an uneven struggle to maintain businesses, which oftentimes were their only source of income and life achievement. Operating during the pandemic forced entrepreneurs to take firm steps, such as to reduce working hours, wages or jobs, or even to discontinue economic activity (Wawrzonek, 2020, p. 129; Botha *et al.*,

2021, p. 663; Grondys *et al.*, 2021, p. 1). This in turn had an impact on the socio-economic situation of employees (Kalinowski & Wyduba, 2020, p. 37), as the number of vacancies diminished and the unemployment rate rose. In the crises that had happened previously, such changes were gradual and stretched over longer periods of time, whereas the pandemic crisis led to an instant loss of jobs. Overnight, the global economy lost millions of work places.

Because of a different epidemiological situation in every country, the limitations and sanitary restrictions, and the nature of links with the global economy or the degree to which the domestic economy depends on the global economic cycle, the COVID-19 pandemic struck each of the European Union's economies differently, and affected variously their ability to take advantage of the available labour resources.

The aim of this study has been to identify the types of responses of the EU labour markets in the early period of the COVID-19 pandemic. In order to evaluate the situation of the Polish labour market compared to the other EU countries, an analysis of key indicators describing this market was made. The following were analysed: unemployment rate, employment rate and economic activity rate. The next step was to group the EU economies in terms of the direction and intensity of changes on the labour market caused by the pandemic.

The study included an analysis and assessment of changes in values of the indicators describing the labour market. To this aim, secondary data obtained from statistics provided by Statistics Poland (GUS) and Eurostat were scrutinised. The period of the empirical analyses basically covered the data contained in annual reports from years 2017-2021. One of the agglomeration clustering methods, namely the Ward method (Ward, 1963), was employed for the sake of grouping the EU economies. The application of this method enabled identification of countries which were similar in terms of the direction and intensity of changes on their labour markets during the early COVID-19 pandemic.

Relative Situation of the Polish Labour Market Compared to Other EU Countries

The COVID-19 pandemic caused a series of changes in the functioning of economies across the world. One of the most destabilising consequences of the epidemic was recession, which struck most countries. The worsening economic conditions were immediately reflected in the changes on the labour market. The conditions underlying this market were altered rapidly. Same as the depth of the recession, the response of labour markets measured with such indicators as the unemployment rate or employment rate varied from country to country. The range and rate of the response were highly country-specific parameters, and

depended mainly on the existing conditions of a country's labour market, the incidence of infections with the coronavirus, the extent of sanitary restrictions as well as the depth and duration of the recession itself. The epidemic situation and the restrictions imposed to counteract it caused a rise in unemployment and economic inactivity, in addition to which there were certain modifications in the way work was done in many professions.

In the period before the pandemic, the indicators characterising the situation on the labour market in the EU countries had been improving year after year. The data published by Eurostat show that Poland in 2019, with its rate of unemployment equal 3.3%, belonged to the group of countries with the lowest unemployment rates (Tab. 1). At that time, the highest percentage of unemployed persons in the working age population was noted in Greece (17.9%), Spain (13.8%) and Italy (9.8%). In the eurozone, the unemployment rate reached 7.5%, but did not exceed 7% in the whole EU.

Demand and supply shocks caused by the pandemic forced certain adjustments on the labour markets, and employers began to fight an unequal struggle to survive and maintain the employment rate. Although most countries offered solutions to protect work places, the state support was limited. Sooner or later, employers who needed to seek savings were forced to take drastic measures, especially to reduce employment. Production stoppages caused by restrictions, discontinuation of business activity, reduction of work places all led to a rise in unemployment in most EU economies.

According to the Eurostat data, the unemployment rate in the EU in 2020 rose to 7.1%, i.e. by 0.4 percentage point relative to the year preceding the outbreak of the pandemic. The highest increase in the unemployment rate was observed in Estonia, Lithuania, Latvia and Sweden, where it ranged from 1.6 to 2.4 percentage points. In the same time period, despite the difficult situation on labour markets, unemployment measured in annual terms decreased in Italy, France, Greece and in Poland.

Moreover, it should be emphasised that while the GDP in the EU in year 2020 fell by 6% in a year (Eurostat data), unemployment increased simultaneously by just 0.4 pp. This substantiates the claim that a decrease in economic activity in the EU countries was reflected in the conditions underlying labour markets only slightly and basically rather briefly, an effect that can be attributed to the targeted actions and well-thought policies developed in the EU.

Despite fears, the impact of the recession on conditions governing the labour market was lesser than expected. In particular, the risk of workforce reduction was mitigated by short- and long-term aid schemes dedicated to companies operating in the industries most severely affected by regulations. In addition, as the knowledge of health consequences of COVID-19 and availability of vaccines improved, governments of many countries decided to loosen some restrictions and limit the economic activity to a lesser extent. Moreover, alongside the economic

Table 1

Unemployment rate* according to BAEL in the European countries (in %)

Countries	2017	2018	2019	2020	2021	2022	Δ 2019-2020 [pp]	Δ 2020-2021 [pp]
Estonia	5.7	5.2	4.4	6.8	6.1	5.5	2.4	-0.7
Lithuania	7.2	6.3	6.4	8.7	7.3	6.1	2.3	-1.4
Latvia	8.8	7.6	6.4	8.3	7.7	6.9	1.9	-0.6
Sweden	6.2	5.8	6.1	7.7	7.8	6.3	1.6	0.1
Spain	16.9	14.9	13.8	15.2	14.5	12.6	1.4	-0.7
Luxembourg	5.3	5.3	5.3	6.5	4.8	4.1	1.2	-1.7
Austria	5.7	5.0	4.7	5.9	6.0	4.5	1.2	0.1
Romania	5.8	4.9	4.5	5.7	5.3	5.2	1.2	-0.4
Finland	8.1	6.9	6.1	7.1	7.1	6.3	1.0	0.0
Ireland	6.4	5.4	4.6	5.5	5.8	4.2	0.9	0.3
Slovakia	7.9	6.3	5.6	6.5	6.7	6.0	0.9	0.2
Bulgaria	7.1	6.2	5.3	6.1	5.2	4.2	0.8	-0.9
Hungary	3.9	3.5	3.2	4.0	3.9	3.5	0.8	-0.1
Malta	3.6	3.3	3.3	4.1	3.2	2.7	0.8	-0.9
Germany	3.5	3.1	2.9	3.6	3.5	2.9	0.7	-0.1
Croatia	10.8	8.2	6.4	7.0	7.2	6.7	0.6	0.2
Cyprus	11.1	8.4	7.0	7.6	7.4	6.7	0.6	-0.2
Slovenia	6.6	5.2	4.4	5.0	4.6	3.9	0.6	-0.4
Czechia	2.8	2.2	2.0	2.5	2.8	2.2	0.5	0.3
Denmark	5.3	4.8	4.7	5.2	4.7	4.1	0.5	-0.5
Portugal	9.0	7.0	6.5	6.9	6.5	5.9	0.4	-0.4
Netherlands	5.2	4.3	3.9	4.2	3.5	2.9	0.3	-0.7
Belgium	7.1	5.9	5.3	5.6	6.0	5.3	0.3	0.4
Poland	4.9	3.9	3.3	3.2	3.4	2.8	-0.1	0.2
Greece	21.8	19.7	17.9	17.7	14.7	12.3	-0.2	-3.0
France	9.0	8.7	8.1	7.6	7.5	6.9	-0.5	-0.1
Italy	11.1	10.4	9.8	9.3	9.4	8.0	-0.5	0.1
EU27	8.1	7.2	6.7	7.1	6.8	5.9	0.4	-0.3
Euro area (19)	8.9	8.1	7.5	7.8	7.6	6.5	0.3	-0.2

*among persons aged 20 to 64 years
Source: developed by the author, based on the Eurostat data.

recovery in the second quarter of 2021 (Eurostat data), the market mechanisms were activated. The economic growth led to the creation of new work places, easing the situation on the labour market in the subsequent months in 2021, hence the number of unemployed workers began to decrease (Tab. 2). The market quickly recovered from the crisis caused by the pandemic and lockdowns.

Table 2

Number of unemployed persons* in the EU countries (in thousands of persons)

Countries	2017	2018	2019	2020	2021	2022	2019-2020 [%]	2020-2021 [%]
Estonia	37	34	29	44	40	36	51.7	-9.1
Lithuania	101	88	89	123	103	87	38.2	-16.3
Malta	8	8	8	11	8	8	37.5	-27.3
Latvia	83	71	59	76	68	62	28.8	-10.5
Sweden	307	291	309	391	399	325	26.5	2.0
Romania	465	395	364	460	424	426	26.4	-7.8
Hungary	183	163	149	188	183	166	26.2	-2.7
Czechia	148	115	104	131	143	114	26.0	9.2
Austria	246	217	202	253	261	200	25.2	3.2
Luxembourg	15	15	16	20	15	13	25.0	-25.0
Germany	1,400	1,268	1,183	1,423	1,426	1,217	20.3	0.2
Slovakia	219	175	154	179	182	162	16.2	1.7
Ireland	141	120	105	122	135	102	16.2	10.7
Finland	204	175	155	180	182	165	16.1	1.1
Bulgaria	233	200	172	195	164	134	13.4	-15.9
Slovenia	65	51	44	49	46	38	11.4	-6.1
Denmark	144	130	130	144	130	115	10.8	-9.7
Cyprus	46	35	30	33	33	31	10.0	0.0
Croatia	191	143	111	122	128	119	9.9	4.9
Spain	3,768	3,338	3,111	3,391	3,283	2,872	9.0	-3.2
Netherlands	433	358	327	355	303	257	8.6	-14.6
Portugal	436	342	318	334	321	294	5.0	-3.9
Belgium	345	291	264	276	303	272	4.5	9.8
Poland	814	636	536	519	561	475	-3.2	8.1
France	2,594	2,504	2,331	2,187	2,180	2,027	-6.2	-0.3
Greece	1,015	910	826	772	657	565	-6.5	-14.9
Italy	2,757	2,592	2,429	2,206	2,258	1,931	-9.2	2.4
EU27	16,398	14,668	13,554	14,185	13,938	12,214	4.7	-1.7
Euro area (19)	13,913	12,595	11,680	12,035	11,806	10,340	3.0	-1.9

*among people aged 20 to 64 years
Source: developed by the author, based on the Eurostat data.

With the outbreak of the pandemic, most EU countries, including Poland, experienced the slowdown of the then beneficial decreasing trend in the number of unemployed persons, which naturally translated into a low unemployment rate. The biggest challenge that European labour markets have faced in recent years is to improve the work supply, especially in the face of the ageing of working age

populations in Europe. The pandemic and the resulting restrictions on economic activity led to a rise in the absolute number of unemployed persons aged 20-64 (Tab. 2). The Eurostat estimates that the rise of unemployment in this age category due to the economic slowdown was the highest in Estonia, Lithuania, Latvia and Malta. There, it exceeded the level of 25% relative to the previous year. Although the Estonian government launched aid programmes for the amount equal 3% of the national GDP during the first wave of the pandemic, the country experienced a distinct decrease in employment and a rise in unemployment (Kutsar & Kurvet-Käosaar, 2021, p. 1, 2). The absolute number of unemployed persons increased by 50% in the course of one year. Actually, it was only in Italy, Greece, France and Poland that the population of unemployed persons decreased by 9.2%, 6.5%, 6.2% and 3.2%, respectively, in comparison with year 2019. Meanwhile, the average number of the unemployed in the whole EU increased by 4.7%. The loss of work places was most evident in the sectors that were struck the worst by the pandemic, i.e. submitted to most severe restrictions, such as hospitality, catering, tourism, as well as a wide range of services and industries (Forsythe *et al*., 2020, p. 7; Mouloudj *et al*., 2020, p. 159; Stojczew, 2021, p. 161). The situation on the labour market began to stabilise slowly as the incidence of infections started to decline, the restrictions were loosened, and the economy began to revive in the subsequent quarters of year 2021.

It is estimated that the crisis caused by the COVID-19 pandemic hit more badly the economic activity of workers than the unemployment itself. One of the indicators that can describe the response of the labour market to a serious economic shock is a change in the economic activity rate, which shows the share of persons economically active in a given population. As the situation on the market was worsening and problems finding work were becoming more and more persistent, potential employees, especially young ones, could be pushed out of the market and become economically inactive. As a result of the pandemic crisis, economic inactivity rates rose faster than unemployment rates in many countries.

In turn, the extent to which the human factor is engaged in the work process is illustrated by the economic activity rate (Tab. 3).

In 2019, the highest percentage of professionally active persons among all working age persons was observed in Sweden, Estonia, the Netherlands and Lithuania. In these countries, the mentioned indicator exceeded 83%, while the EU average was 77.9%. In comparison, the percentage of professionally active persons in Poland was among the lowest in Europe, as it equalled 74.7%. In contrast, the highest economic activity rate was noted in Croatia, Romania, Italy, Spain and Greece.

Changes in populations active on the labour market evoked by the pandemic restrictions contributed to the lowering of the economic activity rate in the EU by 0.8 pp. The percentage of economically active people in the age group from 20 to 64 years decreased the most in Greece (–3.2 pp), in Italy (–2.3 pp), Ireland

Table 3

Economic activity rate* in the EU countries (in %)

Countries	2017	2018	2019	2020	2021	2022	Δ 2019-2020 [pp]	Δ 2020-2021 [pp]
Latvia	81.9	83.0	82.6	83.8	81.6	82.7	1.2	-2.2
Malta	75.8	78.1	79.4	80.6	81.7	83.4	1.2	1.1
Romania	66.6	67.2	68.2	69.1	70.8	72.3	0.9	1.7
Estonia	84.0	84.1	84.2	84.9	84.5	86.6	0.7	-0.4
Croatia	71.2	71.0	71.3	71.9	73.5	74.7	0.6	1.6
Hungary	78.5	79.5	80.1	80.7	82.0	83.1	0.6	1.3
Lithuania	81.9	83.1	83.5	84.0	83.5	84.1	0.5	-0.5
Luxembourg	75.5	76.1	76.8	77.1	77.9	78.0	0.3	0.8
Poland	73.6	74.2	74.7	75.0	78.0	78.9	0.3	3.0
Netherlands	83.2	83.6	84.2	84.3	84.6	85.4	0.1	0.3
Finland	79.7	80.9	81.2	81.3	82.7	83.7	0.1	1.4
Sweden	86.6	86.8	86.8	86.8	87.5	87.7	0.0	0.7
Czechia	80.8	81.7	81.9	81.8	82.2	83.2	-0.1	0.4
Denmark	80.9	81.3	82.2	82.1	82.9	83.5	-0.1	0.8
Slovakia	79.5	79.6	80.0	79.8	80.0	81.6	-0.2	0.2
Cyprus	79.6	80.6	81.4	81.1	82.0	83.5	-0.3	0.9
Slovenia	78.0	78.9	79.3	78.7	79.8	81.1	-0.6	1.1
France	78.4	78.8	78.7	78.1	79.2	79.5	-0.6	1.1
Belgium	73.7	74.1	74.5	73.8	75.1	76.0	-0.7	1.3
Germany	81.0	81.4	82.0	81.1	82.5	83.5	-0.9	1.4
Bulgaria	76.1	76.4	78.4	77.4	77.2	79.0	-1.0	-0.2
Austria	80.0	80.2	80.5	79.5	80.4	80.9	-1.0	0.9
Portugal	79.6	80.3	80.7	79.7	81.2	82.4	-1.0	1.5
Spain	78.9	78.8	78.9	77.5	79.2	79.5	-1.4	1.7
Ireland	77.9	78.2	78.6	76.3	79.5	81.6	-2.3	3.2
Italy	70.0	70.3	70.5	68.2	69.3	70.4	-2.3	1.1
Greece	73.4	73.5	74.0	70.8	73.4	75.6	-3.2	2.6
EU27	77.1	77.5	77.9	77.1	78.5	79.4	-0.8	1.4
Euro area (19)	77.7	78.1	78.3	77.2	78.5	79.4	-1.1	1.3

*among people aged 20 to 64 years
Source: developed by the author, based on the Eurostat data.

(–2.3 pp) and Spain (–1.4 pp). A relatively high reduction in economic activity was also observed in Portugal, Austria, Bulgaria and Germany. In turn, the decrease in this parameter in the other countries was either small or non-existent.

The situation caused by the pandemic also resulted in changes in the percentage of working persons in the group of people aged 20 to 64 years (Tab. 4).

Table 4

Employment rate* in the EU countries (in %)

Countries	2017	2018	2019	2020	2021	2022	Δ 2019-2020 [pp]	Δ 2020-2021 [pp]
Malta	73.0	75.5	76.8	77.3	79.1	81.1	0.5	1.8
Poland	70.0	71.4	72.3	72.7	75.4	76.7	0.4	2.7
Croatia	63.6	65.2	66.7	66.9	68.2	69.7	0.2	1.3
Romania	62.7	63.9	65.1	65.2	67.1	68.5	0.1	1.9
Hungary	75.4	76.7	77.6	77.5	78.8	80.2	-0.1	1.3
France	71.3	72.0	72.3	72.1	73.2	74.0	-0.2	1.1
Netherlands	78.9	80.0	81.0	80.8	81.7	82.9	-0.2	0.9
Latvia	74.6	76.8	77.3	76.9	75.3	77.0	-0.4	-1.6
Denmark	76.6	77.5	78.3	77.8	79.1	80.1	-0.5	1.3
Czechia	78.5	79.9	80.3	79.7	80	81.3	-0.6	0.3
Luxembourg	71.5	72.1	72.8	72.1	74.1	74.8	-0.7	2,0
Finland	73.2	75.3	76.2	75.5	76.8	78.4	-0.7	1.3
Belgium	68.5	69.7	70.5	69.7	70.6	71.9	-0.8	0.9
Cyprus	70.8	73.9	75.7	74.9	75.9	77.9	-0.8	1.0
Slovakia	73.2	74.5	75.6	74.6	74.6	76.7	-1.0	0.0
Slovenia	72.9	74.9	75.9	74.8	76.1	77.9	-1.1	1.3
Portugal	72.5	74.7	75.5	74.2	75.9	77.5	-1.3	1.7
Germany	78.2	78.9	79.6	78.2	79.6	81.0	-1.4	1.4
Estonia	79.2	79.7	80.5	79.1	79.3	81.9	-1.4	0.2
Sweden	81.2	81.8	81.5	80.1	80.7	82.2	-1.4	0.6
Lithuania	76.0	77.8	78.2	76.7	77.4	79.0	-1.5	0.7
Bulgaria	70.6	71.7	74.3	72.7	73.2	75.7	-1.6	0.5
Italy	62.3	63	63.5	61.9	62.7	64.8	-1.6	0.8
Austria	75.4	76.2	76.8	74.8	75.6	77.3	-2.0	0.8
Spain	65.5	67.0	68.0	65.7	67.7	69.5	-2.3	2.0
Greece	57.4	59.0	60.8	58.3	62.6	66.3	-2.5	4.3
Ireland	72.9	74.0	75.0	72.1	74.9	78.2	-2.9	2.8
EU27	70.9	71.9	72.7	71.7	73.1	74.7	-1.0	1.4
Euro area (19)	70.8	71.8	72.5	71.2	72.5	74.2	-1.3	1.3

*among people aged 20 to 64 years
Source: developed by the author, based on the Eurostat data.

The rising employment rates in the years before the pandemic were evidence of an improving labour market situation in the EU. In 2019, the said rate was the highest in Sweden, Germany, the Netherlands, Estonia and in the Czech Republic. In these countries, the percentage of employed persons in the 20-64--year age backets reached nearly 80%. In Poland, this percentage was 72.3%

and was only slightly lower than the EU average (72.7%). On the other hand, the lowest percentage, between 60 and 68%, was recorded in Greece, Spain, Italy and Romania.

The mass-scale collapse and shrinking of national economies that took place at the onset of the second quarter of year 2020 affected the rates of employment in all EU member states except Malta, Poland, Croatia and Romania. The highest decrease appeared on the labour markets in Ireland, Greece, Spain, Austria, Italy and Bulgaria, where it ranged from 1.6 to 2.9 pp. The more profound response in the countries of Southern Europe might have been correlated with the more severely reduced economic activity due to the economies of these countries being considerably dependent on the broadly understood tourism industry. The economic slowdown observed in Greece, Spain or Italy in the first half of year 2020 was the most severe in the EU. The more than average decrease in the GDP was also noted in Austria (Nazarczuk *et al*., 2022, p. 45, 46). In turn, although Ireland did not experience a collapse of its economy, as manifested by annual data (an increase by 6.2%), it completely froze its economy for several weeks, which induced an instant decrease in employment. In April 2020, the unemployment rate in Ireland reached 22.4% whereas in February that year it was just 4.9% (Eurostat data).

Identification of Types of Responses of the EU Labour Markets to the COVID-19 Pandemic

Because the EU countries followed different paths while dealing with changes in the situation on their labour markets, a complex analysis of the responses of their economies to the COVID-19 pandemic is difficult. In order to identify any regularities in the countries' responses on the labour market, it was decided to apply an agglomeration method, namely the Ward method, which served to identify clusters of countries following a similar pathway of changes. To this end, changes in four economic indicators, such as the unemployment rate, number of the unemployed, employment rate and the rate of economic activity, in years 2019-2020 were analysed. Also, a decision was made not to stimulate the variables (unification of the direction of variables) so as to maintain greater differences between the responses of particular countries.

The applied Ward method intends to minimise variance within a given group (in this case, countries) while simultaneously maximising differences between clusters. Technically, this is achieved by including objects to a group in such a way as to minimise the sum of squares of deviations of all objects in the existing groups from the centre of gravity of a new group (Ward, 1963). This procedure is known for its efficiency in creating homogenous clusters (Nazarczuk & Umiński, 2019, p. 42; Cicha-Nazarczuk, 2021, p. 171). In this

study, the Euclidean distance was used as a measure of dissimilarity, and its higher values indicate greater variance between the countries in the direction and structure of the analysed indicators.

The dendrogram plotted in Figure 1 allows the identification of clusters of countries in which the observed changes are similar. Longer horizonal lines illustrate greater distance between individual countries and clusters of countries, simultaneously indicating greater Euclidean distance (measure of dissimilarity). Because of the adopted agglomeration approach to the clustering of countries, a variety of possible forms of the assignment of countries to clusters emerged, depending on the assumed value of the cutting point. Hence, the left-hand side of the diagram shows individual countries which step by step are linked into clusters up to a single cluster (on the right-hand side of the diagram).

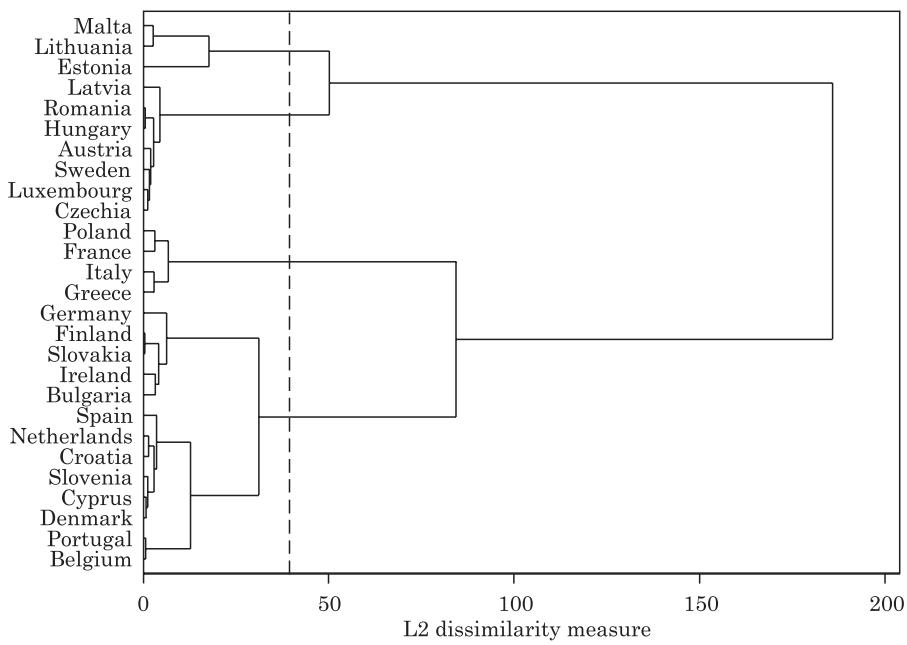

Fig. 1. Dendrogram illustrating results of clustering with the Ward procedure; the dashed line shows the chosen solution

Source: developed by the author.

An analysis of the data displayed as explained above provides a complete picture of possible solutions, including different clustering patterns, depending on the number of clusters or degree of similarity expected by the researcher. In our case, the value of the dissimilarity measure was assumed to be 40 (based on the Duda and Hart criterion), which allowed to distinguish four clusters characterised by high similarity (within each cluster) in the scope of changes on the labour market.

Data on the relative position of clusters of countries with respect to changes in the situation on their labour markets were collated in Table 5. A detailed analysis of these data allowed to identify the types of responses of the EU labour markets during the COVID-19 pandemic.

Table 5

Average changes in the selected indicators on the labour market in the groups of EU countries in 2019-2020

Countries	Cluster 1	Cluster 2	Cluster 3	Cluster 4
	Poland, France, Greece, Italy	Croatia, Spain, Cyprus, Netherlands, Slovenia, Denmark, Belgium, Portugal, Germany, Bulgaria, Ireland, Finland, Slovakia	Romania, Austria, Latvia, Czechia, Sweden, Luxembourg, Hungary	Lithuania, Estonia, Malta
Δ unemployment rate	-0.32	0.69	1.20	1.83
Δ number of unemployed	-6.27	11.65	26.30	42.48
Δ employment rate	-0.97	-1.11	-0.73	-0.80
Δ economic activity rate	-1.45	-0.59	0.27	0.80

Explanation: the table presents average values of the selected indicators, according to the identified clusters of countries
Source: developed by the author.

Cluster 1, which includes Poland, France, Greece and Italy, was distinguished by a relatively most beneficial change on the labour market per year. This was a consequence of an average decrease in the unemployment rate and number of unemployed persons while the employment rate and economic activity rate decreased only slightly. The response of this group of economies to changes in the way they had to function during the pandemic consisted mainly of reduced economic activity and a small decrease in the level of employment.

The biggest group of economies fell into cluster 2. In this case, the response of labour markets to the reduced economic activity and the distinct slowdown in the economic growth rate during the COVID-19 pandemic were manifested by a relatively small increase in the number of unemployed persons and a percentage of the unemployed in the population of economically active people. In those countries, a relatively high decrease in the employment rate as well as a moderate reduction in economic activity were observed.

Clusters 3 and 4 were distinguished by a similar direction of changes pertaining to the situation on the labour market. However, they differed in the magnitude of this phenomenon. Changes in the economic situation in both clusters followed changes on the labour market. They were characterised by a distinct increase in both the unemployment rate and the number of unemployed workers as well as a reduced level of employment. In economies of the countries within

the two clusters, there was also a small increase in labour professional activity, although it surpassed 1 pp only in Latvia and Malta.

The extent of the negative changes in the indicators showing the use of labour resources in particular economies was greater in cluster 4. The relatively most difficult situation on the labour market developed in Lithuania, Estonia and Malta. Smaller economies tend to be more sensitive to changes in the economic situation. The crisis caused by the pandemic had a significant influence on the Estonian and Lithuanian labour markets, leading to the highest unemployment rates these countries had experienced for years. Although both countries were struck by recession to the least degree compared to all EU economies, the unemployment rate in 2020 rose there by around 2.3-2.4 pp (Tab. 1), and the number of unemployed persons increased over a year by 51% and 38%, respectively (Tab. 2). On the other hand, the labour market in Malta is relatively small and heavily dependent on tourism. Hence, the period of reduced economic activity due to restrictions and limited travel could have contributed to stagnation in the tourism industry and a rise in the number of unemployed workers in the country's economy.

It is worth underlining that the changes on the labour market observed in 2020 could have been induced by several factors, from the first wave of the coronavirus infections to the different intensity of COVID-19 infection rates in different countries, which prompted their governments to launch public interventions of varying degrees and structure of targets. Travel restrictions, sanitary restrictions and limitation of economic activity (lockdowns) were imposed, all for the sake of preventing the rapid spread of the virus. Administrative restrictions of business activity, together with quarantines and adaptation measures taken by businesses, had more negative consequences than the 2008 global economic crisis (Radlińska, 2020). The suspension of production, partial or complete closure of companies, etc. led to negative changes on the labour market by shortening the working time of some of the workers, increasing the number of unemployed people wherever it was impossible to make changes in the organisation of work otherwise or if the financial standing of enterprises deteriorated.

The responsibility for counteracting the effects of the pandemic rested mostly on governments of particular countries. In order to constrain the extent of adverse changes in economy and on the labour market, states launched aid programmes of various scale and scope (the so-called anti-crisis shields). These involved, for example, financial support measures addressed to companies to compensate for lost revenues, tax-free subsidies to cover fixed costs, reductions of corporate income taxes, temporary suspension of payments of social security contributions, grants to companies, government guarantees for loans, as well as the co-financing from public funds of workers who had their working hours reduced and their benefits suspended (Bolesta & Sobik, 2020).

According to the analysis of the Polish Economic Institute (Dębkowska *et al*., 2021), the effectiveness of public funds used by EU countries varied under the so-called anti-crisis shields in the context of maintaining employment, preventing professional deactivation, maintaining financial liquidity (and preventing bankruptcy) in the enterprise sector. The cost-effectiveness profiles of the so-called anti-crisis shields in the EU-27 countries are displayed in Table 6.

Table 6

Profiles of the EU countries in terms of effectiveness of expenditures within anti-crisis packages

Effective support to employees only	Ineffective support to employees only
Belgium, France, Greece, Romania, Sweden	Austria, Bulgaria, Croatia, Cyprus, Czechia, Germany, Ireland, Lithuania, Luxembourg, the Netherlands, Spain
Effective support to both employees and employers	Ineffective support to both employees and employers
Denmark, Italy, Finland, Poland	Estonia, Hungary, Latvia, Malta, Portugal, Slovakia, Slovenia

Explanation: names of countries within each box of the table are given in alphabetic order
Source: developed by the author based on Dębkowska *et al*. (2021, p. 49).

The results of our analysis prove that it was only in Poland, Denmark, Italy and France that the costly means of support in the form of public funds allocated to 'the struggle with the pandemic' were relatively effective in suppressing the wave of bankruptcies of companies and maintaining the employment level in national economies. In the said group of countries, Poland expended the highest sums relative to its GDP. Hence, the scope of public intervention in this case was the greatest. In turn, considering all EU economies, the expenses of this type relative to the GDP were the highest in Latvia.

In Estonia, Hungary, Latvia, Malta, Portugal, Slovakia and Slovenia, the effectiveness of the implemented public support schemes raised significant doubts among the researchers from the Polish Economics Institute. Actions taken by these countries were not effective either in reducing unemployment and economic inactivity, or in preventing a wave of business failures.

The remaining EU-27 economies were characterised by more evident allocation of funds towards the measures aiming to maintain the financial stability of enterprises, as it was observed in Austria, Bulgaria, Croatia, Cyprus, the Czech Republic, Germany, Ireland, Lithuania, Luxembourg, the Netherlands, and Spain, or to prevent mass layoffs by keeping workers on the labour market, which was the direction noted in Belgium, France, Greece, Romania and Sweden.

Summary

The situation on the labour markets of the EU member states in the early period of the COVID-19 pandemic reflected the changes observed in the economies, the subsequent waves of the pandemic and the regulations imposed by the governments. Despite the expansive fiscal policy and public expenditure associated, i.a. with attempts to prevent mass layoffs and to protect work places, the economies were unable to avoid decreased employment, increased economic inactivity and interference in labour relations.

The extent of the changes in the labour market varied across the EU countries due to the different measures taken by the countries to counteract the negative effects of the closures, their different economic positions and labour market situations, as well as the capacity of a given economy to absorb the negative effects of changes such as major demand or supply shocks (which depends, among other things, on the structure of economic sectors or the openness of a country's economy), the objectives and success of the measures implemented.

Above all, the countries differed in their approach to the ways in which the economic consequences of the pandemic concerning employment could be counteracted or alleviated. Some governments focused on implementing solutions which served to protect work places, ensuring a less rapid increase in the unemployment rate. Hence, changes on the labour market observed in Poland, Italy, France or Greece during the pandemic consisted mainly of limited economic activity while the employment level decreased only slightly. Expensive support measures composed of public expenditure dedicated to 'the fight with the pandemic' in these economies turned out to be effective in preventing mass redundancies by keeping employees on the labour market.

Other countries decided to mollify the consequences of unemployment and somewhat promote unemployment statistics by paying benefits to people who lost their jobs because of the economic turbulences. The economies of Malta, Estonia and Lithuania were in the relatively worst situation, which was manifested by a distinct increase in the unemployment rate and number of unemployed people as well as a reduced employment level. Moreover, in the group of these countries, the effectiveness of the implemented public support system raised considerable doubts among the researchers of the Polish Economic Institute, and the measures their governments took proved to be ineffective in reducing unemployment and preventing a wave of bankruptcies of enterprises.

Compared to many of the EU countries, the situation on the Polish labour market in terms of the changes in the use of workforce resources was relatively positive. This was a consequence of several factors. First of all, prior to the outbreak of the pandemic Poland had had one of the lowest unemployment rates in the European Union. Secondly, this period of time coincided with a rapid economic growth, which alongside the progressing ageing of the society, resulted in the shortage of workforce supply. In addition, the outbreak of the pandemic

meant that most foreign workers returned to their native countries, which helped to alleviate the negative events on the labour market. The public support in the form of anti-crisis and financial shields as well as the evident recovery of the economy in the second quarter to 2021 determined the short-term character of negative trends on the Polish labour market.

The identification of the different types of responses of the EU labour markets during the COVID-19 pandemic implicates the need to plan the activities properly adjusted to the needs, structure and conditions of the functioning of national labour markets, which would create a chance to minimize the negative impact of possible future economic shocks.

The analysis presented in this article has certain limitations. One is the limited time period covered by the analysis, that is the early period of the COVID-19 pandemic and its impact on economy and the EU labour markets. Meanwhile, effects of the shock caused by the coronavirus could be shifted in time, influence the economy at different rates or at a different scale, which may depend on the structure of a given economy, situation on the labour market, implementation of countercyclical programmes or the strength and scope of links between particular economies. In addition, this article only discusses the issue of the impact of anti-crisis programs on easing the situation on the labour market during the pandemic in individual EU countries. However, the indicated problem requires further research in this area.

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ORIGINAL PAPER

FINANCIAL AND SPORTS RESULTS OF PUBLIC SECTOR ENTERPRISES OPERATING PROFESSIONAL SPORTS CLUBS

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Key words: efficiency of sports clubs, state-owned enterprises, financial analysis.

A b s t r a c t

This article analyses the extent of state ownership and examines whether there are differences in business and sports activity results between state-owned and private entities running football clubs in the Polish Ekstraklasa. The study examined a panel of 100 entities (*N*) comprising 26 enterprises running football clubs whose male teams participated in Ekstraklasa games during five seasons: 2016/2017, 2017/2018, 2018/2019, 2019/2020 and 2020/2021. The study covered five consecutive financial years ending in 2017, 2018, 2019, 2020 and 2021. The statistical and financial analysis method was applied. The financial and sports results of state-owned and private enterprises in the period of 2017-2021 were compared based on selected ratios. The mean and median values of the variables taken for analyses (financial and sports ratios) were calculated. A non-parametric Kruskal--Wallis test was applied to assess the differences between the ratios for the groups of enterprises under study. The analysis revealed that state-owned Companies and local government units are major shareholders in Polish professional football clubs. Examination of the financial results of public and private enterprises that run such clubs revealed statistically significant differences between most of them. Among the three groups of enterprises, those run by local government enterprises achieved the worst financial results measured by profitability, financial liquidity, debt, team cost and equity. The best financial situation was observed in the state-owned enterprises. Although no statistically significant difference was found in the sports achievements between the groups of clubs, the privately owned enterprises had better results (the median and the mean values) than the other enterprises concerning the number of points and a higher place at the end of the season.

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WYNIKI FINANSOWE I SPORTOWE PRZEDSIĘBIORSTW SEKTORA PUBLICZNEGO PROWADZĄCYCH PROFESJONALNE KLUBY SPORTOWE

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Kody JEL: D2, G2, G3.

Słowa kluczowe: efektywność klubów sportowych, przedsiębiorstwa państwowe, analiza finansowa.

Abstrakt

Celem artykułu jest określenie zakresu własności państwowej oraz zbadanie, czy występują różnice w wynikach finansowych i sportowych między państwowymi a prywatnymi przedsiębiorstwami prowadzącymi kluby piłki nożnej w polskiej Ekstraklasie. Badaniem objęto panel składający się ze 100 podmiotów (*N*) zawierający 26 przedsiębiorstw prowadzących kluby piłki nożnej, których męskie drużyny w pięciu sezonach – 2016/2017, 2017/2018, 2018/2019, 2019/2020 i 2020/2021 – uczestniczyły w rozgrywkach Ekstraklasy. Zakres czasowy badań obejmował pięć kolejnych lat sprawozdawczych kończących się w latach 2017, 2018, 2019, 2020 i 2021. Do przeprowadzenia badań zastosowano metodę analizy statystycznej i finansowej. Opierając się na wybranych wskaźnikach, porównano wyniki finansowe i sportowe przedsiębiorstw państwowych i prywatnych w latach 2017–2021. Obliczono średnie i mediany przyjętych do analizy zmiennych (wskaźników finansowych i sportowych). Do oceny różnic między wskaźnikami badanych grup przedsiębiorstw zastosowano nieparametryczny test Kruskala-Wallisa. Z przeprowadzonej analizy wynika, że państwo w postaci spółek Skarbu Państwa oraz jednostek samorządowych pozostaje istotnym akcjonariuszem w strukturze własności przedsiębiorstw prowadzących profesjonalne kluby piłki nożnej w Polsce. Badanie różnic w wynikach finansowych między przedsiębiorstwami państwowymi a prywatnymi wykazało statystycznie istotne różnice w wysokości większości wskaźników finansowych. Spośród trzech grup przedsiębiorstw najgorsze wyniki finansowe mierzone wskaźnikami rentowności, płynności finansowej, zadłużenia, kosztów zespołu oraz wielkości kapitału osiągnęły przedsiębiorstwa sektora samorządowego. Najlepszą sytuacją finansową charakteryzowały się przedsiębiorstwa sektora państwowego. Pomimo że nie zaobserwowano statycznej istotnej różnicy wyników sportowych w grupach klubów, to przedsiębiorstwa prywatne osiągnęły lepsze rezultaty (wartości mediany i średniej) od pozostałych przedsiębiorstw w zakresie większej liczby zdobytych punktów i wyższego miejsca na koniec sezonu rozgrywek.

Introduction

This article analyses the extent of state ownership and examines whether there are differences in business and sports activity results between state-owned and private entities running football clubs in the Ekstraklasa. A State-Owned Enterprise (SOE) is an enterprise where the state or local government has a controlling interest as either a majority or minority shareholder. Two groups were identified among the public sector enterprises. The first group included those controlled by State Owned Companies, while the other included those

controlled by a Local Government. The scope of the study covered 26 enterprises (clubs) operating as joint-stock companies.

The financial and sports results of the state- and private-owned enterprises in the period of 2017–2021 were compared based on selected ratios (11). The study was conducted for the whole group of clubs that participated in the Ekstraklasa games.

This study is justified by the need to fill a significant gap concerning the effect of state ownership on the efficiency of enterprises running sports clubs and the factors affecting them. Therefore, the study will expand a model analysis for professional football club ownership in Europe by the model with the state as a supervisor. The assessment will identify potential solutions to improve financial situations for national associations and the Union of European Football Associations.

The Enterprise Results and the Ownership Structure – Literature Review

The economic results of state-owned enterprises compared to private enterprises have been widely discussed since the 1980s and 1990s. Economists are attempting to resolve the issue through either theoretical analysis, which considers the state's unreliability and inherent features of state ownership as a base, or empirical studies of the subject. Theoretically, an analysis of state-owned enterprise operations is based on the theory of ownership rights (Demsetz & Villalonga, 2001). Given the specific features of a state owner, three major problem areas can be identified, with significant differences between state and private entities, i.e. the multitude and diversity of goals pursued by state-owned enterprises, restricting the decision-making independence of state-owned enterprises and their soft budget restrictions (Bałtowski & Kwiatkowski, 2018).

The issue of the role and the impact of state ownership on effectiveness in the literature is discussed mainly regarding the enterprises unrelated to the sports sector, e.g. the financial sector (Berger, 2005) or sectors of special national interest, such as the power industry, the arms industry and the network industry (Robinett, 2006). These enterprises are often used to support public security, long-term investment and social affordability (Florio, 2013a, 2013b). State ownership seems permanent despite the privatisation processes that started in many developed and post-socialist countries in the 1980s and 1990s (Roland, 2000; Megginson & Netter, 2001).

Studies on the effectiveness of public sector enterprises running professional sports clubs are relatively infrequent. Mitić *et al.* (2016) and Wyszyński (2021a) attempted to assess and compare local government ownership versus private ownership in professional football clubs.

There are review articles in the economic literature that analyse and summarise earlier studies on the efficiency of state-owned enterprises. They attempted to compare in a systematic manner the findings of many studies concerning various countries, based on diverse study methodologies and employing various efficiency measures. The most important among such review studies include ones published in the "Journal of Economic Literature" by eminent researchers of the socialist transformation: William L. Megginson and Jeffry M. Netter (2001) and Simeon Djankow and Paul Merrell (2002). The former analysed the efficiency of state ownership compared with private ownership and post-privatisation results, both in developed countries and in countries where a system transformation had taken place. They found evidence to support the claim that state-owned enterprises were less efficient and less profitable than private ones and that privatisation improved the results of sold enterprises. The latter authors performed a multi-aspect meta-analysis of enterprise operation after privatisation by analysing over a hundred scientific articles, in which these issues were examined in countries during the course of economic transformations that began in the late 1980s. Based on this, they found that privatisation improved the enterprise efficiency. They pointed out that the key issues in the context of economic results – apart from the enterprise privatisation itself – included the institutional environment quality. Other studies (Megginson, 2017; Wang & Shailer, 2018; Tihanyi *et al*., 2019) also provided evidence of poorer SOE results compared with private-owned ones. A noteworthy study review on enterprise efficiency is Holger Muchlenkamp's 2015 paper, in which it is suggested that more recent studies do not show such a significant difference between state-owned and private-owned enterprises as earlier ones. The author suggested that this may result from the increasing role of professionalisation of state-owned enterprises and state-owner supervision. Muchlenkamp points out that the effectiveness of state enterprise operation is distinctly lower in developing and post-socialist countries, while the difference is less noticeable in developed countries.

State-owned enterprises can achieve worse results than private enterprises for many reasons. These may include agency issues, the absence of properly defined monitoring groups, soft budgetary restrictions, exploitation of SOEs as "political assets", and cronyism (Megginson & Netter, 2001; La Porta *et al*., 2002). The divergence of objectives between agents and ordering parties was analysed by agency theorists in 1976. This issue is of particular importance for state-owned enterprises. SOE managers may not be motivated to improve the financial results because of the lack of clearly defined stimuli and the absence of sufficient monitoring by many mandators (e.g. the government, the ministry, the state-owned holding, the society) in connection with their monitoring obligations (D'Souza & Nash, 2017). Significant factors restricting state-owned company efficiency include soft budgetary restrictions (Kornai *et al*., 2003). The state can support such companies through public aid, beneficial taxation, crediting policy and limited competition in the sector, which allows the ineffective

operation of SOEs without the risk of insolvency or bankruptcy (Bałtowski & Kwiatkowski, 2018). State-owned enterprises can also be exploited by politicians for private benefits. The evidence pointing to trusted collaborators can be found in regular management rotations in SOEs, depending on the election results and partisanship in appointments to significant positions, as well as other benefits (Szarzec *et al*., 2020). Moreover, SOEs can be used as political tools to manipulate economic results in the run-up to elections, thereby supporting the re-election of incumbent leaders and, at the same time, resulting in political cycles (Englmaier *et al*., 2017). Some authors (e.g. Muhlenkamp, 2015; Bałtowski & Kwiatkowski, 2018; Estrin *et al*., 2019) have also emphasised that the relatively worse financial results of SOEs may result mainly from the fact that they pursue a broader set of goals than PCs, including non-commercial ones, which obviously affect their profitability, but which are advantageous from the social perspective.

Data and Characterisation of the Enterprises and Study Methodology

The study examined a panel of 100 entities (*N*) comprising 26 enterprises operating football clubs whose men's teams took part in Ekstraklasa games in five seasons: 2016/2017, 2017/2018, 2018/2019, 2019/2020 and 2020/2021. The panel included 31 local government enterprises, seven state-owned ones and 62 private-owned ones). The study covered five consecutive financial years ending in 2017, 2018, 2019, 2020 and 2021. The clubs under study ran their operations during various financial periods. In six cases, the period ended on 31 December, i.e. it coincided with the calendar year, and in the others – it ended on 30 June, i.e. it was linked to the seasonality of football games in Poland. The football season in Poland lasts from late July to June. Therefore, it is justified to link the financial year with these dates to evaluate the results achieved during the period. A different method of presenting financial data makes it difficult to compare the results of companies analysed in the study, but it was the only possible way of evaluation because the enterprises did not submit semi-annual reports.

Two types of public sector and one type of private sector enterprises operating football clubs were defined for this paper.

– a public sector enterprise controlled by a local government (commune) is one in which a commune has a share exceeding 50.01%, i.e. it is its majority shareholder, and it makes decisions concerning the directions of the company operation and development;

– a State Treasury-controlled public sector enterprise is a State-Owned Company (SOC) in which the State Treasury holds more than 50.01% of shares or exercises supervisory control. Two such enterprises are included in this study:

Zagłębie Lubin SA and Górnik Łęczna SA. KGHM Polska Miedź SA – a state-controlled company – is the sole shareholder of Zagłębie Lubin. The supervisory control in Górnik Łęczna (electing the Supervisory Board members) is exercised by the State Treasury through the club's main shareholder – Stowarzyszenie Górniczy Klub Sportowy "Górnik" Łęczna, founded by Lubelski Węgiel "Bogdanka" SA – a company linked to the State Treasury;

– a private sector enterprise controlled by private persons is a private-owned enterprise (POE) in which individuals or legal entities directly hold more than 50.01% of shares.

The data for the study were taken from the financial statements submitted to the National Court Register and published on the clubs' websites. It was crucial to determining the ownership structure of the enterprises. Eight local government entities were identified, in which a local government unit (a commune) held more than 50.01% of shares, two state-owned enterprises in which the State Treasury exercised the supervisory control (SOC) and 16 POEs, in which individuals held over 50.01% of shares. The data on the type and percentage share of a controlling entity in the clubs under study, depending on the ownership structure as of 31 December 2022, are shown in Table 1.

The financial ratios were selected based on their use in the public sector entity (Szarzec, 2017) and sports club evaluation (Perechuda, 2019; Wyszyński, 2017, 2021b; Wilson *et al*., 2013). Additionally, selected ratios from the 2022 UEFA licence handbook (*UEFA Club Licensing…*, 2022) were used to evaluate the clubs' financial criteria. Therefore, five groups of financial ratios and sports indices were selected for the study (Tab. 2): the ability to generate profit (profitability), financial liquidity, debt, financial operating efficiency, UEFA indices and sports efficiency.

Profitability was measured with net return on sales and operating activity ratios. The former can grasp the return on the enterprise's main activities. The main activity reported in the profit and loss account by professional sports clubs is represented mainly by the matchday income (e.g. ticket sale, Skybox, hospitality, etc.), from sponsoring and advertising activity, from TV licence sales and payroll. When clubs are compared, a higher ratio value indicates a higher professionalisation level, which manifests itself in higher income from sports activities. When calculating the second profitability ratio on the operating level, one must take into account both the main and non-operating activity, which includes public subsidies and the return on sale and purchase of players (assets).

The financial liquidity was measured with the current financial liquidity ratio, which is a common and the most general ratio used to assess the liquidity risk, covering all the elements of working capital management.

The debt (financial leverage) was assessed with two ratios. The former, often used in financial analysis – total debt ratio – is measured by the total debt book value to book value of assets ratio. The other, proposed by the author, is the licence liabilities to total debt ratio. This ratio assesses the debt structure, taking

Table 1

The data on the type and percentage share of a controlling entity depending on the ownership structure as of 31 December 2022

Clubs	The number of games in the Ekstraklasa during the study period	The type of controlling entity – private state local government	Share [%] of the private or state entity in the ownership structure	Date the financial year ended
Arka Gdynia	3	POE	100.00	30 June
Bruk-Bet Termalica Nieciecza	2	POE	100.00	31 December
Cracovia	6	POE	66.110	31 December
Górnik Łęczna	1	SOE	90.123	31 December
Górnik Zabrze	6	LG	84.70	31 December
Jagiellonia Białystok	6	POE	100.00	31 December
Korona Kielce	4	LG	99.07	30 June
Lech Poznań	6	POE	100.00	30 June
Lechia Gdańsk	6	POE	100.00	30 June
Legia Warszawa	6	POE	100.00	30 June
ŁKS Łódź	1	POE	100.00	30 June
Miedź Legnica	2	POE	100.00	31 December
Piast Gliwice	6	LG	66.68	30 June
Podbeskidzie Bielsko-Biała	1	LG	65.00	30 June
Pogoń Szczecin	6	POE	95.15	30 June
Raków Częstochowa	4	POE	98.33	30 June
Sandecja Nowy Sącz	1	LG	100.00	31 December
Stal Mielec	3	POE	100.00	31 December
Śląsk Wrocław	6	LG	99.11	31 December
Warta Poznań	3	POE	95.00	31 December
Wisła Kraków	5	POE	80.82	31 December
Wisła Płock	6	LG	100.00	31 December
Zagłębie Lubin	6	SOE	100.00	31 December
Zagłębie Sosnowiec	1	LG	98.46	31 December
Radomiak Radom	2	POE	100.00	31 December
Widzew Łódź	1	POE	88.00	31 December

LG – Local Government
SOE – State Owned Company
POE – Private-Owned Enterprise
Source: prepared by the author based on the companies' financial statements.

Table 2

The ratios used in the study and their calculation formulas

Abbreviation	Ratio	Formula
Profitability ratios		
ROS1	return on sales	net profit/loss on sales
ROS2	operating return	profit/loss on operating activities/operating income
Financial liquidity ratio		
CRUU	current ratio	short-term liabilities/current assets
Debt ratios		
DEBT1	total debt ratio	liabilities and provisions/total assets
DEBT2	licence debt ratio	licence liabilities/total liabilities
Operating efficiency ratios		
COLL	receivables turnover ratio (days)	short-term receivables/operating income*365
CRED	licence liabilities turnover ratio (days)	licence liabilities/operating income*365
UEFA indices		
KW	equity	equity amount
KZ	team cost index	operating cost/ (net income on sales + non-operating income)
Sport indices		
LP	score	end-of-season score in the table
MwT	place	end-of-season place in the table

Source: prepared by the author.

into account the licence-related liabilities. These could include the liabilities to players (payroll) and public law liabilities. A high ratio that affects the financial risk is associated with the untimely meeting of licence liabilities on specific days of the licencing process, which, in effect, can affect the assessment by the licencing bodies.

The financial operating efficiency can be defined and measured in a variety of ways. Due to the specificity of the sector of professional sports clubs, a decision was made to determine the period of receipt of short-term receivables and current receivables with the following ratios: short-term receivables turnover and licence liabilities turnover (days).

In group five, two ratios introduced by UEFA were chosen to licence the clubs with respect to the financial criteria for the clubs beginning the national and European games from season 2024/2025: the net equity and the team cost. The net equity ratio refers to whether a club has met a certain rule as of December 31st of a given year. The club must either have a positive equity value or, if the value is negative, show an improvement of 10% or more compared to the previous year's value as of December 31st. The equity ratio was taken as the equity value for the

end of the given financial year. As there are no data on the equity amount as of 31 December for the clubs whose financial year ends on 30 June, the equity amount was taken as of the end of June of a given year.

The sport effectiveness assessment was based on the score and place in the table at the season's end. These data were obtained from the internet portal 90minut.pl.

The mean and median values were calculated, and a non-parametric Kruskal-Wallis test was performed to assess the differences between the results for the groups of companies under study. The statistical analysis was performed with Statistica 13.

Study Findings

The values of descriptive statistics (the mean and the median) were calculated for all the selected ratios, and the Kruskal-Wallis test was performed for three independent samples, verifying whether the value structures for individual variables were the same in the groups under analysis. All of the tests were verified at the significance level of p 0.1 and 0.05. The statistical values and the non-parametric test results for the individual variables are presented in Tables 3, 4 and 5.

Table 3

The mean and median ratios for the clubs with respect to the ownership structure

Ratio	Local government-run		State-run		Private	
	mean	median	mean	median	mean	median
Return on sales	-0.51	-0.56	-0.17	-0.14	-0.37	-0.31
Operating return	-0.17	-0.10	-0.01	-0.04	-0.05	-0.01
Current ratio	0.84	0.72	2.29	1.12	1.18	0.86
Total debt ratio	2.47	2.22	0.50	0.38	2.24	1.29
Licence debt ratio	0.48	0.48	0.32	0.24	0.35	0.31
Receivables turnover ratio (days)	40.00	24.00	21.00	15.00	57.00	48.00
Licence liabilities turnover ratio (days)	92.00	75.00	40.00	42.00	78.00	62.00
Equity (million PLN)	-9,341.00	-6,145.00	46,853.00	48,493.00	-10,480.00	-2,907.00
Team cost index	1.12	1.07	0.94	0.93	0.99	0.95
Score	45.00	46.00	44.00	45.00	49.00	47.00
Place	10.00	10.00	10.00	9.00	8.00	8.00

Source: prepared by the author.

Table 4

The Kruskal-Wallis test results for the enterprises with respect to the ownership structure

Specification	Kruskal-Wallis test; grouping variable: ownership structure of LG {1}, SOC {2}, POE {3}; *N* important {1} = 31, {2} = 7, {3} = 62 df = 2, *N* = 100					
	sum of ranks			*N*	H	*p*
	LG	SOC	POE			
Return on sales	1,199	513	3,338	100	10.2872	**0.0058****
Operating return	1,297	389	3,364	100	4.0173	0.1342
Current ratio	1,329	491	3,230	100	5.5405	**0.0626***
Total debt ratio	1,870	107	3,073	100	13.9314	**0.0009****
Licence debt ratio	1,968	291	2,791	100	9.0874	**0.0106****
Receivables turnover ratio (days)	1,310	172	3,568	100	11.7529	**0.0028****
Licence liabilities turnover ratio (days)	1,869	148	3,033	100	10.8822	**0.0043****
Equity (million PLN)	1,370	634	3,046	100	14.9578	**0.0006****
Team cost index	1,890	307	2,853	100	5.8838	**0.0528***
Score	1,403	308	3,340	100	2.2053	0.3320
Place	1,735	409	2,907	100	2.5783	0.2755

The number of asterisks denotes the significance of *p*, and the symbols denote the statistical significance at *, **: 0.1 and 0.05, respectively.
Source: prepared by the author.

Table 5

The level of significance of the differences between ratio ranks with respect to the enterprise ownership structure

Return on sales	{1} R:38.677	{2} R:73.286	{3} R:53.839
1	2	3	4
LG {1}	-	**0.0131****	**0.0525***
SOC {2}	**0.0131****	-	0.2782
POE {3}	**0.0525***	0.2782	-
Operating return	{1} R:41.839	{2} R:55.571	{3} R:54.258
LG {1}	-	0.7740	0.1549
SOC {2}	0.7740	-	1.0000
POE {3}	0.1549	1.0000	-
Current ratio	{1} R:42.871	{2} R:70.143	{3} R:52.097
LG {1}	-	**0.0740***	0.4448
SOC {2}	**0.0740***	-	0.3563
POE {3}	0.4448	0.3563	-
Total debt ratio	{1} R:60.323	{2} R:15.286	{3} R:49.565
LG {1}	-	**0.0006****	0.2755

cont. Table 5

1	2	3	4
SOC {2}	**0.0006****	-	**0.0091****
POE {3}	0.2755	**0.0091****	-
Licence debt ratio	{1} R:63.484	{2} R:41.571	{3} R:45.016
LG {1}	-	0.2133	0.0114**
SOC {2}	0.2133	-	1.0000
POE {3}	**0.0114****	1.0000	-
Receivables turnover ratio (days)	{1} R:42.258	{2} R:24.571	{3} R:57.548
LG {1}	-	0.4355	**0.0497****
SOC {2}	0.4355	-	**0.0131****
POE {3}	**0.0497****	**0.0131****	-
Licence liabilities turnover ratio (days)	{1} R:60.290	{2} R:21.143	{3} R:48.919
LG {1}	-	**0.0038****	0.2243
SOC {2}	**0.0038****	-	**0.0490****
POE {3}	0.2243	**0.0490****	-
Equity (million PLN)	{1} R:44.194	{2} R:90.571	{3} R:49.129
LG {1}	-	**0.0004****	1.0000
SOC {2}	**0.0004****	-	**0.0010****
POE {3}	1.0000	**0.0010****	-
Team cost index	{1} R:60.968	{2} R:43.857	{3} R:46.016
LG {1}	-	0.4762	**0.0574***
SOC {2}	0.4762	-	1.0000
POE {3}	**0.0574***	1.0000	-
Score	{1} R:45.242	{2} R:44.000	{3} R:53.863
LG {1}	-	1.0000	0.5302
SOC {2}	1.0000	-	1.0000
POE {3}	0.5302	1.0000	-
Place	{1} R:55.952	{2} R:58.357	{3} R:46.887
LG {1}	-	1.0000	0.4665
SOC {2}	1.0000	-	0.9642
POE {3}	0.4665	0.9642	-

The number of asterisks denotes the significance of p, and the symbols denote the statistical significance at *, **: 0.1 and 0.05, respectively.
Source: prepared by the author

The analysis reveals statistically significant differences between most financial ratios calculated for the groups of enterprises. Profitability was highly varied and highly asymmetric. Due to the specific nature of the sport sector, many football clubs in Europe and in Poland are unprofitable, which means that they generate losses instead of profit in nearly all types of activities.

This study's findings confirm it, as the mean and median values for the enterprise groups under study were negative. Of the three groups, the highest profitability ratios were found in clubs with dominant private (POE) and state (SOC) capital. These findings are confirmed by the statistically significantly higher return on sales ratios in these clubs compared with the ones run by local governments. The situation regarding profitability indicates that POE and SOC are more professionalised than LG because they generate a much higher net return on sales income from sources related directly to sports activities, i.e. sponsoring, ticket sales, TV licences, etc. A comparison of the arithmetic mean, and median of financial liquidity ratios shows that the state sector enterprises were the most capable of covering short-term liabilities because the mean and median values were higher than 1. The lowest liquidity ratios (under 1) were observed in enterprises run by local government units.

Clubs run by local governments and by private enterprises had the greatest debt. The mean and median values of total debt ratios above 1 (2.47 and 2.22, and 2.24 and 1.29) are indicative of the negative equity amount resulting from high losses generated by the clubs in the course of their activities. A high debt level may be a sign of financial issues and bad management. POE and SOC have a lower share of licence-related liabilities in total liabilities compared with LG, which is confirmed by the non-parametric test results. A high share of licence-related liabilities in clubs run by local governments (nearly 50%) at the end of the financial year may suggest a high level of past-due liabilities in the total debt structure.

The financial operational efficiency analysis revealed substantial discrepancies in the turnover ratios of receivables and liabilities. The former ratio in private enterprises is higher compared with public ones – SOC and LG. This indicates a long period of cash inflow in private clubs. This is confirmed by the results of the non-parametric tests, which indicate statistically significant differences between the public and private sector enterprises. It was the opposite of the licence-related liabilities turnover ratio in the enterprise groups under study. Statistically lower values of the ratios were noted for SOC and POE. It is difficult to establish whether the shorter crediting period is a symptom of worse results. One can observe that a longer crediting period ensures an effective method of operating cycle financing. However, in a longer perspective, a longer crediting period can lead to an increased risk of insolvency.

The analysis found a positive equity amount among the state sector enterprises. A positive and high share of equity in the structure of each entity denotes a safe financing structure from the financial risk perspective. The negative equity values in the local government and private clubs mean that they use foreign resources in the form of external financial instruments, especially loans, to finance their activities. Financing the activities of professional clubs by loans is a common practice in the sports market. In the case of a deficit from operating activities, the owners grant a loan to the club, which becomes due at a later time.

The team cost analysis shows its highest values in the public sector clubs. The values above 1 mean that LG clubs used recapitalisation resources (share issue income) to finance the expenses, apart from the operation income. In the event of a deficit of financial resources, both in the public and private sector clubs, a significant role is played by the Polish municipal local governments. They support sports clubs by subsidies or by sponsoring and advertising for promotional purposes (Wyszyński, 2021b).

The last group of results that provided the basis for comparison of enterprises depending on the ownership structure were the sports results, i.e. the score and the club's ranking at the end of the season. There were no significant statistical differences found, but the private clubs group had higher scores and rankings. The mean and median values for the score were 49 and 47, respectively, and the mean and median values for place in the table were 8 and 8, respectively.

Conclusions

The analysis has shown that the state, represented by state-owned Companies and local government units (communes), are significant shareholders in companies which run professional football clubs in Poland. There were nearly 40% of state-owned enterprises (SOE) with supervisory and ownership control over the companies managing clubs taking part in men's Ekstraklasa games in 2017-2021.

Examination of the financial results of public and private enterprises that operate such clubs revealed statistically significant differences between the majority of them. The enterprises run by local government entities achieved the worst financial results measured by profitability, financial liquidity, debt, team cost and equity among the three groups of enterprises. The best financial situation was observed in the state-owned enterprises. Owing to debt ratios under 1, these clubs enjoyed positive equity amounts. Private clubs achieved better results than local government clubs in terms of profitability and financial liquidity. The profitability analysis shows that the private and state-owned clubs earned higher income from their basic (sports) activities than those run by local governments. This may mean that they are "more" professional organisations than those run by public sector units. They are more capable of generating cash from their basic activities, i.e. they achieve higher revenue from sales of tickets, from sponsoring, from the sale of television rights and from trade activities. However, sponsoring income in private clubs is often received from private investors. Funds in clubs owned by the state often come from state-owned investors. Zagłębie Lubin received about 16 million PLN from the main shareholder – a company controlled by KGHM Miedź SA under a sponsoring agreement, and these funds accounted for nearly half of its budget for the year.

Professional sports clubs' financial results depend on their sports results. Although no statistical difference was found in the sports results between the groups of clubs, the privately owned enterprises achieved better results than the other ones with respect to the number of points and a higher place at the game season end.

However, these findings should be regarded with caution because of the small number of state-owned companies, the non-random sample and the unequal sizes of the three groups. There were many more private-owned enterprises than state-owned ones in the sample under analysis, which may have distorted the findings. However, the analysis certainly shows that not all the ratios determining company efficiency are higher for private entities.

Further study areas include a model analysis for a larger number of enterprises, e.g. one covering clubs operating in other sports disciplines than football. This will help to determine whether the differences between the types of ownership have a significant impact on economic efficiency.

Translated by Joanna Jensen

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ORIGINAL PAPER

BUDGET REVENUES IN POLAND DURING THE FINANCIAL CRISIS OF 2007 AND THE COVID-19 PANDEMIC

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JEL Classification: H20, H61.

K e y w o r d s: budget revenues, taxes, crisis.

A b s t r a c t

Maintaining sound public finances is a key aspect of the proper functioning of a country's economy and its future development. This condition depends on the level of expenditure and revenue generated. Effective management of state revenues is therefore of the utmost importance. Importantly, the level and structure of government revenues depend on many factors, including exogenous factors such as crises. The global financial crisis of 2007 and the crisis caused by the COVID-19 pandemic had a significant impact on the level of budget revenues in Poland. The aim of the study was to assess the level and dynamics of changes in the state budget revenues in Poland in the years 2007-2021. Research shows that the financial crisis of 2007 had a much stronger impact on the level of budget revenues in Poland and the structure of revenues than the crisis caused by the COVID-19 pandemic. The research hypothesis, which assumed that the outbreak of the COVID-19 pandemic caused a stronger impact on the level of budget revenues in Poland than the global financial crisis of 2007 was thus negatively verified.

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DOCHODY BUDŻETU PAŃSTWA W POLSCE W OKRESIE KRYZYSU FINANSOWEGO Z 2007 ROKU ORAZ PANDEMII COVID-19

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Kody JEL: H20, H61.

S ł o w a k l u c z o w e: dochody budżetu państwa, podatki, kryzys.

A b s t r a k t

Utrzymanie dobrej kondycji finansów publicznych jest kluczowym aspektem prawidłowego funkcjonowania gospodarki danego państwa oraz jego przyszłego rozwoju. Kondycja ta zależy od poziomu realizowanych wydatków i uzyskiwanych dochodów. Niezmiernie ważne jest zatem efektywne zarządzanie dochodami budżetu państwa. Co istotne, poziom oraz struktura dochodów budżetu państwa zależą od wielu czynników, w tym czynników o charakterze egzogenicznym, takich jak kryzysy. Na poziom dochodów budżetowych w Polsce istotny wpływ miały w ostatnim czasie światowy kryzys finansowy z 2007 roku oraz kryzys wywołany pandemią COVID-19. Celem badań stała się więc ocena poziomu oraz dynamiki zmian dochodów budżetu państwa w Polsce w latach 2007-2021. Z przeprowadzonych badań wynika, że kryzys finansowy z 2007 roku wywarł znacznie silniejszy wpływ na poziom dochodów budżetowych w Polsce i strukturę osiąganych dochodów niż kryzys wywołany pandemią COVID-19. Hipoteza badawcza, w której założono, że wybuch pandemii COVID-19 wywołał silniejszy wpływ na poziom dochodów budżetowych w Polsce niż światowy kryzys finansowy z 2007 roku została więc zweryfikowana negatywnie.

Introduction

Public finances have become increasingly important in social and economic terms in recent years and are reflected in the actions of households, businesses, local governments and, above all, in the activities of the state. The state budget plays a key role in ensuring the soundness of public finances and the proper running of the financial economy in the country (Wójtowicz (Ed.), 2017, p. 87). It serves to implement the intended economic and social plans by the state authorities in a given year (Alińska & Woźniak (Eds.), 2015, p. 115).

The budgetary system of a country contains legal provisions on revenue and expenditure and methods of planning and implementing the state budget. State budget revenues, i.e. the key instruments of state financial policy, are defined as the explicit amounts included in the budget. They are public-law revenues

belonging to the State Treasury and civil-law revenues that are collected by other entities on its behalf (Ostaszewski & Malinowska-Misiąg (Eds.), 2021, p. 45). State budget revenues are classified according to various criteria. Their general and simplest division distinguishes tax revenue, non-tax revenue, as well as funds from the European Union and other non-refundable sources (Alińska & Woźniak (Eds.), 2015, p. 140). A fundamental element for achieving the social objectives of the state is stable sources of revenue to finance the intended plans. The primary and most important source of revenue for the state budget in general is tax revenue.

Public finances, including budget revenues, depend on the economic situation of a country. Economic crises, especially those that are sudden and unforeseen phenomena, can significantly affect the state budget revenue situation. Such crises certainly include the global financial crisis of 2007 and the crisis caused by the COVID-19 pandemic. The global financial crisis that began in 2007 in the United States caused instability and a significant deterioration in the state of public finances in many countries, including Poland. The bankruptcy of Lehman Brothers and subsequent events triggered a crisis not only in the real estate market, but also in the financial markets of many countries around the world, including European Union Member States. The state of public finances in many countries was also negatively affected by the outbreak of the COVID-19 pandemic and the subsequent recession in the economy, as well as growing public expenditure to counter the effects of the pandemic.

In the light of the above, the aim of the study became the assessment of the level and dynamics of changes in state budget revenues in Poland in 2007-2021. The study formulated the following research question: *To what extent did the financial crisis of 2007 and the outbreak of the COVID-19 pandemic affect the level of state budget revenues in Poland*? An attempt to answer this question was formulated in the form of the following research hypothesis: *The outbreak of the COVID-19 pandemic had a stronger impact on the level of state budget revenues in Poland than the global financial crisis of 2007.*

The following research methods were used in this study: the literature analysis method, the data analysis method, including vertical comparative analysis, quantitative methods, including the structure index and the dynamics index, and the induction method.

The structure index was used to examine the percentage share of individual revenue categories in the value of total budget revenue. The dynamics index, or more precisely the relative chain index, referred to as the rate of change, was in turn used to show the changes taking place over the period under review in the level of individual categories of state budget revenue. The dynamics index was calculated according to the following formula (Ręklewski, 2020, p. 135):

$$I^{z}_{t/t-1} = \frac{y_t}{y_{t-1}} \cdot 100,$$

where:

y_t – value of the attribute from a given period,
y_{t-1} – value of the attribute in the previous period.

Secondary data from the Central Statistical Office, the Macroeconomic Data Bank, as well as state budget execution reports were used to conduct the empirical research. The research was conducted on the basis of data from 2007 to 2021. The chosen research period starts in 2007, the year of the outbreak of the global financial crisis in the United States, and extends to 2021, which is determined by the desire to analyse the impact of the COVID-19 pandemic on the level of budget revenues in Poland.

Literature Review

The state budget serves to implement the intended economic and social plans by the state authorities in a given year (Alińska & Woźniak (Eds.), 2015, p. 115). „The budget is the basic financial plan of a state or local authority, which is directive in nature and includes revenues and expenditures of an essentially non-recurring nature, adopted by parliament for a future period, usually one year" (Brzeziński *et al.*, 2017, p. 87). Pursuant to the provisions of article 110 of the Public Finance Act of 27 August 2009, the state budget determines, inter alia, the total amount of income and revenue, expenditure and expenditure and the amount of the budget deficit together with the sources of its financing (Ustawa o finansach…, 2021).

The basis for realising the social objectives of the state is stable sources of income to finance the intended plans. According to S. Owsiak (2017, p. 582) sources of public revenue include revenue collected from other entities. More specifically, "state budget revenues are all public revenues, the use of which has not been reserved for budgets of local government units or units of the public finance sector, as well as revenues from organisational units linked to the state budget" (Kosikowski, 2011, p. 320). These revenues definitely and non-refundably contribute to the state budget (Kluzek *et al.* (Eds.), 2021, p. 40).

According to article 111 of the Public Finance Act of 27 August 2009, the tax and non-tax revenues of the state budget include (Ustawa o finansach…, 2021):

– "taxes and charges, in the part which, in accordance with separate acts, does not constitute income of local government units, income of state special purpose funds and other units of the public finance sector,

– customs,

– payments from profit of state enterprises and companies fully owned by the State Treasury and state banks,

– payments from dividends,

– payments from profit of the National Bank of Poland,

– payments of surplus funds of executive agencies,

– income collected by state budgetary entities, unless otherwise stipulated by separate acts,

– income from lease and tenancy and from other contracts of a similar nature, concerning State Treasury assets, unless separate acts provide otherwise,

– interest on funds accumulated on bank accounts of state budgetary entities or public authorities, unless separate acts provide otherwise,

– interest on term deposits established from funds accumulated on the central current account of the State budget,

– interest on domestic and foreign loans granted from the state budget,

– fines and other monetary penalties, unless otherwise provided by separate acts,

– inheritances, legacies and donations in cash to the State Treasury,

– revenues from the sale of property, assets and rights, not constituting revenues, unless separate acts provide otherwise,

– other revenues specified in separate acts or international agreements,

– European funds for the implementation of technical assistance projects (…)".

There are a number of classifications of budget revenue in the literature. The most general and simplest division distinguishes: tax revenue, non-tax revenue, as well as funds from the European Union and other non-refundable sources. Within these three types of revenue, a distinction is made between (Alińska & Woźniak (Eds.), 2015, p. 140):

– „tax revenue: indirect taxes (VAT, excise duty, gaming tax), direct taxes (corporate income tax CIT, personal income tax PIT, tonnage tax, tax on the extraction of certain minerals),

– non-tax revenues: dividends and profit distributions, customs duties, revenues of state budgetary units and other non-tax revenues, payments of local government units,

– non-reimbursable funds from the EU and other sources".

Taking into account the legal criterion and the finality of revenue collection, another classification of state budget revenue can be distinguished. Based on this classification, repayable and non-repayable revenues are distinguished. Repayable revenues are domestic and foreign loans that must be repaid by the State Treasury after a certain period of time, as they provide a temporary financial boost. Non-repayable revenues, on the other hand, do not provide benefits from the State and are not repayable. These include receipts from taxes, duties and fees. Revenues can also be classified according to their place of origin. A distinction can be made between domestic and foreign revenue.

Foreign revenues are all interest and commissions on foreign loans or credits (Wołowiec, 2021, p. 28, 29). „The most effective source of government revenue is taxes. They are collected compulsorily, non-refundable and free of chargé" (Borowiec, 2017, p. 39). Importantly, taxes are also a fairly stable source of state budget revenue, which is crucial for the proper implementation of public tasks (more Wierzbicka, Nierobisz & Sobiecki, 2021, p. 87-100).

Results

State budget revenues are among the main instruments of state fiscal policy. The variation in the level of budget revenues from year to year is mainly due to cyclical fluctuations and changes in the volume of consumption. The variation in the level of revenues in Poland in recent years is largely related to the financial crisis initiated in 2007 and the COVID-19 pandemic.

The value of budget revenues in total and broken down into tax revenues, non-tax revenues and non-refundable funds from the European Union and other sources over the period 2007-2021 is presented in Table 1.

Table 1

State budget revenues in Poland 2007-2021 (PLN million)

Year	Total state budget revenue	Tax revenue	Non-tax revenue	Funds from the European Union and other non-refundable sources
2007	236,367.5	206,385.2	22,448.2	7,534.1
2008	253,547.3	219,499.4	19,308.9	14,739.0
2009	274,183,5	214,878.8	27,433.4	31,871.3
2010	250,302.8	222,552.7	24,501.6	3,248.5
2011	277,557.2	243,210.9	32,274.5	2,071.8
2012	287,595.1	248,274.6	37,143.2	2,177.3
2013	279,151.2	241,650.9	35,975.9	1,524.4
2014	283,542.7	254,781.0	27,231.9	1,529.8
2015	289,136.7	259,673.5	27,710.2	1,753.0
2016	314,683.6	273,138.4	40,131.3	1,413.9
2017	350,414.7	315,257.4	33,671.7	1,485.6
2018	380,048.1	349,353.8	28,887.9	1,806.4
2019	400,535.3	367,290.7	31,379.0	1,865.6
2020	419,795.7	370,261.8	47,401.9	2,132.0
2021	494,843.5	432,170.4	60,521.2	2,151.9

Source: own elaboration based on Bank Danych Makroekonomicznych (2022).

In the years 2007-2021, total state budget revenues increased more than twice. In 2007, they amounted to PLN 236.4 billion, while in 2021 they will amount to PLN 494.8 billion. Such a significant increase in the level of revenue was mainly due to an improvement in the economic situation in Poland. A slight decrease in budget revenues was recorded only in two years (2010 and 2013). The decrease in the value of total revenue in 2010 is mainly the result of the financial crisis that began in 2007. The decrease in revenue in 2013 is the result of fiscal tightening and the recession occurring in 2011-2012, which led to a strong economic slowdown in the country. Significantly, in 2020, despite the outbreak of the COVID-19 pandemic, the level of government revenue did not decrease compared to the previous year, but it was lower than planned.

Importantly, the value of tax revenues more than doubled in the analysed period. An increase in this type of income occurred from year to year, with the exception of 2009 and 2013. The decline in tax revenues in 2009 was the result of the slowdown in the economic growth rate that occurred then. The slightly lower level of tax revenues in 2013 is the result of changes in personal income tax. During the period under review, non-tax revenues also increased by more than 2.5 times. However, this category of budget revenues did not show a constant upward trend and alternately increased and decreased. Dynamic changes also occurred in the level of funds from the European Union. The values of the dynamics index on a variable basis calculated for the years 2008-2021 for individual categories of budget revenues and total revenues are presented in Figure 1.

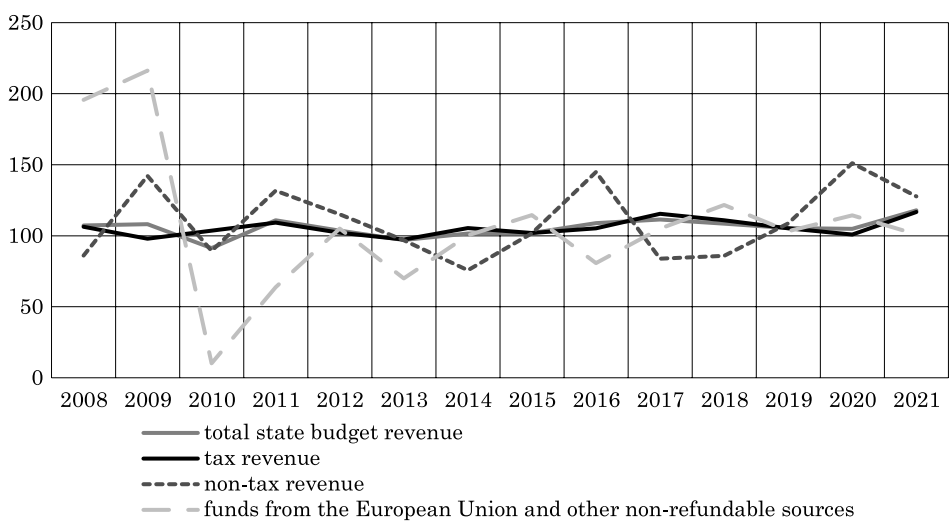

Fig. 1. Dynamics of state budget revenues in 2008-2021

Source: own elaboration based on Bank Danych Makroekonomicznych (2022).

From the data presented in the chart it can be concluded that the most diversified and variable category of total state budget revenues were funds from the European Union and other non-refundable sources. The greatest disproportion can be seen in 2009-2010. The growth rate in 2009 compared to the previous year was 116.2% and was caused by a large inflow of funds from the EU resulting from the cohesion policy implemented at that time. In 2010, the value of funds from the European Union decreased by almost 90%. Importantly, in the years 2012-2021 the dynamics of funds from the European Union was no longer as diversified as in previous years. In 2020, when the COVID-19 pandemic was announced, the growth rate compared to 2019 was 14.3%. Poland then received additional funds to counteract the effects of the pandemic. The data presented in the chart also show that the dynamics of changes in total state budget revenues is very similar to the dynamics of changes in tax revenues, which show the most stable dynamics of all categories of budget revenues.

Revenues from various sources supplying the state budget vary in terms of their value, which is reflected in the structure of total state budget revenues. This structure for the years 2007-2021 is presented in Figure 2.

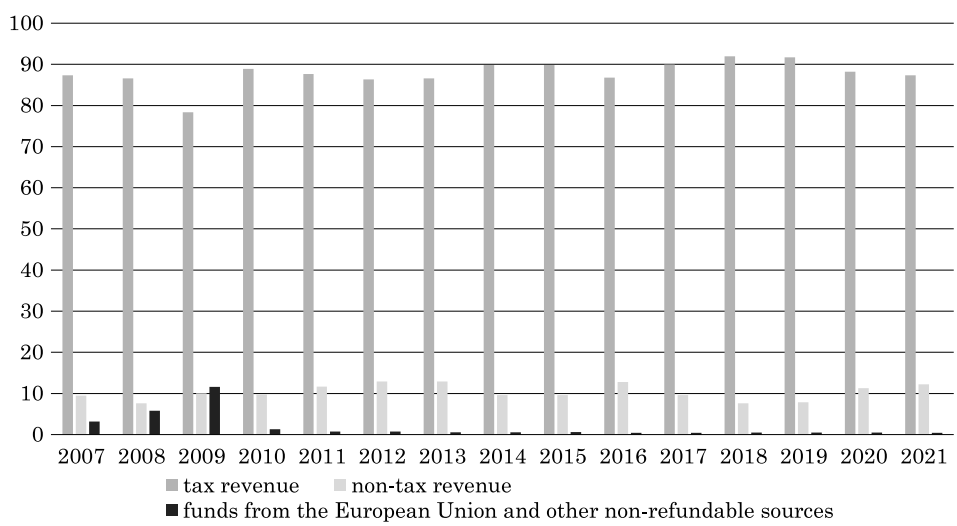

Fig. 2. Structure of state budget revenues in 2007-2021
Source: own elaboration based on Bank Danych Makroekonomicznych (2022).

In all years covered by the analysis, tax revenues have the largest share in the total state budget revenues. Over the years examined, the share of tax revenues varied. Their average share in total state budget revenues in 2007-2021 was 87.8%. The smallest share was recorded in 2009 and amounted to 78.4%, while the largest share was 91.9% and was recorded in 2018. This was due to efficient tax policy, improved tax collection efficiency and good economic situation in the country.

The share of non-tax revenues in the total state budget revenues is much smaller. Over the years examined, the share of non-tax revenues increased by only 2.7 percentage points. In 2007 it was 9.5%, and in 2021 it was 12.2%. Its smallest share of 7.6% was recorded in 2018, and this was mainly due to the lack of payment from the profit generated by the National Bank of Poland.

The basic and most important source of total state budget revenues are tax revenues. Table 2 presents the value of tax revenues in Poland in 2007-2021 from the most important types of taxes.

Table 2

Tax revenues of the state budget in 2007-2021 (in PLN million)

Year	Tax revenues, including			
	from tax on goods and services (VAT)	from excise tax	from corporate income tax	from personal income tax
2007	96,349.8	49,025.5	24,540.2	35,358.5
2008	101,782.7	50,490.1	27,159.7	38,658.5
2009	99,454.7	53,926.9	24,156.6	35,763.7
2010	107,880.3	55,684.5	21,769.9	35,592.6
2011	120,831.9	57,963.7	24,861.9	38,074.9
2012	120,000.7	60,449.9	25,145.7	39,809.4
2013	113,411.5	60,653.1	23,075.3	41,290.5
2014	124,262.2	61,570.4	23,266.2	43,022.0
2015	123,120.8	62,808.6	25,813.4	45,040.0
2016	126,584.1	65,749.3	26,381.4	48,232.4
2017	156,801.2	68,261.3	29,758.5	52,668.8
2018	174,947.1	72,108.5	34,640.9	59,558.7
2019	180,891.8	72,395.9	39,984.7	65,444.9
2020	184,551.9	71,787.3	41,293.1	63,797.4
2021	215,734.0	75,798.0	52,373.8	73,606.2

Source: own elaboration based on Bank Danych Makroekonomicznych (2022).

In all years covered by the analysis, the amount of tax on goods and services was higher compared to other types of taxes. This means that the largest cash revenues contributing to the state budget were generated by VAT. During the research period, its average annual value amounted to PLN 136.4 billion. In 2007, the value of VAT revenues amounted to PLN 96.3 billion and was the lowest in the entire period under review. In turn, the highest value of VAT revenues amounting to PLN 215.7 billion was recorded in 2021. During the research period, revenues to the state budget from VAT more than doubled.

Another important source contributing to the state budget is excise tax revenues. In the years 2007-2021, an increase in the value of revenues from this tax was observed in almost all years. The exception was 2020, which saw a slight decline. The lower level of this tax was related to a temporary reduction in excise tax rates on electricity and selected motor fuels.

Corporate income tax and personal income tax are also important sources of tax revenue. Over the period under review, revenues from both taxes more than doubled. The most important source of budget revenues throughout the period under review was personal income tax. Its value increased from PLN 35.6 billion in 2007 to PLN 73.6 billion in 2021 and amounted this year to almost as much as excise tax revenues.

Importantly, in 2007 almost all sources of tax revenues recorded their lowest values. This concerned tax on goods and services, excise tax and personal income tax. However, in 2021, all tax revenue categories reached their highest values. This was mainly due to the introduction of numerous changes aimed at improving the efficiency of the tax system.

Conclusions

The appropriate condition of public finances is a key issue in a given country. The condition of public finances determines whether the state will be able to properly perform all its functions, settle current liabilities and achieve a high rate of economic growth. The global financial crisis of 2007 and the crisis caused by the COVID-19 pandemic had a significant impact on the state of public finances in Poland, including the level of state budget revenues. The aim of the research was to assess the level and dynamics of changes in state budget revenues in Poland in 2007-2021. Based on the research conducted, the following conclusions were formulated:

State budget revenues in Poland more than doubled during the period under review - from PLN 236.4 billion in 2007 to PLN 494.8 billion in 2021. However, the dynamics of changes in budget revenues over the years examined varied. Although in most years there was an increase in revenues, a slight decline was recorded, for example, in 2010, which was mainly the result of the financial crisis that began in 2007. Importantly, in 2020, despite the outbreak of the COVID-19 pandemic, the level of total budget revenues compared to the previous year it increased (Poland received additional funds from the European Union to counteract the effects of the pandemic), but it was lower than planned;

Throughout the period under review, tax revenues were the most important source of financing the state budget. In the years 2007-2021, the level of income increased by over 109% – from PLN 206.4 billion in 2007 to PLN 432.2 million in 2021. A decline in tax revenues was recorded only in two years - 2009 and 2013.

In 2009, it was the result of a slowdown in the economic growth rate caused by the financial crisis, and in 2013, it was the result of changes in tax regulations;

Over the years examined, the share of tax revenues varied. Their average share in total state budget revenues in 2007-2021 was 87.8%. The lowest share of 78.4% was recorded in 2009 and was lower than the share in 2008 by 8.2 percentage points. The reduction in this share was the result of a reduction in state budget revenues from both VAT and PIT and CIT during the financial crisis. The share of tax revenues also decreased in 2020 as a result of the COVID-19 pandemic. However, the decline in this share was smaller than during the financial crisis and amounted to 3.5 percentage points. In 2020, Poland recorded smaller revenues from PIT and CIT taxes, but revenues from VAT turned out to be higher.

Therefore, in answer to the research question, it should be stated that both crises had a significant impact on the state of public finances in Poland and the level of state budget revenues, with the financial crisis of 2007 having a much stronger impact on the level of total budget revenues and the structure of generated revenues. Due to the above, the research hypothesis which assumed that *The outbreak of the COVID-19 pandemic had a stronger impact on the level of budget revenues in Poland than the global financial crisis of 2007* was negatively verified. The crisis caused by the COVID-19 pandemic has had a much greater impact on the level of state spending and, therefore, on the level of the budget deficit and public debt. The impact on the level of budget revenues, mainly due to the additional funds received from the European Union budget in this period, turned out to be smaller than during the financial crisis of 2007.

Translated by Authors

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ORIGINAL PAPER

DISCRIMINATION IN THE RECRUITMENT PROCESS – YOUNG ADULTS' PERSPECTIVE

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JEL Classification: Z1, J7.

K e y w o r d s: gender discrimination, recruitment, selection, young adults.

A b s t r a c t

The article addresses the issue of the scale of gender discrimination in the recruitment and selection process among young adults. The intensity of the examined phenomenon occurring in job advertisements and during the recruitment interview was identified, which, despite its low frequency, may significantly affect the future functioning of the labor market. Additionally, it was examined what impact the phenomenon they experienced had on the respondents, on their self-esteem and way of thinking. The overwhelming percentage of negative impact and unpleasant memories was intertwined with young adults' indifference to gender discrimination directed at them. The topic covered in the study is broad and requires interest and in-depth study.

DYSKRYMINACJA W PROCESIE REKRUTACJI – PERSPEKTYWA MŁODYCH OSÓB DOROSŁYCH

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S ł o w a k l u c z o w e: dyskryminacja ze względu na płeć, rekrutacja, selekcja, młode osoby dorosłe.

A b s t r a k t

W artykule podjęto zagadnienie dyskryminacji ze względu na płeć w procesie rekrutacji i selekcji, wśród młodych osób dorosłych. Zidentyfikowano intensywność badanego zjawiska występującego w ogłoszeniach o pracę oraz podczas rozmowy rekrutacyjnej, które mimo niskiej częstotliwości

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może znacząco wpłynąć na przyszłe funkcjonowanie rynku pracy. Dodatkowo zbadano, jaki wpływ na respondentów, na ich samoocenę i sposób myślenia, miało doświadczone przez nich zjawisko. Przeważający procent negatywnego wpływu i przykrych wspomnień występował wraz z obojętnością młodych osób dorosłych względem skierowanej w ich stronę dyskryminacji ze względu na płeć. Temat poruszony w opracowaniu jest szeroki, wymaga zainteresowania i pogłębienia.

Gender Discrimination in the Recruitment Process – Concept, Causes and Manifestations

There are many types of unethical behavior in the labor market, often based on stereotypes. These actions are not only reflected in the behavior of employees, but also in the actions of employers, often taking the form of discrimination. From an economic point of view, discrimination can be considered synonymous with unequal treatment. Narrowing the concept to the area of recruitment and selection, it should be noted that candidates for a given position, while equally productive, are treated differently due to the observed feature. In the case of the scope of research, this distinguishing feature will be gender (Liebkind *et al.*, 2016, p. 404).

A different definition defines discrimination as a set of behaviors whose consequence is a different perception of the situation of given individuals, characterized by *de facto* the same qualities or attributes. The essence of the above concept is therefore discrimination based on prohibited criteria (Głogowska, 2015, p. 85, 86).

From a non-economic point of view, the concepts of discrimination and unequal treatment should not be used synonymously. According to this concept, discrimination is a technical term indicating specific behaviors, while equality is only a kind of idea. The relationships between the indicated concepts can be treated as ambiguous (Głogowska, 2015, p. 85, 86).

It is necessary to distinguish between situations in which we can actually talk about the occurrence of gender discrimination. Applying different assessment criteria to people who have similar demographic and socio-professional characteristics, while depriving them of equal opportunities and rights of a given gender, indicates the occurrence of discrimination. If one of the sexes is in a worse situation for objective reasons, it should not be claimed that there has been discrimination, but only differentiation, not taking into account worse treatment (Zwiech, 2012, p. 162, 163).

The main cause of gender inequality concerns value systems and the nature of the structures of social institutions. The factor that creates and deepens differentiation is the subjectivity of views, referring to stereotypes that often take control over human behavior (Raczkowska, 2014, p. 119).

The Labor Code (Act of June 26, 1974, Labor Code) defines gender discrimination as an act that is „unwanted behavior of a sexual nature or relating

to the employee's gender, the purpose or effect of which is to violate the employee's dignity, in particular to create an intimidating, hostile, degrading, humiliating or insulting atmosphere towards him; This behavior may include physical, verbal or non-verbal elements (sexual harassment)" (Pawłowska-Cyprysiak, 2012, p. 17).

Gender discrimination can be divided, first of all, into direct and indirect. The first form concerns situations when a given individual, for reasons related to gender, was, is or could be treated worse than another individual. It is related to the individual relationship between the employee and the employer or the candidate for a given position and the potential employer. Indirect discrimination is related to seemingly neutral provisions, criteria or actions, which, however, lead to unfavorable disproportions (Pacian *et al.*, 2012, p. 81-85).

With technological progress, recruitment and selection are increasingly taking place online, in the form of so-called e-recruitment. Discrimination on the basis of gender was also observed in this form of conducting a recruitment interview or reviewing candidates' documents. This phenomenon is explained by the theory of rational bias, which shows how much influence the superior's behavior and the organizational climate have on employees. If discrimination is intentionally promoted in both of these aspects, subordinates who did not previously have their own prejudices are consciously encouraged to do so (Garcia--Izquierdo *et al.*, 2015, p. 157).

The criteria causing discrimination based on gender, illustrated in the theory of prejudice, are: the norm of preference and the instrumentality of compliance. They show that the basis of unequal treatment is the pressure exerted by superiors and clients, as well as the fear of ruining one's career in the event of failure to adapt to existing prejudices (Garcia-Izquierdo *et al.*, 2015, p. 157).

The private sphere influences the perception of gender roles in the professional sphere. This division assigns women household responsibilities, while men are called "breadwinners". These stereotypes are the basis for the occurrence of discrimination in the recruitment and selection process. Recruiters' opinions on asking questions about family situation during a recruitment interview vary. The fear of women's frequent absence and their lower involvement in professional duties due to the burden of housework make men the preferred gender for many positions (Pokrzywa, 2019, p. 83).

In the modern labor market, we can observe a change in the nature of gender discrimination, which previously focused only on the way women were treated in traditionally male professions. In the 21st century, attention began to be paid to the interference of a given phenomenon in men's professional lives (Manzi, 2019, p. 1). In recent years, the perception of discrimination against men has developed and is becoming more common and increasing. This phenomenon is caused by the social advancement of women and the increasing number of initiatives focusing on this gender. Moreover, women can increasingly boast higher education than men (Manzi, 2019, p. 2).

The change in the perception of gender discrimination has caused men to change their approach to their family and professional roles. When taking up work in feminized professions, just like women in masculinized professions, they still have to take into account unequal treatment. The new paradigm of masculinity, on the one hand, provides the opportunity for the development of the male gender in other spheres of private and professional life than before, but on the other hand, it exposes them to the risk of being ascribed weakness and helplessness (Dudak, 2019, p. 217-228).

Purpose and Methodology

The main aim of the research was to identify the experiences of young adults and their perception of gender discrimination in the recruitment and selection process. The aim was identified based on a systematic review of the literature. The research was conducted using an online survey addressed to young adults, i.e. people aged 18 to 30. During the research, the focus was on subordinating them in such a way as to achieve the main goal and find answers to the following research questions:

– Are men, young adults, more likely to be discriminated against because of their gender during a job interview than women from this group?

– Do women, more often than men, pay attention to gender-related discriminatory factors in job advertisements?

– During a recruitment interview, is the most common gender-based discrimination directed at women to suggest the possibility of getting pregnant in the near future?

The survey was made available on electronic platforms. The study involved 127 respondents out of 377, which increases the maximum error from 5% to 7%. They were mainly students of the Faculty of Economic Sciences of the University of Warmia and Mazury in Olsztyn. The study was conducted in April 2023. Among the respondents, 98% were young adults, the remaining 2% did not participate in the further part of the study. The majority of respondents were women (72%). 23% of them were working part-time students, who constituted the largest group of respondents. Men are mostly working people (31% of male respondents). Taking into account all respondents, the largest part were working people (22%).

Findings

The research shows that out of 124 young adults, 20 of them did not participate in any recruitment process. There were 12 women (13.5% of this gender) and 8 men (22.9% of this gender). These people were excluded from answering questions

about their recruitment and selection experiences. Among women, the most responses were about participation in several or a dozen recruitment processes – 58 responses (65.2% participation). The situation was similar among men. In this case 62.9% of respondents had sufficient experience to reliably answer the questions asked in the survey.

The respondents were asked to indicate the intensity of their experience related to discriminatory factors in job advertisements. For this purpose, a 5-point response scale was used, where 1 – I definitely have no experience, 2 – I rather have no experience, 3 – I have experience but it was not frequent, 4 – I have experience, most of the advertisements I read indicated such factors, 5 – such factors were definitely indicated in each advertisement, the results of the analyzes are presented in Table 1, responses were provided by 104 young adults.

Table 1

Opinion of respondents regarding their experiences regarding discriminatory factors included in job advertisements

Specification	Share in %	Factor intensity
Woman	74.0	2.32
1 – I definitely have no experience	26.0	
2 – I don't have much experience	32.5	
3 – I have experiences, but they were not frequent	24.7	
4 – I have experience in most advertisements	16.9	
5 – I have experience, such factors were indicated in each advertisement	0	
Man	26.0	2.0
1 – I definitely have no experience	37.0	
2 – I don't have much experience	33.3	
3 – I have experiences, but they were not frequent	22.2	
4 – I have experience in most advertisements	7.4	
5 – I have experience, such factors were indicated in each advertisement	0	

Source: own study based on research.

The intensity of the factor, both in the case of women and men, indicates little experience with discriminatory factors in job advertisements. However, this does not change the fact that the phenomenon occurred. Among women, approximately 17% have such experiences and indicate that most advertisements included information that the respondents interpreted as a sign of discrimination, over 7% of men also indicate such a phenomenon. An important declaration is the fact that 37% of surveyed men do not indicate such experiences and

26% of women also declare that when reading job advertisements they did not notice any information that could be classified as discriminatory. When such experiences were identified, they concerned the preferences for recruiting employees of a specific gender, Table 2.

Table 2

Emphasizing the required gender of a candidate for a vacant position in the opinion of respondents

Specification	Share in %	Factor intensity
Woman	77.0	2.88
1 – I definitely have no experience	14.0	
2 – I don't have much experience	24.6	
3 – I have experiences, but they were not frequent	22.8	
4 – I have experience in most advertisements	36.8	
5 – I have experience, such factors were indicated in each advertisement	1.8	
Man	23.0	2.71
1 – I definitely have no experience	11.8	
2 – I don't have much experience	29.4	
3 – I have experiences, but they were not frequent	41.2	
4 – I have experience in most advertisements	11.8	
5 – I have experience, such factors were indicated in each advertisement	5.9	

Source: own study based on research.

The most common discriminatory factor in job advertisements turned out to be the statement about the willingness to employ a person of a specific gender for a vacant position. The respondents had such experience and noticed statements regarding gender preferences for a specific position, both in the case of surveyed women (approx. 37%) and men (12%). Additionally, only men observed other examples of factors in job advertisements, such as:

– "discrimination on the basis of gender identity (transgender and transphobia)";

– "specific type of beauty required";

– "gender and appearance requirements in jobs requiring appearance".

Research conducted for the Gender Index, cited by Pawłowska-Cyprysiak (2012, p.17), showed the presence of only the masculine form in job advertisements, not only in the job description, but also referring directly to potential candidates. This is consistent with the respondents' answers, because the use of only the masculine gender in job titles indirectly results in women feeling that their gender is not suitable for a given vacancy.

Kamińska (2015, p.100) also writes about discriminatory factors in job advertisements. Based on the information she has collected, she confirms the existence of gender inequalities. It shows that employers, trying to protect themselves against women's unavailability at work (pregnancy, holidays, etc.), which, of course, on the one hand can be justified but on the other hand treated as a manifestation of stereotypes, include preferences as to the gender of the candidate in job advertisements. Additionally, there are cases where the gender required for a position is provided without hesitation.

The next two questions concerned the experiences of young adults related to discrimination during a job interview or candidate selection. The results of the first of these questions are presented in Table 3.

Table 3

The phenomenon of discrimination during a recruitment interview or candidate selection – the perspective of young adults

Specification	Share in %	Factor intensity
Woman	74.0	1.79
1 – I definitely have no experience	50.6	
2 – I don't have much experience	29.9	
3 – I have experiences, but they were not frequent	10.4	
4 – I have experience in most conversations	7.8	
5 – I have experience, such factors were mentioned during each conversation	1.3	
Man	26.0	1.59
1 – I definitely have no experience	63.0	
2 – I don't have much experience	18.5	
3 – I have experiences, but they were not frequent	14.8	
4 – I have experience in most conversations	3.7	
5 – I have experience, such factors were mentioned during each conversation	0	

Source: own study based on research.

Discrimination during a recruitment interview is not commonly noticed among the respondents, and a definite lack of such experiences is declared by 51% of women and 63% of surveyed men. 9.1% of respondents believe that they have such experiences and they were carried out in most or every conversation. It should therefore be stated that the phenomenon under study is not common, but it occurs among both men and women, although with different intensity.

Detailed examples of discriminatory behavior on the part of the recruiter are presented in Table 4.

Table 4

Discriminatory behavior on the part of the recruiter – experiences of young adults

Specification	Stating that the position requires a person with higher physical fitness, based solely on stature		Stating that a man or a woman is needed for this position		Suggesting the possibility of getting pregnant in the near future	
	Share in %	Factor intensity	Share in %	Factor intensity	Share in %	Factor intensity
Woman	79.2	1.53	79.2	2.58	79.2	2.39
1 – I definitely have no experience	50.0		18.4		23.7	
2 – I don't have much experience	21.1		28.9		18.4	
3 – I have experiences, but they were not frequent	5.3		5.3		13.2	
4 – I have experience in most conversations	7.9		18.4		18.4	
5 – I have experience, such factors were mentioned during each conversation	2.6		18.4		13.2	
Man	20.8	2.7	20.8	3.6	20.8	1.6
1 – I definitely have no experience	20.0		0		50.0	
2 – I don't have much experience	10.0		20.0		0	
3 – I have experiences, but they were not frequent	20.0		20.0		20.0	
4 – I have experience in most conversations	30.0		40.0		0	
5 – I have experience, such factors were mentioned during each conversation	10.0		20.0		10.0	

Source: own study based on research.

The examples presented in the table indicate the advantage of experience in the field of discriminatory behavior among men. Among women, the most common answer was the statement that a man or a woman is needed for this position (factor intensity of 2.58). However, this was not a significant difference in relation to the frequency of occurrence of this phenomenon among women, e.g. suggesting the possibility of getting pregnant in the near future (intensity – 2.39). These data confirm the conclusions of Bombiak (2016, p. 65), who, based on her research, stated that women have problems with finding employment due to employers' concerns about the possibility of the employee getting pregnant. It indicates that questions about reproductive plans or private life may appear during recruitment interviews.

Regardless of gender, respondents point to the same most common phenomena of discrimination. Respondents provided their own examples of discriminatory behavior on the part of the recruiter, which, in the opinion of the surveyed women, concerned having a child and questions about starting a family in the next five years. The men drew attention to the "notorious misgendering" and invasive questions in this regard.

After a series of questions about respondents' experiences with discrimination in the recruitment and selection process, they were asked to indicate whether their friends had also experienced the phenomenon under study. The related results are presented in Table 5.

Table 5

The occurrence of discrimination in the recruitment and selection process among friends in the opinion of the respondents

Specification	Share in %	Factor intensity
Woman	71.8	2.87
1 – definitely not	11.2	
2 – probably not	23.6	
3 – I have friends like this, but such phenomena were not common	38.2	
4 – I have friends who have experienced discrimination in most recruitment processes	21.3	
5 – I have friends who have experienced discrimination during every recruitment process	5.6	
Man	28.2	2.66
1 – definitely not	20.0	
2 – probably not	22.9	
3 – I have friends like this, but such phenomena were not common	31.4	
4 – I have friends who have experienced discrimination in most recruitment processes	22.9	
5 – I have friends who have experienced discrimination during every recruitment process	2.9	

Source:own study based on research.

Friends of both respondents experienced the phenomenon under study, but these were not frequent experiences. When asked about the form of discrimination they most often faced, having to choose between nationality, disability, gender, race and age, the latter was most often mentioned (28%), followed by gender (23%).

The research included the issue of the effects of discrimination on the behavior of young adults, e.g. the impact of discrimination in the recruitment and selection process on the respondents' self-esteem; 50% of respondents participated in this part of the study. The results are presented in Table 6.

Table 6

The impact of discrimination in the recruitment and selection process on respondents' self-esteem

Specification	Share in %	Factor intensity
Woman	79.2	2.32
1 (had a very negative impact)	7.9	
2 (had a negative impact)	57.9	
3 (had no effect)	31.6	
4 (had a positive impact)	0	
5 (had a very positive impact)	2.6	
Man	20.8	2.80
1 (had a very negative impact)	0	
2 (had a negative impact)	50.0	
3 (had no effect)	30.0	
4 (had a positive impact)	10.0	
5 (had a very positive impact)	10.0	

Source: own study based on research.

For every respondent, discrimination in recruitment and selection had a negative impact. In several cases, it did not cause any reaction from the discriminated person. However, it should be noted that it largely left unpleasant memories and negative effects, especially in the situation of women. This may mean that men are more resistant to discrimination directed at them than women.

The entire study was complemented by checking which statement regarding discrimination in the recruitment and selection process the respondents agreed with the most. 124 respondents responded, and the results are presented in Table 7.

Table 7

Respondents' opinions regarding discrimination in the recruitment and selection process

Specification	Share in %
Woman	71.8
I have no opinion	5.6
Understand and accept in certain situations	31.5
Fight it at all costs and prevent it from happening	60.7
Accept it because it is deeply rooted in our subconscious due to existing stereotypes and prejudices	2.2
Man	28.2
I have no opinion	5.7
Understand and accept in certain situations	31.4
Fight it at all costs and prevent it from happening	57.1
Accept it because it is deeply rooted in our subconscious due to existing stereotypes and prejudices	5.7

Source: own study based on research.

In the case of both surveyed women and men, approximately 60% declare their position on combating and preventing discrimination. In the case of 2% of women and approximately 6% of surveyed men, they declare that they understand the phenomenon of discrimination and accept it in specific situations. It can be concluded that despite many efforts to counteract discrimination in the recruitment and selection process, young adults are aware that this phenomenon will occur anyway.

Conclusions

The results of the conducted research confirm that in the modern labor market, discrimination not only against women but also against men is becoming more and more common, as noted by other authors (Manzi, 2019).

The analysis of literature studies and the conducted research made it possible to formulate several conclusions about gender discrimination in the recruitment and selection process among young adults.

Both discriminatory factors in job advertisements and those appearing in the recruiter's behavior apply only to a small extent to people aged eighteen to thirty. This, however, does not mean that they do not occur, but they differ in intensity between the sexes.

Women were more likely to pay attention to discrimination in job advertisements (which is a positive answer to the second research question), while men were more likely to experience unequal treatment from the recruiter, taking into account only some of the most common examples of such behavior. This indicates an affirmative answer to the first research question.

During a job interview, women they more often had experiences with the statement that a man was needed for this position and this was the main discriminatory phenomenon. Suggestions about the possibility of getting pregnant in the near future was not the main topic, as suggested in research question no. 3.

The respondents declared that gender discrimination was not the most common type of unequal treatment among their friends. This form was in second place. However, on the podium there was unequal treatment due to age.

Despite the ubiquitous opinion about the negative impact of discrimination on recruits, there are still many cases where a given phenomenon does not cause any reaction from a young adult. Is the phenomenon in question becoming so common that the younger generation starting their experience in the labor market does not notice the problem of discrimination? Explaining this problem requires additional research and observations.

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ORIGINAL PAPER

IMPACT OF THE COVID-19 PANDEMIC ON THE SITUATION AND FINANCIAL RESULTS OF THE EKSTRAKLASA FOOTBALL CLUBS

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JEL Classification: D2, G2, G3.

K e y w o r d s: COVID-19, financial situation, football clubs, economic efficiency.

A b s t r a c t

The objective of this study is to evaluate and compare the financial situation and results of 12 joint-stock companies running football clubs in the Polish Ekstraklasa during two periods of their activity. The first period was during the COVID-19 pandemic in Poland, and the second period was before the pandemic. The pandemic period covered two years (2020 and 2021), and the pre-pandemic period was 2019. The description of the financial situation was based on an evaluation of net income from sales, net financial results and equity, as well as liquidity ratios and debt. Deviations in the form of absolute differences were calculated to compare the two study periods, where the pre-pandemic ratios for 2019 were subtracted from the financial ratios for the COVID-19 pandemic period (2020 and 2021). The study shows that the financial situation during the two periods varied, and it cannot be clearly stated that the financial situation deteriorated during the pandemic. Despite lower revenue from the matchday, which was caused by reduced numbers of fans at stadiums, higher net income was noted in most clubs during the pandemic. This was a consequence of higher revenues from broadcast rights and sponsoring and advertising activities. Higher-income and revenue from recapitalisation by share issuance, supplementing equity and shareholder loans ensured the clubs' financial liquidity during the pandemic. The clubs also maintained their liquidity owing to the financial resources received from the Polish government as part of the Anti-Crisis Shield. The clubs' financial situation regarding equity deteriorated during the pandemic, as it decreased in most clubs. This was caused by higher negative financial results than before the pandemic. High losses, especially among the clubs which reported negative results before the pandemic, resulted in a further increase in negative equity.

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WPŁYW PANDEMII COVID-19 NA SYTUACJĘ I WYNIKI FINANSOWE KLUBÓW PIŁKARSKICH EKSTRAKLASY

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Słowa kluczowe: COVID-19, sytuacja finansowa, kluby piłki nożnej, efektywność ekonomiczna.

Abstrakt

Celem badań jest ocena i porównanie sytuacji i wyników finansowych 12 spółek akcyjnych prowadzących kluby piłki nożnej w Ekstraklasie w dwóch okresach działalności – w pierwszym, gdy w Polsce występowała pandemia COVID-19, drugi przed pandemią. Okres pandemii obejmował dwa lata – 2020 i 2021, natomiast okres przed pandemią rok 2019. Sytuację finansową opisano na podstawie oceny wielkości przychodów netto ze sprzedaży, wyników finansowych netto i kapitału własnego oraz wskaźników płynności i zadłużenia. Do porównania dwóch okresów badań policzono odchylenia w postaci różnic absolutnych – od wskaźników finansowych w okresie COVID-19 zanotowanych w 2020 i 2021 odjęto wielkości wskaźników przed pandemią, tj. dla roku 2019. Na podstawie przeprowadzonych badań stwierdzono, że sytuacja finansowa w dwóch okresach była zróżnicowana i nie można jednoznacznie stwierdzić, że pogorszyła się w okresie pandemii. Pomimo niższych wpływów z dnia meczowego, co było związane z ograniczeniem liczby kibiców na stadionie, obserwowano wyższe przychody netto większości klubów w czasie pandemii. Było to rezultatem wyższych przychodów z transmisji oraz działalności sponsoringowo-reklamowej. Wyższe przychody oraz wpływy z dokapitalizowań w postaci emisji akcji, dopłat do kapitału oraz pożyczek właścicielskich zapewniły klubom utrzymanie płynności finansowej w okresie pandemii. Do utrzymania płynności kluby wykorzystywały także środki finansowe otrzymane od polskiego rządu w ramach tarczy antykryzysowej. Sytuacja finansowa klubów w okresie pandemii pogorszyła się w zakresie wielkości kapitału własnego, który się zmniejszył w większości klubów. Było to spowodowane wyższymi niż w okresie przed pandemią ujemnymi wynikami finansowymi. Wysokie straty, szczególnie klubów, które zanotowały ujemne wyniki przed pandemią, wpłynęły na dalsze obniżenie ujemnych kapitałów własnych.

Introduction

On 11 March 2020, the WHO announced the COVID-19 pandemic (coronavirus disease) caused by the SARS-CoV-2 coronavirus around the world. The pandemic affected all types of organisations, including professional football clubs (Hammerschmidt *et al*., 2021; Karadeniz & Iskenderoglu, 2022; Destefanis *et al*., 2022; Khanmoradi & Fatahi, 2023). Closing sports centres and stadiums (Kazanci & Sùmer, 2020) exacerbated the financial problems of clubs, which enjoyed the largest number of fans among all sports disciplines. The impact of COVID-19 included a decrease in income, and top football clubs started to contain the economic effects of the pandemic.

Football matches in Europe were suspended in early March 2020 (Lines, 2020). The Italian Serie A was the first league among the so-called "Big Five" leagues in Europe[1], which interrupted its matches on 9 March 2020. Matches in the Premier League, La Liga, Eredivisie and the Polish Ekstraklasa (ESA) were suspended on 12 March 2020. The French Ligue 1 and Bundesliga suspended their matches on 13 March 2020 (Hammerschmidt *et al*., 2021).

Football leagues all over the world tried to cope with the pandemic in a variety of ways. In some cases, matches were postponed, while others were terminated or cancelled. It was one of the most difficult moments in the history of the football industry. The absence of fans, postponing and cancelling matches, discounts for broadcasters and having to satisfy commercial partners – all had a considerable impact on the clubs' financial results.

Based on the current pandemic situation in Europe, the clubs resumed their matches about three months after suspending them. The Bundesliga was the first to resume the matches, though with significant modifications, on 16 May 2020 (*Bundesliga 2019/20 Season Review…*, 2020). Subsequently, matches were resumed in Spain by La Liga clubs on 12 June 2020 (*LaLiga Establishes the Official Match…*, 2020). The Premier League officially returned on 17 June 2020 (*Ligue 1 & 2: France's Top…*, 2020). Serie A was the last to resume the matches, which it did on 20 June 2020 (*Official: Coppa Italia…*, 2020). However, on 28 April 2020, Ligue 1 announced that it cancelled all domestic sports matches because of the problematic pandemic situation in France, which meant that the 2019-2020 season was cancelled permanently (*Ligue 1 & 2: France's Top…*, 2020). Paris Saint Germain was the winner of the French league, and it was the first on the league table before the matches were suspended (Mott, 2020).

Given the COVID-19 pandemic in Poland in 2020-2021, the objective of this study was to compare the financial situation and results of 12 joint-stock companies running football clubs in the Ekstraklasa during two periods of their activity. The first period was during the COVID-19 pandemic in Poland, and the other period was before the pandemic. The pandemic period covered two years (2020 and 2021), whereas the pre-pandemic period covered 2019. In the case of football seasons, the pandemic period covered the second part of the 2019/2020 season and the whole 2020/2021 season. Through the majority of the 2020/2021 season (30 matchdays), matches of the Ekstraklasa were played with no fans at the stadium. According to the rules imposed in Poland at the time, the number of fans was reduced to 50% of the maximum stadium capacity. On 7 out of 30 ESA matchdays, the number of fans at the stadium was reduced to 25%, and the remaining 77% of matches were played with no fans at all.

[1] Due to the match results, the "Big Five" includes 5 European leagues: French Lique 1, English – Premier League, Spanish – La Liga, German – Bundesliga and Italian – Serie A.

Football Clubs During and Before the COVID-19 Pandemic

The sales income increased until the season of 2018/2019 before the COVID-19 pandemic in each of the "Big Five" leagues. Although the overall size of the European football industry increased, so did the inequalities between the central and peripheral leagues (*Annual Review of Football Finance*, 2020). Fan-oriented and effective marketing campaigns run by the big leagues as part of their globalisation strategies on new markets and cooperation with various brands also increased the clubs' income and the value of their brands. However, despite the increase in income, many leagues and clubs faced a situation where the money spent on player transfers and fees surpassed their earnings, resulting in costs exceeding profits. Therefore, the activities in many European leagues were conducted with low or negative profitability, even before the external market shock, i.e. the appearance of COVID-19 in 2020 (*Annual Review of Football Finance*, 2020). An increase in the football clubs' financial and operational risk caused by the coronavirus pandemic had a negative impact on their financial results. Those results became a cause for concern for each club in the post-pandemic scenario, in which a large consumption drop was predicted (Alaminos *et al.*, 2020). Financial result-related fears increased even more in the football clubs which continued their activities with a level of financial ratios that would be unacceptable in any other sector.

Due to the disruption of the football season of 2019/20 and different leagues' varying approaches to the conditions at the time to broadcasters and trade partners, the clubs' income from the season of 2019/20 was distributed over the two financial years (2020 and 2021). Based on the Deloitte report (*Ranking przychodów klubów piłkarskich…*, 2021), the 20 best-earning football clubs around the world generated an income of 8.2 billion euro, 12% less than in the previous season, when they earned 9.3 billion euro. A decrease of 1.1 billion euro was a consequence mainly of a decrease in income from TV broadcast rights (by 937 million euro, i.e. by 23%) and a decrease in matchday income by 257 million euro (17%). The decreases could not be compensated for by an increase in commercial income of 105 million euro (by 3%) earned from several substantial trade agreements. Although no football club was resistant to challenges related to COVID-19, the clubs of the Big Five felt it to the greatest extent. According to the Deloitte (*Football Money League: Testing Times…*, 2021) report, the mean income per club in the 2020/2021 season amounted to 409 million euro, 55 million less than in the previous year.

The COVID-19 pandemic had an impact on four basic elements on which the business model of most football clubs was based (Chłapowski & Kantanista, 2022):

– matchday income – cancelling matches or playing them with no fans at the stand caused football clubs to suffer losses;

– sponsoring and income from commercial rights – the restriction of fans' access to sports events led to a revaluation and redefinition of the collaboration between clubs and sponsors;

– income from UEFA and international matches – suspending matches caused uncertainty of money payments by UEFA due to participation in European matches;

– income from broadcasting rights – cancelling matches and even interrupting them before the end (e.g. in The Netherlands) resulted in the payment of only part of the money due to contracts for TV broadcasts. As one of the first responses, the clubs reduced or postponed payments of remunerations to players and sought intensively to benefit from government aid programmes.

However, in a longer perspective, the clubs, whose income was largely based on matchday revenues, felt the effects of the crisis and had to look for new methods of stabilising financial flow (Bond *et al.*, 2022).

Because matches were played with no fans at the stadium, clubs found themselves in an unusual situation. On the one hand, they did not have to incur high expenses related to security at sports events but, on the other, they saw a considerable income decrease. Seeing the impact of the crisis on the state of finances, i.e. financial liquidity, European football clubs took various actions to maintain relative financial stability. Short-term actions taken by clubs in order to stabilise their budgets involved freezing or reducing the remuneration of players, trainers and personnel in the clubs. Football clubs used legal tools, such as group dismissals (e.g. CF Murcia, Spain; Olympique Lyonnais, France), which were supposed to ensure employee access to aid packages offered by the state. Some clubs (e.g. FC Barcelona, Spain; Borussia Moenchengladbach, Germany) offered the players a voluntary pay decrease. Other clubs terminated contracts with players who did not agree to have their pay reduced voluntarily, e.g. FC Sion did so with nine of its players (*Szaleństwo w FC Sion*…, 2020). Other actions which were supposed to help clubs maintain their financial liquidity include: abstaining from any investments and actions aimed at debt restructuring. At this stage, clubs faced a different uncertainty arising from regulations of UEFA's Financial Fair Play. All professional football clubs are subject to these regulations, and it was not known at the initial stage of the crisis how problems with financial liquidity or public subsidies would affect the UEFA licensing process. However, owing to UEFA's liberal approach, clubs in many countries were able to use the public aid offered by individual countries.

Research Methodology

The basic information on the clubs dealt with in the study is shown in Table 1. The study covered three consecutive financial years ending in 2019, 2020 and 2021. The clubs under study conducted their activities during various accounting

periods. In six cases, the period ended on 31 December, i.e. it coincided with the calendar year and, in the others, it ended on 30 June, i.e. it was linked to the seasonality of football matches in Poland. The football match season in Poland lasts from late July to June. Therefore, it is justified to link the financial year with these dates for evaluation achieved during the period. A different method of presenting financial data makes it difficult to compare the results of companies analysed in the study, but it was the only possible way of evaluating the results because the enterprises did not submit semi-annual reports.

Table 1

The evidence data for the clubs under study as of the balance sheet day for the financial year ended in 2019

Club	National Court Register number	Financial year end date
Cracovia Kraków	0000048937	31 December
Górnik Zabrze	0000106227	31 December
Jagiellonia Białystok	0000064830	31 December
Lech Poznań	0000116034	30 June
Lechia Gdańsk	0000325053	30 June
Legia Warszawa	0000097402	30 June
Piast Gliwice	0000334402	30 June
Pogoń Szczecin	0000285971	30 June
Raków Częstochowa	0000392197	30 June
Śląsk Wrocław	0000070008	31 December
Wisła Płock	0000026644	31 December
Zagłębie Lubin	0000083600	31 December

Source: prepared by the author based on company data from the National Court Register.

Considering the factors with an immediate impact on matches during the COVID-19 pandemic, such as uncertainty of the dates of suspending and resuming the matches, legal and sanitary regulations introduced by the central and local governments, restrictions regarding the number of fans at a stadium and other factors, the following research hypothesis was put forward: the financial situation and results of the companies running football clubs in the Ekstraklasa during the coronavirus pandemic deteriorated as compared with the pre-pandemic period, i.e. 2019.

The study employed the method of financial statements analysis and the financial ratio analysis according to the procedure developed by Sierpińska and Jachna (2011) and the comparative deviations method. The financial situation description was based on the preliminary evaluation: of the economic and financial condition of the companies, i.e. the net sales income, net financial result and equity. In the case of the ratio analysis, current financial liquidity ratios were used for the liquidity evaluation. The two study periods were compared with

the use of absolute differences, where the ratios for 2019 were subtracted from the years 2020 and 2021 for the preliminary and ratio analysis results. Due to the fact that there are numerous outliers in the data analysed, medians were calculated for all indicators alongside the means.

The analysis of the clubs' financial condition during the two periods of their activity was based on the financial statements filed with the National Court Register in an electronic format and published on the clubs' websites. The evaluation of the commercial income, broadcast rights and matchday income structure during the two periods: first (2019/2020 and 2020/2021) and second (2019), was based on the report prepared by Deloitte - Piłkarska Liga Finansowa – sezon 2021/2022 (*Deloitte Sports Business Group*, 2022).

Evaluation of Ekstraklasa Football Clubs During Two Periods

First, a preliminary evaluation of the economic and financial condition of the clubs was made on the basis of the volume and structure of net sales income (Tabs. 2 and 3). According to the methodology developed by Deloitte, the sales income structure is divided into three categories: matchday income, broadcast

Table 2

Amount and deviations of net sales income during two periods

Club	Net sales income [kPLN]			Deviations	
	2019	2020	2021	2020-2019	2021-2019
Cracovia Kraków	38,453	39,854	30,602	1,401	-7,851
Górnik Zabrze	21,513	19,910	24,316	-1,603	2,803
Jagiellonia Białystok	24,046	21,967	23,182	-2,079	-864
Lech Poznań	58,319	73,839	74,256	15,520	15,937
Lechia Gdańsk	40,703	48,292	42,085	7,589	1,382
Legia Warszawa	102,310	97,158	96,882	-5,152	-5,428
Piast Gliwice	41,274	33,155	31,340	-8,119	-9,934
Pogoń Szczecin	27,020	31,071	31,253	4,051	4,233
Raków Częstochowa	9,276	15,911	67,938	6,635	58,662
Śląsk Wrocław	21,136	23,441	36,390	2,305	15,254
Wisła Płock	23,156	17,668	21,108	-5,488	-2,048
Zagłębie Lubin	38,176	39,288	34,605	1,112	-3,571
Total revenue	445,382	461,554	513,957	16,172	68,576
Mean	37,115	38,463	42,830	–	–
Median	32,598	32,113	32,972.5	–	–

Grey colour denotes clubs with negative deviations (income decrease) compared with 2019.
Source: prepared by the author based on the companies' financial statements.

Table 3

Commercial income, broadcast rights and matchday income during two periods

Club	Commercial			Broadcast rights			Matchday		
	2019	2019/ 2020	2020/ 2021	2019	2019/ 2020	2020/ 2021	2019	2019/ 2020	2020/ 2021
Cracovia Kraków	19	19	20	14	13	19	4.0	1.6	0.7
Górnik Zabrze	9	6	11	9	10	13	5.2	4.9	2.6
Jagiellonia Białystok	10	11	10	14	14	16	4.5	3.3	0.3
Lech Poznań	20	24	20	15	27	50	11.0	8.3	4.9
Lechia Gdańsk	21	22	30	22	8	14	8.0	4.6	0.8
Legia Warszawa	71	70	70	25	32	39	27.8	21.9	10.2
Piast Gliwice	17	14	15	17	24	19	2.0	1.5	0.3
Pogoń Szczecin	17	17	18	14	12	26	1.4	0.9	0.2
Raków Częstochowa	11	10	11	6	13	27	1.1	0.8	1.0
Śląsk Wrocław	21	8	13	7	10	18	4.2	3.7	1.0
Wisła Płock	7	10	14	9	6	7	0.5	0.4	0.0
Zagłębie Lubin	25	26	23	13	11	18	1.0	0.9	0.3
Total revenues	249	237	253	165	181	265	71	53	22
Mean	21	20	21	14	15	22	6	4	2
Median	18	15	16	14	13	18	4	2	1

Source: based of Deloitte report (*Ranking przychodów klubów piłkarskich…*, 2021).

rights income and commercial income. The matchday income includes revenue from ticket sales, VIP boxes and stadium catering. Income from broadcasts includes earnings from TV and radio broadcast rights and centralised marketing rights from Ekstraklasa S.A. for participation in matches, bonuses for participation in domestic and foreign cup matches, and the Pro Junior System. Commercial income includes income from sponsorship agreements (signed by clubs), advertisements, sales of T-shirts, club souvenirs and other commercial income.

A comparison of the total clubs' sales income during the two study periods reveals an increase, especially at the end of 2020, compared with the pre-pandemic period. An income increase was reported in four clubs: Lech, Lechia, Pogoń, Raków and Śląsk. An income increase in these clubs can be attributed to the financial support from shareholders and income from transfer activity, which covered the deficit generated from the lack of matchday income during the pandemic. An income decrease was observed in seven clubs: Cracovia, Górnik, Jagiellonia, Legia, Piast, Wisła and Górnik in 2020 and 2021 compared with 2019. The largest income decrease compared with 2019 was recorded in Legia Warszawa (approx. 5 and 5.5 million PLN) and in Piast Gliwice (approx. 8 and 9 million PLN).

The three income categories calculated by the method proposed by Deloitte show that all of the clubs reported a decrease in the matchday income (53 million PLN in the 2019/2020 season vs 22 million PLN in the 2020/2021 season) compared with the pre-pandemic period. The largest decrease in this group of income was noted in the clubs with the largest portion of the matchday income in the income structure, i.e. in Legia, Lech and Górnik. The matchday income in these clubs accounted for 22%, 24% and 22% of the total income, respectively, in 2019.

Another element of the preliminary evaluation of the clubs' financial situation was the analysis of equity, which performs a guarantee function and secures the proper operation of a business entity (Tab. 4).

Table 4

Equity amount and deviations during two periods

Club	Equity [kPLN]			Deviations	
	2019	2020	2021	2020-2019	2021-2019
Cracovia Kraków	31,408	31,495	10,695	87	-20,713
Górnik Zabrze	-27,549	-30,365	-36,397	-2,816	-8,848
Jagiellonia Białystok	16,806	25,035	14,097	8,229	-2,709
Lech Poznań	6,376	53,094	41,555	46,718	35,179
Lechia Gdańsk	-12,006	-9,729	-19,323	2,277	-7,317
Legia Warszawa	-53,512	-93,949	-92,072	-40,436	-38,559
Piast Gliwice	9,087	10,692	11,792	1,605	2,705
Pogoń Szczecin	-26,114	-7,558	-14,234	18,556	11,880
Raków Częstochowa	-9,641	-17,598	-9,705	-7,957	-64
Śląsk Wrocław	-11,515	-1,530	-2,545	9,985	8,970
Wisła Płock	952	-653	-6,145	-1,605	-7,097
Zagłębie Lubin	45,559	71,384	65,399	25,825	19,840
Equity capital	-30,149	30,318	-36,882	60,468	-6,733
Mean	-2,512	2,527	-3,074	–	–
Median	-4,345	-1,092	-4,345	–	–

Grey colour denotes clubs with negative deviations in equity during the period under study.
Source: prepared by the author based on the companies' financial statements.

An analysis of the figures in Table 5 shows that the companies' total equity decreased by nearly 37 million PLN in 2021 relative to 2019, which was indicative of the high financial risk associated with the clubs' activities. Negative deviations were significant in the group of clubs with negative equity before the pandemic, especially in Legia Warszawa and Górnik Zabrze, where the largest decrease was observed. Among the clubs with positive equity in 2019, the largest decrease was noted in Cracovia Kraków, where the equity in 2021 was lower by approx.

21 million PLN compared with 2019. The equity situation in absolute figures was the best in Lech Poznań and Zagłębie Lubin.

The financial security deterioration during the pandemic, especially in 2021, was caused mainly by the absence of positive net financial results in most clubs (Tab. 5).

Table 5

Net financial results and deviations in two periods

Club	Financial results [kPLN]			Deviations	
	2019	2020	2021	2020-2019	2021-2019
Cracovia Kraków	2,001	87	-20,800	-1,914	-22,801
Górnik Zabrze	1,248	-7,166	-10,482	-8,414	-11,730
Jagiellonia Białystok	3,106	8,229	-10,938	5,123	-14,044
Lech Poznań	205	53,719	50,468	53,514	50,263
Lechia Gdańsk	-6,558	1,878	-7,824	8,436	-1,266
Legia Warszawa	5,810	-40,377	-38,394	-46,187	-44,204
Piast Gliwice	9,742	1,605	2,705	-8,137	-7,037
Pogoń Szczecin	-2,420	8,189	1,259	10,609	3,679
Raków Częstochowa	-2,587	-7,958	7,894	-5,372	10,481
Śląsk Wrocław	-3,001	-3,015	-14,015	-14	-11,014
Wisła Płock	-7,890	-7,469	-13,288	421	-5,398
Zagłębie Lubin	-2,934	25,825	-5,985	28,759	-3,051
Total financial result	-3,278	33,547	-59,400	36,825	-56,122
Mean	-273	2,796	-4,950	–	–
Median	-1,107.5	846	-9,153	–	–

Grey colour denotes clubs which reported a financial result decrease compared with 2019.
Source: prepared by the author based on the companies' financial statements.

An analysis of the results and deviations presented in Table 5 shows that apart from Lech, Pogoń, Raków and Piast, the remaining clubs generated a net loss in 2021. A positive result in the first three clubs was a consequence of higher commercial income (sports results) and revenue from the sale of players. The largest negative net deviations in 2021 compared with the pre-pandemic period were observed in Legia Warszawa (by 44 million PLN), Jagiellonia Białystok (by 14 million PLN), Śląsk Wrocław (by 11 million PLN) and Górnik Zabrze (by 12 million PLN).

The second part of the financial analysis included an analysis of financial liquidity and debt (Tabs. 6 and 7).

The current liquidity ratio analysis for the period of 2019-2021 shows that the means and medians for the pandemic period (2020 and 2021) were slightly higher than before the pandemic. This means that most clubs had access to financial

Table 6

Current financial liquidity ratios and deviations in two periods

Club	Financial liquidity ratios			Deviations	
	2019	2020	2021	2020-2019	2021-2019
Cracovia Kraków	0.50	0.65	0.51	0.15	0.01
Górnik Zabrze	0.55	0.53	0.36	-0.02	-0.19
Jagiellonia Białystok	0.61	1.09	0.67	0.48	0.06
Lech Poznań	0.92	1.27	1.10	0.35	0.18
Lechia Gdańsk	0.72	0.48	0.25	-0.24	-0.47
Legia Warszawa	0.87	0.50	0.53	-0.37	-0.34
Piast Gliwice	1.24	2.79	1.49	1.55	0.25
Pogoń Szczecin	0.47	0.37	0.53	-0.10	0.06
Raków Częstochowa	0.11	0.07	0.98	-0.04	0.87
Śląsk Wrocław	0.21	0.84	0.62	0.63	0.41
Wisła Płock	0.97	0.83	0.28	-0.14	-0.69
Zagłębie Lubin	0.83	2.85	2.28	2.02	1.45
Mean	0.67	1.02	0.80	–	–
Median	0.67	0.74	0.57	–	–

Grey colour denotes clubs with a decrease in the current liquidity ratio compared with 2019.
Source: prepared by the author based on the companies' financial statements.

Table 7

Date and amount of aid granted to the clubs in 2020 as part of the anti-crisis shield

Club	Date when the aid was granted	Amount [PLN]
Cracovia Kraków	-	-
Górnik Zabrze	-	-
Jagiellonia Białystok	30.04.2020	2,668,380
Lech Poznań	29.04.2020	3,500,000
Lechia Gdańsk	17.06.2020	3,500,000
Legia Warszawa	13.05.2020	3,500,000
Piast Gliwice	06.05.2020	2,738,522
Pogoń Szczecin	12.05.2020	3,480,000
Raków Częstochowa	14.05.2020	1,657,235
Śląsk Wrocław	-	-
Wisła Płock	05.05.2020	863,854
Zagłębie Lubin	-	-

Source: based on the database of enterprises that received aid as part of the anti-crisis shield of the Office for Competition and Consumer Protection – SUDOP.

resources to finance current liabilities. A negative deviation of the liquidity ratio for 2021 relative to 2019 was observed only in four out of the 12 clubs. One should note that sports clubs, like other enterprises in other sectors, could count on aid from the Polish government during the pandemic. The Polish Development Fund granted non-repayable subsidies to Polish enterprises as part of the Anti-Crisis Shield. Such funds were received by eight of the clubs under study (Tab. 7). The amounts paid out to them ranged from 0.9 to 3.5 million PLN.

Summary

The analysis of 12 clubs taking part in the Ekstraklasa matches during two periods: during the COVID-19 pandemic and before it, has not fully confirmed the hypothesis according to which the financial situation and results deteriorated during the pandemic. The matchday income may have decreased, but the total income was higher during the pandemic. This was due to higher-than-expected income from sponsoring and advertising activity and from TV broadcast rights. The analysis shows that the financial situation with respect to equity deteriorated in most clubs. This was caused by higher negative financial results. High loss – especially in the clubs that reported negative results before the pandemic – resulted in a further decrease in the negative equity during the COVID-19 pandemic. The financial liquidity analysis shows that the ratios were slightly higher than before the pandemic. This means that most clubs had access to financial resources to finance current liabilities. Higher income and revenue from recapitalisation by share issuance, supplementing equity and shareholder loans ensured the clubs' financial liquidity during the pandemic. One should note that the clubs' financial liquidity was maintained with the aid paid out by the Polish government as subsidies from the Anti-Crisis Shield. These resources partly compensated for the lack of income from ticket sales caused by restrictions regarding the maximum number of fans at stadiums.

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ORIGINAL PAPER

CAPITAL STRUCTURE AND PROFITABILITY OF MUNICIPAL COMPANIES IN OLSZTYN

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JEL Classification: G32, H4.

K e y w o r d s: municipal company, debt, capital structure.

A b s t r a c t

Municipal companies try to combine the implementation of social goals and municipal tasks in the public utility field with the owner's commercial goals related to increasing value or maximising financial results. They also use debt capital obtained from the financial market in their activities. The research aims to assess the capital structure in Olsztyn's municipal companies between 2017 and 2022 and the impact of the adopted capital structure on the profitability of these entities. The subjects of the research were seven municipal-owned companies operating in Olsztyn. The study used economic analysis methods, i.e. comparative analysis, ratio analysis and the Du Pont model according to Hawawini's proposal. The research shows that these companies generate losses and are primarily profitable in general activities, but their profitability is low. They use debt in their capital structure, often to a significant extent, but employ secure financing strategies. The observed changes in profitability were most often due to changes in operating margins from sales rather than changes in capital structure.

STRUKTURA KAPITAŁU A RENTOWNOŚĆ SPÓŁEK KOMUNALNYCH OLSZTYNA

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S ł o w a k l u c z o w e: spółka komunalna, dług, struktura kapitału.

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Abstrakt

Spółki komunalne starają się łączyć realizację celów społecznych i zadań gminy z zakresu użyteczności publicznej z celami komercyjnymi właściciela związanymi ze wzrostem wartości lub maksymalizacją wyników finansowych. W swojej działalności wykorzystują także kapitały obce pozyskane z rynku finansowego. Celem badań jest ocena struktury kapitału w spółkach komunalnych Olsztyna w latach 2017-2022 oraz wpływu przyjętej struktury kapitału na rentowność tych podmiotów. Podmiotami badań było siedem spółek komunalnych funkcjonujących na terenie Olsztyna. W badaniach wykorzystano metody analizy ekonomicznej, tj. analizę porównawczą, wskaźnikową analizę finansową oraz model Du Pont według propozycji Hawawiniego. Wyniki badań wskazują, że spółki te w większości są rentowne, ale ich rentowność jest niska, a ze sprzedaży generują straty. W strukturze kapitału wykorzystują dług, często w znacznym zakresie, ale stosują bezpieczne strategie finansowania. Obserwowane zmiany rentowności najczęściej wynikały ze zmian marży operacyjnej ze sprzedaży, a nie zmiany struktury kapitału.

Introduction

The main task of a municipality is to meet the needs of the inhabitants of an area. Municipalities organise the provision of various types of public services to residents. Under the current legal conditions, municipal authorities do not have to provide theseservices. Private entities and non-profit organisations can also participate in public service delivery processes. This is intended to increase the efficiency of public service provision. Various organisational and legal forms can be used in this process, such as budgetary units, local government budgetary establishments, limited liability companies or joint-stock companies with municipal participation. Municipal companies fulfil the objectives and tasks of the municipality, but as companies, they should pursue commercial goals related to increasing value or maximising financial results. The usage of debt capital is a significant problem in these entities' functioning. The choice of both the organisational form and the sources of financing should be made in such a way as to secure the continuity of the implementation of the municipality's tasks. This approach, therefore, favours the use of equity capital.

The research aims to assess the capital structure in Olsztyn's municipal companies between 2017 and 2022 and the impact of the adopted capital structure on the profitability of these entities. Despite the epidemiological threat in 2020--2022 present during the research period, most public services must be provided to residents at a similar level. The choice of municipal companies from Olsztyn is deliberate. Olsztyn is a provincial city and can be regarded as a regional growth or development centre. Moreover, in local cities, most public utility tasks are carried out in the form of commercial companies rather than organisational units of the public finance sector. On the other hand, the municipality is located in a peripheral region with underdeveloped industry, a declining population and a relatively small centre (approx. 175,000 inhabitants).

Literature Review

Municipal companies are not separate organisational and legal forms regulated by law. They are commercial law companies established to carry out selected tasks of the municipality. They operate based on the general provisions of the Commercial Companies Code (Ustawa Kodeks spółek..., 2000). Certain restrictions apply to the possibility of their creation by local authorities of different levels and from the specificity of their activity. These specificities arise from the performance of public utility activities. These tasks are defined in Article 9 of the Act of 8 March 1990 on municipal self-government. Public utility tasks are the municipality's tasks, aiming to satisfy the population's collective needs on an ongoing and uninterrupted basis by providing generally availableservices (Ustawa o samorządzie gminnym, 1990). Municipal companies are engaged in activities aimed at satisfying the needs of the population and local entrepreneurs in, among other things, water supply and sewage disposal, municipal waste, communications, municipal construction, and thermal energy. They pursue economic and social objectives, creating a contradiction (Klimek, 2017; Dziedzic, 2020). K. Byjoch and D. Klimek (2015) consider the most critical features of municipal companies their monopolistic position in the local market, non-market way of pricing, low price elasticity, spatial limitation of activities, continuity of provision of municipal services, high capital intensity of assets, firm social and political influence of the environment on the company and vice versa.

In addition, the Act on Municipal Management of 20 December 1996 defined the principles and forms of municipal management of local government units (Ustawa o gospodarce..., 1996). It indicates these tasks may be done through a local government budgetary establishment or a commercial law company. According to the Public Finance Act (2009), the first of these forms is included in the public finance sector, while the second belongs to the private finance sector, even when the local government unit is the sole owner of such a company. Municipal management is not for profit, but the activities of a capital company are. As a result, municipal companies should be established where a sustainable surplus of revenues from the activity over the costs of its implementation can be obtained. The absence of such a surplus indicates the need to subsidise such an entity. This will be easier when the activity is carried out in one of the organisational forms of the public finance sector, i.e. a budgetary unit or a local government budgetary establishment. However, the revenues are fees for municipal services paid by residents, so making money on such an activity becomes problematic.

Municipally owned corporations (MOCs) in other countries are autonomous organisations owned by municipalities and used to produce or provide local public services outside the local authority (Voorn *et al*., 2017; Tavares & Camoes, 2007). Research has focused mainly on the effectiveness of the provision of services by these organisations and their direct provision by local authorities.

Also, in the West, these entities are given broad autonomy in their tasks, including the right to generate profits or go bankrupt. On the other hand, Thailand also has community enterprises (CEs) to fight poverty caused by economic crises (Somwethee *et al.*, 2023).

A significant problem highlighted in the practice of the operation of municipal companies in Poland is the issue of the owners' influence on the decisions made by the company's management. There are two views here. The first one, strictly based on the provisions of the Commercial Companies Code, indicates that the owner, i.e. the governing body of a local government unit, cannot interfere in the company's direct management. The second view suggests that the specifics of the company's operation and responsibility for the municipal property entrusted to it, as well as the need to ensure continuity of service provision, justify the day-to-day interference of the managing body of the local government unit. The application of the second model is more widespread in practice (Dolewka, 2022).

One factor that influences companies' financial situation is the capital structure. It results from managerial decisions resulting from the business's profile, size, availability of capital and cost and the assumed level of risk accepted by the owners. Capital structure is understood in different ways in the literature. Capital is taken to be fixed capital, equity plus interest-bearing debt capital, or the sum of the company's liabilities. Each solution has advantages and disadvantages (Miarecka, 2021). This study equates the capital structure with the structure of the company's liabilities (Duliniec, 2015). Capital structure depends on various factors (Jaworski *et al.*, 2019; Öztekin, 2015). Research on capital structure in CEE markets shows that this structure differs from developed countries, and managers prefer equity over debt (Delacoure, 2007). Czerwonka and Jaworski (2022) presented similar results for Poland and Portugal. Also, Zawadzka and Szmidt (2022) point to a Poland-specific preference for short-term debt over long-term debt in their study. Existing theories of capital structure indicate that there is an optimal capital structure to increase the value of a company or minimise the cost of raising capital. As a result, the use of debt is profitable for the company under certain conditions. The strongest correlations have been observed in studies for listed companies (Szomko, 2020; Prędkiewicz & Prędkiewicz, 2015; Mazur, 2007). In general, however, no single universally accepted capital structure theory exists.

Research on the financing of municipal companies is undertaken relatively infrequently. The analyses usually concern the assessment of financial condition, and the topic of capital structure in them is generally not the main focus (Yakymova & Kuz, 2019; Stoilova, 2022; Kowalewski & Zamielska, 2020). With limited funds in local government budgets, the need to create, modernise and repair public infrastructure causes pressure to transfer some of these tasks and debt from the budget to municipal companies. This reduces the financial transparency of the financial management carried out by local authorities (RIO, 2021; Jastrzębska, 2017). The threat to economic security is multifaceted (Nita

et al., 2020). However, municipal companies take on a particular significance arising from the specificity of the functioning of these entities. The cessation of the provision of municipal services to residents, even if only temporarily, results in significant social consequences for residents.

Research Methodology

All seven municipal entities operating in Olsztyn are subjected to the study, i.e., Miejskie Przedsiębiorstwo Energetyki Cieplnej Sp. z o.o. (MPEC), Przedsiębiorstwo Wodociągów i Kanalizacji Sp. z o.o. (PWiK), Miejskie Przedsiębiorstwo Komunikacyjne Sp. z o.o. in Olsztyn (MPK), Zakład Gospodarki Odpadami Komunalnymi Sp. z o.o. (ZGOK), Olsztyńskie Towarzystwo Budownictwa Społecznego Sp. z o.o. (OTBS), Zakład Budynków Komunalnych I Sp. z o.o. (ZBK1), Zakład Budynków Komunalnych II Sp. z o.o. (ZBK2). The sources of information are the financial statements and management reports of the surveyed companies obtained from the National Court Register database.

Due to the specific nature of the functioning of municipal companies, the following hypotheses are formulated in the research:

H1: Olsztyn's municipal companies use safety strategies to finance their operations.

H2: Changing the capital structure is not a fundamental factor in improving the return on equity of Olsztyn's municipal companies.

The research used the literature, documentary, and economic analysis methods, i.e., the comparative analysis method in time and space and the ratio financial analysis method, using debt and profitability assessment indicators described by Sierpińska and Jachna (2011). Interest-bearing debt in a company's financing structure can work either to the advantage or disadvantage of the entity (Łach, 2020). Therefore, the leverage effect achieved by the company was investigated according to the formula specified by Janik and Paździor (2011). The Du Pont diagram is a tool for analysing the factors shaping the profitability of equity. The basic model assumes that the profitability of equity capital employed is directly influenced by asset productivity, return on sales and capital structure. This study uses the extended, five-element model proposed by Hawawini and Viallet (2007), which additionally considers the impact of the tax shield and finance costs on company performance. The following formula describes it:

$$ROE = OPM \cdot TAT \cdot FCR \cdot FLM \cdot TR \quad (1)$$

where:

ROE – return on equity = net profit (EAT) / equity (E),

OPM – operating profit margin = earnings before interest and taxes (EBIT) / sales (S),

TAT – total assets turnover = sales (S) / total assets (TA),
FCR – financial cost burden ratio = earnings before taxes (EBT) / earnings before interest and taxes (EBIT),
FLM – financial leverage multiplayer = total assets (TA) / equity (E),
TR – tax burden ratio = net profit (EAT) / earnings before taxes (EBT).

The indicators of the model are calculated according to the methodology proposed by Sibilski (2013), adapting the data to the standards of Polish accounting. Sub-ratios' impact on overall changes in return on equity is determined using the successive substitution method (Sierpińska & Jachna, 2011).

Results and Discussion

The entities surveyed are diverse in terms of both the type of activity and the value of assetsand revenue generated. Basic information on the revenues and assets of the entities surveyed ispresented in Table 1.

Table 1

Revenues and assets of Olsztyn's municipal companies from 2017 to 2022

Items	2017	2018	2019	2020	2021	2022	Rate of change 2022/2017 [%]	Coefficient of variation [%]
Sales revenue [PLN million]								
MPEC	111.3	114.0	117.5	125.4	164.2	222.8	100.1	30.8
PWiK	83.4	86.1	90.6	93.5	97.8	107.4	28.7	9.3
MPK	72.9	78.1	82.0	80.0	77.8	79.7	9.4	3.9
ZGOK	41.6	48.3	63.4	74.2	100.6	98.8	137.4	35.0
OTBS	7.5	7.6	7.8	8.2	8.6	9.3	24.2	8.5
ZBK1	1.1	1.1	1.1	1.1	1.6	2.0	81.7	27.4
ZBK2	1.3	1.3	1.3	1.4	1.4	1.6	24.6	8.3
Total assets [PLN million]								
MPEC	152.4	204.8	245.6	256.0	292.0	369.9	142.7	29.4
PWiK	323.9	320.3	328.6	357.6	366.9	365.6	12.9	6.3
MPK	62.5	49.7	40.1	50.0	43.8	60.9	-2.6	17.6
ZGOK	182.5	169.9	167.2	178.5	179.5	200.1	9.6	6.5
OTBS	109.0	108.5	107.5	106.7	105.8	106.4	-2.4	1.2
ZBK1	1.4	1.5	1.5	1.4	1.5	1.0	-27.8	13.0
ZBK2	0.5	0.4	0.5	0.4	0.5	0.5	2.0	2.9

Source: own compilation based on data from the National Court Register (2023).

The most significant turnover is generated by companies involved in the supply of heat, water and sewage disposal, waste management and public transport organisation in Olsztyn. The minor revenues are generated by companies operating in the field of housing management, with the activity of the so-called ZBKs limited only to the administration of housing communities, both with the participation of the municipality and entirely private communities. For this reason, their assets and revenues are small compared to the other companies. MPEC and PWiK have the most significant assets, followed by ZGOK and OTBS, which carried out social housing tasks. The most considerable variability and growth in revenues characterises MPEC and ZGOK. They have achieved these primarily due to increased municipal service charges. To a lesser extent, these increases are influenced by ongoing investments, as building a combined heat and power plant with a thermal waste processing facility still needs to be completed in the period under review (commissioning is planned for 2024). The expansion of the water and sewerage networks is progressing gradually, and the public transport network is being modernised. Despite the significant housing shortage in the local market, no new social housing investments are being made. It should be emphasised here that a large part of the investment in public infrastructure is carried out directly by the municipality and not by municipal companies, and the local government remains the owner of this infrastructure. In contrast, municipal companies have the right to this use.

The companies surveyed are characterised by very high variability in financial performance, both over time and within the group surveyed (Tab. 2). The realised sales generally result in sales losses. The only company to profit from sales throughout the period is OTBS, while the only company to generate losses on sales is PWiK. It should be pointed out here that the constant generation of sales losses calls into question the sense of the ownership transformation carried out in the area by the municipality. As mentioned earlier, the essence of establishing a commercial law company in the area of public utility is the generation by a given entity of a revenue stream that allows to cover the costs of the company's operations. Since the activity of some of the surveyed companies is permanently unprofitable and requires continuous subsidies from local authorities, it should remain within the organisational forms of the public finance sector as a local government budgetary establishment or budgetary unit.

The analysis of the net financial results shows that the municipal company of Olsztyn is mostly profitable in its total activities. Net profits characterise MPEC, OTBS, and ZBK2 between 2017 and 2022, while ZGOK has net losses only in 2018. Such results are possible because the most significant entities, such as MPEC, PWiK, and ZGOK, receive subsidies to cover operating costs. On the other hand, OTBS, which generates profit on sales, does not receive such subsidies. These subsidies are of an investment nature from domestic and foreign funds and for the companies' day-to-day operations. The provision of operating subsidies is a troublesome matter, as providing additional

Table 2

Selected financial results of Olsztyn's municipal companies from 2017 to 2022

Items	2017	2018	2019	2020	2021	2022	Average	Coefficient of variation [%]
Profit/loss on sales [thousand PLN]								
MPEC	3,063.9	1,352.2	-2,486.7	-3,784.3	-9,074.3	8219.2	-451.7	1,329.9
PWiK	-1,860.4	-1,623.4	-198.4	-2,494.4	-852.2	-10,657.4	-2,947.7	131.0
MPK	-2,418.0	-499.0	3,182.4	3,326.4	232.5	-4,382.7	-93.1	3,276.8
ZGOK	-1,139.3	-5,381.7	-2,950.9	-9,970.4	10,912.7	8,995.4	77.6	10,597.5
OTBS	1,956.6	1,647.6	1,631.9	1,674.1	1,539.5	2,124.1	1,762.3	12.8
ZBK1	-7.0	10.2	-0.2	-53.5	-137.2	-24.4	-35.3	154.7
ZBK2	12.5	2.1	-8.3	17.3	-20.2	-6.7	-0.6	2,531.1
Net profit/loss [thousands PLN]								
MPEC	4,130.1	3,020.9	6,907.2	11,626.1	1,897.8	2,681.0	5,043.8	72.7
PWiK	557.1	178.1	249.6	-99.6	622.4	-9,645.6	-1,356.3	300.0
MPK	-2,928.1	-809.3	2,428.3	3,082.7	43.1	-5,704.2	-647.9	510.2
ZGOK	4,312.6	-2,441.9	1,035.4	-6,066.0	9,083.9	10,599.4	2,753.9	236.3
OTBS	1,342.8	1,014.4	1,042.2	1,373.4	1,333.5	1,701.0	1,301.2	19.4
ZBK1	2.9	6.8	3.5	19.9	-29.6	-282.8	-46.6	251.1
ZBK2	0.8	1.3	1.0	0.7	2.0	1.6	1.2	40.6

Source: own compilation based on data from the National Court Register (2023).

non-refundable support to them violates the principles of free competition. Therefore, these procedures are subject to special supervision. As indicated by the Supreme Chamber of Control report, the most frequently used form of subsidy is a form of support for companies implementing public utility services based on task entrustment agreements and in-house contracts (NIK, 2021).

Capital structure ratios (share of equity, sustainability of the financing structure) and capital and wealth structure ratios (gold and silver financing rule) were used to verify the first research hypothesis. Based on the data in Table 3, it can be concluded that the highest share of equity is found in companies related to housing administration (ZBK2, ZBK1, OTBS) - over 70%, while the lowest is in ZGOK - 13% on average. An analysis of the use of equity in the capital structure of the surveyed companies shows that the balance between equity and debt capital was generally maintained in the surveyed group. Until 2020, a slight (1-2%) predominance of foreign capital was observed, while between 2021 and 2022, the share of equity capital increased to 55%. The variation within the study group is high (the coefficient of variation is around 50%). The level of equity in almost all companies (except ZBK2) is insufficient to finance fixed assets, so the golden rule of balancing is not met.

Table 3

Capital structure of Olsztyn's municipal companies 2017-2022

Items	2017	2018	2019	2020	2021	2022	Average	Coefficient of variation [%]
Share of equity = equity / total assets [%]								
MPEC	49.2	36.8	33.8	37.0	33.1	27.2	36.2	20.2
PWiK	53.9	56.0	54.7	50.2	49.1	46.7	51.8	7.0
MPK	19.8	23.3	34.9	34.2	39.2	63.0	35.7	42.7
ZGOK	12.8	9.6	10.4	10.7	15.7	19.4	13.1	28.9
OTBS	58.7	59.9	61.4	63.1	65.0	66.2	62.4	4.7
ZBK1	64.4	62.5	63.8	66.1	74.8	83.5	69.2	11.9
ZBK2	82.8	86.7	81.1	84.7	80.4	79.7	82.6	3.3
Sustainability of the capital structure = (equity + long-term debt) / total assets [%]								
MPEC	79.0	73.9	70.4	80.0	80.0	68.0	75.2	7.0
PWiK	91.7	92.5	92.1	92.4	92.3	91.4	92.1	0.5
MPK	59.5	56.1	53.3	65.3	66.0	76.6	62.8	13.4
ZGOK	89.7	88.6	87.8	81.1	86.0	82.9	86.0	4.0
OTBS	98.1	97.1	97.2	97.3	97.5	97.8	97.5	0.4
ZBK1	64.4	62.5	70.5	70.6	76.8	83.5	71.4	10.9
ZBK2	82.8	86.7	82.5	85.3	81.0	79.7	83.0	3.1

Source: own compilation based on data from the National Court Register (2023).

Subsidised equity is one of the forms of financial support used for the operations of municipal companies, allowing, among other things, the covering of emerging losses. However, the share capital in the analysed companies is characterised by low volatility. In MPEC, the primary share capital was increased twice - in 2020 and 2021, each time by approximately 9%. In PWiK, the primary capital only increased in 2018 by about 3%. At MPK, the primary capital increased in 2022 by as much as 444%. At ZGOK, the primary capital increased in 2020 by around 35%, but earlier in 2018, it was reduced by about 17%. At ZBK1, the increase only occurred in 2021 by approximately 26%. In OTBS and ZBK2, no changes were made to the primary capital.

An analysis of the use of fixed capital in the capital structure of the surveyed companies indicates that among the municipal companies of Olsztyn, the sustainability of the financing structure is high, approximately 81%. In comparison, its variability is low (about 15%). Also, the variation of the studied group in individual years does not exceed 20%. The highest average share of fixed capital is observed in OTBS and PWiK (over 90%) and the lowest in MPK (about 63%). The level of fixed capital in almost all companies (except ZBK1 and MPK) is at a level similar to or higher than the value of fixed assets, so the silver balance rule is met.

An examination of the return on equity (Tab. 4) confirms that the activities of these companies are not particularly profitable for the owners, which is precisely the nature of municipal companies. The average profitability across the entire study group from 2017 to 2022 is positive but only 0.93%. This is well below the risk-free rate and, therefore, the yield on government bonds. The highest performance of the companies is in 2021 (on average around 4.96%) and 2019. (on average, around 4.85%). The lowest performance occurred in 2022 (due to high deficits of ZBK1, MPK and PWiK) and 2018 (lack of profitability of ZGOK). ZGOK (6.22%) and MPEC (5.79%) have the highest average rate of return despite the high fluctuations observed. The worst rates of return are generated by ZBK1 (average -5.29%) due to losses generated in the last two years. In general, equity returns are characterised by high volatility. The only stable company in terms of performance is OTBS.

Table 4

Return on equity of Olsztyn's municipal companies from 2017 to 2022

Items	2017	2018	2019	2020	2021	2022	Average	Coefficient of variation [%]
Return on equity (ROE) = earnings after taxes / equity [%]								
MPEC	5.51	4.01	8.32	12.28	1.97	2.67	5.79	67.4
PWiK	0.32	0.10	0.14	-0.06	0.35	-5.65	-0.80	297.3
MPK	-23.61	-6.98	17.32	18.02	0.25	-14.88	-1.65	1,029.9
ZGOK	18.47	-14.91	5.96	-31.82	32.26	27.35	6.22	404.8
OTBS	2.10	1.56	1.58	2.04	1.94	2.42	1.94	16.9
ZBK1	0.32	0.73	0.37	2.08	-2.57	-32.64	-5.29	255.1
ZBK2	0.20	0.35	0.26	0.18	0.53	0.42	0.33	41.0
Financial leverage effect = return on equity – operating asset margin [%]								
MPEC	1.76	1.72	4.45	6.12	0.76	-0.06	2.46	95.6
PWiK	0.01	-0.53	-0.40	-0.37	-0.34	-3.99	-0.94	160.7
MPK	-20.45	-7.14	8.60	10.11	-1.17	-6.84	-2.81	403.8
ZGOK	15.89	-13.81	4.43	-28.40	26.44	20.56	4.19	510.9
OTBS	0.39	0.19	0.16	0.54	0.56	0.54	0.40	46.3
ZBK1	0.06	0.15	0.11	0.54	-0.70	-5.40	-0.87	258.1
ZBK2	-0.34	0.02	0.17	-0.23	0.10	0.08	-0.03	630.3

Source: own compilation based on data from the National Court Register (2023).

As noted earlier, the entities make extensive use of debt capital. Consequently, whether debt is profitable for the companies is examined. For this purpose, the leverage effect is determined. The results show that this effect is positive but that debt increased the return on equity by only around 0.34 percentage points. In no year is it the case that all companies have a positive effect. The closest

to this state is in 2019. In the other years, as a rule, two of the seven entities surveyed had a negative impact. Only OTBS has a positive leverage effect in all the years studied. On average, however, it is in ZGOK that the use of debt has the best impact (4.19%); in MPK, the effect is the worst (-2.81%).

To verify the second research hypothesis, the analysis results of the five-element Du Pont model are used with the deterministic methods of economic analysis, which is the method of successive substitutions. According to this model, five essential factors determining changes in return on equity (ROE) have been identified. These are equity multiplier (illustrates capital structure), asset turnover (illustrates liquidity in the company), operating return on sales (illustrates profitability of the company), interest on third-party capital (illustrates financial risk), and income tax (illustrates tax risk).

Table 5

Impact of the factors identified in the DuPont model on the change in the return on equity of Olsztyn's municipal companies from 2017 to 2022 (in percentage points)

Items	2018	2019	2020	2021	2022
1	2	3	4	5	6
MPEC					
Impact of changes in the equity multiplier (TA/E)	1.85	0.36	-0.71	1.45	0.43
Impact of changes in asset turnover (S/TA)	-1.68	-0.26	0.43	0.55	0.12
Impact of changes in operating profitability of sales (EBIT/S)	-1.25	3.26	3.99	-11.74	2.87
Impact of changes in interest on borrowed capital (EBT/EBIT)	-0.14	-0.12	0.57	-0.54	-3.01
Impact of income tax changes (EAT/EBT)	-0.28	1.08	-0.31	-0.04	0.29
Change in return on equity (ROE)	-1.50	4.31	3.96	-10.31	0.70
PWiK					
Impact of changes in the equity multiplier (TA/E)	-0.01	0.00	0.01	0.00	0.02
Impact of changes in asset turnover (S/TA)	0.01	0.00	-0.01	0.00	0.04
Impact of changes in operating profitability of sales (EBIT/S)	0.02	-0.01	-0.04	-0.03	-1.55
Impact of changes in interest on borrowed capital (EBT/EBIT)	-0.10	0.00	-0.09	-0.52	-3.41
Impact of income tax changes (EAT/EBT)	-0.14	0.04	-0.07	0.95	-1.09
Change in return on equity (ROE)	-0.22	0.04	-0.19	0.40	-6.00
MPK					
Impact of changes in the equity multiplier (TA/E)	3.53	2.32	0.35	-2.26	-0.10
Impact of changes in asset turnover (S/TA)	-6.69	-1.47	-3.91	1.87	-0.04
Impact of changes in operating profitability of sales (EBIT/S)	27.06	-851.7	2.28	-14.75	-0.98
Impact of changes in interest on borrowed capital (EBT/EBIT)	-7.28	878.85	1.26	-2.47	-7.13
Impact of income tax changes (EAT/EBT)	0.00	-3.69	0.73	-0.15	-6.88
Change in return on equity (ROE)	16.63	24.30	0.70	-17.77	-15.13

cont. Table 5

1	2	3	4	5	6
ZGOK					
Impact of changes in the equity multiplier (TA/E)	6.05	1.08	-0.17	10.15	-6.14
Impact of changes in asset turnover (S/TA)	1.09	-4.60	0.43	-6.88	-2.87
Impact of changes in operating profitability of sales (EBIT/S)	-35.59	37.58	-19.36	65.32	4.98
Impact of changes in interest on borrowed capital (EBT/EBIT)	-7.11	-9.68	-7.66	-4.77	-0.25
Impact of income tax changes (EAT/EBT)	2.17	-3.50	-11.03	0.26	-0.63
Change in return on equity (ROE)	-33.39	20.88	-37.78	64.08	-4.91
OTBS					
Impact of changes in the equity multiplier (TA/E)	-0.04	-0.04	-0.04	-0.06	-0.04
Impact of changes in asset turnover (S/TA)	0.02	0.06	0.09	0.10	0.15
Impact of changes in operating profitability of sales (EBIT/S)	-0.38	-0.04	-0.08	-0.31	0.94
Impact of changes in interest on borrowed capital (EBT/EBIT)	-0.10	0.05	0.43	0.07	-0.44
Impact of income tax changes (EAT/EBT)	-0.04	-0.01	0.06	0.10	-0.13
Change in return on equity (ROE)	-0.54	0.02	0.46	-0.10	0.47
ZBK1					
Impact of changes in the equity multiplier (TA/E)	0.01	-0.02	-0.01	-0.24	0.27
Impact of changes in asset turnover (S/TA)	0.00	0.00	0.03	1.56	-0.65
Impact of changes in operating profitability of sales (EBIT/S)	0.42	-0.39	1.73	-5.63	-30.68
Impact of changes in interest on borrowed capital (EBT/EBIT)	0.00	0.00	0.00	0.00	0.00
Impact of income tax changes (EAT/EBT)	-0.02	0.05	-0.04	-0.34	1.00
Change in return on equity (ROE)	0.41	-0.36	1.71	-4.65	-30.06
ZBK2					
Impact of changes in the equity multiplier (TA/E)	-0.01	0.02	-0.01	0.01	0.00
Impact of changes in asset turnover (S/TA)	0.01	-0.01	0.02	0.00	0.05
Impact of changes in operating profitability of sales (EBIT/S)	-0.08	-0.19	0.36	-0.04	-0.17
Impact of changes in interest on borrowed capital (EBT/EBIT)	0.00	0.00	0.00	0.00	0.00
Impact of income tax changes (EAT/EBT)	0.22	0.10	-0.45	0.38	0.00
Change in return on equity (ROE)	0.15	-0.09	-0.08	0.35	-0.11

Source: own compilation.

Analysis of the data in Table 5 shows that various factors shape changes in the profitability of equity. In MPEC, the most critical factor influencing changes in the company's overall profitability is the margin on sales. In 2019-2021, it is the most important factor; in 2022, it is one of two critical factors; and in 2018, it is in third place. In 2022, interest on debt has the most significant impact on ROE. Only in 2017, the primary factor determining changes in the profitability of equity capital is changes in the capital structure. The increase in the equity multiplier observed this year is equivalent to a decrease in the proportion

of equity in the capital structure of 12.4 percentage points. It induces an increase in the return on equity of around 1.85%. These changes limit the profitability observed in the year caused by other factors (a decrease in asset turnover and sales margins).

In PWiK in 2018-2019 and 2021, the most significant impact on the return on equity is changes in the amount of income tax paid. This tax is subject to high fluctuation, which, with the company's low profitability, caused significant changes. The second major factor is changes in the interest paid on debt. They are the most critical factor in 2020 and 2022. In 2019 and 2022, the impact of the operating margin on sales is also essential. At MPK, the most important determinant of changes in return on equity is the operating margin on sales (2018 and 2021), followed by debt costs (2019 and 2022) and asset turnover (2020). Also, at ZGOK, the primary determinant of changes in the company's profitability is the change in the margin on sales. It is only in 2022 that the significant impact of the change in capital structure becomes apparent. An increase in equity share by 3.68 percentage points, with its low share at 19%, triggers a decrease in ROE of 6.14%.

In OTBS, on three occasions (in 2018, 2021, and 2022), the operating margin on sales has been the biggest driver of ROE changes. In 2019, changes in liquidity were the main driver of change, and in 2020, changes in the cost of debt. Changes in capital structure are, in 2019, the second driver of change in ROE. Profitability then changed slightly, which is why the 1.72 percentage point increase in the proportion of equity has such an enormous impact. In ZBK1, significant changes in the return on equity are only caused by changes in the operating return on sales. In ZBK2, a similar situation was observed, but the changes in the amount of income tax paid are equally important factors.

Conclusions

Decisions on the choice of appropriate financing play a vital role in the management of any business entity. The long-term objective of corporate financial management is to maximise the owners' wealth. In practice, this is determined by the level of profitability generated by the enterprise. The activities of municipal companies are not profit-oriented due to the implementation of public utility tasks, which is also confirmed by the survey of municipal companies in Olsztyn. This does not exempt managers from the obligation to manage the capital structure effectively.

The study results indicate that municipal companies implement safety financing strategies, and thus, the first research hypothesis was confirmed. Equity alone is primarily insufficient to finance fixed assets. Its share at 50 per cent and in some companies even below 30 per cent (i.e. safe levels from the point of view of banks' assessment of creditworthiness) is lower than should be expected given

the specific nature of the entities' activities. However, financial security is ensured by a sufficiently high proportion of long-term debt capital. As a result, the total level of fixed capital ensured high sustainability of the financing structure. Its level was close to the fixed asset value in the entities studied.

The second research hypothesis is also confirmed. An analysis of the causes of changes in profitability reveals that the main factors for improving or worsening return on equity are changes in the operating margin on sales, the amount of the cost of capital and tax risks. Changes caused by capital structure or asset turnover are incidental. As a result, it can be concluded that in the municipal companies studied, debt and capital structure are not used to shape the profitability of equity. This phenomenon can be regarded as characteristic of commercial law companies carrying out public utility tasks. Summarising the research results, it can be stated that the authorities of Olsztyn's municipal companies manage the capital structure correctly.

Translated by Author

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