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JANINA WITKOWSKA*

Foreign Direct Investment and Sustainable Development in the New EU Member States: Environmental Aspects

Abstract

The aim of this paper is to examine the potential impact of foreign investors' activities on the environment of the new European Union's Member States and discuss a role of a common environmental policy and member states' policies towards foreign investors. The analysis embraces three new EU countries, namely the Czech Republic, Poland and Slovakia. The scope of the analysis are years 1997- 2007. The subject of the analysis is the sector and branch structure of FDI stock in the new EU Member States with special reference to FDI located in pollution-intensive industries which are selected according to the UNCTAD classification. Both the OECD and national data base of statistics is used to calculate the share of foreign investors' involvement in pollution-intensive activities in the new UE Member States. The research results show that as yet there has been no empirical evidence that FDI has a particularly negative impact on the natural environment in the new EU Member States.

1. Introduction

The impact of foreign direct investment (FDI) on recipient countries' economies is a subject of in-depth analyses. Environmental and social aspects of foreign investors' activities are less recognized although they are of great importance for the sustainable development of host countries. As far as

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environmental aspects are concerned, FDI can either upgrade the environment of these countries or be a distorting factor. The final result depends on a balance of macro and micro factors (UNCTAD 1999, pp. 289-312).

At a macro level, apart from environment protection regulations and their enforcement, the impact of FDI on the environment of the host countries is determined by the sector/branch structure of FDI involved in a given country and especially by the extent to which it is located in pollution-intensive industries. At a micro-level, management methods and types of technology used in foreign affiliates of transnational corporations are crucial for environmental issues.

The aim of this paper is to examine the potential impact of foreign investors' activities on the environment of the new European Union's Member States and discuss a role of a common environmental policy and member states' policies towards foreign investors. The detailed research tasks are as follows:

- to present theoretical findings and on environmental aspects of foreign direct investors' activities, especially in less developed countries and in countries in transition
- to show hitherto empirical evidence on the impact of FDI on the environment of recipient countries
- to calculate a share of FDI in pollution-intensive activities in the new EU Member States and analyze changes in this area
- to evaluate a potential impact of FDI on the environment in the new EU Member States
- to discuss a role of the EU environmental policy and national policies towards foreign investors in changing their attitude towards environmental issues.

As far as a method of research is concerned, the UNCTAD classification of potentially highly polluting industries will be used. Both the OECD and national data base of statistics will be used to calculate the share of foreign investors' involvement in pollution-intensive activities in the new UE Member States. However, some limitations in the proposed research can appear. They are related to the scope of the planned research and to lack of detailed statistical data on branch structure of FDI in the new EU Member states.

2. FDI and the Environment - Theoretical Aspects and the Hitherto Empirical Evidence

The issue of the impact of FDI on the environment stirs essential controversies (Gentry 1999 pp. 21-45; Zarsky 1999, pp. 47-73).

FDI is perceived as a potential burden for or an outright threat to the environment, especially in less developed countries, because it entails the use of land and raw materials and contributes to growth of consumption in host countries. By introducing new products into the market, foreign investors' activity may also contribute to a change in the consumption patterns in the host country in the direction of burdening the environment. Furthermore, the gap in the environment protection standards between developed and developing economies may contribute to the creation of the so-called 'pollution havens', because it encourages the transfer of 'dirty' industries to countries with lower environment protection norms. There may also arise a problem of the so-called 'cascading pollution havens' when a firm contracts its 'dirty' production processes with other enterprises so as to make an impression of being environmental-friendly (OECD 1999, p.14). Close to the 'pollution havens' hypothesis is that of the 'regulatory chill' (Fortanier, Maher 2001, p.5). It means that '*countries refrain from enacting stricter environmental standards in response to fears of losing a competitive edge against other countries in obtaining FDI*' (Gray 2002, p. 310).

However, according to the other group of views, FDI contributes to improvement in the state of the environment, because the investing firms coming mainly from the OECD countries possess more advanced and cleaner technologies than the firms in the less developed host countries. Thus FDI leads to improvement in efficiency and transfer of know-how in the area of management. As a result, the environment protection level in the host country is raised by bringing the protection norms closer to the standards binding in developed countries (the "pollution halo" effect). Foreign investors' activity may also find its reflection in environmentally favorable changes in the consumption patterns.

The research – scare as it is- allows to surmise that FDI generates both positive and negative environmental effects (Budnikowski 1998, pp. 89-98, Gentry 1999, pp.21-45, Zarsky 1999, pp.47-73, Goldenman 1999, pp. 75-91, Witkowska 2002, pp. 297-310), Wysokińska, Witkowska 2004, pp. 69-86). The balance sheet of these influences is dependent on the characteristics of the investor, the sectoral structure of investments and their geographical location. The empirical verification of the extreme hypotheses on the impact of FDI on the environment encounters methodological difficulties and lack of data.

Some research related to the discussed problem was carried out in the 90ies. and at the beginning of the 21st century. However, empirical evidence is varied (Petrovic-Randjelovic 2007, pp. 183-190).

According to (OECD 1997), most pollution intensive FDI flew from developed countries to developed countries, rather than to developing ones.

The analysis related to the USA (Kolstad and Xing, 1998) confirmed a correlation between lax environmental regulations in host countries and FDI inflows into pollution-intensive industries in the late 90ies. It was the case of investment coming from the US chemical industry and located in countries with less stringent environmental regulations.

Research related to Central and Eastern Europe and former Soviet Republics (Smarzynska and Wei, 2001) in which firm–level data were used does not confirm the existence of 'pollution havens' in these countries.

3. FDI in Pollution-Intensive Activities in the New EU Member States. The Cases of the Czech Republic, Poland and Slovakia

The analysis in this paper embraces three new EU countries, namely the Czech Republic, Poland and Slovakia. The scope of the analysis are years 1997-2007. The subject of the analysis is the sector and branch structure of FDI stock in the new EU Member States with special reference to FDI located in pollution-intensive industries. The manufacturing industries perceived as potentially highly polluting are: mining and quarrying, wood, publishing and printing, refined petroleum & other treatments, chemical products, rubber and plastic products and metal products. Some services regarded as more burdensome for the environment are: hotels, restaurants and transport.

OECD data base is used for calculations of the rate of inward FDI stock located in the pollution-intensive manufacturing industries and services in these three countries before and after the membership of the EU. The average rate for the EU27 is calculated on the basis of Eurostat data (Report London Economics 2009, p. 56).

Author's research shows that:

- The three analyzed countries have no large foreign direct investment in the extractive industries which often cause irreversible consequences for the environment (0.2% in the case of Poland and 1.3% in Slovakia and 2.8% in the Czech Republic), (see Tables 1-3).
- The shares of inward FDI stock located in so-called dirty industries in the total FDI stock in these countries are higher than the average for the EU27,

(see Tables 1-3 and Table 4). In 2006, this share amounted to 9.3% in the EU27, 13.6% in the case of Poland, 14.5% in the Czech Republic and 22.5% in Slovakia. In 2007, the share increased by about 0.5 and 1 percentage point in Poland and the Czech Republic respectively in comparison to the previous year. The calculated shares could be underestimated because the available data base do not embrace some polluting industries such as mineral products and leather industries.

- The above discussed shares have been changing in the analyzed countries during the pre- and post-accession period. The share rose in Poland slightly (from 13.2% in 1997 to 14.1% in 2007) and in Slovakia more evidently (from 17.3% in 1998 to 22.5% in 2006) while it fell in the Czech Republic (from 16.8% in 1997 to 15.4% in 2007). It is worth noting that the shares fluctuated in the analyzed period.
- A tendency towards a growing share of inward FDI in services in the total inward FDI stock was observed in the Czech Republic and Poland in 2003-2008 (see Tables 5-7). After accession of these countries to the EU the share of services in the total FDI stock was increasing and surpassed 50%. In Slovakia, this share decreased by 6 percentage points in 2004-2006 and amounted to 40.2%.
- FDI in services, however, does not constitute a major burden for the environment. Foreign investors show higher interest in professional services in the analyzed countries such as financial intermediation, real estate, renting and business activities than in services regarded as more burdensome for the environment, i.e. in transport, hotels and restaurants. The FDI stock located in hotels and restaurants, in land and air transport accounted for 1.2 % of the total FDI stock in Poland, 1% in the Czech Republic in 2008 and 0.9 in Slovakia in 2006 (see tables 5-7). These shares were decreasing in the case of Poland and the Czech Republic and were stable in Slovakia.

4. A Role of the EU Environmental Policy and National Policies Towards Foreign Investors in Changing their Attitude Towards Environmental Issues

The new EU Member States inherited from the communist system economic structures that caused huge environmental damage in their economies. After the systemic transformation all the analyzed countries introduced national environmental policies aimed at improving a difficult situation in this field. Nevertheless, at the moment of joining the EU these countries were not able to fulfill demanding accession conditions in the area of the environment. All the

analyzed countries received transition periods related to some EU environmental requirement. Adjustments to these requirements will be connected with an enormous financial effort in the new Member States[1]. These countries continue to implement the EU environmental law. As a consequence environmental regulations in these countries are stricter than previously and apply both to domestic and foreign firms.

Transnational corporations can set up foreign affiliates that operate abroad at corporate environmental standards as well. The EU strong environmental requirements can be treated as a barrier to potential practices of seeking some kind of pollution havens in those countries.

Apart from that the new EU Member States carry out own national autonomous policies towards foreign investors using rich packages of incentives. In this way, the analyzed countries try to influence investment decisions and encourage investors for investing in industries constituting knowledge-based economy. Additionally, some countries, for example Poland, support investment introducing modern, environmentally-friendly technologies (Witkowska 2007).

The change of economies' structures of the new EU countries would decrease the share of FDI stock in pollution –intensive industries in the total FDI stock. The presence of FDI in pollution-intensive industries is, however, only one of the factors influencing the environment in a host country. Technologies used by investors and environment management play an important role as well.

5. Conclusion

- The changes in the sector and branch structure of inward FDI stock in the new EU Member States after their accession to the EU, as evaluated from the environmental point of view, have not been far-reaching. The expectation of reducing the share of FDI in potentially polluting industries in the total inward FDI stock could be fulfilled if the overall manufacturing structure of these countries is shifted towards more modern and high- tech industries.
- According to the stage of economic development of the new EU Member countries and their locational advantages, investors locate part of their

[1] Costs of implementation of the EU environmental rules are estimated on about € 30 billion in Poland during the next 10-15 years.

investment in industries in which a production process require using specific technologies. They in turn are burden for the environment.

- Taking into account the fact that the new EU Member States should accept and introduce strict environmental rules legally binding in the EU as a whole, activities of foreign investors in these countries should not be treated as creation of pollution havens.
- The results of the conducted analysis allow to conclude that as yet there has been no empirical evidence that FDI has a particularly negative impact on the natural environment in the new EU Member States.

Table 1. Foreign direct investment stock in pollution-intensive industries in the new EU Member States - The Czech Republic, 1997-2007, USD Million, Percentage of total inward FDI stock

Specification	1997		2000		2004		2005		2006		2007	
	USD Million	%	USD Million	%	USD Million	%	USD Million	%	USD Million	%	USD Million	%
1495: MINING AND QUARRYING	79.8	0.9	400.7	1.9	730.4	1.3	252.0	0.4	1964.0	2.5	3121.4	2.8
1100: Extraction of crude petroleum and natural gas; service activities incidental to oil and gas extraction, excluding surveying	0.5	0.01	0.0	0.0	159.,9	0.3	17.0	0.03	3.3	0.004	304.4	0.3
2205: Wood, publishing and printing	417.1	4.5	669.9	3.1	1876.7	3.3	1743.1	2.9	2045.9	2.6	2472.7	2.2
2300: Refined petroleum & other treatments	183.9	2.0	232.3	1.1	361.5	0.6	384.2	0.6	434.9	0.5	557.4	0.5

2400: Chemical products	304.0	3.3	675.0	3.1	1506.7	2.6	1579.4	2.6	1845.8	2.3	2888.7	2.6
2500: Rubber and plastic products	186.7	2.0	508.0	2.3	1526.3	2.7	1472.6	2.4	2277.4	2.9	2539.8	2.3
2805: Metal products	380.9	4.1	781.5	3.6	3062.9	5.3	2922.5	4.8	3001.5	3.8	5375.5	4.9
Total FDI stock in pollution intensive industries	**1472.6**	**16.8**	**3267.4**	**15.1**	**9064.5**	**15.8**	**8353.8**	**13.8**	**11569.5**	**14.5**	**16955.5**	**15.4**
TOTAL FDI STOCK	**9233.2**	**100.0**	**21646.9**	**100.0**	**57255.3**	**100.0**	**60661.9**	**100.0**	**79841.1**	**100.0**	**110094.5**	**100.0**

Source: OECD and own calculations.

Table 2. Foreign direct investment stock in pollution-intensive industries in the new EU Member States - Poland, 1997-2007, USD Million, Percentage of total inward FDI stock

Specification	1997		2000		2004		2005		2006		2007	
	USD Million	%	USD Million	%	USD Million	%	USD Million	%	USD Million	%	USD Million	%
1495: MINING AND QUARRYING	44.9	0.3	138.2	0.4	202.2	0.2	112.2	0.1	167.8	0.1	326.5	0.2
1100: Extraction of crude petroleum and natural gas; service activities incidental to oil and gas extraction, excluding surveying	6.3	0.04	6.8	0.02	81.6	0.1	12.8	0.01	38.5	0.03	142.7	0.1
2205: Wood, publishing and printing	594.0	4.1	1501.1	4.4	3724.7	4.3	3567.2	3.9	4577.6	3.6	6276.8	3.6
2300: Refined petroleum & other treatments	3.8	0.03	21.3	0.06	82.5	0.1	86.5	0.01	125.2	0.1	141.9	0.1

2400: Chemical products	598.3	4.1	1399.5	4.1	3179.0	3.7	3057.2	3.4	4095.6	3.3	5357.3	3.0
2500: Rubber and plastic products	372.8	2.6	808.8	2.4	2286.6	2.6	2521.0	2.8	3544.6	2.8	4294.9	2.4
2805: Metal products	312.5	2.1	672.1	2.0	2795.8	3.2	3054.1	3.4	4548.3	3.6	8445.0	4.8
Total FDI stock in pollution intensive industries	**1926.3**	**13.2**	**4541.0**	**13.3**	**12270.8**	**14.2**	**12398.2**	**13.7**	**17059.1**	**13.6**	**24842.4**	**14.1**
TOTAL FDI STOCK	**14587.2**	**100.0**	**34226.8**	**100.0**	**86634.3**	**100.0**	**90751.9**	**100.0**	**125596.8**	**100.0**	**175850.7**	**100.0**

Source: OECD and own calculations.

Table 3. Foreign direct investment stock in pollution-intensive industries in the new EU Member States - Slovakia, 1997-2007, USD Million, Percentage of total inward FDI stock

Specification	1998		2000		2004		2005		2006		2007	
	USD million	%	USD million	%	USD million	%	USD million	%	USD million	%	USD million	%
1495: MINING AND QUARRYING	20.3	0.8	27.7	0.6	124.4	0.6	122.8	0.5	449.9	1.3	-	-
1100: Extraction of crude petroleum and natural gas; service activities incidental to oil and gas extraction, excluding surveying	20.0	0.8	24.6	0.5	87.6	0.4	88.7	0.4	389.1	1.2	-	-
2205: Wood, publishing and printing	20.3	0.8	143.2	3.2	404.0	1.8	2091.5	8.8	625.2	1.9	-	-

2300: Refined petroleum & other treatments	49.3	2.0	158.2	3.5	1593.0	7.3	1330.5	5.6	1727.4	5.1	-	-
2400: Chemical products	90.7	3.6	110.2	2.4	488.4	2.2	397.1	1.7	822.9	2.4	-	-
2500: Rubber and plastic products	14.4	0.6	33.3	0.7	368.2	1.7	336.7	1.4	336.7	1.4	-	-
2805: Metal products	238.0	9.5	799.8	17.8	2402.3	11.0	2206.0	9.3	2206.0	10.3	-	-
Total FDI stock in pollution intensive industries	**433.0**	**17.3**	**1272.4**	**28.3**	**5380.3**	**24.6**	**6484.6**	**27.4**	**7579.1**	**22.5**	-	-
TOTAL FDI STOCK	**2499.2**	**100.0**	**4503.0**	**100.0**	**21880.8**	**100.0**	**23655.3**	**100.0**	**23655.3**	**100.0**	**40702.1**	**100.0**

Source: OECD and own calculations.

Table 4. Foreign direct investment stock in pollution-intensive industries in EU27, 2006, (Percentage of total inward FDI stock)

Specification	FDI originating from EU27	FDI originating from non-EU27	Total
	%	%	%
MINING AND QUARRYING	2.9	2.5	2.8
Wood, publishing and printing	0.8	1.6	1.0
Refined petroleum & other treatments	0.7	0.8	0.7
Chemical products	2.9	3.9	3.2
Rubber and plastic products	0.7	0.4	0.6
Metal products	1.0	0.8	1.0
Total FDI stock in pollution intensive industries	**9.0**	**10.0**	**9.3**
TOTAL FDI STOCK	**100.0**	**100.0**	**100.0**

Source: Report London Economics, 4 November 2009, p. 56.

Table 5. FDI stock in pollution-intensive services in Poland, 2003-2009, USD Billion, %

Specification	2003		2004		2005		2006		2007		2008	
	USD Billion	%	USD Billion	%	USD Billion	%	USD Billion	%	USD Billion	%	USD Bllion	%
Total FDI stock	**57.8**	**100.0**	**86.6**	**100.0**	**90.8**	**100.0**	**125.6**	**100.0**	**178.2**	**100.0**	**163.0**	**100.0**
Total FDI stock in services	**33.7**	**58.2**	**48.6**	**56.1**	**51.8**	**57.0**	**74.2**	**59.1**	**104.9**	**58.9**	**98.4**	**60.3**
FDI stock in pollution-intensive services [a)]	**1.9**	**3.3**	**1.8**	**2.0**	**1.8**	**1.95**	**2.17**	**1.7**	**2.85**	**1.6**	**1.92**	**1.2**

a) Hotels and restaurants, land and air transport.

Source: The OECD data base and own calculations.

Table 6. FDI stock in pollution-intensive services in the Czech republic 2003-2008, USD Billion, %

Specification	2003		2004		2005		2006		2007		2008	
	USD	%	USD	%	USD	%	USD	%	USD	%	USD	%
Total FDI stock	**45.3**	**100.0**	**57.3**	**100.0**	**60.7**	**100.0**	**40.6**	**50.8**	**56.6**	**50.4**	**110.6**	**100.0**
Total FDI stock in services	**21.5**	**47.4**	**28.5**	**49.9**	**33.0**	**54.5**	**0.7**	**0.8**	**1.3**	**1.2**	**58.9**	**53.2**
FDI stock in pollution-intensive services [a]	**1.7**	**3.8**	**2.0**	**3.4**	**1.8**	**2.9**	**40.6**	**50.8**	**56.6**	**50.4**	**1.2**	**1.0**

a) Hotels and restaurants, land and air transport.

Source. The OECD data base and own calculations.

Table 7. FDI stock in pollution-intensive services in Slovakia, 2003-2008, USD Billion, %

Specification	2003		2004		2005		2006		2007		2008	
	USD	%	USD	%	USD	%	USD	%	USD	%	USD	%
Total FDI stock	**12.4**	**100.0**	**21.9**	**100.0**	**23.7**	**100.0**	**33.6**	**100.0**	**-**	**-**	**-**	**-**
Total FDI stock in services	**-**	**-**	**10.1**	**46.1**	**10.2**	**43.0**	**13.5**	**40.2**	**-**	**-**	**-**	**-**
FDI stock in pollution-intensive services [a)]	**-**	**-**	**0.2**	**0.9**	**0.2**	**0.8**	**0.3**	**0.9**	**-**	**-**	**-**	**-**

a) Hotels and restaurants, land and air transport.

Source. The OECD data base and own calculations**.**

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Streszczenie

BEZPOŚREDNIE INWESTYCJE ZAGRANICZNE A ZRÓWNOWAŻONY ROZWÓJ W NOWYCH KRAJACH CZŁONKOWSKICH UNII EUROPEJSKIEJ. ASPEKTY OCHRONY ŚRODOWISKA

Celem artykułu jest zbadanie potencjalnego wpływu działalności inwestorów zagranicznych na środowisko w nowych krajach członkowskich Unii Europejskiej (UE) oraz ocena roli wspólnej polityki ochrony środowiska UE i polityki wobec inwestorów zagranicznych w tym zakresie. Analiza obejmuje trzy nowe kraje członkowskie UE, tj. Czechy, Polskę i Słowację. Zakres czasowy analizy to lata 1997-2007. Przedmiotem analizy jest struktura sektorowa i branżowa skumulowanych bezpośrednich inwestycji zagranicznych (BIZ) w tych krajach, ze szczególnym uwzględnieniem BIZ ulokowanych w przemysłach intensywnie zanieczyszczających środowisko. Do określenia tych przemysłów wykorzystano klasyfikację UNCTAD. W analizie statystycznej wykorzystano bazę danych OECD oraz statystyki narodowe. Wyniki badań wskazują, że - jak dotychczas - nie ma empirycznych dowodów, iż BIZ mają szczególnie negatywny wpływ na środowisko w nowych krajach członkowskich UE.

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ZOFIA WYSOKIŃSKA[*]

Sustainable Development in the European Union and World Economy-Main Selected Aspects

Abstract

The aim of the paper is to present key theoretical and empirical issues of sustainable development and environmental protection issues from the global and European perspective, with special reference to the implication of this concept for Central and Eastern European members of the EU.

Main aspects are discussed in the paper from the EU and global perspective, with special reference to: the global partnership for sustainable development; fighting poverty and promoting social development; sustainable management of natural and environmental resources; trading in greenhouse gas emission allowances; main global and European challenges; goals and challenges facing the European Union member states as stemming from major strategic European Union renewed documents promoting sustainable development; especially promoting consumption and production that is sustainable and environmentally–friendly and green labeling system; a detailed look at "new" environmental policies; with special reference to sustainable transportation; a strategy for the sustainable use of natural resources; preventive strategy (preventing the creation of wastes) and waste recycling; sustainable and competitive tourism.

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1. The Basic Concept of Sustainable Development

Sustainable development may be said to be present when its basis is stable and permanent economic growth in environmentally–friendly sectors and when, thanks to it, there is a reduction in unemployment through the absorption of free labor resources.

Sustainable development has long been one of the overarching objectives of European Union policy. European Union leaders launched the first European Union sustainable development strategy in 2001, updating it in 2006 to tackle shortcomings and take new challenges into account[1]. Developed over decades to address a wide range of issues, the European Union has some of the highest environment standards in the world[2].

Recently, the European Commission has proposed a new economic strategy for Europe—"Europe 2020"—that includes three key growth drivers to be implemented through concrete actions at European Union and national levels:

- *Smart growth* (fostering knowledge, research and development, innovation, education, and a digital society),
- *Sustainable growth* (making production more resource efficient while boosting research and development as well as competitiveness), and
- *Inclusive growth* (raising participation in the labor market, the acquisition of skills, and the fight against poverty)[3].

It is especially after the financial crisis that a strategy comprehensively addressing long–term issues and leading the economy of every country to stable, balanced, and sustainable growth is needed much more than ever before. New sources of growth will have to be supported by investments in infrastructure, innovation, and education to facilitate productivity growth, while ensuring sustainable use of resources in a greener economy, within a context of open markets.

Another strong requirement is addressed to higher education—teaching the young generation and adults the rules of good governance for achieving sustainable development goals. Achieving economic and social stability as a global public good requires better governance. This is especially true of developing and transitional economies. Common principles and standards on

[1] http://europa.eu/pol/env/index_en.htm.

[2] Ibid.

[3] "Europe 2020: A strategy for Smart, Sustainable and Inclusive Growth," Communication from the Commission, COM(2010) 2020, Brussels, March 3, 2010.

propriety, integrity, and transparency governing the conduct of international business and finance help promote a healthy and sustainable economic system.

The social dimension of growth is also crucial to this effort through the promotion of employment opportunities, the creation and updating of skills, and the protection of the weakest by way of appropriate social safety nets and income support.

Also necessary is a strengthening of action aimed against corruption, which poses serious problems to the stability and security of societies.

The impact of the economic crisis on labor markets can undermine social stability. For this reason, good governance must be linked to employment and social policies that reduce unemployment, enable a quick re–entry into the labor market, and prevent social exclusion. It is necessary to reduce the impact of the crisis on employment and maximize the potential for job growth in accordance with the promotion of active labor market policies that reduce unemployment, enhance the development of skills, match jobs to labor market needs, maintain income support for the unemployed, and sustain existing employment, including through partial unemployment schemes combined with training provisions.

The emergency response to the economic crisis should not overlook the opportunity to facilitate a global green recovery putting economies on a path towards more sustainable and resilient growth. Fiscal stimulus packages are increasingly investing in measures encouraging the creation of green jobs and low–carbon, energy–efficient, and sustainable growth. These include energy efficiency measures, investment in public transportation infrastructure, incentives for recycling and for fuel–efficient vehicles, research into alternative sources of energy, support for renewable energy technologies, as well as enhanced CO^2 reduction.

Stable and secure energy availability is indispensable for social and economic development. It is essential in order to ensure global energy security and energy access in developing countries.

Yet another important factor for future development is keeping markets open and free, and rejecting protectionism in any form. In difficult times, it is necessary to avoid the past mistakes of protectionist policies, especially given the strong decline in world trade following the economic crisis. The aim is to enhance international trade in goods and services, and to abolish some of the barriers to technologies and investment goods stimulating the increase of cleaner production. What is needed is a maximizing of efforts and steps to promote and facilitate trade and investment as well as refraining from raising new barriers to investment or to trade in goods and services, and imposing new exports restrictions. Innovation and knowledge are key factors in supporting recovery and putting the economy on a more sustainable growth path. This is needed to

accelerate innovation in relation to long–term challenges as well as to encourage the development of new industries, companies, and services that will prove decisive in creating new sources of growth.

2. Global Partnership for Sustainable Development

The European Union established a Strategy for Sustainable Development for the first time in May of 2001. It was for the purpose of supporting this strategy that the Council of Europe confirmed the need for an external dimension to sustainable development and the input of the European Union into global sustainable development in Gothenburg. This was laid out in the position represented at the World Summit on Sustainable Development that was held in Johannesburg in 2002. The main questions raised were health, education, and the environment. Market forces work to foster growth in inequality and exclusion, as well as the destruction of the environment. Thus, globalization must go hand–in–hand with actions lessening unfavorable effects, especially in the area of trade, finance, environmental management, decreasing the spheres of poverty and crime, and the development of common rules for these areas that may be monitored more efficiently, as well as a striving for global management, including through the promotion of the more efficient management of co–dependencies[4].

The United States and Japan have a comparative advantage in biotechnology and nanotechnology patenting as well as in the relevant scientific fields, while the European Union is the world leader in environment–related technologies and services, with special reference to recycling. Recycling, proper and effective waste management, renewable energy, sustainable construction, and bio–based products—innovative use of renewable raw materials—are among the six main lead markets of the European Union. Japan is second to the European Union in all three environmental technology fields[5].

A resource–efficient Europe means support for the shift towards a resource–efficient and low–carbon economy. Europe should stick to its 2020

[4] Communication from the Commission to the European Parliament, the Council, the Economic and Social Committee, and the Committee of the Regions of February 21, 2002, entitled "Towards a Global Partnership for Sustainable Development" [COM(2002) 82 final – Not published in Official Journal]; also compare with S. Baker, *Sustainable Development*, Routledge–Taylor&Francis Group, London and New York, 2006, pp. 51–65.

[5] OECD Science, Technology and Industry Scoreboard 16 2007 – ISBN 978–92–64–03788–5 – copyright OECD 2007, pp. 9–16.

targets in terms of energy production, efficiency, and consumption. This would result in €60 billion less in oil and gas imports by 2020. An industrial policy for green growth—a "green revolution" promoting environmentally–friendly technologies for the European Union's innovative industries—seems to be of greatest importance in helping the European Union's industrial base in being competitive in the post–crisis world, promoting entrepreneurship, and developing new skills. In its turn, this would create millions of new jobs, especially "green jobs" in the environmentally–friendly sectors of the European and non–European economies.

The objective of developing environmentally–friendly economies in the developing countries as well as in transitional economies is the most important challenge facing the world economy in the nearest future. This objective can be achieved by close cooperation between the developed and developing countries as well as through solidarity in the processes of international assistance providing environmentally–friendly, more efficient, and cleaner technologies oriented towards Low Carbon Growth. Job creation in environmentally–friendly services in developing countries is "a shortcut path" that helps avoid some of the negative consequences of traditional ("dirtier") economic development while providing possibilities for the creation of millions of new "green" jobs in the future[6].

Incorporating aspects of sustainable development into international trade within the framework of the WTO for the purpose of:

- Strengthening the integration of developing countries with the world economy,
- Assisting developing countries in achieving greater benefits from the global trade system,
- Modifying the Generalized System of Preferences (GSP) so that it incorporates sustainable development,
- Incorporating sustainable development into bilateral and regional agreements,
- Reducing the unclear operations of the international financial system and applying more efficient regulations to it,
- Encouraging European business to be socially responsible, and

[6] Wysokińska Z., "Making the Transition to a Green Economy: Fair and Equitable–Positive Examples of the Former European Transition Economies for Developing and Low Income Countries" (June 23, 2011), contribution to the UNCTAD Symposium of June 22–24, 2011 – Making Trade and Finance Work for People and the Planet, "Managing a Just Transition: The Green Economy and Green Jobs Agenda in Low–Income Countries" session.

- Promoting collaboration between the WTO and environmental organizations.

Fighting Poverty and Promoting Social Development

The target is the reduction of extreme poverty throughout the world by the year 2015 (applying to people living on $1.00 or less per day). Stress has been consistently placed on quality, quantity, and the impact and development of collaboration within the framework of the concept of sustainable development.

Development policy is aimed at:

- Decreasing the scale of poverty,
- Guaranteeing that European Union policy is aimed at fighting hunger,
- Integrating the distribution of water with policies aimed at health care and education,
- An orientation aimed at no discrimination in terms of sex in European Union policies,
- Greater investment in health care, education, training, and fighting disease, and
- Promoting studies oriented at sustainable development.

Sustainable Management of Natural and Environmental Resources

The objective in this area is the reversal of a trend and losses in environmental resources by the year 2015 as well as the development of medium–term targets for sectors including water, land, soil, energy, and biodiversity.

The following initiatives were specifically undertaken during the Johannesburg Summit:

- Promotion of water resource sustainable development,
- Collaboration in the field of energy and development,
- Promotion of international environmental agreements,
- Supplementing the Global Environment Facility,
- Undertaking an action plan fighting illegal logging,
- Investments in sustainable forms of transportation,
- Promotion of sustainable fishing,
- Environmental catastrophe prevention management, and
- Expansion of the Global Monitoring for Environment and Security (GMES) program to encompass developing countries.

The European Commission proposed the creation of a Global Energy Efficiency and Renewable Energy Fund (GEEREF) in order to mobilize private investment in projects promoting increased energy efficiency and increasing the share of renewable energy in developing countries as well as countries undergoing systemic transformation[7]. Its purpose will be support for projects aimed at sustainable development, with special consideration for environmental protection, climate change, and improvements in air quality, taking into account social and economic benefits in business areas, income growth, and the creation of new jobs. Its objective is also a role in stabilizing energy supplies to the poorest countries of the world[8].

The GEEREF initiative is an integral part of the Green Book – *A European Strategy for Sustainable, Competitive and Secure Energy*[9].

Moreover, the following was agreed upon:

- Improving cohesion among the economic, social, and environmental aspects of primary European Union policies and targeting them at achievement of the goals of sustainable development,
- Signing of the UN Protocol on the Illicit Manufacturing and Trafficking of Firearms,
- Rules for action against the negative effects of emigration, and
- Introduction of better legal regulations on all levels in order to strengthen the efficiency of global economic, social, and environmental management, where this proposal pertains to the strengthening of public institutions and a citizens' society in developing countries, guaranteeing basic work standards, promulgating decisions that lead to better global management, and accelerating the fight against the discrimination of women[10].

The financing of sustainable development in line with the UN Millennium Development Goals as agreed by the UN in its Millennium Declaration involves eight tasks:

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[7] Communication from the Commission to the Council and the European Parliament of October 6, 2006, entitled "Mobilizing Public and Private Finance towards Global Access to Climate–Friendly, Affordable, and Secure Energy Services: The Global Energy Efficiency and Renewable Energy Fund" [COM(2006) 583 final – Not published in the Official Journal].

[8] http://europa.eu/legislation_summaries/environment/sustainable_development/l27063_en.htm

[9] http://europa.eu/legislation_summaries/environment/tackling_climate_change/l27062_en.htm.

[10] Joint Declaration by the Council and the representatives of the governments of the Member States meeting within the Council, the European Parliament, and the Commission on the development policy of the European Union, entitled "The European Consensus" [Official Journal C 46/01 of February 24, 2006].

- Eradication of extreme poverty and hunger,
- Achievement of universal primary education,
- Promotion of gender equality and the empowering of women,
- Reducing child mortality rates,
- Improving maternal health,
- Combating HIV/AIDS, malaria, and other diseases,
- Ensuring environmental sustainability in environmental resource management, and
- Building a global partnership for development[11].

The increasing of financing within the framework of official aid to 0.7% of the Gross National Income (GNI) has been proposed in order to implement this program, where such development aid by all countries of the European Union shall amount to at least 0.33% of the GNI as of the year 2006. Also taken was the decision to reduce the debts of the most indebted countries as well as participation in the debate on the potential of countries offering global public goods.

The effects of actions taken are presented in "The Millennium Development Goals Report – 2009"[12]. Although they are not yet satisfactory, they do indicate certain progress in achieving goals set for the year 2015. The greatest achievement relating to the reduction in poverty is that the number of people living for less than $1.25 per day has decreased from 1.8 billion to 1.4 billion over the period from 1990 to 2005. According to the Report, prior to the financial crisis, a total of 55–90 million people in the world were touched by extreme poverty in the year 2009[13]. With respect to children's primary education in developing countries, it has been estimated that in 2007 a total of 88% of children received an education at this level, which means an increase with respect to 83% in the year 2000. The mortality rate for children below five years of age has also fallen from 12.6 million in 1990 to nine million in 2007. This problem particularly touches the regions of Sub–Saharan Africa and South Asia[14].

[11] http://www.unic.un.org.pl/cele.php

[12] "The Millennium Development Goals Report – 2009,"
http://www.un.org/millenniumgoals/pdf/MDG_Report_2009_ENG.pdf.

[13] Ibid., p. 4.

[14] Op. cit., pp. 4–5.

Trading in Greenhouse Gas Emission Allowances

The European Union was the first in the world to create a system for trading in emission allowances. This system assists the European Union in implementing obligations as undertaken within the framework of the Kyoto Protocol with respect to the emission of carbon dioxide and other gasses known as greenhouse gasses by eight percent (as compared with the year 1990) over the years 2008–2012. It is within the framework of this system that the governments of European Union countries determine and assign limits to companies of the industrial and energy sectors on allowances to emit carbon dioxide. Companies that do not utilize all of their allowances may sell their remaining allowances to other companies that chose this path to evade high penalties for exceeding allowable levels. Resources derived from the sale of the allowances may be designated for investments in technology that is more environmentally–friendly. National governments leave the companies a free hand. Each company decides on its own what solution is best for it. It is the ultimate goal—restricting emissions—that is of prime importance. This system is to encompass other sectors of industry in the future, including the aviation industry, which is currently the fastest growing source of CO^2 emissions.

Restrictions shall also encompass allowable levels of gas emissions for motor vehicles. Stricter building standards shall be introduced in order to prevent heat loss through walls and windows, thus reducing CO^2 emissions. The European Union has been successful over recent years in developing a comprehensive environmental protection system encompassing various matters ranging from noise through waste, from the protection of rare species through the introduction of limits in the area of air pollution, and from water standards for swimming areas through actions in the event of environmental catastrophes.

Environmental standards are seen as a form of incentive to apply more environmentally–friendly solutions. They are also intended to foster the development of products whose design uses environmentally–friendly materials and that take into account the potential for recycling following the end of their useful life[15].

From the Kyoto Protocol to the Copenhagen Conference

The United States was the only country that refused to ratify the Kyoto Protocol in 1997. It was within the framework of this agreement that thirty–seven industrialized countries, including the whole of the European Union,

[15] http://europa.eu/pol/env/index_pl.htm; also compare http://europa.eu/legislation_summaries/environment/tackling_climate_change/index_en.htm

obligated themselves to decrease the emission of greenhouse gasses by five percent, on average, between 1990 and 2012. According to the Center for Global Development, the United States was the world's largest emitter of CO^2 in 1997. Recently, the ignoble role of leader in such emissions has been taken over by China. The Kyoto Protocol is due to become extinct in 2012 and the goal of the summit in Copenhagen was to have been the finding of a way to continue the process of reducing CO^2 emissions.

Effects to Date in the Reduction of Greenhouse Gas Emissions

Although true that the emission of greenhouse gasses from the area of the European Union has grown over the 2000–2004 period, the tendency over recent years has been much more encouraging. The European Union is on the road to achieve the target as identified in the Kyoto Protocol.

However, if policies aimed at fighting climate change are not quickly introduced on a world level, world greenhouse gas emissions in 2010 shall be at least 60% greater than in 1990. Although the share of energy from renewable sources in gross national energy use is growing at a faster rate as of 2002, it is still far from the goal earmarked for 2010, which is at a level of 12%.

Main Global and European Challenges

The main problem in the battle to reduce CO^2 emissions is a lack of money. Poorer countries—led by China—claim that they cannot afford to decrease CO^2 emissions and demand that the industrialized countries lower their levels of greenhouse gas emissions first. Wealthy countries, with the United States in the forefront, indicate that CO^2 emissions in China and India can grow dramatically and it is those countries that, to a great extent, will bear the responsibility for growth in emissions in the future. The European Union is facing a similar conflict of interest. The main problem in Europe is the question of who is to fund the planned €15 billion per year in financial assistance in support of developing countries in their quest for alternative, environmentally–friendly energy sources. The poorer European Union countries, under the leadership of Poland, insist that wealthier countries such as Great Britain, France, and Germany pay more, while the less affluent countries, mainly from Central and Eastern Europe, less.

The Climate Summit in Copenhagen ended with relatively insignificant outcomes. The parties did reach a political agreement in questions of the need to reduce greenhouse gas emissions, but they did not undertake any noteworthy obligations. True, they agreed that the increase in atmospheric temperature

should be stabilized at a level of 2°C by the year 2005. But they did not set this threshold as a fixed target, nor did they define any intermediate goals in achieving it[16].

3. Goals and Challenges Facing the European Union Member States as Stemming from Major Strategic European Union Documents Promoting Sustainable Development

The European Union's Sustainable Development Strategy

Sustainable development is an overriding long–term goal of the European Union. Both the European Union Strategy for Sustainable Development that was developed in the year 2001 and its rejuvenated version from the year 2006 identify directions of long–term views of sustainable development, where components such as economic development, social cohesion, and environmental protection go hand–in–hand and mutually supplement each other.

A Sustainable Europe for a Better World: European Union Strategy for Sustainable Development

"A Sustainable Europe for a Better World: European Union Strategy for Sustainable Development" is the newest strategic document relating to sustainable development in the European Union that was drafted in the first half of 2001 by the European Commission and ratified in May of 2001[17].

The strategy consists of four sections. The first part is entitled "Towards a Sustainable Europe" and contains a definition of sustainable development as well as general information on the subject. The title of the second part is "Making Sustainable Development Happen: Achieving Our Ambitions" and it contains a description of actions to be taken in connection with the achievement of sustainable development in the countries of the European Union and beyond it. The third part—"Setting Long–Term Objectives and Targets: Identifying Priorities for Action"—provides guidelines for establishing goals and priority areas. "Implementing the Strategy and Reviewing Progress: Steps after Gothenburg," the fourth part of the strategy, contains indicators to measure

[16] http://www.twojaeuropa.pl/1204/szczyt-klimatyczny-w-kopenhadze

[17] "A Sustainable Europe for a Better World: European Union Strategy for Sustainable Development," more on the topic of its objectives and priorities in Z. Wysokińska, J. Witkowska, *Integracja Europejska. Dostosowania w Polsce w dziedzinie polityk* [European integration: Adaptation in Poland in the area of policies], PWE, Warsaw, 2004, the chapter entitled "Polityka ochrony środowiska" [Environmental protection policy].

progress in implementing the strategy as well as methods of operation of the leading bodies of the European Union.

In its first part, the strategy document calls attention to the fact that the achievement of sustainable development is not only a European goal, but one whose character is global.

The following problem areas have been identified on the road to achieving sustainable development[18].

- Emissions of greenhouse gases resulting from human activity that are responsible for global warming,
- Poverty, which has a destructive impact on human health and life,
- Ageing of the population, which threatens a slowdown in the rate of economic growth,
- Bio–diversity losses in Europe caused by soil pollution and excessive amounts of wastes, and
- Intensification in transportation, which mainly pollutes urban areas.

In its second part, "Making Sustainable Development Happen: Achieving Our Ambitions," the strategy document provides guidelines showing how to achieve sustainable development.

The European Commission has determined that achieving sustainable development necessitates many changes in the process of implementing and developing policies on the European Union level as well as on that of the European Union member states.

Sustainable development should become a main goal of all sectors and policies, which shall lead to better cohesion policy.

The Commission proposes the following actions within the framework of improving cohesion policy[19]:

- All policies must have sustainable development as their core concern,
- Promotion of sustainable management through the Common Agricultural Policy and the Common Fisheries Policy within the European Union as well as on an international arena, and protection of marine ecosystems,
- Use of more environmentally–friendly modes of transportation within the framework of the Common Transport Policy, as well as tackling rising levels of road congestion and pollution caused by transportation, and

[18] "A Sustainable Europe for a Better World…," op. cit, p. 4.

[19] Ibid., p. 6.

- Cohesion Policies targeting the least developed regions and those with the most acute structural problems.

A successive phase in achieving sustainable development in the European Union involves investments in technology and scientific research. This is because, in the view of the Commission, a good economic situation (economic prosperity) is dependent on knowledge and technological development to a very great extent. Promoting innovation and new technologies in the future may bring *about very positive effects, including lower use of natural resources, a reduction* in pollution, and a decrease in the number of factors threatening human health and safety[20].

The public sector, whose task is to support technological change on the path to achieving sustainable development, should concentrate on assistance for research aimed at safe and pro–environmental technology, for the application of better solutions, and for the stimulation of quicker, newer, and cleaner technologies. In this area the Commission specified several tasks to be completed, including[21]:

- Full application of the potential of future Community Framework Programs for Research to better support sustainable development,
- Consideration by European Union member states of better ways to use public procurement to increase environmentally–friendly products,
- Encouragement for the private sector to incorporate environmental factors in the sector's purchasing specifications,
- Encouragement for the industrial sector to identify major obstacles to the development of this sector that hamper the significantly wider use of new technologies in sectors such as energy, transportation, and communications, and
- Contribution by the Community by the year 2008 for Global Monitoring of Environment and Security (GMES).

The next step on the road to achieving sustainable development in the European Union is the improving of communications among the population, the business sphere, and people developing policies.

[20] Ibid., p. 7.

[21] Ibid., pp. 7–8.

According to the Commission, this improvement may take place thanks to more open policies, not only on the part of the state, but also the business sector, with respect to society. Many major corporations manage their policies in a manner bringing benefits to only a small group of people, without taking into account the interests of the bulk of the population[22].

In the view of the Commission, too many people consider policies to be alien and technocratic. It is for this reason that the process of their creation and implementation should be more open. This is primarily a matter of making the individual aware of the fact that he or she can, through personal effort, introduce changes into policies and have an impact on their shaping. As an example the Commission points to the creation of what are known as "Local Agenda 21s" that promote sustainable development on a local level and allow for the better understanding of its objectives[23].

A very important role in improving dialogue between the population and the authorities includes an efficient educational system that, in the eyes of the public, increases the sense of individual and collective responsibility for the environment and encourages changes in behavior models.

The third section of the strategy includes something of a summary of the two preceding parts in the form of the identification of priority areas for action as well as the establishing of long–term goals.

According to the Commission, long–term goals primarily involve an approach to policies that guarantee cohesiveness, and where actions undertaken within their framework should be based on principles presented in the previous section.

In this part the Commission also established several tasks and measures intended to manage two out of six questions that create the greatest challenge to sustainable development in Europe—fighting poverty and problems relating to an aging population.

The Community Commission considers the following among objectives that it must achieve within the long–term perspective[24]:

- Limiting climate change and increasing the use of clean energy, including:
- Limiting the emission of greenhouse gasses by European Union countries as well as by other highly–developed countries,

[22] Ibid., p. 8.

[23] Ibid., p. 8.

[24] A Sustainable Europe for a Better World …, op. cit., pp. 10–13.

- Decreasing threats to public health, including:
  - Healthier and safer food,
  - Ensuring that chemicals are only produced and used in ways that do not pose significant threats to human health and the environment,
  - Tackling issues related to infectious diseases and resistance to antibiotics,
- Managing natural resources more responsibly, including:
  - Protecting and restoring habitats and natural systems,
  - Halting the loss of biodiversity by the year 2010,
  - Introducing fishery systems that are sustainable and protect healthy marine ecosystems, both in the European Union and globally,
- Improving the transportation system and land–use management, including:
  - Shifting from road (motor vehicle) to rail transportation,
  - Promoting more balanced regional development by reducing disparities in economic activity.

Several indicators shall be applied to measure implementation. They are based on international conventions, programs, or European Union policies.

The fourth part of the European strategy is aimed at changes in methods of work in the process of developing Community laws and policies that, in the view of the Commission, are too narrow and too concentrated on a sector–based approach.

Also forwarded was a proposal for the European Parliament to create a Sustainable Development Committee that would be broadly involved in the implementation of principles of sustainable development in sector policies.

4. Objectives of the Renewed Lisbon Strategy: The Main European Union Document in the Area of Sustainable Development

The Council of Europe summit of March of 2005 approved the "New Beginning of the Lisbon Strategy," a document on common action aimed at economic and employment growth, which modified the Lisbon Strategy of

2001[25]. The following were proposed as priority actions on the part of the European Union and its member states:

- Making Europe a more attractive place for making investments and taking up employment,
- Developing knowledge and innovation as locomotives for sustainable development, and
- Creating a greater number of permanent jobs.

These priorities were transferred to the Community Strategic Guidelines (CSG) for the years 2007–2013.

The Renewed Sustainable Development Strategy: The Main Challenge

The renewed Strategy for Sustainable Development was developed by the Council of Europe in June of 2006. It integrates economic, social, and environmental aspects and identifies seven priority action areas:

- Climate change and clean energy,
- Sustainable transportation,
- Sustainable production and consumption,
- Maintaining existing natural resources and their rational management,
- Public health,
- Social cohesion, demography, and migration, and
- Global poverty and the challenges of sustainable development[26].

[25] Over this period, the Lisbon Strategy assumes the building of a European economy that is based on:

• *Knowledge*, which involves the development of an information society, research and innovation, and the molding of relevant qualifications and skills,

• *Implementation of principles of sustainable development and environmental protection*, including the maintenance of human resources, using renewable energy sources as a basis, and limiting unfavorable climate changes in connection with warming,

• *Liberalization and integration of network industry markets* (power engineering, telecommunications and postal services, transportation, and the fuel sector) as well as the financial services market,

• *Development of entrepreneurship* based on deregulation, the elimination of administrative barriers and bureaucratic obstacles, better access to capital and technology, and the creation of uniform rules for competition among companies active on the unified European market, and

• *Job growth and a change in the social model* as well as meeting challenges related to the aging of the population (growth in professional activity, growth in labor market flexibility, improved education, modernization of the social security system, limiting hardship, poverty, and social exclusion).

[26] http://ec.europa.eu/sustainable/welcome/index_en.htm.

Priorities of the new European Union environmental policy, based on the above listed documents formulated as of the year 2006, are concentrated on four main areas:

- Actions aimed at preventing unfavorable climate changes,
- Protection of biodiversity,
- Limiting the impact of pollution on health, and
- Better utilization of natural resources.

Also postulated is the taking into account of sustainable development and environmental protection in other sector policies of the European Union, primarily including transportation (proposals for new CO^2 emission standards for motor vehicles as well as with respect to fuel quality), agriculture, tourism, cohesion, development, health care, industry, scientific research, and trading policies. The Commission also prepared an action plan on sustainable consumption and production as well as new versions of the Eco–Management and Audit Scheme (EMAS) and the Ecolabel Scheme[27].

5. Promoting Consumption and Production that Is Sustainable and Environmentally–Friendly: An Action Plan for Industry

The objective of the European Commission is support for an integrated approach to propagating sustainable consumption and production as well as sustainable industrial policy within the European Union and on the international arena. This means a striving to improve products through a systemic approach to procurement and an improvement in communications with consumers thanks to more cohesive and simplified labeling principles. This approach particularly applies to products whose adverse impact on the environment can be significantly decreased in each phase of their life cycles. Undertaken actions are intended to assist consumers in making better choices through more cohesive and simplified ways of labeling products[28].

Ecodesign is a new concept aimed at reducing energy consumption by electrical equipment in used the household, where information on energy use by

[27] http://europa.eu/legislation_summaries/environment/sustainable_development/index_en.htm.

[28] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on the Sustainable Consumption and Production and Sustainable Industrial Policy Action Plan, Brussels, July 16, 2007, COM(2008) 397 final.

the product must be visible so the customer has knowledge of it prior to purchasing the product.

The harmonization of national measures relating to energy consumption information as well as relating to the content of other basic raw materials in household appliances is intended to provide the consumer with choice based on energy efficiency (energy consumption labeling)[29].

Green Labeling System

Euro–labeling serves to mark many products and services. Thanks to the Community's Eco–Management and Audit Scheme (EMAS), everyone can find out if the collaborating supplier or client meets standards in the realm of environmental protection[30].

The **Program for Clean and Competitive SMEs**[31] is a scheme aimed at assisting SMEs in adapting to environmental regulations as well as in improving those regulations for better management, including instruments supporting environmental management, financial support for companies, and the assistance of local experts[32].

The European Commission is planning the development of environmental management for companies—the Environmental Monitoring and Auditing Scheme (EMAS). To this end it is planning the implementation of tools such as EMAS–Easy, a program intended to help in implementing EMAS. Also important is the eradication of administrative barriers—red tape—as well as the development of incentives for registering SMEs[33].

[29] Ibid.

[30] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2008:0401:FIN:pl:PDF.

[31]http://europa.eu/legislation_summaries/environment/sustainable_development/l28197_en.hm

[32] Compare with ACT – Communication of October 8, 2007 from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions, entitled: "Small, Clean and Competitive: A Program to Help Small and Medium–Sized Enterprises Comply with Environmental Legislation."

[33] More on this topic may be found at http://ec.europa.eu/youreurope/business/doing-business-responsibly/taking-sustainability-further/index_pl.htm.

6. A Detailed Look at "New"[34] Environmental Policies (as of 2007)

In the year 2007[35] the European Commission undertook new steps with respect to environmental protection policy, especially as aimed at what is known as the "climate package," taking into account changes in the energy sector based on non–renewable energy carriers, mainly mining resources (primarily coal) and an increased share of renewable energy in Europe. It is in this realm that the Commission published a document defining new principles governing public assistance in connection with environmental protection that defines requirements for greater guarantees assuring a higher level of environmental protection than would have been achieved without such help. The positive outcome of such help must be greater than the negative effects connected with interference in competition, bearing in mind the "polluter pays principle" (PPP)[36]. Most provisions as found in the Sixth Framework Program in other areas relating to environmental protection were maintained. The main priority directions for which legislation has been prepared apply to seven thematic areas—air, protection against pollution and recycling, the marine environment, soil, pesticides, natural resources, and the urban environment. The Industrial Emissions Directive[37] is also subject to implementation. Also introduced was the directive relating to environmental liability[38] in line with which the basis for liability for damage to the natural environment encumbers the polluting entity, which is obligated to remedy the situation, as were two regulations:

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[34] The previous policy with respect to environmental protection in the European Union, its objectives, principles, and instruments, are described in detail in Z. Wysokińska and J. Witkowska, *Integracja Europejska. Rozwój rynków* [European integration: The development of markets], PWN, Warsaw, 2002 as well as in Z. Wysokińska and J. Witkowska, *Integracja Europejska. Dostosowania w Polsce w dziedzinie polityk* [European integration: Policy adaptation in Poland], PWE, Warsaw, 2004, and compare with M. N. Jovanowic, *The Economics of European Integration, Limits and Prospects*, Edward Elgar, Cheltenham, U.K., Northampton, Massachusetts, U.S.A.,2005, pp. 792–807.

[35] Communication from the Commission to the Council and the European Parliament of July 2, 2008, entitled "2007 Environment Policy Review" [COM(2008) 409 final – Not published in the Official Journal].

[36] Community Guidelines of April 1, 2008 on State Aid for Environmental Protection [Official Journal C 82 of 1.4.2008]; http://europa.eu/legislation_summaries/environment/general_ provisions/ev0003_en.htm.

[37] Directive 2008/1/EC of the European Parliament and of the Council of January 15, 2008 concerning Integrated Pollution Prevention and Control, http://europa.eu/legislation_ summaries/environment/air_pollution/l28045_en.htm.

[38] Directive 2004/35/EC of the European Parliament and of the Council of April 21, 2004 on Environmental Liability with Regard to the Prevention and Remedying of Environmental Damage; http://europa.eu/legislation_summaries/environment/general_provisions/l28120_ en.htm.

- The first involves supervision over transborder movement with respect to wastes hazardous to the natural environment and their elimination, which signifies the incorporation into European Union legislation of the provisions of the Basel Convention[39] that came into force in 1994[40], and
- The second involves the modernizing of legislation governing the management of chemicals—Regulatory Framework for the Management of Chemicals (REACH)—and the creation of a uniform system for registration, assessment, and evaluation of chemicals so as to guarantee human health, environmental protection, the need to maintain competiveness, and the strengthening of innovation in the European chemical industry (prepared by the European Chemicals Agency)[41].

LIFE+, a new financial component for the years 2007–2013, was created in order to develop and modernize legal regulations governing European Union environmental protection policy. It is primarily intended to introduce sustainable development and environmental protection to other European Union policies in its member states as well as in the EFTA area, countries that are members of the European Environmental Agency, European Union candidate countries, and certain third party countries, especially the Western Balkans—countries that are a part of the Stabilization and Association Process. Funds may be assigned to both public and private institutions. The program encompasses three thematic components: Nature and Biodiversity, Environment Policy and Governance, and Information and Communication[42].

During the March 8–9, 2007 summit of the Council of Europe, an Action Plan integrating the Community's climate and energy policies, aimed at restricting average global warming to no more than 2°C above the level pre–dating the period of industrialization as well as decreasing the threat through price increases and limited access to oil and gas, was approved. This signifies:

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[39] Council Decision 93/98/EEC of February 1, 1993 on the Conclusion, on Behalf of the Community, of the Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal (Basel Convention), http://europa.eu/legislation_summaries/environment/waste_management/l28043_en.htm.

[40] Compare with Community Regulations: Council Regulation (EEC) No. 259/93 of February 1, 1993 on the Supervision and Control of Shipments of Waste Within, Into and Out of the European Community, and Regulation (EC) No. 1013/2006 of the European Parliament and of the Council of June 14, 2006 on Shipments of Waste, http://europa.eu/legislation_summaries/environment/waste_management/l11022_en.htm.

[41] http://europa.eu/legislation_summaries/institutional_affairs/institutions_bodies_and_agencies/l21282_en.htm.

[42] Regulation (EC) No. 614/2007 of the European Parliament and of the Council of May 23, 2007 concerning the Financial Instrument for the Environment (LIFE+); http://europa.eu/legislation_summaries/environment/general_provisions/l28021_en.htm.

- Decreasing the emission of greenhouse gasses by the year 2020 by at least 20% as compared with 1990,
- Rationalization of energy use and, as a consequence, restricting its use by 20%,
- Increasing the share of energy produced from renewable energy sources (RES) up to 20% of the total average energy use in the European Union in 2020, and
- Achievement of at least a 10% biofuel share in the sale of transportation fuels in 2020[43].

Sustainable Transportation

Noise and air pollution caused by transportation are serious problems within the territory of the whole of the European Union. They also have significant health effects.

The European Union is obligated to achieve a target of acquiring 10% of the energy for satisfying the fuel demands of the transportation sector through renewable energy sources (including biofuels, electricity from renewable sources, and hydrogen) by 2020 within the framework of the climate–energy package.

This target is tied with the introduction of binding criteria in the area of sustainable development with respect to biofuels in the directive on energy from renewable sources and the directive on fuel quality[44].

The Green Transportation Package

The goal of this package is making the transportation sector more environmentally–friendly and bringing about the internalization of external costs as well as limiting rail–based noise.

Also forwarded was a proposition for collecting fees for the use of certain types of infrastructure by freight vehicles.

An executive order defining obligatory limits on CO^2 emissions for new passenger cars was passed in April of 2009.

[43] The final decision in this matter was taken in December of 2008, compare with http://europa.eu/pol/env/index_pl.htm.

[44] Compare also M. Loennroth, "The Environment in the European Social Model," in Global Europe, Social Europe, edited by A. Giddens, P. Diamonds, and R, Liddle, Polity Press, Cambridge, Malden, 2006, pp. 217–218.

The Main Provisions of the Green Transportation Package

- Approval of the directive on promoting environmentally clean and energy–saving road transportation vehicles,
- Undertaking an action plan to implement intelligent transportation systems in Europe,
- Undertaking new action following approval of the Green Book on urban mobility,
- Reaching an understanding on including aviation in the Community system of trading in emission allowances as of 2012,
- Approval of the package on marine safety and the strategy for the development of marine transportation by 2018, and
- Approval of a new directive on marking tires, executive orders on limits to noise caused by the rolling of tires, standards in the area of rolling resistance, and decision relating to the application of systems for monitoring tire pressure[45].

A Strategy for the Sustainable Use of Natural Resources

The objective of this strategy is the reduction of the negative impact on the environment of the exhausting of natural resources that makes impossible greater economic growth and employment in line with the goals of the Lisbon Strategy.

The use of natural resources that particularly pollute the environment should be replaced by alternative possibilities and energy sources.

Such actions should be complementary to the integrated product policy as well as with the application of environmentally–friendly technology[46].

[45] More on this topic in the Communication from the Commission to the European Parliament and the Council, entitled "Greening Transport," Brussels, July 8, 2008, COM(2008) 433 final, and http://ec.europa.eu/transport/greening/doc/citizen/2008_07_greening_package_ citizen_summary_pl.pdf.

[46] Communication from the Commission of October 1, 2003, entitled "Towards a Thematic Strategy on the Sustainable Use of Natural Resources" [COM(2003) 572 – Not published in the Official Journal]. The European Union sets out the main principles for formulating a European strategy aimed at reducing the environmental impact of resource use, taking as its basis the state of these resources and building on existing policies, http://europa.eu/legislation_summaries/environment/sustainable_development/l28167_ en.htm.

Preventive Strategy (Preventing the Creation of Wastes) and Waste Recycling

Targeting legislation and action to foster prevention intended to curb the negative impact of pollution on the environment as well as effective recycling[47].

Sustainable and Competitive Tourism

Europe is the most attractive tourist destination in the world and tourism plays an extremely important role in economic development and the creation of jobs.

The high attractiveness of Europe and the development of tourism are strongly coupled with its impact on the natural environment and on local communities.

It is for this reason that it is important to promote a holistic approach tied not only with the economic development of the tourism sector, but also with environmental protection, social cohesiveness, and the promotion of culture in European tourist destinations.

Challenges Facing the Development of Tourism in Europe

- Guaranteeing the safety of tourists and local communities,
- Protection of the natural environment and cultural resources at tourist destinations,
- Minimizing use of resources and decreasing pollution at tourist destinations,
- Looking after the interests and well–being of local communities,
- Reduction in season–related demand,
- Attention to the impact of transportation related to tourism on the local environment,
- Attention to the development of tourism accessible to everyone and an absence of discrimination in this field, and
- Improvement in the quality of work in tourism[48].

[47] More broadly in the Commission Communication of May 27, 2003, entitled "Towards a Thematic Strategy on the Prevention and Recycling of Waste" [COM (2003)301 – Official Journal C 76, March 25, 2004], http://europa.eu/legislation_summaries/other/l28151 _en.htm.

[48] Communication from the Commission of October 19, 2007, entitled "Agenda for a Sustainable and Competitive European Tourism" [COM(2007) 621 final – Not published in the Official Journal] http://europa.eu/legislation_summaries/environment/sustainable_development/l10132_en.htm.

7. Member States of Central and Eastern Europe: Growth in Expenditures on Protection of the Natural Environment

Most of the new member states from the Central and Eastern European region increased their outlay on environmental protection significantly following entry into the European Union. This particularly applies to an increased share of the Gross Domestic Product (GDP) in public spending (compare with Table No. 2) as well as on environmental investments in the industrial sector (compare with Table No. 1).

Leaders in this process have been countries such as Bulgaria, Poland, and Slovenia. However, growth in expenditure on environmental protection and environmental investments have also been noted in the Baltic States, the Czech Republic, Slovakia, and Romania (compare Tables No. 1 and No. 2).

This bears witness to a particularly intensive utilization of European Union structural funds designated for pro–environmental projects and improved environmental awareness among citizens and companies in those countries.

Table 1. Environmental Investment by Industry (in % of GDP)

	2004	**2006**	**2008**	**2009**
CEE Member States				
Bulgaria	**0.48**	**0.83**	**0.57**	
Estonia	**0.14**	**0.40**	**0.46**	
Lithuania	**0.12**	**0.14**	**0.25**	
Latvia	**0.06**	**0.11**	**0.25**	
Poland	**0.22**	**0.28**	**0.33**	**0.38**
Czech Republic	0.28	0.32	0.29	0.30
Romania	0.39	0.31	0.31	
Slovakia	0.44	0.47	0.34	0.31
Slovenia	**0.29**	**0.36**	**0.34**	
Hungary	0.21	0.15	0.13	
Selected West European Countries				
Germany	0.07	0.07	0.08	
Sweden	0.14	0.11	0.11	
France	0.06	0.06	0.08	
Portugal	0.17	0.22	0.17	

Source: *Eurostat* and national statistics.

Table 2. Environmental Expenditure by the Public Sector (in % of GDP)

	2004	2006	2008	2009
CEE Member States				
Bulgaria	**0.34**	**0.37**	**0.39**	**0.52**
Estonia	0.20	0.16	0.16	0.16
Lithuania	0.32	0.49	0.65	
Latvia	0.06	0.11	0.08	
Poland	**0.30**	**0.47**	**0.41**	**0.48**
Czech Republic		0.53	0.37	0.44
Romania	0.22	0.54	0.57	
Slovakia	0.28	0.26	0.25	0.27
Slovenia	**0.95**	**0.71**	**0.71**	
Hungary	0.69	0.69	0.25	
Selected West European countries				
Germany	0.66	0.62	0.62	
Denmark	0.77	0.62	0.62	
France	0.54	0.56	0.62	
Norway	0.62	0.56	0.59	0.65

Source: *Eurostat* and national statistics.

8. Final Remarks

The systematic implementation of a strategy for sustainable development and an improvement in the state of the natural environment necessitates the introduction of a lucid vision of good governance on all levels of central, regional, and local administration. The concept of *good governance* for sustainable development is increasingly being coupled with not only environmental protection and corporate social responsibility, but also with **public health practice for the betterment of the health of the population.** Moreover, the concept of *good governance* is based on multidisciplinary competencies as well as on ethical principles to assure the responsible and effective translation of knowledge into public health research, policy, education, and practice.

Good governance strives towards universality in its support of democracy, basic human rights, and participatory forms of government. This support is based on a conviction that diversity can only be truly manifested through the mechanisms of democratic institutions that enable people to freely express their views and participate in political processes. Good governance

entails a vast set of democratic processes and institutions at every level of society—from the local council to regional, national, and international institutions—that allow the voices of the people to be heard, conflicting interests to be peacefully resolved, and the forging of consensus towards greater social progress.

Good governance is also based on the conviction that a system that places sovereignty in the hands of the people is more likely to invest in its people, **channeling public resources to education, health care, and social services for the elderly and vulnerable members of society**. Without such investments, poverty cannot be eliminated and sustainable development can never be achieved.

Upholding the rule of law as well as bringing security and predictability to social, political, and economic affairs, is a cornerstone of good governance. Legal reform efforts to enhance the fair and efficient administration of justice in protecting property rights and, increasingly, political and civil rights of citizens are now being undertaken in growing numbers of developing countries and transition economies. This is vital in order to encourage multi–stakeholder partnerships aimed at increasing the welfare of the people at the local level and to enhance governance institutions in order to attract foreign investment in an increasingly globalized economy. The role of good governance in creating an environment conducive to domestic savings and investment will be equally important. National development should not depend solely on the vagaries of international capital flows, but rather on the inherent wealth, industry, and creativity that each nation possesses.

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Streszczenie

ZRÓWNOWAŻONY ROZWÓJ W UNII EUROPEJSKIEJ I W GOSPODARCWE ŚWIATOWEJ – GŁÓWNE WYBRANE ASPEKTY

Celem niniejszego artykułu jest przedstawienie kluczowych zagadnień teoretycznych i empirycznych zrównoważonego rozwoju i ochrony środowiska z perspektywy światowej i europejskiej, ze szczególnym uwzględnieniem wpływu tej koncepcji na rozwój nowych krajów członkowskich UE położonych w Europie Środkowej i Wschodniej. Główne aspekty zostały omówione z unijnej i globalnej perspektywy, zwłaszcza takich jak: globalne partnerstwo na rzecz zrównoważonego rozwoju, walka z ubóstwem i wspieranie rozwoju społecznego, zrównoważone zarządzanie zasobami naturalnymi i środowiskowymi, handel przydziałami na emisję gazów cieplarnianych.

Analizie poddane zostały również wyzwania stojące przed państwami Unii Europejskiej, wynikające z nowych strategicznych dokumentów Unii Europejskiej, mających na celu promowanie zrównoważonego rozwoju, w tym w dziedzinie zrównoważonej produkcji konsumpcji, przyjaznego dla środowiska naturalnego "zielonego" systemu etykietowania, nowych celów i wyzwań w odniesieniu do polityki ochrony środowiska, ze szczególnym uwzględnieniem zrównoważonego transportu, strategii zrównoważonego wykorzystania zasobów naturalnych, zapobiegania powstawaniu szkodliwych odpadów i promocji recyklingu oraz rozwoju zrównoważonej i konkurencyjnej turystyki.

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MARCIN FELTYNOWSKI[*]

Development of the Information Society in Czech Republic, Poland and Slovakia

Abstract

The article is presenting facts about the politics carried on the EU concerning development of the information society in Czech Republic, Poland and Slovakia – countries that in 2004 became members of the EU. Enlargement of the EU structures allowed for more dynamic development of these countries in the information society context. The situation of each country was presented by indicators describing the household and the community situation in information society. Indicators was gained from Eurostat system. The universality of these indicators lets to the assessment of the level and dynamics of development in relation to the EU average. Comparison of Poland and its southern neighbors allows also to observe changes that occur and may allow better progress in this field.

1. Introduction

The idea of building the information society results from theoretical assumptions, indicating that the information and knowledge are becoming increasingly important factor in building a knowledge-based economy. These assumptions lead to the debate on development of information society in Central Europe. Studies undertaken in this article include an analysis of indicators on information society in the Czech Republic, Poland and Slovakia. These countries, through membership in the European Union have the possibility of

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building a knowledge-based economy. This becomes possible by building a society that promotes and uses the knowledge available via the Internet and computers.

It becomes obvious that society open to innovation and knowledge allows for better management of these resources and facilitate the activities associated with use of knowledge to practical purposes. This approach is also becoming a driving force for socio-economic development of regions.

2. The concepts of information society in European Union

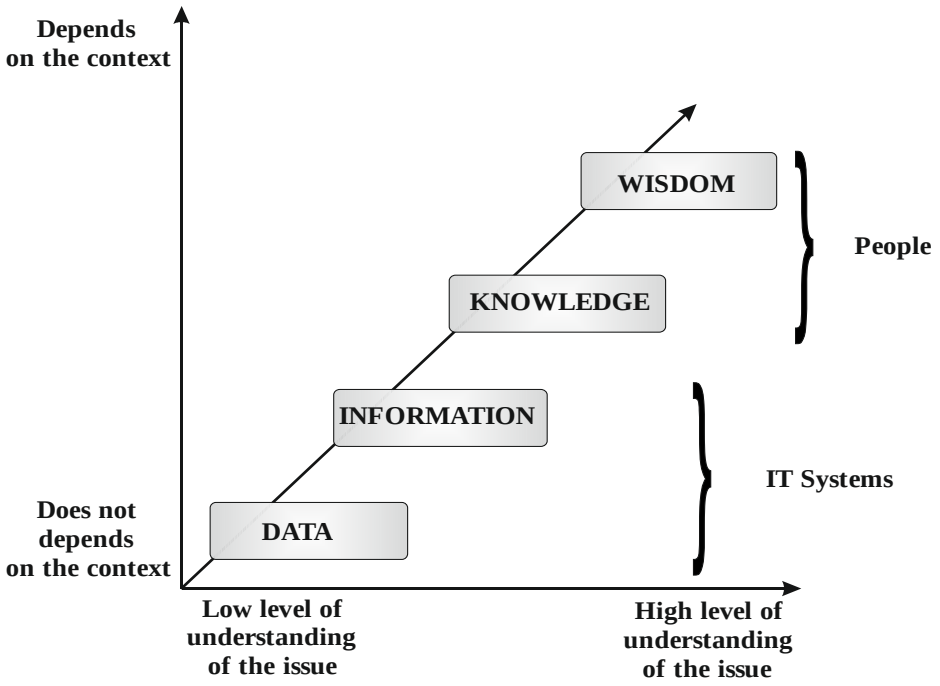
Regardless of the approach presented by the authorities in individual countries it must be noted that in the era information society, knowledge is becoming a driving force for all the transformations and improvements in quality of life. Data and the information, which are used in the appropriate way and converted by the experience and the human perception, becomes the basis of progress. It should be recognized that knowledge is characterized by (Drucker, 1994, p. 45; Castells, 2010, pp. 102-108):

- domination, which binds to its effective use;
- nonfinity, because the knowledge unlike different resources isn't subject to an effect of the wear and tear and its use leads to the achievement of snowball effect;
- simultaneity, which stems from the fact that the same knowledge can be used in many places at the same time;
- nonlinearity, involving the ability to achieve various effects using the same amount of knowledge;
- immeasurableness which manifests itself in an inability to measure knowledge directly;
- effects of scale, allowing for cutting of costs of knowledge.

The approach to the information society leads to the conclusion that the data and information derived from the environment with the use of information systems allow to generate knowledge, and in consequence the experience. This experience can be used as a competitive advantage of human individuals, either as part of building the competitiveness of the region or state. It should be emphasized that knowledge and experience derived from it are generated by human beings. This approach leads to understanding many problems in the field of activity of information society.

Significant impact on the development of information society is connected with action picked up by the European Union, who is promoting the initiatives in this sphere. The beginning of action is bound with the initiative of the European Council around Corfu in 1994. At this time, the Bergman's Report was drawn up and its aim was familiarizing membership countries with the era of the information society. The assumptions of the report indicated that development of information and communication technologies can have a big impact on economic development, which was compared to the industrial revolution. The assumptions of the Bergman's Report arised from the theses of White Paper titled *Growth, Competitiveness and Employment: The Challenges and Ways Forward Into the 21st Century*[1], which showed a new approach to developing information society. (Horvath, 2010, p. 86)

Figure 1. Use of data and information to generate knowledge



Source: Gospodarka oparta na wiedzy – stan, diagnoza i wnioski dla Polski. Ekspertyza Instytutu Zarządzania Wiedzą w Krakowie na zlecenie Ministerstwa Gospodarki, Warszawa – Kraków 2002, p. 14.

[1] Brussels, 05.12.1993, COM (1993) 700 final.

Another document, indicating an important role in developing the information society in Europe is the Green Paper from 1996 entitled *Living and Working in the Information Society. People First*[2]. It showed that ICT technologies are becoming more common, and their sophistication is growing incredibly fast. Thus the benefits of this kind of transformation were pointed out. It also highlighted some kind of anxiety concerning the decline in employment as an effect of ICT development but also the possibility of increasing the gap between industrialized and developing countries. Similar concerns were pointed in the increase in the gap between young and old generations.

An important stage in the development of information society was the Green Paper of 1998 entitled *Public sector information: a key resource for Europe – Green Paper on public sector information in the information society*[3]. It defined vision of development of computerization in public sector and the possible impact of this factor on the socio-economic sphere. The development of the public sector was supposed to take place by creating conveniences for the development of e-administration. Document presented the current development of IT in the public sector and pointed out the practical solutions for the implementation of public e-services. This approach required consideration at the EU level because of the divergent, legislation in many member countries.

An important element in building the information society in Europe was an initiative *eEurope 2002. An Information Society For All*[4]. Among its goals for the years 2000-2002 there were 64 targets, which included a wide range of actions for building the information society in all spheres of human activity. The document indicated weaknesses in building the information society hitherto registered. It was manifested in (base on *eEurope 2002. An Information Society For All*):

- insufficient access to the Internet with high parameters of the bandwidth;
- low level of the digitization of the society;
- inadequate culture of the usage of information technologies in management processes;
- low activity of the public sector in activities related to the development of e-services.

Most of objectives outlined in this document have been completed, which had a significant impact on the solution to the problems identified as weaknesses.

[2] Brussels, 24.07.1996, COM (1996) 389 final.

[3] Brussels, 20.01.1999, COM (1998) 585 final.

[4] Brussels, 08.12.1999, COM (1999) 687 final.

The success of the European Commission led to the implementation of the new phase of the program in 2005 – *eEurope 2005. An Information Society For All*[5]. Assumption of the program was to increase access to services based on the use of broadband computer networks. Document assumed a dynamic development of public services available via Internet. Development of this area have led to the creation of better conditions for development of entrepreneurship based on the electronic circulation of documents and broadband computer networks. *eEurope 2005* program, similarly to earlier documents of the European Commission, has become a "roadmap" for opportunities of development based on funds from EU programs. An important element of this document were the guidelines on the legislation and carrying out research showing the potential of ICT usage in practice. Such an approach has led to increase the competitiveness of regions and thus, the entire European Union.

The next stage of in the information society policy in the European Union is associated with the implementation of guidelines published in the form of a strategic framework *i2010 - A European Information Society for growth and Employment*[6]. Implementation of the guidelines covered the years 2005-2010 and was based on the possibilities of information and communication technologies in the context of achieving a higher growth of qualitative and quantitative development of the EU economies. The guidelines indicate ICT as a factor enhancing social inclusion and raising standards of living. This documents continues the idea of building single European information space and supporting research in the field of innovation in ICT. The challenge posed to the member states was the creation of an integrated information society in Europe. This would contribute to the creation of new workplace while maintaining the principles of sustainable development promoted by the EU in all documents of Community.

Current guidelines relating to the development of information society are included in the document entitled *Europe's Digital Agenda*[7]. This document is part of *Europe 2020* strategy. Agenda refers to the past experience in building the information society from earliest strategic documents, and outlines ways to increase living standards through the use of ICT in households and in business. This can be achieved through the use of economic and social potential of ICT. Agenda assumptions lead to a growing number of projects for the dissemination of broadband networks and increasing demand for services related to ICT. Such actions, are supposed to help to overcome barriers related to the digital

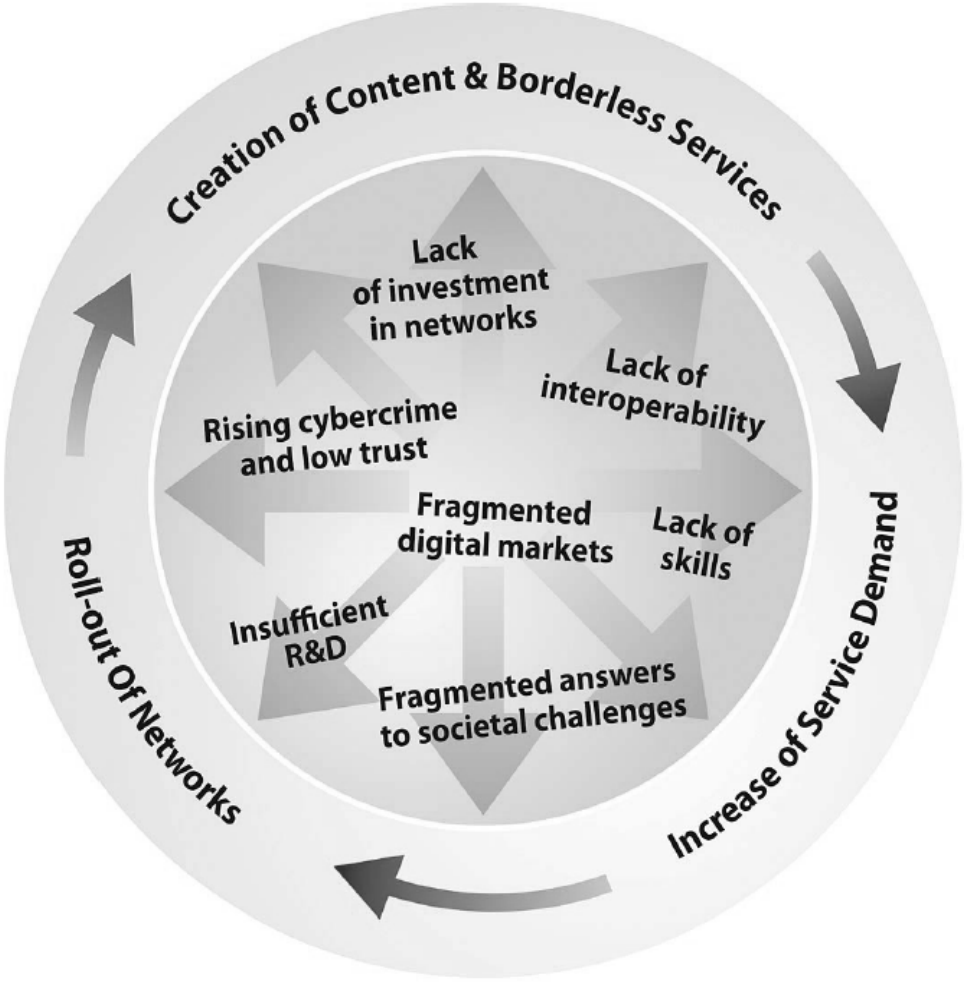
[5] Brussels, 28.05.2002, COM (2002) 263 final.

[6] Brussels, 01.06.2005, COM (2005) 229 final.

[7] Brussels, 26.08.2010, COM (2010) 245 final.

economy, such as cybercrime, lack of investment in ICT infrastructure, lack of skills in the use of networks, lack of interoperability, or lack of adequate achievement in research and development.

Figure 2. Functioning of the digital economy



Source: Europe's Digital Agenda, p. 5.

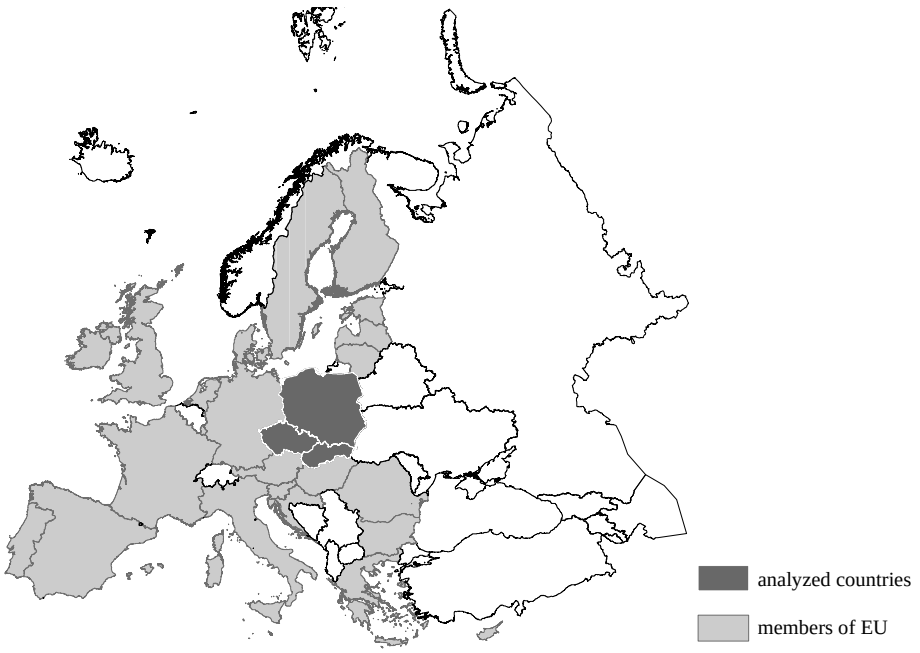
The approach proposed by the European Union in all documents relating to the information society indicates a continuing desire to the development in this area. An important element is to indicate that the information society is related with some skills in certain conditions and a possibility of fast adapting to

change. These changes affect both the social as well as economic sphere of life, with particular emphasis on R&D.

3. Information society development in selected countries of Central Europe

The European Union is an organization that characterized by a dynamic and constantly socio-economical development. On 1 May 2004, EU enlargement included, inter alia, the countries of Central Europe and among them Poland, Czech Republic and Slovakia. This accession obliged them to boost the social-economic development, concerning also such aspect as the need to achieve the objectives of information society adopted by the EU policy.

Figure 3. Countries included in the analysis of the information society



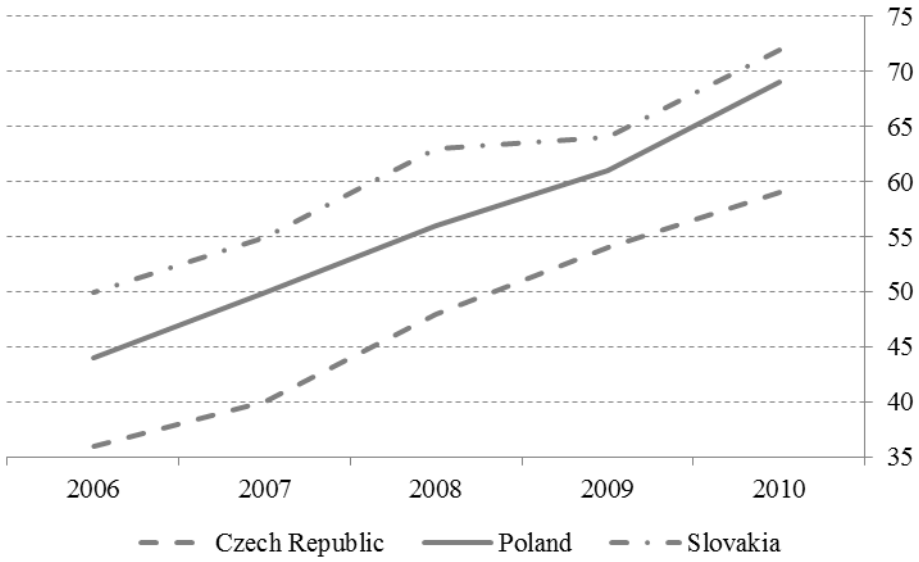
Source: Own composition.

In this article indicators describing the development of information society in the years 2006 to 2010 in countries mentioned above, will be

analyzed[8]. They relate to the social sphere, and computer techniques usage, in particular in households of the Czech Republic, Poland and Slovakia. The time scope of analysis is predicated on the availability of data of Eurostat database.

The basic and universal indicators describing the level information society development is the number of households with personal computer and the number of households using the Internet via personal computer. For the countries presented in this paper, constant growth of households with personal computer is observed. Data analyzed here indicate that the leader in this field is Slovakia, which in 2010 had 72% of households with a PC. In Poland the indicator reached the level of 69%, and in Czech Republic only 59%. All countries are characterized by similar dynamics index. But the fastest progress was recognized in Poland. From 2006 to 2010 this indicator changed about 25 percentage points.

Figure 4. Households with a personal computer



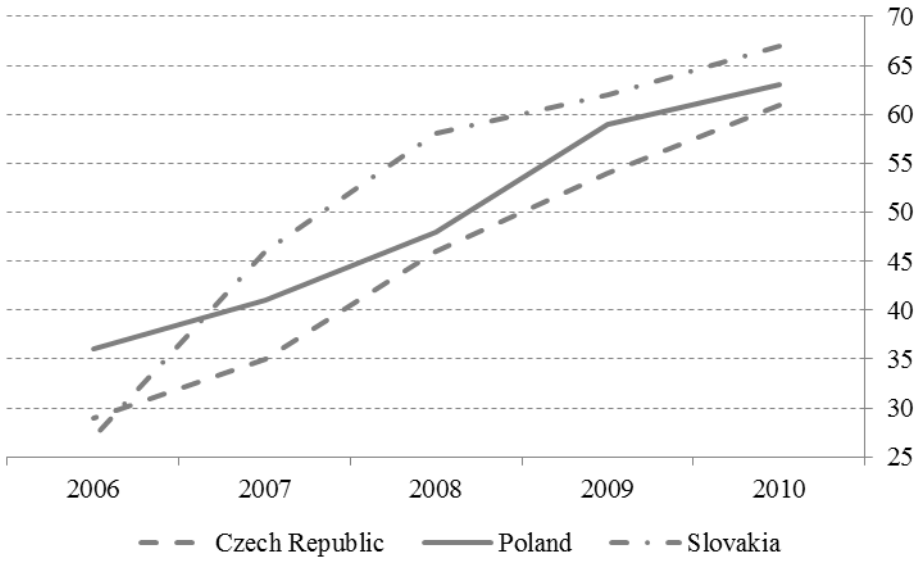
Source: Own calculations based on Central Statistical Office of Poland, Czech Statistical Office, Statistical Office of the Slovak Republic data.

In the context of information society development, another important indicator is that measuring Internet access. Among the analyzed countries, Slovakia noted the highest level of the percentage of households with Internet,

[8] Some indicators used data from the years 2007 to 2010.

were 67% of those share was noted in 2010. Also this country had noted the greatest dynamics of growth over the years 2006 – 2010, despite the fact that in 2006 it was the state with the lowest value (27%) of this indicator. This indicates increase of 40 percentage points. The second country in terms of dynamics growth is Czech Republic. In this country indicator increased by 32 percentage points. Least developed Internet access characterized Poland, where dynamics was measured on level of 27 percentage points.

Figure 5. Households with PC with the access to the Internet



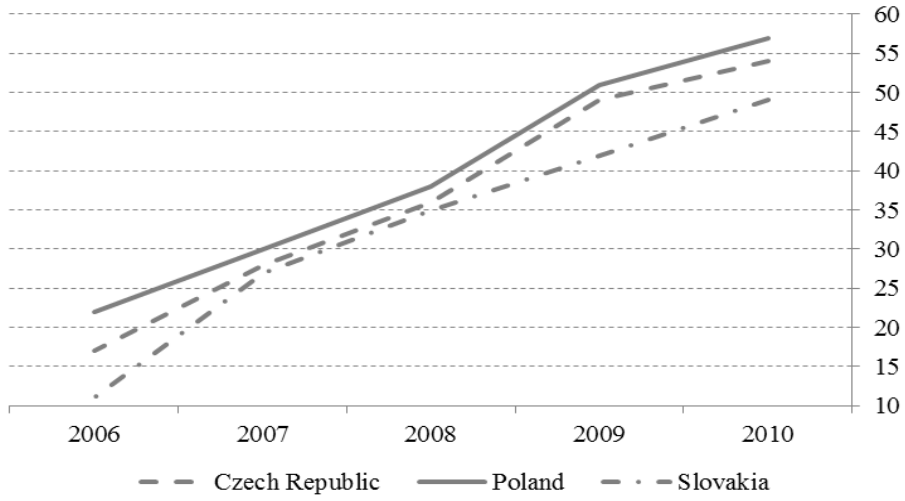
Source: Own study based on Eurostat data.

It should be stressed that all countries in 2006 were below the average rate of households with Internet access (49% in the EU). The smallest delays in this area characterized Poland, where the level of the indicator was on the level of 36%.The five-year period of analysis shows that in 2010 the number of households with the access to the Internet in the EU rose to 70 %. In 2010 none of the three countries did not reach the EU average for this indicator. The smallest delay was noted in Slovakia (67%), next country was Poland (63%). In the Czech Republic, presented indicator had a level of 61% of households.

Another important factor, influencing that quality and capabilities of Internet usage, is a broadband access. According to EU strategic documents relating to the development of information society all member countries should pursue to the development of broadband networks. These guidelines led to

increasing the percentage of households with access to broadband Internet from 30% in 2006 to 61% in the last year of analysis.

Figure 6. Households with the broadband access to the Internet

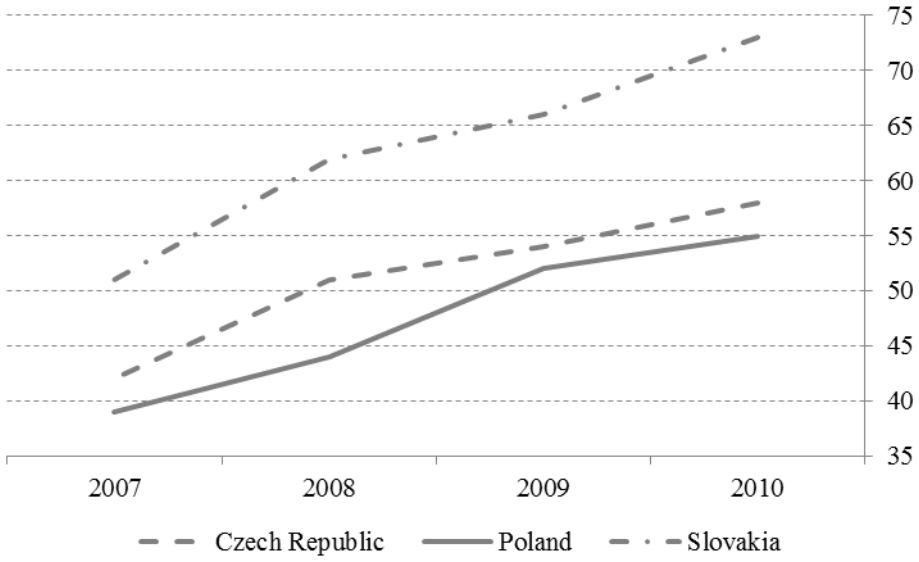


Source: Own study based on Eurostat data.

As with the ratio of households with access to the broadband Internet in 2006, the highest ratio was observed in Poland (22%) and the lowest in Slovakia (11%). In the Czech Republic, a share of 17% of households with the broadband access was identified. It should be emphasized that the highest growth trends over the years 2006 – 2010 was identified in Slovakia (38 percentage points increase), while the lowest growth rate characterized Poland (35 percentage points). Czech Republic noted an increase of 37 percentage points. What is more, none of the countries has reached the average level of this indicator in the EU yet. The smallest delay was observed in Poland and the greatest gaps in this measure, Slovakia, despite important growth.

Owning a computer and Internet access should be considered together with regular use of these elements in daily life. According to the Eurostat methodology, as individuals using the Internet regularly are recognized those who use it at least once a week. The average value of this indicator for the EU in 2010 was 65%.

Figure 7. Individuals using Internet regularly

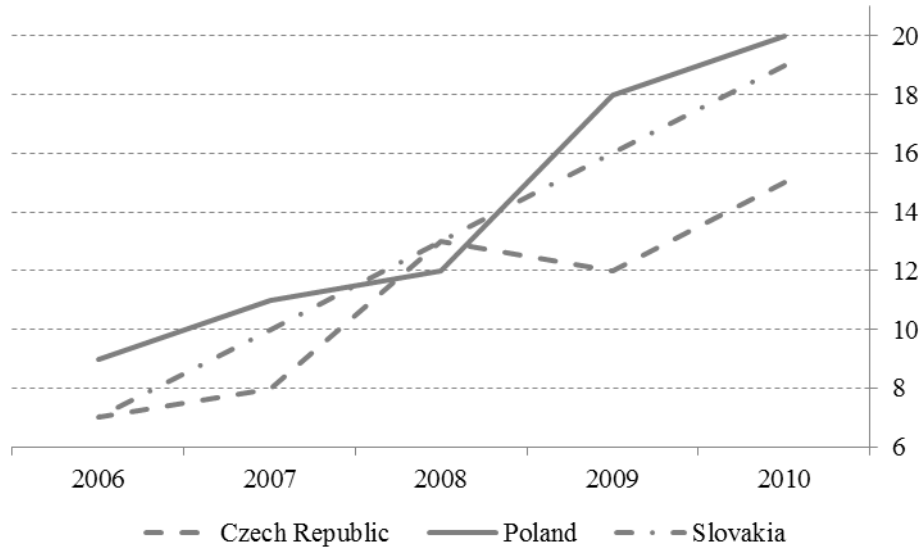


Source: Own study based on Eurostat data.

Indicator of Internet usage by analyzed countries shows that in the period 2007 - 2010, Slovaks used Internet mostly while Poles rarely. In Slovakia, in 2010, 73% of the population used Internet regularly, what was a higher rate than the EU average. In the case of the Czech Republic this rate reached the level of 58 %, and in Poland only 55 %. The highest dynamics was noted in Slovakia, with an increase of 22 percentage points since 2007. In the Czech Republic and Poland dynamics is at the same level of 16 percentage points.

Using the Internet contributes to the raise of the quality of life and is a kind of convenience. What can serve as a measure in this case, it is society's activity in ordering of goods and services via Internet for private use. Obviously, EU countries observed a continuous increase of this index. In 2010, it reached the average level of 31% of EU citizens who ordered some goods or services via Internet in the last three months dating back from the date of the examination.

Figure 8. Internet usage for ordering of goods and services



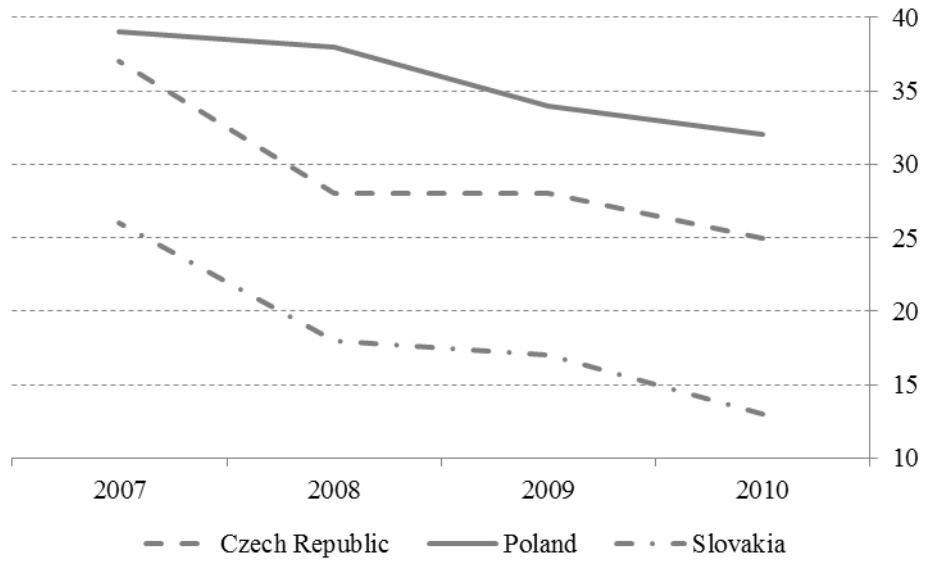
Source: Own study based on Eurostat data.

In the case of this index, there has been an increasing trend in all three countries over the whole period of examination. But it should be noted that in 2010 it was still below the EU average. The highest value of the indicator was observed in Poland (20% of the population) and lowest in the Czech Republic (15%). It shows to a reflection that in the period 2006 – 2010, the greatest dynamics characterized Slovakia, which note an increase of 12 percentage points. Slightly weaker growth was observed in Poland (11 percentage points), while in the Czech Republic the increase was only 8 percentage points, contributing to the significant delay in relation to Poland, Slovakia and the rest of EU countries.

The use of Internet, is associated with the problem of the digital exclusion, which consists of, inter alia, lack of skills in using the Internet. All EU member states are obliged to reduction of this phenomenon, which in 2009 affected 30% of the EU community[9].

[9] Data comes from: *Eurostat regional yearbook 2010*, European Union 2010.

Figure 9. The level of digital exclusion



Source: Own study based on Eurostat data.

This phenomenon is also visible in the Czech Republic, Poland and Slovakia. The highest level of digital exclusion in 2007 was observed in Poland, where 39% of the population declared that never used Internet. In the Czech Republic this situation concerned 37% of the population. The lowest level of digital exclusion was noted in Slovakia, where 26% of the population did not have contact with Internet. Next years after EU accession showed decrease of this barrier of development. The largest dynamics of decrease characterized Slovakia, which due to a decrease of 13 percentage points, at 2010 showed a level of 13% of the digitally excluded. Slightly lower dynamics is observed in the Czech Republic, where decrease of 12 percentage points was noted. This problem is still visible in Poland where decrease was only 7 percentage points, and the exclusion rate in 2010 was 32%.

4. Conclusion

An analysis of the level of information society development in Czech Republic, Poland and Slovakia showsthat these countries after their accession to the EU structures, are developing the sphere of information society. Thus, they

are reaching the objectives of EU strategic documents, which indicate the need to develop ICT for better socio-economic development and prevent economic crisis in the future.

Another important aspect is activity of these three countries in the field of development of information society among households. Also, the increasingly lower levels of digital exclusion can be perceived as a positive element. Development of information society is the most dynamic in Slovakia, which is characterized by a large progress in the number of computers with Internet access and the use of this computers by the inhabitants of this country. Development of information society places Slovakia in a good light in relation to Poland and the Czech Republic.

Poland, despite a good situation at the beginning of the analyzed period of time, due to lowering dynamics of in this sphere, reduces its competitiveness in to the context of information society building. It should be noted however that the situation of Poland, despite the lower dynamics of development, compared to its southern neighbors is still looking good. However, there must be taken further action for information society development, in the coming years, otherwise Poland can lose the distance to Slovakia and the Czech Republic. In the case of Czech Republic, one should also expect the growing dynamics of information society development, because presented indicators show that this country has a lowest level of development.

An important issue is the aspiration of countries being a subject of research, to achieve the level of information society development at least at the EU average level. Next years should bring further development in this field, what in consequence should be the next step to achieve a higher level of competitiveness in terms of information society development.

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Streszczenie

ROZWÓJ SPOŁECZEŃSTWA INFORMACYJNEGO W CZECHACH, POLSCE I SŁOWACJI

Artykuł prezentuje dane na temat prowadzonej w UE polityki w zakresie rozwoju społeczeństwa informacyjnego w Czechach, Polsce i Słowacji, które stały się członkami UE w 2004 roku. Rozszerzenie struktur unijnych pozwoliło na zdynamizowanie rozwoju tych krajów w zakresie społeczeństwa informacyjnego. Sytuację poszczególnych krajów zaprezentowano przy pomocy wskaźników opisujących gospodarstwa domowe oraz społeczność pochodzące z Eurostatu. Powszechność tych wskaźników pozwala na ocenę dynamiki rozwoju oraz poziomu tego rozwoju w odniesieniu do wartości średniej w UE. Porównanie Polski oraz jej południowych sąsiadów pozwolić ma również na dostrzeżenie przemian, które zachodzą i mogą pozwolić na lepszy postęp w tej dziedzinie.

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ALEKSANDRA LECH[*]

Research and Development Expenditures of Innovative Enterprises in the Time of Crisis

Abstract

The paper presents the reaction of companies that have been making the largest outlays on R&D in a global scale to the current economic crisis. The analysis paid special attention to what extent R&D investments had been affected in comparison with net sales and profits and how R&D investments were affected across industries and regions.

The analysed enterprises reduced their net sales and profits to a greater extent than outlays on research and development, which confirms an anti-cyclical character of R&D activity in leading innovative enterprises. It has to be noted that in an analysed sample some companies significantly decreased outlays on R&D, however, there were some that increased these outlays in spite of worsening economic performance.

Among investigated sectors the one that proved to be the most crisis-resistant was the pharmaceuticals & biotechnology sector - classified as high technology, whereas the most crisis-prone one was the automotive sector.

Nonetheless, the thesis that high tech industries are more crisis-resistant cannot be substantiated – outlays on research and development in the following sectors: computer production, office equipment, semiconductors, telecommunications equipment (technology hardware & equipment) - classified as high technology in 2009 were reduced in relation to year 2008.

In an analysed group of enterprises the smallest "resistance" to crisis was observed in American companies. The enterprises from the EU also reduced

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research and development expenditures but the pace of a fall in these expenditures was smaller than in the case of American companies.

1. Introduction

The reduction of research and development expenditures can be a corporate reaction to an economic crisis - in case of business entities it is referred to as a "cyclical" one. The anti-cyclical character of R&D activities, however, means that in the time of crisis enterprises increase investments in research and development, thanks to which they can improve their competitive position in the market, even during the time of economic slowdown.

The aim of this paper is to examine the impact of crisis (2008-2009) on R&D activity of leading innovative enterprises. The analysis pays special attention to what extent R&D investments were affected in comparison with net sales and profits and how R&D investments were affected across industries and regions.

The introduction to the analysis is the presentation of various research and development strategies undertaken by enterprises as a reaction to an economic crisis. Later on, the changes of R&D expenditure in leading innovative companies in the period between 2008-2009 have been examined [enterprise ranking based on European Commission (2010), *The 2010 EU Industrial R&D Investment Scoreboard*, Luxemburg]. The cited report presents a group of leading innovative enterprises i.e. those whose R&D budget in 2009 exceeded the annual level of 28 million Euros. The criterion was met by 1400 companies (400 from the EU, 1000 from outside the EU).

2. Corporate Research and Development Strategies in the Time of Economic Crisis

The assessment of the impact of economic crisis on the dynamism of corporate research and development investment has evoked a lot of controversy in the economic literature.

Research and development activity is treated similarly to other functional segments (activities) of enterprises which take part in the process of creating value, i.e. value chain (Rymarczyk 2004, pp. 90–91). Thus companies can

decrease R&D expenditures in order to reduce costs, which defines this activity as cyclical in the time of crisis. As M. Cincera, C. Cozza, A. Tuebke, P. Voigt claim: „Implementation of new ideas can be postponed by enterprises to the times of economic recovery" (Cincera, Cozza, Tuebke, Voigt 2010, p. 3).

The factor that notably limits research and development expenditure is a difficult access to external sources of financing in the conditions of financial crisis. Enterprises that suffer from a fall of demand for their products and lower profits simultaneously lose the ability to apply for credit to finance R&D activities. Moreover, the reluctance of banks to lend their financial surpluses to other financial institutions limits their lending. In the economic literature it is emphasized that R&D expenditure has a "cyclical" character in case of enterprises facing credit crunch (Aghion, Askenazy, Berman, Cette, Eymard 2008, p. 2).

S. Martin, P. Valbonesi (Galli, Pelkmans 2000, p. 191) draw attention to a high level of risk accompanying R&D activity, which results in "underinvestment" in research and development in market system. A company that invents a new technology tries to protect it as long as possible from being publicized and used by other producers in order to benefit from their innovativeness for a long time (Górniewicz, Siemiątkowski 2006, p. 120). The process of using the knowledge by followers who do not incur expenditure on R&D activity but take advantage of results of other enterprises is inevitable. The fact that the knowledge is used by imitators diminishes the profits of innovators. The conflict between the public character of knowledge and profits made by innovator-enterprise is defined as a problem of appropriation. The risk of appropriating innovator's profits undoubtedly discourages research and development activities. In the time of crisis projects like that are highly adventurous (as it was already stated all R&D activities are) and often are "suspended", which supports treating R&D expenditures as cyclical.

However, reducing R&D expenditures can in future imply losing a competitive fight with companies that in the time of crisis did not decide to decrease this type of investments (Cincera, Cozza, Tuebke, Voight 2010, p. 4).

Describing research and development activity as a key factor of competitive advantage is a starting point for further analysis of anti-cyclical character of research and development expenditures. Thanks to increased expenditures on R&D companies not only improve their competitive position in a short time but they also gain a long-term competitive ability.

The negative impact of crisis on a company profitability can force it to undertake some actions stimulating growth of productivity (Voight, Moncada-

Paterno-Castello 2009, p. 5). So-called models of research and development activities (referred to as endogenous models of economic growth) by means of production functions enable to analyse the impact of R&D activity on productivity[1]. The characteristics of these theories, contrary to traditional endogenous growth models, is the occurrence of R&D sector (as a separate sector of economy) as well as modelling of technologies. The research proves that company innovation, described as their ability to adapt new solutions is a very important determinant of productivity growth (Bogliacino, Pianta 2009, p. 3).

According to the J.Schumpeter's concept of "creative destruction" crisis brings new opportunities for an enterprise including reorganization and increase of advancement level of R&D activity (Burzyński 2010, p. 42). A disappearing profitability rate forces business entities to implement new techniques of production. Companies that will not implement a proper reorganization of research and development activity as a reaction to crisis can be susceptible to bankruptcy.

Strategic and long-term character of research and development investments results in their "resistance" to crisis. Financial constraints being the effect of crisis to a greater extent influence decisions concerning the launch of new research and development projects (crisis can result in the abandonment of new research and development ventures), whereas the projects in the course of realization are influenced to a lesser extent. The abandonment of already commenced projects, advanced in the course of implementation generates so-called "sunk" costs (Cincera, op. cit., p. 3).

It must be stressed that an enterprise reaction to crisis to a great extent depends on the specificity of a given sector/branch. Enterprises belonging to high-tech industries find themselves in a better economic position than enterprises from other sectors (Leadbeater, Meadway 2008, p. 12). A. Stephen observes that enterprises from high-tech industries are more resistant to a business cycle than those belonging to sectors defined as medium-low-tech industries, so the reaction of the first group of enterprises to crisis can be described as anti-cyclical (Stephan 2004).

A crucial factor that determines the change of research and development expenditures as a reaction to crisis is also the size of a company characterized by the level of employment or annual turnover. Large enterprises i.e. those who

[1] More on so-called R&D models see Nowak (2007, s. 283).

possess relatively big budgets for research and development projects are more resistant to crisis than small and medium-sized enterprises. A pro-cyclical character of R&D expenditures in SME's sector is described by M. Cincera, C. Cozza, A. Tuebke, P. Voigt (Cincera M., Cozza C, Tuebke A., Voigt P. p. 5).

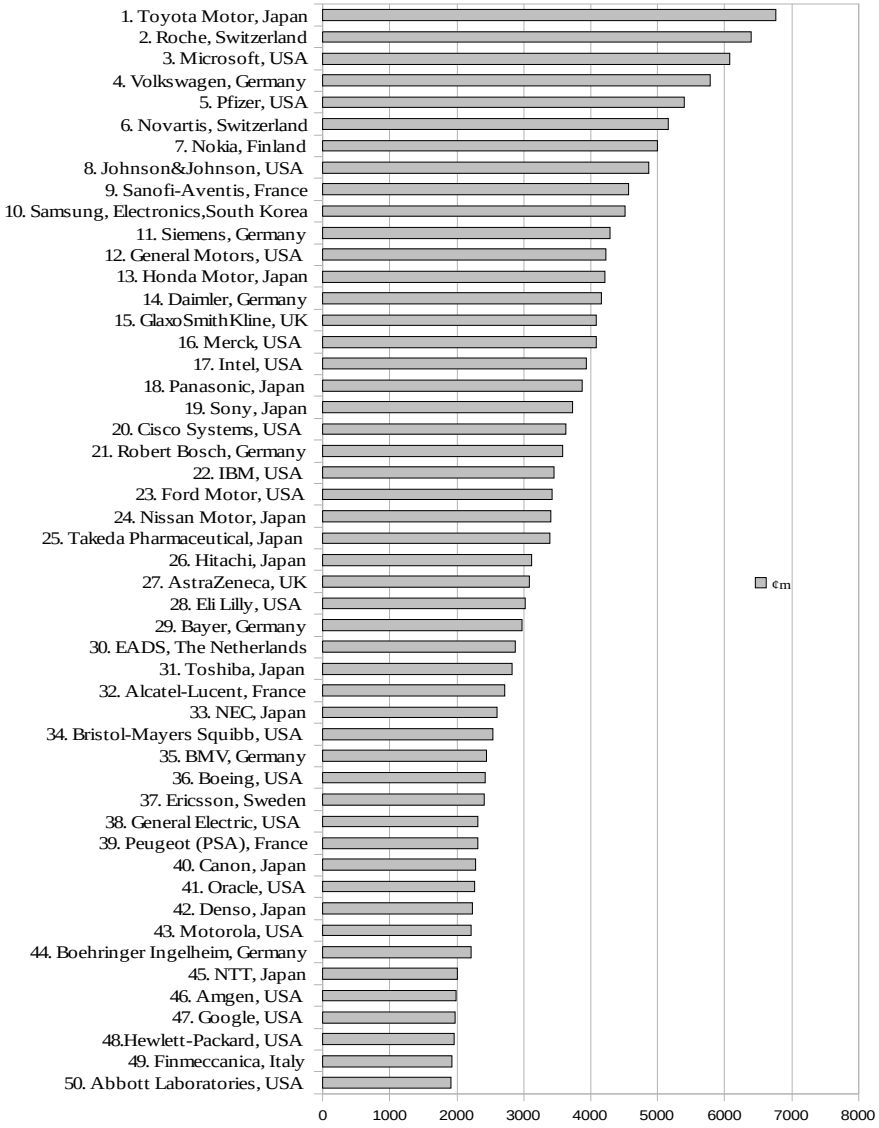
3. Changes in research and development expenditures of innovative enterprises as a reaction to crisis – overall analysis

1400 leading innovative enterprises allocated 402,2 bn Euros to research and development in 2009, which was only 1.9% less than in the previous year[2]. The crisis to a great extent reduced net sales (by 10.1 %) as well as profits (by 21%) of analysed companies, which may imply that investments in research and development are relatively resistant to recession. It is also confirmed by priority meaning of research and development activity for enterprises that incur the biggest expenditures on R&D on a global scale.

The global leader of R&D expenditures is still a Japanese company, Toyota (compare graph 1) although in 2009 the company reduced R&D expenditures in relation to year 2008 by 5.7% (compare Tab.1). Toyota kept its number 1 position in the ranking in spite of a significant decrease of net sales value and operating profit (European Commission 2010, p. 23).

[2] Analysis of research and development activity of innovative enterprises on the basis of the European Commission (The 2010), *EU Industrial R&D Investment Scoreboard*, Luxemburg. Group of 1400 leading innovative enterprises (400 from the EU, 1400 from outside the EU) consists of enterprises whose budgets for R&D exceed annually 28 m Euros.

Figure 1. Ranking of the world's top 50 R&D companies by their total R&D investment



Source: European Commission (2010).

Table 1. Characterization of the world's top 50 R&D companies (2009)

Compan	R&D Investment (change 09/08, %)	R&D/Net Sales ratio (2009, %)	Operating Profit (% of Net Sales, 2009)
1. Toyota Motor	-5,7	4,4	-3,2
2. Roche	9,4	19,4	25
3. Microsoft	-3,3	13,9	38,6
4. Volkswagen	-2,3	5,7	2,4
5. Pfizer	-2,4	15,5	21,3
6. Novartis	2,5	16,7	23,2
7. Nokia	-6,1	12,2	2,8
8. Johnson&Johnson	7,8	11,3	26
9.Sanofi-Aventis	0,3	15,3	24,6
10. Samsung Electronics	8	5,4	9,3
11. Siemens	1,9	5,6	4,9
12. General Motors	-24,1	5,3	-7,7
13. Honda Motor	-4,2	5,6	1,4
14. Daimler	-6,2	5,3	-0,3
15. GlaxoSmithKline	9,5	12,8	26,8
16. Merck	21,6	21,3	56,6
17. Intel	-1,2	16,1	15,6
18. Panasonic	-6,6	6,7	-5
19. Sony	-4,5	6,5	-3
20. Cisco Systems	1,1	14,4	19,9
21. Robert Bosch	-8,6	9,4	-3
22. IBM	-9,9	5,2	19,1
23. Ford Motor	-32,9	4,1	2,6
24. Nissan Motor	-0,4	5,4	-3,1
25.Takeda Pharmaceutical	64,3	29,5	20,3

26. Hitachi	-2,7	4,2	-1,8
27. AstraZeneca	-12	13,5	34,6
28, Eli Lilly	12,6	19,8	25,3
29. Bayer	8,8	9,5	9
30 EADS	4,4	6,7	-1,1
31. Toshiba	-3,8	5,7	-5
32. Alcatel-Lucent	-14,3	17,9	-5,8
33. NEC	-1,6	8,2	-6,3
34. Bristol-Mayers	1,7	16,9	29,8
35.BMV	-14,5	5,1	0,5
36. Boeing	0,9	5,1	3,1
37. Ericsson	-12,1	11,9	2,4
38. General Electric	10,1	2,1	18
39. Peugeot	-2,4	4,8	-2,8
40. Canon	-18,6	9,5	7
41. Oracle	17,6	12,1	33,6
42. Denso	-4,6	9,5	-2,5
43. Motorola	-22,5	14,4	-0,2
44. Boehringer Ingelheim	5	17,4	17,7
45. NTT	-1,1	2,6	10,9
46. Amgen	-5,5	19,6	37,6
47. Google	1,8	12	35,2
48. Hewlett-Packard	-20,4	2,5	8,8
49. Finmeccanica	9,9	11,7	7
50.Abbott Laboratories	2	8,9	24,7

Source: European Commission (2010).

Research and development activity remains strongly concentrated in enterprises that earmark a lot of money for R&D expenditures (10 leading innovative enterprises accounted for 13.6% of total expenditures on R&D among 1400 analysed companies).

In the group of 50 companies with the biggest R&D expenditures 30 enterprises reduced their investment in this activity (among which 15 companies by more than 5%). In the following companies a double-digit reduction of R&D expenditures was noted: Ford Motor (by 32.9%), General Motor (24.1%), Motorola (2.5%), Hewlett-Packard (20.4%), Canon (18.6%), BMW (14.5%), Alcatel-Lucent (14.3%), Ericsson (12.1) and AstraZeneca (12%). Among remaining 20 companies that noted the rise of R&D expenditures 9 enterprises increased this investment by more than 5%. Double-digit rise of research and development expenditures was observed in the following companies: Takeda Pharmaceuticals (64.3%), Merck (21.6%), Oracle (17.6%), Eli Lilly (12.6) and General Electric (10.1%).

In the whole group of enterprises increasing R&D expenditures we can find not only companies achieving good financial results (i.e. net sales or operating profit value) such as Huawei Technologies (increase of R&D expenditures by 27.8%), Apple (25.4%), Oracle (17.6%), but also companies experiencing a significant decrease of sales and profits: Bayer (8.8%,) General Electric (10.1%) or Daiichi Sankyo (12.9%). In the case of the latter company the decrease of profits in 2010 in relation to year 2009 amounted to 294% [European Commission (2010)].

4. Reaction of innovative companies to crisis – sectoral aspects

Research and development expenditures in the group of analysed enterprises are characterised by strong concentration in the cross section of economic sectors. Three among sectors of so-called ICB - Industry Classification Benchmark: Pharmaceuticals & Biotechnology, Technology Hardware & Equipment, Automobiles&Parts in 2009 accounted for 51.7% of total investments in R&D among 1400 innovative enterprises, whereas 15 leading innovative sectors accounted for 92% of total investments in R&D. In this paper the notion: innovative sectors is used to describe the sectors in which we find enterprises with the biggest share of total R&D expenditures of 1400 analysed enterprises.

Among 50 companies with particularly high R&D expenditures in 2009 35 enterprises belonged to three sectors: Pharmaceuticals & Biotechnology, Automobiles & Parts and Technology Hardware & Equipment (compare tab. 2), which confirms a strong concentration of research and development expenditures in cross-section of economic sectors.

Table 2. Leading innovative enterprises (50) by economic sectors

Sector	Total
Pharmaceuticals&Biotechnology	14
Automobiles&parts	11
Technology Hardware&Equipment	10
Software&Computer Services	4
Aerospace&defence	4
Leisure goods	3
Electronic&Electrical Equipment	2
Chemicals	1
Industrial Engineering	1

Source: European Commission (2010).

The best results in the field of R&D expenditures were achieved by Pharmaceuticals & Biotechnology sector and it was placed in No 1 position in the ranking of the most innovative sectors. R&D expenditures in this sector accounted for 19% of R&D investments observed in 1400 leading innovative enterprises. Research and development expenditures in Pharmaceuticals & Biotechnology sector in the group of analysed enterprises rose in relation to the previous year by 5.3% (compare tab. 3). Simultaneously, it is one of very few sectors that managed to increase net sales in the time of crisis (by 6.4% in relation to year 2008)[3]. To a great extent the strengthening of research and development ability was achieved by processes of economic concentration[4]. Pharmaceuticals&Biotechnology sector is also the sector characterised by the biggest intensity of research and development expenditures in 2009 (i.e. the relation of research and development expenditures to net sales).

No 2 position in the ranking of the most innovative sectors was occupied by Technology Hardware&Equipment sector which in 2009 accounted for 17.2% of total investments in R&D of 1400 innovative enterprises. However, this sector turned out to be little resistant to crisis – research and development expenditures of this sector in the group of analysed enterprises fell in relation to the previous year by 6.4%.

[3] European Commission (2010).

[4] p. Roche acquired Genentch, Pfizer acquired Wyeth, Sanofi-Aventis acquired Zentiva [IMMA (2009), *Mergers and Acquisitions Report*].

Automobiles & Parts sector proved to be even less resistant to crisis. Even though it is still one of the most innovative sectors (in the ranking of leading innovative sectors it held no 3 position in 2009 and accounted for 15.6% of total investments in R&D in analysed enterprises), it was this very sector in which the biggest decrease in R&D expenditures (by 11.6%) was observed.

Automotive industry that belongs to medium-tech industries was one of the first to suffer from an economic crisis in the area of sales, company value and profit. Among 12 global car manufacturers it was only Hyundai Motors that increased research and development expenditures by 2% in 2009.

Table 3. Changes of expenditures in innovative enterprises and the value of R&D intensity index by economic sectors

Sector	**R&D Investment (change 09/08, %)**	**R&D intensity, %**
1. Pharmaceuticals&Biotechnology	5,3	15,9
2. Technology Hardware&Equipment	-6,4	6,6
3. Automobiles&parts	-11,6	4,7
4. Software&Computer Services	-0,1	9,9
5.Electronic&Electrical Equipment	1,1	4,4
6. Chemicals	2,7	3,4
7. Aerospace&defence	-1	3,9
8. Leisure goods	-4,8	6,5
9. Automobiles&parts	-1,8	3,1
10. Industrial Engineering	-1,8	2,6
11. Fixed line telecommunications	1,3	1,7
12. Health care equipment&services	5,1	6,2
13. Oil&gas production	2,6	0,4
14. Food producers	0,8	1,2
All sectors	-1,9	3,5

Source: European Commission (2010).

Some sectors noted an increase of research and development expenditures in spite of a significant fall of net sales (Chemicals, Oil & Gas Production). Research and development expenditures in Chemicals sector in the group of 1400 analysed enterprises increased in relation to the previous year by 2.7% and

Oil & Gas Production by 2.6 % (net sales value fell respectively by 26% and 16.1%). The increase of R&D expenditures in Health care equipment & services sector is also an example of a positive, anti-cyclical reaction to crisis.

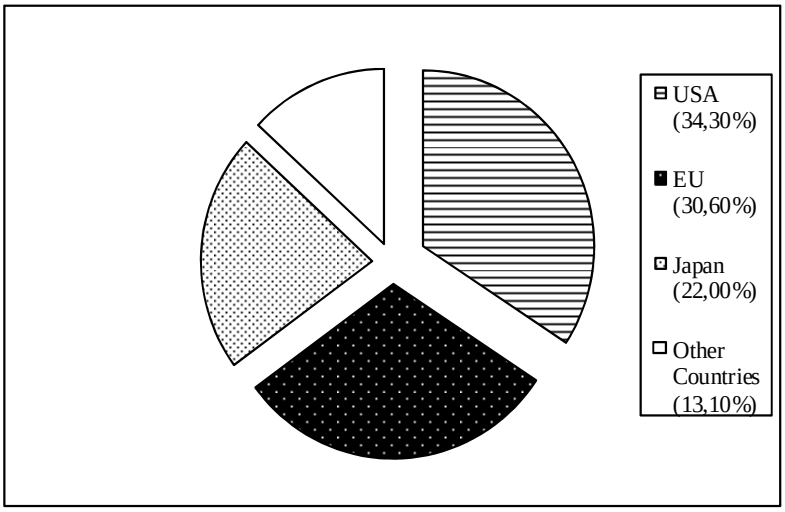
4. Reaction of innovative companies to crisis – geographical aspects

The factor differentiating the changes in research and development strategies of innovative companies in their response to crisis is their geographical location.

1400 enterprises analysed in the cited report which were classified on the basis of their research and development expenditures can be divided on the ground of their geographical location into two group: 400 leading enterprises from the EU, 504 from the USA (27 less than the previous year ranking), 259 from Japan (3 more than in the 2008 ranking) and 237 business entities from other countries (24 more than in the previous year).

In 2009 American enterprises accounted for 34.3% of total investments in R&D among 1400 innovative enterprises, whereas enterprises from the EU for 30.6% (compare graph 2).

Figure 2. Research and development expenditures of leading innovative enterprises by the most important regions of the world in 2009



Source: European Commission (2010).

The share of American companies in total R&D expenditures of 1400 leading innovative enterprises decreased significantly – from 37.7% in 2008 to 34.3%, whereas the share of the EU enterprises increased by 1.7 percentage points. Japanese companies maintained their share in research and development investments in the analysed companies on the same level. However, the enterprises from other parts of the world increased their share in total research and development expenditures of 1400 leading innovative enterprises by 1.9 percentage points.

The companies that turned out to be the least resistant to crisis were the companies from the USA which reduced R&D expenditures by 5.1% in relation to the previous year. The enterprises from the EU that reported a fall in sales similar to American companies but a bigger fall in profits reduced R&D investments by 2.6%. Japanese companies in spite of a significant fall in net sales (by 10%) and a dramatic fall in profits (by 88.2%) managed to maintain research and development expenditures on the same level. However, the companies from other parts of the world increased research and development expenditures by 5.8% despite a fall in sales by 4.8% and a fall in profits by 12.4%.

The companies whose research and development activity proved to be exceptionally resistant to crisis were the enterprises from other Asian countries – innovative companies from this region increased research and development expenditures by 11% and at the same time their net sales rose by 5%. The highest dynamism of research and development expenditures was observed in enterprises from China (40%), India (27.3%), Hong Kong (14.8%), South Korea (9.1%) and Taiwan (3.1%).

Pro-cyclical reaction of Asian enterprises to crisis is also confirmed by the fact that new companies from this region appeared in the ranking of the most innovative companies in the world. As it was already mentioned the ranking from 2009 included also three Japanese companies, six companies from China, four from Taiwan, four from South Korea, two from Hong Kong and two from Singapore.

The crisis has not changed sectoral specialisation of the regions. Enterprises from the USA dominate in sectors producing high-tech goods, whereas companies from the EU in sectors producing medium-low tech goods. 69% of research and development expenditures in American companies in 2009 went to high-tech sectors, and 25% to medium-low-tech sectors. However, "only" 35% of research and development expenditures in the European innovative companies went to high-tech sectors and 48% to medium-high technology sectors.

5. Conclusions

In the economic literature we can find arguments in favour of cyclical as well as anti-cyclical enterprises' reactions to economic crisis.

In the analysed period 1400 leading innovative enterprises reduced to a greater extent net sales and profits than research and development expenditures, which supports an anti-cyclical reaction of innovative companies to crisis. Some companies increased research and development expenditures in spite of worse economic results. However, some analysed companies reduced research and development expenditures, which confirms differentiating a research and development strategy as a reaction to crisis.

The impact of crisis on corporate research and development activity depends on an economy sector. Among analysed companies the most resistant to crisis were the enterprises belonging to Pharmaceuticals & Biotechnology (high-tech sector) and the most susceptible were the enterprises from Automobiles & Parts sector (medium technology). On the other hand reduction in research and development expenditures was noted also in Technology Hardware & Equipment sector that belongs to high technologies. However, the hypothesis that high–tech industries are more resistant to crisis is not supported -in a group of sectors that showed a cyclical reaction to crisis we find both high-tech and medium-tech sectors.

The reaction of innovative companies to crisis was determined also by their geographical location. American companies as well as those from the EU in response to crisis reduced research and development expenditures, whereas Japanese companies maintained them on the unchanged level. Research and development activity in companies from the other geographical regions was definitely anti-cyclical (particularly the Asian companies).

It must be noted, however, that analysed enterprises represent a sector of big enterprises which possess a large budget for research and development, thus their reaction to crisis is different than the reaction of less innovative companies.

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Streszczenie

NAKŁADY NA BADANIA I ROZWÓJ PRZEDSIĘBIORSTW INNOWACYJNYCH W DOBIE KRYZYSU

W opracowaniu zbadano reakcję firm charakteryzujących się największymi nakładami na B+R w skali świata na aktualny kryzys. Celem analizy była odpowiedź na pytanie, jak wrażliwa na kryzys okazała się zmiana nakładów na badania i rozwój przedsiębiorstw innowacyjnych w porównaniu ze zmianami sprzedaży i zysków oraz, w jaki sposób charakter sektora i pochodzenie geograficzne przedsiębiorstw wpływa na zmiany ich nakładów badawczo-rozwojowych.

Analizowane przedsiębiorstwa w większym stopniu ograniczyły sprzedaż netto oraz zyski, niż nakłady na badania i rozwój, co potwierdza względną odporność firm innowacyjnych na kryzys. Co prawda w badanej próbie część przedsiębiorstw znacząco zmniejszyła nakłady na badania i rozwój, jednakże niektóre firmy zanotowały wzrost nakładów na B+R, mimo pogorszenia wyników ekonomicznych.

Wśród badanych sektorów najbardziej odpornym na kryzys okazał się, zaliczany do wysokich technologii, sektor Pharmaceuticals&Biotechnology, natomiast szczególnie podatnym na kryzys sektor Automobiles&parts. Nie znajduje jednak potwierdzenia teza, że przemysły wysokiej techniki są bardziej odporne na kryzys – wydatki na badania i rozwój sektora: Technology Hardware&Equipment (zaliczanego do wysokiej techniki) w 2009 r. zmniejszyły się w stosunku do 2008 r.

W badanej zbiorowości przedsiębiorstw najmniejszą „odporność" na kryzys wykazały firmy amerykańskie. Firmy wywodzące się z UE również zanotowały zmniejszenie nakładów na badania i rozwój, jednak tempo spadku nakładów badawczo-rozwojowych było tu mniejsze niż w przypadku firm amerykańskich.

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Functioning of the Clothing Networks on the Global Markets – Comparative Analysis

Abstract

The globalisation process contributes to shaping of many diverse consequences, among others it causes the internationalization of production, new, global division of work, increase of competitiveness, it builds the branches of a globalising business. From the point of view of economy, the phenomenon of globalisation influences the deepening of a free float of commodities, services, resources, capital, work, and also information between the countries. These factors significantly contribute to many changes that are visible in the operation of the latter-day enterprises (Penc 2003, p. 152). One of the consequences of the globalisation process, which is directly connected with the functioning of companies, is the necessity of building and managing the brand. As a result it creates many possibilities to global companies from the textile-clothing sector that want to achieve a market success. However, in order to achieve it one has to fulfill many, constantly increasing, expectations of the buyers. The realisation of these challenges is possible only with the share of two crucial factors: proper competitiveness and progressive marketing strategies.

In the clothing sector the partnership networks are being created between the economic subject, because such actions are aimed at minimising the risk, as well as to reducing the production and distribution costs. The most often encountered networks in the textile-clothing branch are the franchising networks. The present article concentrates on the competitiveness aspect of the global clothing networks. A comparative analysis of the action of the commercial clothing networks was made, in order to show some features of its operation and proceeding, while focusing on the specified elements of the

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marketing-mix strategy. The obtained results allowed to show the differences and similarities in the used marketing strategies.

1. Introduction

Each enterprise, while starting its market operation, has a defined goal, to which realisation it aims by taking proper endeavours. In the age of progressive globalisation the companies, that want to be successful on the market, should implement to their business model properly selected marketing strategies, based on a number of innovations, in order to broaden their range of operations, and therefore to become more competitive. A constantly increasing competitiveness in the textile-clothing branch contributes significantly also to the increase of enterprises' internationalisation importance. The process of internationalization of operation means a foreign expansion of the companies, directing to the increase of interconnections between the countries and enterprises, which as a result influences the creation of global clothing corporations. An important factor influencing on their development is also a proper creation of brand, which as a result may contribute to strengthening of the company and to the increase of its identification both on the national and international markets.

The present article is aimed at assessing the utilisation of the marketing strategies in the global clothing networks. In order to analyse them thoroughly, the case study method was used, thanks to which the similarities and differences occurring in the business models of respective corporations were identified. The corporations were selected in such way that their operations started in different places in the world in order to show, that regardless of the geographic location those companies can achieve global success by using in their activity very similar marketing strategies.

2. Competitiveness of the companies from the textile-clothing sector

The intensifying effect of competition and of globalisation exerts pressure on the modern enterprise to seek for diverse variants and developments, aiming at improving its activity. The enterprise should be an organisation prone to modifications, constant intensification, choosing diverse, and at the same time proper alternatives, implementing innovative technologies and products, introducing new, effective organisation ideas, management and marketing strategies. It should also be eager to cooperation with the environment, have the

ability to build new values for consumers, effectively utilise in its operation the defects of its competition. In the current realities, those organisations are powerful, which introduce changes to their operation adequately to the needs of the market, and which they accordingly implement, while creating in this way a logical and consistent strategy of operation (Penc 2003, pp. 11-14).

According to the OECD[1], the competitiveness is the ability of companies, region, nations to handle international competition, and also to guarantee high rate of return from the used elements of production and high degree of employment, basing on solid grounds. The increase of competitiveness contributes to the intensification of the world's productivity (Wysokińska 2001, p. 37).

As a result of progressive, international liberalisation of commercial exchange, as well as of the process of countries' integration, the competitiveness of the enterprises in the textile-clothing sectors, both on the internal, and external markets, is growing successively. That is why only companies characterized by a modern approach to management have the possibility for increasing their competitiveness and remaining on the market. The big possibilities of development in the global textile sector can bring the proprietary, unique, high quality products from the fashion industry, innovative, multifunctional, with new utilitarian properties products of a 'high-tech' type and the 'intelligent' textiles. The main goal of this type of activity is the introduction to the global markets of completely dissimilar, so far unseen products, made of new textile raw materials, with the utilisation of innovative techniques and technologies of production. An example of such product can be the products characterized by properly selected barrier or protective parameters, having at the same time high hygienic and bioactive properties, and also good comfort of use. An example of developmental, 'intelligent' textiles can be the products protecting against water permeation, harmful UV radiation, bacteria and geononwovens (Lachiewicz 2006, pp. 14-16).

In order to increase the enterprise's chances in achieving the competitive advantage on the textile-clothing market, the companies should take the following actions: introduction of logistic modifications aimed at reducing the labour costs, as a result of which an increase of productivity occurs; intensification of economic infrastructure; increase of financial investments in the innovative operation; create information networks containing important information in the range of the economic operation done by the company.

In the analysed sector the biggest difficulties with achieving the competitive advantage have the clothing companies, mainly because of their

[1] OECD - Organizacja Współpracy Gospodarczej i Rozwoju.

number on the market. Depending on the proposed assortment, quality, prices and other criteria, one can identify many groups of brands that want to reach the same group of clients, which is presented in Table 1.

Table 1. Examples of competing clothing companies

Clothing company	Competitor
Hennes & Mauritz	Reserved, House, Cropp Town, C&A
Versace	Armani, Lacoste, Dior
Hexeline	Deni Cler, Molton, Solar, Monnari
Adidas	Puma, Nike, Reebok
Smyk	5.10.15, Re-kids, Naturino

Source: Own compilation.

Summarising, the competitiveness of companies in textile-clothing sector is strictly connected with the possibilities of commercial exchange, new markets, fashion, modern designing and innovative information and communication technologies. In order to improve the position of the textile branch the modernisation of the used techniques and technologies should be introduced, as well as the automatisation of the processes of controlling the machine park and of the production lines, the restructuring of this sector, and special attention should be given to the ecological quality of the products of the textile-clothing market. Another important aspect, that have an influence on achieving the competitive advantage by a company, is the delivery in the shortest possible time to the global market of innovative products or a proper marketing theory (Wysokińska 2010, pp. 287-295).

The recent years show that the international competitiveness of Polish enterprises improved. It means that the attractiveness of Polish companies increases gradually, however the Polish companies must still introduce many changes in their operations, both connected with implementing to the production of many innovations, and also with the change of approach to managing, so constantly seek opportunities to internationalise the company, and also base their strategy on building a known brand (Rymarczyk 2010, p. 288).

3. Polish clothing networks

In the Polish economy, unfortunately, there are little companies with international rank, so in other words the so-called transnational corporations. Analysing the textile-clothing market in these terms one can state with full

responsibility that in Poland there is none prestigious brand with the global reach. However, there exists a certain group of textile-clothing companies, which undertake actions thanks to which their share in the global trade increases. Examples of such Polish textile-clothing trading networks are: Pawo, Pabia, LPP, Redan, Big Star, Hexeline, Carry, Reporter, Monnari, Wólczanka, Artman. Until recently these were the foreign companies that opened successively in our country their direct mercantile agencies, but at the end of the 20th century the Polish enterprises strengthened their position on the market in such effective way that they started to think about development of their networks not only at the national, but also the international scale (Rymarczyk 2010, p. 437).

Currently the companies from Polish textile-clothing sector engage in the next stadium of market functioning, in which the core of operation becomes proper adjusting to the requirements of constantly changing environment, increasing the competitive advantage, and also identification and satisfying of the still increasing needs of potential clients. Making a proper selection of solutions and management strategies, as well as recognising and proper utilisation of the opportunities from the environment, giving the possibility of pro-innovative operation, investment development and intensification of the competitive position, become a certain form of challenge for the people who manage Polish textile-clothing companies.

In order to achieve success by the companies from this sector in a faster and more effective way, they should make beneficial agreements with the suppliers, customers, social organizations, state authorities, and also foreign partners. A strength of making networks is a significant increase of companies' competitiveness in the clothing sector, and mutual connection of competencies and abilities can lead to development of innovative technologies, which in result leads to manufacturing modern, unique products, and also to maintaining high quality of production. The significant advantages of this type of activity is also improvement of companies image, as well as offering to the clients of the so-called added value, for example in the form of products with ecological or ethical properties (Lachiewicz 2006, p. 85).

In the clothing sector the partnership networks are being created between the economic subjects, because such actions are aimed at minimising the risk, as well as reducing the production and distribution costs. The most often encountered networks in the textile-clothing branch are the franchising networks, within which a long-term relationship between the organisations is created, within the scope of which the parent company, called as the franchiser, allows the second company, called the franchisee, to function in an agreed way, during the specific time and in a specific place. At this type of connections between companies all of the commercial points of an enterprise must have the

same visualisation, assortment, exhibition of commodities, and also norms concerning the customer service. The franchising network is currently very popular and advantageous form of organising trade and services. The companies from the clothing sector that wish to achieve global success must undertake many actions which will lead to expansion of the network of branded stores, strengthening its brand in the sector, achieving faster penetration of the market and increasing the possibilities of expansion to the foreign markets. The table below presents the strengths and weaknesses, and opportunities and threats of a franchising agreement.

Table 2. SWOT analysis of a franchisee

Strengths	**Weaknesses**
Strengthening of a companies' position on the market, Brand awareness, Homogeneous norm of the proposed products and services, Extended time of operating at the market, Constant circle of buyers, Uniting the offer and methods of service, Appropriate atmosphere of shopping in the clothing stores,	Lack of precise determination of the product-service offer and of the image of franchising structure, Insufficient knowledge of the franchiser about the franchisees, Insufficient abilities of the franchisees, Poor ability of enlistment and cooperation with the franchisees, Dishonesty of the franchisees,
Opportunities	**Threats**
Social changes, Increase of the purchasing power, Development of SMEs – of entrepreneurship, of innovative technologies, products, Developments of logistics and of cooperation with the suppliers, Diversification and improving of the quality of products and services,	• Capital recession, • Decrease of the purchasing power, • Intensification of global competition, Changes in the likes of consumers, concerns about the risk of investments in innovative operations.

Source: Own compilation on the basis of: Ziółkowska M.J., Franczyza, nowoczesny model rozwoju biznesu", Wydawca CeDeWu, Warszawa 2010, p. 200.

The presented SWOT analysis shows that the franchising agreements bring advantages both for the franchisers and the franchisees. The connections of this type introduce to the operation of companies effective resources for strategies and to its further development. The operation of the textile-clothing companies based on franchising ties influences their development, increases competitiveness, and also contributes to intensification of their share in the global clothing sector.

The multilateral network connections between the partners create many possibilities of effective and fast responding to many changes taking place in the environment, which is connected with efficient coordination, and also with connecting all of the companies' actions included in the networks of the economic subjects (Olczak 2008, p. 71). Thereunder, in order to reach higher share of Polish textile-clothing companies on the global market, they should undertake actions leading to intensification of the network connections. One of such actions is starting of the cooperation with the territorial-branch clusters gathering different types of organisations and companies.

This type of federations should influence the creation and active development of, among others, the training-consulting facilities, entrepreneurship centres and the flow of production and cloth technologies, or the technological-industrial parks. The above undertakings are meant to contribute the successive exchange of experiences, abilities and competencies, in particular during introducing and realising the innovative processes. Such actions create better changes of achieving global market success (Olczak 2008, p. 121).

4. Global clothing brands on the Polish market

Currently on the global market there exist many companies, representing different clothing brands. They can be assigned respectively to the groups of marketing profiles of the companies.

A detailed brands' classification with respect to the global clothing brands was presented by A. Olczak in his publication, while isolating five principal strategic marketing profiles of the companies of positioning the clothing brand on the national market. The following types of brands belong to this group:

- „no name",
- „pseudo-brand",
- „popular",
- „expensive and fashionable",
- „exclusive" (Olczak 2008, pp. 93-98).

The particular types of brands are characterized in detail in table 3, while assigning to each of them the companies from the analysed market. Each of these five groups has different criteria of classification, is characterized by different parameters, providing for the type, quality, price of the products, type of the used promotional activities, selling and distribution systems, chosen brand strategies, competition, segmentation or the market position.

Table 3. Marketing profiles of the clothing companies

Type of brand	Description	Brand example
1. „no name”	• Small companies, • Offered cheap clothes with low quality, for buyers with low incomes, • No marketing actions, • Competing strategy – low price of products, • Market positioning strategy – fabricators	**Cute Well,** **C-Matteo,** **Meina,** **Mirage,**
2.„pseudo-brand”	• Small companies, • Clothes with medium-low prices and of adequate quality, offered to consumers with medium-low incomes, • Promotions of sale and sales, • Competing strategy – low price, • Market positioning strategy – imitators	**Smith's,** **Sogoss,** **Single**
3. „popular” brand	• Dynamically developing companies, • Medium price, medium and higher quality, offered to buyers with medium incomes, • Intensive campaigns, promotions, press advertising, • Competing strategy – acquisition strategy and quality-price strategy, • Market positioning strategy – imitators, developers, market leaders	**Carry,** **Cotton Club,** **Diverse,** **C & A,** **H & M,** **Wólczanka**
4. „expensive and fashionable branded clothes”	• High price, high quality, offered to clients with high incomes, • Sales' promotions, advertising in magazines, • Competing strategy – creation of fashion and building prestige of a brand, • Market positioning strategy – market leaders, innovators	**Deni Cler,** **Hexeline,** **Diesel,** **Molton,** **Solar**

5. „exclusive brand”	• Very high price and quality of products, • Offered to clients with high and very high incomes, • International exhibitions, fairs, fashion shows, advertising campaigns in magazines, commercial promotions • Competing strategy – creating long-term, original trends in fashion, • Market positioning strategy– specialists, innovators	**Versace,** **Hugo Boss,** **Louis Vuitton,** **Chanel,** **Armani,** **Dolce Gabbana**

Source: own compilation on the basis of Olczak A.”Strategie marketingowe polskich przedsiębiorstw odzieżowych w pespektywie Rynku Unii Europejskie., p. 93-98.

The process of brand building is very time consuming and should be constantly monitored and controlled, because lack of continuity of strategy by performing promotional-informational actions will result in a loss of image.

Such clothing companies as Próchnik or Bytom experienced it. The cause of decrease of interest of these brands was their passiveness and lack of implementing to their actions of proper strategies (Olczak 2008, p. 91).

On the market there are many companies, which often are not aware of the possessed potential in a form of a brand, because of which they cannot utilize it in a properly effective way. Lack of market-driven orientation, direct contacts with the market, and also efficient distribution channels causes that their presence on the market is imperceptible. Such situation influences the development of a given company in an unfavourable way, but the change of management style by implementing the brand strategy will become a key element of a proper creation and functioning of an organisation (Wysokińska 2005, p. 301). One of the examples of companies which in a proper way used the brand strategy is a Polish company LPP, having in its investment portfolio the Reserved brand, which is leading on the Polish market, which business models and marketing strategy became shining examples for other national companies from this branch.

5. Operational strategies of the LPP S.A., Benetton S.A., GAP Inc. companies

A constantly deepening phenomenon of globalisation has a significant influence in the intensification of competitiveness in the textile-clothing branch.

In order to achieve a market success by a company, it should show tendencies to wide cooperation with the environment, building new values for the clients, seeking favourable contacts, widening the connections' networks with the environment. Considering the above mentioned, currently the increasing tendency in creating connections between international economic subjects is visible, so in the internationalisation of the companies, thanks to which the company becomes a transnational enterprise.

These types of business models are used by many companies, regardless of their geographical location. The analysis of clothing corporations presented below shows that regardless of the location of the beginning of operation (LPP – Poland, Benetton – Italy, Gap – USA), the management strategy can be very similar. The comparison of companies' business models is presented in Table 4.

Table 4. Comparison of the business models – marketing strategies of the LPP, Benetton, Gap companies

Strategy	LPP	Benetton	Gap
Product brands	- 6 brands, - lines for females, males, teenagers	- 4 brands, - lines for females, males, teenagers, children, and sports line	- 5 brands, - lines for females, males, teenagers, children, infants
	- assortment: clothes and accessories, casual, sports and elegant styles		
Promotion	- current controlling of clothing style and changes in fashion among the target group, - producing short series and sewing the collections in advance	- current dyeing of the sewn clothes instead of dying of the material – fast change of colour, - own production	-regular supplies of products two times a week
	- monitoring of the production, outsourcing,		
Distribution	- supplying the stores with small series of clothes – 2 times a week	- monitoring of logistics, - fast deliveries, instant adaptation to the current requirements of consumers	- online shop,
	- extension of own and franchised networks, monitoring of distribution, direct sales and wholesales		

Quality and price	- strategy of medium value – medium quality, medium price	-high quality strategy – high quality, medium-high price	- high quality strategy – high quality, medium price
Promotion	- utilization of famous people images, - advertisements containing provocative pictures	- possession of a communication centre enabling fast flow of information, - lack of the brand's ambassador, - aggressive and intensive promotion in the form of advertisement	- gift cards, catalogues, magazines, - TV advertisements, bilboards – a new brand's ambassador each season
	TV advertising, billboards, magazines, gift cards		
Franchising	- partnership model – the franchisee builds a store, does not bother with buying the commodities, - complete control of the commodities' flow by the franchiser	- the franchisee is responsible for building and equipping the store and for the flow of commodities flow by the franchiser,	- the franchisee is responsible for building and equipping the store and for the flow of commodities

Source: own compilation.

The table above presents a generalised description of marketing-mix strategies, which are used by LPP, Benetton and Gap corporations in their operation. On this basis one can determine both similarities and differences in the business models presented by them. While analysing the marketing strategies of the particular companies one cannot expressly show even two companies utilising in their operations identical strategic alliances. One can distinguish the following common features of the above three corporations: similar type of offered assortment and accessories, style, complete or partial outsourcing, monitoring of production and distribution, regular and frequent supplies of products to the stores, extension of the network of own and franchised stores, direct sales and wholesales, and TV advertising. Each of the companies has, however, in its business portfolio aspect different from the other companies.

The LPP company in its operation uses medium value strategy, while offering to the consumers products with medium quality and price, and while using in the franchising agreement the partnership model, and exercising by this a complete control over the flow of products.

The Benetton company implements to its collections the kids' line, has its own production, its strength are very quick supplies, adequate to the customers'

likings. Moreover, the company also introduces to its business model a strategy of high quality, by offering to its clients products with good grades and higher price. It uses an aggressive, even controversial type of promotional strategy, while not using the images of famous people.

The marketing strategy of a Gap company differs from the remaining two corporations in a way that it does have in its offer the assortment for infants, as the only one offers the possibility of online shopping, and in the promotional strategy it uses the images of a wide group of popular representatives of the show-business.

To sum up, the above analysis of companies shows that the process of internationalisation of companies plays a very significant role in an effective development and operation of enterprises that want to become global corporations. Each of the companies described above is an excellent example of the fact that the properly selected and successively realised marketing strategy leads to the intensification of the field of companies' operation, as a result of which it transforms into a global clothing corporation achieving global market success.

6. Conclusions

Based on the performed in the present work analysis, it was shown that a strong brand is not only a driving force of innovativeness, but also a potential resource of possibilities connected with operation on the global markets, because just in the particular branches the products and companies referred to as the proprietary, has currently the highest chances for achieving the market success. The art of achieving market success is fundamentally an art of building and creating the brand. A product that does not have an appropriate brand becomes only a mass product, for which the demand is determined only on the basis of its price.

The companies that want to achieve the market success should keep up with the needs of clients, constantly introduce innovations to the market, developed products, while employing the efficient distribution channels. Moreover, they should dinamically react to the consumers' needs, utilise the pricing strategy adequate to the quality of the offered product with the use of effective forms of promotion.

The performed analysis showed that a properly selected marketing strategy and the internationalisation of a company become an effective tool in achieving market success.

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Streszczenie

FUNKCJONOWANIA SIECI ODZIEŻOWYCH NA RYNKACH GLOBALNYCH – ANALIZA PORÓWNAWCZA

Proces globalizacji przyczynia się do kształtowania wielu różnorodnych następstw, między innymi powoduje internacjonalizację produkcji, nowy, globalny podział pracy, wzrost konkurencyjności, buduje oddziały globalizującego się biznesu. Z punktu widzenia ekonomii, zjawisko globalizacji wpływa na pogłębianie się wolnego przepływu towarów, usług, zasobów, kapitału, pracy, a także informacji pomiędzy krajami. Czynniki te znacząco przyczyniają się do licznych zmian widocznych w działalności dzisiejszych przedsiębiorstw. Jednym z następstw procesu globalizacji, bezpośrednio

związanych z funkcjonowaniem przedsiębiorstw jest konieczność budowania i zarządzania marką. W konsekwencji kreuje to liczne możliwości dla globalnych przedsiębiorstw sektora tekstylno – odzieżowego, chcących osiągnąć sukces rynkowy. Jednak aby to uzyskać należy sprostać licznym, ciągle wzrastającym oczekiwaniom nabywców. Realizacja tych wyzwań jest jedynie możliwa przy udziale dwóch decydujących czynników: odpowiedniej konkurencyjności oraz progresywnych strategii marketingowych.

W sektorze odzieżowym dochodzi do tworzenia się sieci partnerskich pomiędzy podmiotami gospodarczymi, bowiem działania takie mają na celu zmierzać do minimalizacji ryzyka, jak również do zmniejszenia kosztów produkcji oraz dystrybucji. Najczęściej spotykanymi sieciami w branży tekstylno – odzieżowej są sieci franchisingowe.

W niniejszym artykule skoncentrowano się na aspekcie konkurencyjności globalnych sieci odzieżowych. Dokonano analizy porównawczej działania odzieżowych sieci handlowych, w celu ukazania pewnych cech jego działalności i postępowania skupiając się na określonych elementach strategii marketing-mix. Uzyskane wyniki pozwoliły na pokazanie różnic i podobieństw w stosowanych strategiach marketingowych.

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Conditions of the Development of Logistic Centers in Poland in the Context of European States` Experiences

Abstract

Development and exploitation of logistic centers in Poland depends on many conditions. The most important ones are: localization, structural-organizational, economical and legal conditions.

The author makes a synthetic analysis of these conditions in the context of experiences of Western Europe states in this field. He gives the examples of solutions that function in high-profile countries, such as: Germany, Italy, Holland, Austria, France, England. The author pays attention to an important problem of the state`s engagement in development of logistic centers in Poland.

The article is, for the most part, the aftermath of his own examinations carried out in years 2007-2010 and concerning logistic centers development conditioning.

1. Introduction

The basic problems with formation and development of logistic centers in Poland are still in an open phase of solution-considering the situation in countries of Western Europe. Taking under consideration the fact that investors in Poland are going to make investment decisions concerning the construction of logistic centers –it is essential **to describe macroeconomic conditions of construction and exploitation of logistic centers**.

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It is necessary to consider these conditions from the point of view of security of interests of main decision makers of the construction of the logistic center, it means authorities representing interests of local communities, investors and buyers of logistic services. They are of multiple character.

European logistic centers have been shaped for many years. At the beginning the sources of initiative of the construction of logistic centers were different and undertaken actions did not prejudge the fact whether a logistic center or another object would be built. They were concentrated on solving local problems of economical development or realization of plans of shaping of the space order by concentration economical activity in portioned out areas of the city agglomeration. As a result of this long-distance politics of local authorities and the state administration, often, after many years since first decisions, conditions for the construction of logistic centers appeared (Fechner 2005).

Centers of logistic services in Western Europe-as earlier planned investments-were built in the 80-ties and the 90-ties of the XXth century. However earlier we could observe the formation of districts, bases and storehouse zones. The Creation of logistic centers was caused by the fact, that **construction of such objects made possible the influence on harmonious economical development of regions and mitigation of transportation problems** resulting from domination of the car in goods transportation. The construction of logistic objects was supported by governments of European countries and their involvement became a form of programmes supporting development of such objects. The pioneers and leaders in the field of organization of this type of logistic ventures are: Germany, Italy, France, Great Britain.

In the context of long years of experiences worked out by these countries-the question concerning conditions and choice of proper model of development of logistic centers in Poland –is up-to-date.

2. Features of development of logistic centers in Western Europe

2.1. The German experience

Because Poland and Germany are neighbours and EU members, but mostly because of author' over two-decade long experience of planning, establishing and operating logistics centres in Germany, the German organizational, legal and technical solutions will be presented more in detail.

In Germany, likewise in other western European countries, logistic centres started to emerge much earlier than in Poland. German authorities realised the macroeconomic benefits of establishing logistics service centres already in the 1970s. It was found then that an extending network of logistics facilities providing services such as cargo reloading, warehousing and handling could effectively ease the transport burden in the regions, particularly in the centres of urban agglomerations.

In Germany, logistics centres were established as a result of close cooperation between the public sector and private investors, even though the latter were aware of high risks the process involved. Private shareholders were more inclined to modernise and bring to life the old storage facilities. Under these circumstances, the public sector chose to pay all construction costs of logistics centres, thus releasing private investors from having to commit significant funds and minimising their investment risk. An important determinant of cooperation being started, or not, was the reach of the future logistics centre, i.e. whether a given facility would provide local or international services.

A systemic expansion of logistics centres started in Germany in 1992. The first facilities were built under the First Main Plan, which provided for the construction of 44 logistics centres with infrastructure for handling combined transport. The Second Main Plan drawn up in 1995 anticipated the construction of 39 logistics centres.

The German way of starting logistics centres is characterised by strong support from all-level public bodies, which has its source in the federal and Länder laws. Investment projects involving logistics facilities are assisted by the Länder authorities and local governments that use various financing models to grant aid. This makes the German public sector a special factor in both planning and construction of logistics centres.

2.2. The Italian experience

In Italy, first logistics centres appeared as early as the 1970s. The projects were usually carried out on an individual basis and their success frequently depended on the involvement of the public sector that in many cases initiated and joined particular investments. The sector's active role included stimulation of particular regional economies, establishment of consortia initiating the construction of logistics service centres and acquisition of shares in companies to carry the projects out. The involvement of the Italian government led to the

development of the Main Transportation Plan that contained planning decisions regulating the development of railroad transport and logistics centres.

Because the logistics centre construction programme in Italy emphasised international cooperation, the centres were located in the more industrialised regions of northern Italy.

The financial support that the Italian government targeted to investors projecting to build or modernise logistics facilities, combined transport operators and Italian railways was regulated by the law in force and the programme's criteria. The budget instruments used to this end encompassed subventions and low-interest loans, as well as credit guarantees and credit facilities. In some cases, low-interest or zero-interest loans financing the purchase of specialist equipment for the logistics centres, combined transport wagons and intermodal transportation units were also available. The Italians chose to modernise many combined transport routes and to enlarge the number of logistics terminals predicting that the number of combined transport trains would double in their country. The same belief encouraged the Italian government to extend the national logistics network.

The Italian logistics centres did not have problems finding willing business occupants. The asymmetric economic development in the country caused that the planners directed most new investments to logistics centres in south Italy, where the economy and enterprises' industrial activities are much less vigorous than in the north.

2.3. The experiences of other European countries

The other European countries also use a whole range of instruments to support the creation of logistics centres.

In **the Netherlands,** financial support mainly having the form of subventions, low-interest loans, credit guarantees and credit facilities is offered by the national budget and to some extent by the regional and local budgets. In addition to the construction of logistics facilities, the aid can be used:

- to modernize railway lines and to provide the stations with cargo handling equipment,
- to improve inland waterways,
- to pay a portion of purchase costs of intermodal transport units,
- to cover some combined transport operating costs (this use is mainly limited to the opening of new routes).

The financial support given by the state budget is supplemented by the regional and local budgets. The qualifying beneficiaries are operators of public terminals, inland navigation companies, combined transport operators, forwarding agents, road carriers and logistics firms.

Austria is another country where the public sector contributes financially to the expansion of the logistics centre network. The range of instruments available for boosting and promoting the development of intermodal transport includes grants to investments in logistics terminals and to purchases of loading equipment, special equipment and rolling stock, as well as subsidies for railway operating costs. Additionally, the Austrian government offers reliefs and exemptions for taxes and road user charges. These types of financial aid are directly linked to the creation and operation of logistics centres. Before it is granted, each type is examined vis-à-vis the pertinent laws and the applicable legal basis depends on the type of fund that will be used to finance a given investment.

In Austria, as in the Netherlands, all logistics projects are eligible for financial support from the government, private investors and local and regional budgets. In the latter case, though, only logistic facilities that clearly promise to significantly further regional development qualify for assistance.

France also offers financial support to projects extending the domestic logistics network. Most funds are allocated under the government combined transport development programme being an integral part of „The General Transport Development Programme in France" to activities stimulating the development of intermodal transport. One the goals the French aspire to achieve is an increased number of railway connections. A case in point is the new double-track „express railway" constructed between France and Italy

Another way of promoting combined transport is supporting the construction, modernization and fitting out of terminals. Although most of the aid funds, such as grants, low-interest loans, credit guarantees and credit facilities come from the national budget, the local budgets are also involved. Investments in terminals are eligible for subsidies reaching up to 50% of their costs (the national and local budgets provide 70% of the funding and the French railways contribute the remaining 30% from). In France, mainly combined transport operators, railways, terminal operators and road carriers qualify for support .

As far as **the major logistics centres in Europe** are concerned, the maritime logistics centres in Finland and the logistics facilities in the UK and Spain are worth noting. The Finnish centres are representative of how the locational potential of seacoast and seaports can be utilised for this type of facilities.

An example of the UK logistics centres is the United Distribution Centre being part of the domestic network of distribution centres. It is located in Western England, in the vicinity of two motorways. The Centre has warehouse space of 10,780 m^2 and ships goods to retailers in West and West Central England and South Wales (Beier, Rutkowski 2006 p. 106).

Another facility that belongs to the largest and best thriving logistics centres is the Spanish *Mataro Distribution Centre* (warehouse space of 41,800 m^2). It was established in 1993, after a motorway was constructed between Barcelona and Madrid.

Western Europe boasts around 120 logistics centres today, half of which are members of the research project "bestLog" that coordinates their cooperation in 7 countries (Denmark, France, Germany, Spain, Luxemburg, Portugal and Italy).

Development of logistic centers in Western Europe became an important factor of their economical development. Thanks to them the organization of distribution of goods became better, also the traffic capacity of transportation corridors was enlarged.

At present most European countries **support the initiative of the construction of logistic centers** .Mainly the need of their network cooperation is underlined in global economy. In European countries different projects appear, which have the purpose to support creating logistic centers. **Consciousness of the public sector** is an important element, which by different forms of activity supports and makes the process of creation of logistic centers dynamic.

In most countries in Western Europe we observe **forms of close cooperation of the public sector with private investors**. For example in Germany the public sector covers totally or partly all costs of the construction of logistic centers.

Even in the situation, when the investment initiative is of individual character (for example-Italian economy) involvement of the public sector decides about the success in creation of centers . The public sector gives financial support to potential investors of logistic objects. Forms of financial help are low-percentage subvention of loans, credits or credit guarantees.

Next to strong support of governments of European countries, we can observe a phenomenon of common organization in logistic undertakings of local and regional governments, regions` and cities` administrations and even commercial chambers. Very often these investments are supported by fast legislative activities, voting legal resolutions supporting development of logistic centers and intermodal transportation (Kaźmierski 2009, p. 165).

Another important development feature of logistic centers in western and southern neighbouring countries is **taking under consideration the concept of localization of logistic centers on the country territory**. While choosing a place, **coordination with development plans** of different transportation branches-especially inland and intermodal-take place and also earlier made analysis of the potential market of receivers of logistic services.

- It is also necessary to consider the environment protection aspect. Localization of logistic centers near cities and agglomerations can not be contradictory with ecology, which is a very important element taken under consideration while designing logistic centers.
- Multiple instruments - especially financial help-are in Europe the factor, which directly corresponds with competition among regions. Regions, where authorities show activating, initiating support get a competitive advantage and can make further development dynamic.
- Development of logistic centers can play a double role. They can help in achieving growing requirements considering environment quality and also help in better competition of enterprises services` receivers, and the competition of regions, where they function. As a consequence it will lead to economical growth and competition of economies of EU countries. This tendency is compatible with the Lisbon Strategy realization, creating a chance for development of logistic centers as an important instrument in well-balanced development.

3. Localization conditions

One of the most important factors concerning development of logistic centers is their localization, especially - **criteria of the choice of localization of centers**. If we assume that development of logistic centers should include the public sector participation, we should describe, what localization conditions should be taken under consideration.

Generally saying, the main criterion is the market-to be specific-so called values of demand (which means the needs of companies for logistic services). The access to a territory and transportation and communication infrastructure, values of resources(of space and infrastructure essential for the center development) is a factor limiting and giving the direction for the possibility of development of centers (Beier, Rutkowski 2006, p. 108). Configuration of development of logistic centers the country depends on following, general conditions (Kaźmierski 2009, p. 311):

- Spatial arrangement of modal network points, it means such ones, where loads displace with the lowest costs. This arrangement depends on a suitable transportation infrastructure(wheel roads, railway stations, water roads, airports, reloading terminals),which has an influence on costs of goods transit. The arrangement of transportation network should be the basis for making up a map of goods` flow , providing information for localization of logistic centers,
- Logistic absorbency of the region or another territorial unit,
- Costs of the access to the market and to the area of the construction of the center.

Taking under consideration the points above, geographical situation, localization on the junction of important communication roads, existence of special economic zones, the access to well-educated staff, developed metropolitan functions, low prices of the land, précised strategy of city/local development or existence of logistic cluster are examples of trump cards of territorial units creating proper conditions for development of logistic centers. The basic condition of localization of logistic centers is connection of a few kinds of transportation (Burnewicz 2006).

Localization of big, logistic centers of regional or trans-regional character would require an analysis of external and internal conditions in appropriate scale. Because of trans-local character of such undertakings it should be an analysis conducted at least in a regional scale. At the same time it should include guide lines marked out in a space design on the country level. Such an attitude would assure optimum disposal in the country space of big logistic centers connected with the superior communication arrangement.

4. The Structure and organization conditions. The choice of model of a logistic center

Structural and organizational solutions of a logistic center should be dependent on accepted general model of initiating its construction, it means on **evolutionary or embryo model** (Kaźmierski 2009, pp. 313-314).

The first of them is a natural way of formation of the concept of a logistic center based on long-term politics of economical development of the region, heading for economical activity and the same time building the demand for logistic services and supply of these services (logistic operators acting in this region). As a result conditions for the construction of a logistic center appear. This model involves the smallest risk, because the decision on going ahead with

the construction of a logistics centre is only taken after the current demand for logistics services and potential project participants has been identified.

The second center is going to satisfy existing demand based on functioning of suppliers of logistic services on the market. That model presumes economic activation of a chosen area by creating suitable conditions` encouragements and facilities for investors. As a result on such area, concentration of independent economical subjects appears and the next step of development is to build the logistic infrastructure (for example: railway container terminal, storehouses, goods yard etc.) creating this way a logistic center. The elements that future occupants find attractive are integrated logistics infrastructure consisting of a railway container terminal, warehouses and stacking yards, as well as plots of land readily available for investors' own projects and having good access to the network of railroads, which makes them a desired asset.

There is also a **third, virtual model**, where the logistics centre integrates the scattered facilities and logistics infrastructure by means of information linkages, thus forming an electronic market for logistics services.

Polish experiences, which we have received so far, are connected with cases of construction of logistic centers by private investors, which appeared around big agglomerations, induce(tend) to formulate a preferred attitude towards the structure and organization formula of construction of **concentrated logistic centers** (where there are all objects in one excreted organizational-functional space.

Dynamic development of the storehouse surface built by developers for a rent and by other economical subjects for their own needs, creates conditions for a concept of **impersonal logistic center** as an alternative for concentrated logistic center (Fechner 2006).

The concept of an impersonal logistic center predicts connection of resources belonging to different economical subjects by IT platform providing facilities for building the packet of services and their consolidation in the form of offers for customers. We think that this model is fundamental in the situation, when the initiator of the construction of a logistic center has limited number of investment areas. In this case "a virtual-associated" connection with impersonal logistic objects and their owners, located on the area of the activity of a logistic center could help in a complex logistic service for clients (Kaźmierski 2009, p.314).

The model of concentrated logistic centers should take under consideration the situation on the market surroundings, which existing market of logistic services with the logistic infrastructure is an element of. **It is essential to plan such investments, which would take under consideration existing**

potential of logistic services together with the possibility to include this potential partly in the activity of a logistic center.

5. Economical and market conditions connected with the development of logistic centers

The question about advantages and costs of functioning of logistic centers is a question about effectiveness of such a center-in the whole country scale. We can judge it using different instruments, their choice has a fundamental meaning, if we want to answer the question about advantages and costs of centers` activity (Rodawski 2006, pp. 88-89). If we analyze financial activity of the logistic center, the measurement of effectiveness is made from the point of view of direct participants-subjects involved in a given undertaking (logistic center). Wider insight in this problem, economical analysis gives to us, where we take under consideration also the influence of a given investment or a project on surrounding reality.

Economical analysis should reflect social costs of this undertaking. It is important, because the analysis of effectiveness of functioning of logistic centers is not coordinated from the point of view of effectiveness of the whole economy. It happens when linear elements of a technical infrastructure (roads) are built in a planned way, but point elements appear spontaneously(centers), which not necessarily makes the logistic center optimum from the point of view of the whole economy.

The analysis of costs and advantages made for evaluation of investment projects in logistics, should be made from three points of view: investors, closer surrounding(like-local communities) and the whole economy. It would require involvement of positive and negative external effects of logistic activities in an arrangement-investor-region(community)-economy, which makes out of market effects of functioning of logistic centers and so called external effects (Markowski 2007, pp.35-36). These activities create a full economical analysis and they are quite complicated. However they are essential in the situation when the public sector intervene in the process of centers` creation.

Taking under consideration **market conditions** connected with l functioning of logistic centers we think that big demand for this center services adequate to planned size and organization structure of this investment, is the key factor of their effective functioning (Kaźmierski 2009). Because of this fact estimation of current and future demand for logistic center services and factors determining its size, is an important problem in the analysis of the exploitation construction profits.

Demand for logistic services creates conditions, storehouses and transshipping stations, connected with describing factors, which influence inclination of enterprises for allocation its activity partly in the region.

6. Legal conditions connected with gaining areas and the construction of logistic centers

One of the basic conditions of the construction of a logistic center is free from legal ballasts big investment areas intended for economical activity according to the local plans of making the space productive. These plans are made from the point of view not only of supplying the demand for logistic services, but also these plans take under consideration different social needs, such as: generation of new workplaces, stimulation of economical growth, making some areas redundant (postindustrial) - more productive, etc.

Taking over areas, which were intended to be used for the construction of a logistic center, can run by applying for apport into undertaking by local authorities, which is the most attractive way to acquire rights for this area by the logistic center. The method of purchasing areas is expensive, the more investors meet speculative behavior on the real estate market. In practice it forces them to purchase the whole planned area at the beginning of the undertaking.

When investors purchase areas very often they must integrate it, which generates additional expenditures. From the point of view of these expenditures long-term leasing agreement can be an attractive form of acquiring rights for this area, mostly from public owners, who expect incomes in a long time period.

Also there are problems of legal nature, such as long procedures, the possibility of protests and changes in spatial plans. The situation can be also complicated, when some areas have not regulated the lawful ownership.

Because of these reasons some areas are excluded from possibility of becoming a logistic center. It seems that there is a realistic need for new regulations on the central level (government, parliament).

In recent years in Poland advantageous changes have taken place in terms of the construction of logistic centers , mainly because of financial help from EU and the bill of public-private partnership (PPP), which has got some mistakes and is often criticized, can make easier cooperation between public and private sectors. It is known that the bill PPP and: “THE law for the public order” create conditions for realization of undertaking of the construction of logistic centers.

7. The need for public authorities to become involved in logistics centre development

What speaks in favour of public authorities' involvement in the development of logistic centres is the need to regulate inefficient real property markets, whose functioning is strongly affected by metropolization processes today. Inefficient markets reduce the locational competitiveness of some regions as the likely hosts of logistics centres.

This is why logistics centre development in Poland should become an item addressed not only by the central and local government programmes and initiatives such as the National Development Plan, the National Strategy of Regional Development, the Concept of Spatial Development of the Country, the State Transport Policy, but also by development strategies drawn up at the subnational and lower levels of territorial self-government.

A discussion concerning the logistics centre development policy and its instruments should not omit the operational factors that the governments wishing to stimulate the centres' growth (Kaźmierski 2009, pp. 322) need to deal with. These are:

- inter-regional competition and territorial marketing – a sort of "a market place" where local governments compete for large investors,
- domestic capital – too weak today to shoulder the high construction costs of the centres,
- foreign capital – expecting a system of incentives to be available before projects are launched, such as access to the appropriate infrastructure.

Because of these factors, logistic centre development is a process requiring active participation from the public sector, as well as being a phenomenon that must be forecasted and coordinated according to the country's economic interests, rather than being only watched, as it has been so far.

This conclusion is imposed by the present lack of public logistics centre development policy and the minimal support the centres receive from the public sector. The unavailability of laws regulating this activity translates into high external costs, mostly arising from inappropriate and frequently accidental location of the facilities (non-optimal from the standpoint of national economic interests). The passive stance of public authorities, involving non-action and indecisiveness, does not make the decision-makers less accountable.

A serious problem is the shortage of publicly funded studies on the location of logistics centres and of investigations into public policy instruments and effects on the emergence of large-scale projects.

Broadly speaking, the Polish system of spatial planning instruments is very limited, accompanied by low-quality executive regulations and inefficient enforcement thereof, which impedes public coordination or management of logistics centre development. A discussion on the public sector's involvement in this process should **define the central government and local governments' roles and priorities**. **Regarding the latter type of authorities, the areas of involvement appropriate for units representing different tiers of administration should be established.**

It is advisable that state administration give the status of public purpose projects to centres rated crucial for the national economy, as well as incorporating them into the *Concept of Spatial Development of the Country*. Another major goal should be the provision of some formal framework to foster the development of public-private partnerships. Owing to this, local governments could become public partners to private investors considering logistics projects.

In the latter case, the large cities (municipalities) being economically much stronger than private investors would make more appropriate partners, because their potentials would allow them avoid the domination of large private investors. While the local governments should focus on providing investors with the necessary infrastructure, the regional authorities should rather coordinate spatial planning activities in the communes (regulate their competition for locating facilities in the metropolitan areas, for instance).

The regional authorities should contemplate the use of funds available under integrated regional development operational programmes as a means supporting the growth of logistics centres.

8. Public authorities' instruments for controlling logistics centre development

Generally, public authorities pondering over the choice of instruments that could encourage investors to establish and expand logistics centres should use the market solutions in the first place. The main principle to guide regional and local governments' interventions should be that action is only taken where the market seems to be inefficient and that whatever is undertaken must respect the fundamentals of the market concept.

It is possible to stimulate the growth of logistics centres by creating the following instruments (Kaźmierski 2009, pp. 323, 324):

1. regulations particularly addressing this process, with indication of the available funding sources,
2. a government logistics centre construction / development programme, with the ensuing projects being given the status of public purpose investments; the programme should be provided with concrete financial instruments,
3. encouraging public-private partnerships to undertake investment projects,
4. regional spatial planning – coordination of communes' competition for logistics projects,
5. simplification of the procedures applying to investment location,
6. tax exemptions and/or tax rate reductions.

Before the logistics centre development policy can be made operable, the impacts of its instruments, such as the provision of infrastructure, tax reliefs, etc., should be considered. Communes' competition for logistics centres must be regulated too, because local projects must be a vehicle for expressing the paramount national interests. All this clearly proves that **the government must have a logistics centre policy**.

The current policy concerning large-scale investments (see *National Cohesion Strategy*) emphasises the decentralised distribution of public aid funds. The logistics centre development policy should match the *Concept of Spatial Development of the Country*. The future government policy will have to tackle the following key question: **should public authorities influence the establishment of logistics centres and, if the answer is yes, what mode of intervention is appropriate**. To answer the question, the opportunity costs must be considered, i.e. the costs of political decisions (of government interventions) must be weighed against social costs.

As mentioned, a logistics centre construction programme treating such facilities as public purpose investments could be funded (or co-funded) by the national budget. It is quite probable that the World Bank's funds would also contribute, if a relevant development programme were put together. When public aid is taken into account as a way of stimulating the emergence and growth of logistics centres (let us remember that public budgets are tight), it is crucial to remember that returns to scale (benefits from centres established to serve the entire national economy) can be obtained if **public funds are carefully addressed to selected facilities of special importance for the country's economy, rather than indiscriminately**. This approach helps prevent the dispersion of public funds, while making them as effective as possible.

The decisions on whether, where (the region) and when a logistics centre should be located must be based on an informed action plan preceded by an analysis of the condition and potential of particular regional economies.

Given the above, logistics centre development in Poland should be seen as an important field for public interventions aimed at boosting their growth. Two types of interventions having entirely different nature, but not totally unrelated, are possible.

The first type deals with the economic aspects that require concentration on the solutions stimulating the market (taxes) and the use of real estate, and on public-private partnership mechanisms.

The other type concerns spatial management and protection of the natural and cultural environments; a direct intervention (emphasising logistics centres as public purpose tasks) may prove to be the only effective tool here. **This means that the intervention tools indicated above must enhanced with additional solutions**.

The division of interventions into the two categories seems rational, as this approach allows choosing public intervention tools and methods that more suitable for particular situations.

9. Conclusion

Development solutions in construction and exploitation of logistic centers coming from Germany or Italy, presented in the point number 1 of this article, can be a valuable source of experiences for Poland.

In our country any model of realization of public politics towards logistic centers has not occurred yet. Initiators of their construction work individually and their negotiations with local governments are considered as difficult. It can cause an astonishment, because Poland as a transit country, is regarded as one of more attractive areas for this type of logistic investments.

The elementary argument saying that, there is a need for the state engagement in development of logistic centers and the need for regulations in the deformed real estate markets, is under strong process of metropolization of the space.

We can set up the thesis that today Poland is still at “the stage of localization” of logistic centers, however taking under consideration experiences of other European countries, this process cannot be negligent. In this context the problem of development of logistic centers should be considered as an important field of public intervention.

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Streszczenie

UWARUNKOWANIA ROZWOJU CENTRÓW LOGISTYCZNYCH W POLSCE W KONTEKŚCIE DOŚWIADCZEŃ PAŃSTW EUROPEJSKICH

Rozwój i eksploatacja centrów logistycznych w Polsce uzależnione jest od szeregu uwarunkowań. Najistotniejsze z nich to uwarunkowania: lokalizacyjne, strukturalno-organizacyjne, ekonomiczne oraz prawne.

Autor dokonuje syntetycznej analizy tych uwarunkowań w kontekście doświadczeń krajów Europy zachodniej w tym zakresie. Daje przykłady rozwiązań, jakie funkcjonują w czołowych krajach, takich jak: Niemcy, Włochy, Holandia, Austria, Francja, Anglia. Omawia również ważny problem, jakim jest angażowanie się władz publicznych w rozwój centrów logistycznych w Polsce oraz instrumenty, jakie mogą być wykorzystywane we wspieraniu ich rozwoju.

Artykuł jest w znacznej mierze pokłosiem badań własnych autora przeprowadzonych w latach: 2007-2010 dotyczących uwarunkowań rozwoju centrów logistycznych.

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DOROTA WAWRZYNIAK*

Company Taxation in the European Union

Abstract

This paper investigates different measures of corporate tax burden ranging from the most basic ones such as the statutory tax rate to the effective tax rates. Each of these measures has advantages and disadvantages and they may lead to different rankings of countries. One of the reasons lies the fact that they measure different things. The comparison of the statutory tax rates to the effective ones for the EU-27 during the period of 1998-2009 sometimes reveals very significant differences between these indicators. Taking this into consideration, the paper suggests that corporate tax burden analysis should not be limited to the most basic and readily available measure in the form of the statutory tax rate. Different measures are tailored to answer different research questions. Moreover, the article presents changes of company taxation for the EU-27 within 1998-2009.

1. Introduction

Comparing some tax systems is important for economic agents since taxes affect their decisions e.g. investment ones. However, there exists a large number of methodologies trying to measure the burden of corporate taxation. The objective of the article is to compare different measures of corporate taxation, taking into consideration both methodology and their values for the current European Union countries. The paper consists of four sections. Section 2 does not only present different measures of the corporate tax burden ranging from the

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most basic ones such as the statutory tax rate or tax quotas to more complicated tax measures – the effective tax rates but it also describes their advantages and disadvantages. Section 3 presents tax rates calculated under different methodologies for the EU-27 and compares them to one another. Section 4 is devoted to the conclusion of the paper.

2. Tax burden measures

The most basic measure of corporate income taxation is the statutory tax rate (STR). This measure is widely used, however it does not give the proper picture of the real tax burden incurred by companies. The reason is the fact, that it does not take into account some tax laws pertaining to the tax base and the possibility of benefiting from tax incentives such as special exemptions, deductions or different depreciation schemes. It neither captures the effects of the home country tax laws, nor the international ones on the corporate tax burden. Therefore, the statutory corporate tax rate is not a satisfactory indicator for the international comparisons. However, its availability, both over time and across countries, constitutes its undeniable advantage.

Tax quotas are another readily available tax burden measure. These quotas are given by the ratio of the tax to GDP or to the total tax revenue. Unlike statutory tax rates they take the tax base into account but in an insufficient way (Bellak, Leibrecht, Römisch 2005, p. 30; Bellak, Leibrecht 2007, p. 16). Moreover, the tax-to-GDP ratio can be affected by many factors, which may vary across countries and therefore influence the comparability of results. "Tax expenditures" are one of them. They are defined as expenditures made through the tax system (OECD 2000, p. 28). The tax expenditure concept was developed in connection with the fact that the tax system could be used to achieve similar goals as public spending programmes. It means that, tax expenditures are an alternative to direct government expenditures. The difference between them comes down to the fact, that spending budget funds is composed of two steps: receiving the money and spending it. In case of tax expenditures the revenue is immediately consumed by the expenditure. Tax expenditures take many forms, such as: exemptions, tax credits and allowances, but also reduced rates and it means that they constitute the lost revenues. Countries that prefer tax expenditures to direct government expenditures will – while having all other things equal – have a lower tax-to-GDP ratio compared to countries opting for the direct spending programmes (OECD 2000, p. 28). Another factor that can influence the comparability of the discussed indicator is the measurement of GDP. Firstly, the degree of accuracy with which GDP is measured by the

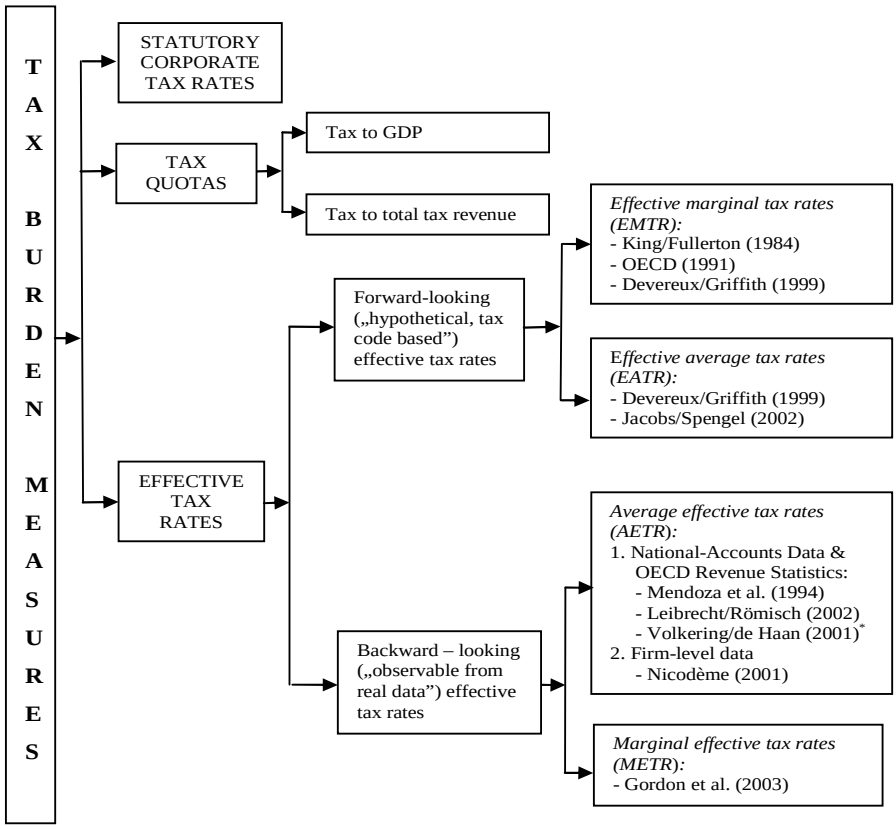
statistical agencies of different countries may vary considerably. Secondly, differences in the tax-to-GDP ratios do not necessarily reflect differences in tax policies across countries (OECD 2000, p. 30). The share of GDP that is effectively subject to corporate income taxation may vary as the economy goes through the business cycle. Moreover, the build-up of corporate tax loss pools carried forward and used to offset corporate tax liabilities will differ both over time, and across countries at any given point in time. These differences will affect the tax-to-GDP ratio but will reflect more past policy decisions than the current tax policy priorities (OECD 2000, p. 30). The tax to total tax revenue ratio will also depend on other factors than the tax system for example the size of the corporate system and the relative size of corporate income in GDP, which varies considerably over the economic cycle and potentially across counties (Devereux, Griffith, Klemm 2002, p. 470). It needs to be undelied that some scholars call tax quotas the effective tax rates (see Blechová, Barteczková (2008); Jacobs, Spengel (1999)). However, not all researchers share the opinion (see Nicodème 2001, p. 4-5; Leibrecht, Römisch 2002, p. 3; Bellak, Leibrecht 2007, p. 16). In the paper the structuring of various tax measures is adopted from Bellak, Leibrecht (2007, p. 16; see fig. 1), so tax quotas are not classified as the effective tax rates.

The effective tax rates were developed in order to overcome some of the shortcomings of the previously mentioned tax measures. They do not only take into account the statutory tax rates but also other aspects of the tax systems which determine the amount of tax paid. However, „ the effective tax rate" is not a homogenous indicator and it can be computed in various ways. Firstly, there are backward- and forward-looking tax rates. Secondly, one can distinguish the marginal and the average tax rates. Finally, tax rates can be estimated using micro- or macroeconomic data.

Forward-looking approaches calculate the tax burden on a hypothetical investment project taking into account the existing tax rules. One can distinguish between the effective marginal (EMTR) and the effective average tax rates (EATR). Their common feature is combining in one measure both the statutory tax rate and the tax base. The main difference between them lies in the profitability of the considered project. EMTR is calculated for marginal investments i.e. an investment whose after-tax rate of return is zero. EATR offers the opportunity to compare some investment projects that earn positive returns. Hence, the two measures can be applied at two different stages of the investment decision process. The average tax rates are relevant for the location choice and enable investors to rank locations according to their post tax return. Having chosen the location, the size of investment depends on the EMTR (Devereux, Griffith 2003, p. 108). Based on the neoclassical investment theory,

King and Fullerton (1984) developed the effective marginal tax rates. Their model became the commonly accepted framework. The approach was then extended by Devereux and Griffith (1999). They introduced the effective average tax rate (EATR), which in contrast to EMTR, measures the tax burden of profitable investment i.e. investments generating an economic rent. It reflects the distribution of the effective tax rates over a range of profitability, with the EMTR as a special case of marginal investment (Devereux, Griffith 2003, p. 113). Therefore, the EMTR and EATR can be computed within one consistent framework and the methodology is internationally accepted. The later part of the article focuses on Devereux/Griffith's methodology.

Figure 1. Tax burden measures



*- hereafter the title will be referred to as OECD (2001)

Source: Bellak, Leibrecht (2007, p. 16).

The calculations of EATR and EMTR utilize information on the existing tax code. However, the construction of these indicators also incorporates a number of assumptions concerning the real interest rate, inflation rate, the financing and asset structure of the firm, asset-specific depreciation rates and the pre-tax rate of return. The incentives generated by the tax system depend on the form of the investment project, including the type of asset purchased and the way it is financed. Therefore, despite the fact that the effective tax rates can be computed for different types of assets and financing methods, the derived tax burden measures as well as conclusions are valid only under the assumption of these models. Moreover, there is some limitation in the form of parameters of the various tax regimes which can be captured in the context of the analysis of a hypothetical investment. In practice it is not possible to account for all features and complexities of the tax system. Dealing only with the most important features of tax regimes without taking into account the whole complexity of the tax law is the most often criticized feature of the framework. For example, tax planning activities cannot be addressed with those rates as well as tax enforcement. What is more, these indicators do not incorporate fiscal incentives to foreign investment that are specific to certain regions or spending categories (e.g. R&D) (Hajkova, Nicoletti, Vartia, Yoo 2006, p. 13, Yoo 2003, p. 9). Furthermore, the assumption of a one-period investment makes it impossible to look at the effects of tax holidays or temporarily reduced rates (Klemm 2008, p. 3). These measures can therefore isolate the influence of some factors on effective taxation, but cannot take into account all of them. The disadvantages of that approach also include the relatively high degree of complexity in the calculation of these rates and data requirements. Among advantages one could list the fact that the forward-looking effective tax rates distinguish between domestic and international investments (domestic vs. bilateral rates). They can be calculated for the profitable investment (EATR) as well as for the investment which just earns the cost of capital i.e. projects which just breaks even (EMTR). These measures are well suited for assessing the impact of taxation on investment decisions which are also "forward-looking". They permit to compare the international tax regimes and can illustrate the general structure of the incentives provided by the taxation systems. They can also identify the most important tax drivers influencing the effective tax rates.

It is worth mentioning that Devereux and Griffith's framework was later extended and used by many researchers.

As far as the effective backward-looking tax rates are concerned two methodologies can be distinguished: the macro backward-looking approach and the micro backward-looking approach.

Macro backward-looking measures use historic, aggregate data from national or international statistic institutes. They are calculated as ratios of taxes paid by corporations on the measure of the tax base which can be the corporate gross operating surplus, or the aggregate corporate profit (see e.g. Ederveen, de Mooij 2003, p. 330; EC 2001, p. 70; Nicodème 2001, p. 4; Jacobs, Spengel 1999, p. 4). Such indicators are called „ the implicit tax rates" (ITR) in order to distinguish the backward-looking approach from forward-looking average effective tax rates calculated on the basis of the tax code (EC 2006, p. 41). The well known and widely used method for calculating the effective average tax rates at the macro-level is the approach developed by Mendoza, Razin and Tesar (1994) (hereafter termed MRT) which calculates tax ratios on the basis of the OECD data. They defined the tax rate as the ratio of taxes on income, profits and capital gains of corporations, on the operating surplus of the corporate sector (equal to the total operating surplus of the overall economy, less the operating surplus of private unincorporated enterprises). As mentioned above, the MTR approach is widely used in its pure form or modified versions by academics and international institutions. For instance, the European Commission publishes implicit tax rates using methodology conceptually equivalent to the MTR approach. On the other hand, the OECD (2001) published effective average tax rates based on the MTR approach as well as on an updated version.

The attractiveness of macro backward-looking approach lies in its simplicity. Aggregate data is easily available from most statistical institutes, and the ratios can be calculated in a convenient and quick way for different countries and years. Moreover, such tax rates implicitly take into account the entire tax code that is the combined effects of the statutory tax rates, tax deductions and the tax credits. They also include the effect on the tax base of tax planning (OECD 2001, p. 14) and the enforcement policy of a country. Nevertheless, these rates suffer from a number of shortcomings. They can give a proper picture of the current tax burden, but using it as a taxation measure of some future investment could be misleading. The reason lies in the fact that historic data is used to calculate the tax ratio and such data does not reflect the future tax code. Moreover, using aggregate data may lead to mismatching problems regarding the numerator and denominator of the ratio. The corporate operating surplus (potential denominator) may include interests, rents and royalties paid by corporations. However, taxes on these sources of income are paid by private owners and do not enter in the numerator (see Nicodème 2001, p. 5; OECD 2000, p. 35; Jacobs, Spengel 1999, p. 4). As Nicodème (2001, p. 5) points out the aggregate gross operating profit, on the other hand, usually includes revenues from agriculture and forestry, revenues from royalties or rentals and revenues from tax-exempt institutions, which blurs the results.

Another issue is unincorporated enterprises. Their profits are recorded in the corporation sector in national accounts but their owners are taxed under the personal income tax scheme (the related tax payments are then recorded within the household sector in national accounts). Actually this means that tax revenues are booked in a different sector than the underlying business income (Blechová, Barteczková 2008, p. 3; Nicodème 2001, p. 5). There may be timing problems in the data collection as taxes are levied on the previous year profits, and tax receipts can be reduced by the loss carry-forwards and carry-backs, whereas these loss treatments do not affect companies profits from national accounts (Jacobs, Spengel 1999, p. 4-5). With the approach taken, it is not possible to distinguish the effect of taxes among sectors or industries. Finally, the tax rates based on macroeconomic data may show a cyclical evolution (EC 2001, p. 70; Briotti 2003, p. 480).

Some of the problems mentioned above can be solved by the use of detailed micro data. The micro backward-looking methodology enables to compute the effective average tax rates on the basis of micro data taken from financial statements. These rates are calculated as the tax liability of the firm relative to some measure of the underlying income which is taxed (Devereux 2003, p. 4). Nicodème (2001) developed three versions of the indicator on the basis of BACH databank (Bank for the Accounts of Companies Harmonised):

- ratio of taxes paid on profit on ordinary activities before taxes adjusted for extraordinary activities,
- ratio of taxes paid on net turnover,
- ratio of taxes paid on gross operating profit.

First of the options would have been, according to Nicodème (2001, p. 18), the best one to compare effective rates with statutory rates. Unfortunately, because this item is the result of numerous additions and subtractions (from turnover to tax), and because of possible differences in accounting rules, the use of this ratio may be problematic for comparisons between countries. Taking into consideration the fact that the determination of profit differs from country to country a common denominator does not exist. The second alternative produces very small figures, which complicate comparisons. Moreover, the use of the turnover can lead to misinterpretations because the information on costs is lost. A small tax ratio does not necessarily imply low taxation as large turnover might be necessary to cover large costs. The last variant uses the gross operating profit in calculations. That is the profit before depreciation. As a result, a relatively homogeneous denominator is obtained as far as international comparisons are concerned. Embracing the depreciation would change this state of affairs because depreciation rules do not

only differ on the linearity versus accelerated dimension but also on whether the historical value or the market value of the asset is taken into account.

One of the advantages of the micro backward-looking approach is covering all aspects of the tax systems which affect effective taxation, as it uses the real life data. Nevertheless, the need to utilize such data gives rise to certain problems. Firstly, the microeconomic data is not easily available. Secondly, if calculations of effective tax rates are based on the sample of companies doing business both nationally and abroad (not only national firms) then the tax liabilities are influenced by the national tax system as well as foreign tax systems (different parts of firms' revenues might be taxed under different systems). Tax rates computed in this way represent the tax burden of companies located in a specific country instead of the tax burden derived from the national tax system. Therefore, using such rates for international comparisons might lead to some incorrect conclusions. The advantages of the approach include the possibility to calculate the tax burden considering the firm size, sector or industry as well as the feasibility to identify the items of the balance sheet that have a significant influence on the effective tax rates. However, as the calculations are based on past data they can give a proper picture of the tax burden of the already existing capital but they say nothing about the investment incentives of the tax system or future tax reforms. The micro backward-looking tax rates share this shortcoming with the macroeconomic rates. Moreover, the methodology does not allow to investigate the influence of the isolated features of the tax system on the considered indicator. Furthermore, the data sometimes tends to show significant yearly fluctuations depending on the business cycle (EC 2001, p. 69).

Recently, Gordon, Kalambokidis and Slemrod (2003) proposed a new effective tax rate measure (hereafter termed GKS) claiming that it should be added to "the pantheon of existing measures". It combines two different approaches. The conceptual basis of the measure is the same that underlies the calculation of the effective tax rates on a hypothetical investment project taking into account the existing tax rules. However, in calculations historic data is used, instead of the assumptions regarding the actual tax code. As Becker and Fuest (2004, p. 1) mention the difference between the King and Fullerton's (1984) forward-looking approach based on neoclassical investment theory and the GKS measure, is the fact that the latter is a backward-looking concept. It has, previously described, advantages resulting from the use of the real life data. Such data reflects the full complexity of the tax system, that cannot be captured in theoretical models. Nevertheless, like in case of all backward-looking indicators, the use of ex-post data makes it impossible for the measure to assess the effects of proposed changes in the existing law and to reflect recently

changed law accurately. The GKS assumes that the tax law remains stable and that the investment growth rate equals the nominal interest rate. In reality, however, the tax law changes and as Becker and Fuest[1] (2004, p. 5) underline there is no reason why the investment growth rate should be equal to the nominal interest rate. Moreover, Gravelle (2007, p. 40) argues that the GKS measure is unreliable if there are discrepancies between the growth rate and the discount rate. She also underscores that it relies on an accurate measure of the capital stock. Diamond (2008, p. 338) shares the concerns and adds that the discussed indicator is also sensitive to business-cycle effects. However, according to Slemrod (2007, p. 14), who is one of the measure's authors, adjustment can be made to approximately reflect business-cycle effects and recently changed tax law.

3. Comparison of the level of the company tax burden for the European Union countries

In order to compare the company taxation in the enlarged European Union countries three out of previously described tax burden measures will be used: the adjusted top statutory tax rate[2] and the forward-looking effective tax rates - average (EATR) and marginal (EMTR)[3].

In the period of 1998-2009 clear downward trend of corporate taxation was observed, measured by both statutory rates and effective ones (figures 2-4). The new member states were characterized, for the whole period considered, by lower tax rates than the EU-27 average whereas the EU-15 countries noted higher values than the average one. Moreover, the reported falls were higher in NMS. To give an example, the statutory tax rates were reduced in NMS by 11,9 percentage points (pp) (the EU-15 by 9,5 pp), the effective average tax rates by 10,4 pp (the EU-15 by 5,7 pp), and the effective marginal tax rates by 8,5 pp. (the EU-15 by 4,6 pp). The most considerable differences in falls of the tax rates between old and

[1] Becker and Fuest (2004) explore the consequences of relaxing some of the assumptions made by GKS (2003). They also develop a modified GKS measure.

[2] Adjusted top statutory tax rate on corporate income takes into account corporate income tax (CIT) and, if they exist, surcharges, local taxes, or even additional taxes levied on tax bases that are similar but often not identical to the CIT.

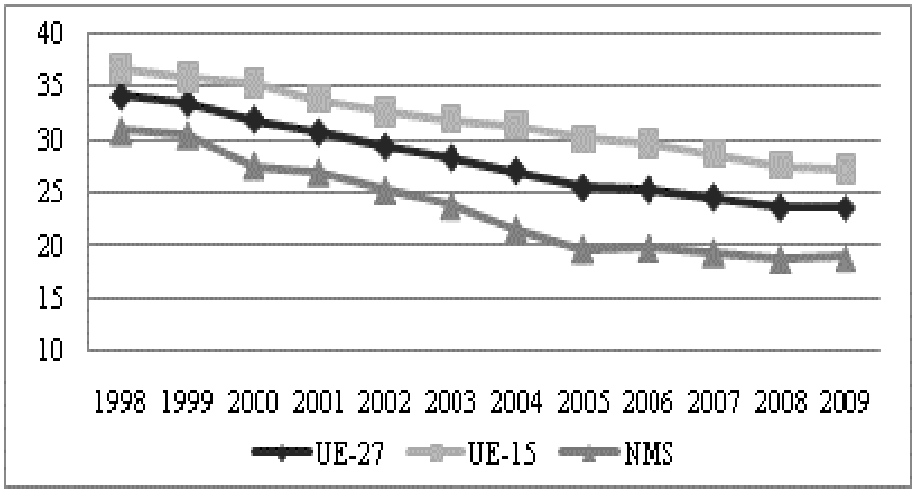
[3] Devereux and Griffith's methodology is used for calculations of effective tax rates. Basic model assumptions are: inflation rate - 2%; real interest rate - 5%; pre-tax real rate of return – 20%; assets (at equal weights) – industrial buildings, intangibles, machinery, financial assets, inventory; sources of finance (at equal weights) – retained earnings, new equity, debt; economic depreciation rates: industrial buildings – 3,1%, intangibles – 15,35%, machinery – 17,5%.

new member states did not concern however the statutory tax rates but the effective measures. The disparity in the statutory tax rates between the EU-15 and NMS increased from 5,9 percentage points in 1998 to 8,3 percentage points in 2009, in EATR from 3,3 pp to as many as 8,1 pp, whereas in EMTR from 3,3 pp to 7,1 pp. According to tables 1-2, during the years 1998-2009, the highest statutory rates reductions in the EU-27 countries took place in[4]: Bulgaria, Germany, Romania, Slovakia, Ireland, Poland, Cyprus, Czech Republic and Greece. EATR decreased in Bulgaria, Slovakia, Romania, Cyprus, Poland and Germany most, whereas EMTR in Belgium, Slovakia, Germany, Bulgaria, Cyprus and Romania. In this way Bulgaria, from the country with relatively high corporate taxation, became one of the countries with the lowest tax rates in the EU-27 both statutory and effective ones (see rankings in tables 1-2). Romania experienced similar changes. Cyprus remained one of the countries with the lowest statutory tax rates but it lowered considerably the effective tax rates – EATR and EMTR. As far as Germany is concerned, in the period considered, a very significant reduction of differences between the different measures of tax burden was observed. In 1998 the disparity between the statutory tax rate and EATR (EMTR) accounted for 14,8 percentage points (18,1 pp) while in 2009 it decreased to 1,8 pp (8,1 pp). Nevertheless, the company taxation still exceeds the EU-27 average. In 2009 Bulgaria, Cyprus, Ireland, Latvia and Romania experienced the lowest corporate taxation in the European Union (four top ranking positions in case of the statutory rate and EATR- see table 2).

It is worth mentioning that large differences in the statutory tax rates do not necessarily imply large differences in the effective taxation. Comparing the statutory and effective tax rates gives an idea of tax incentives given by authorities. The comparison of effective tax rates across countries gives, on the other hand, indications whether there are substantially different tax treatments of companies with the same characteristics but located in different countries.

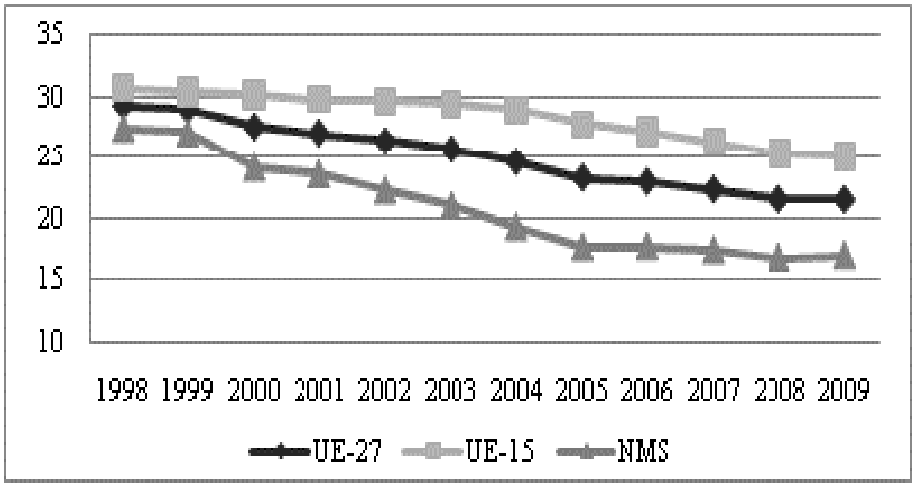
[4] Countries listed by the highest fall in the tax rates.

Figure 2. Adjusted top statutory tax rate (in %)



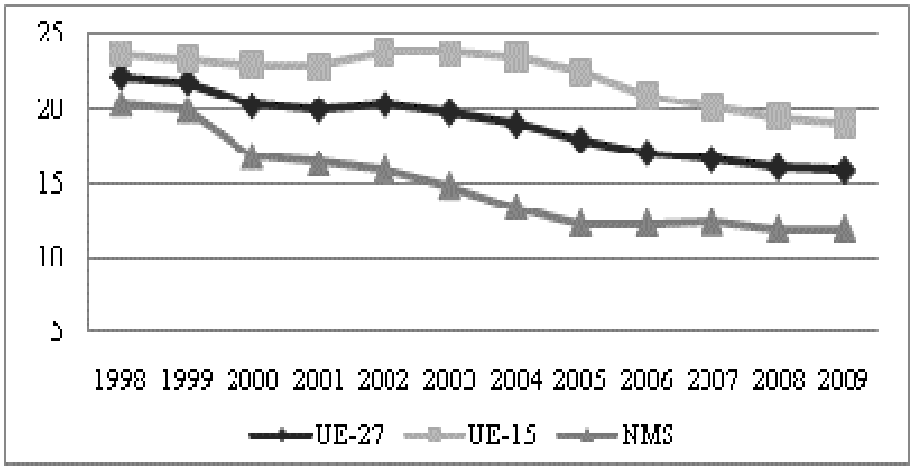
Source: own calculations based on: *Trends in the European Union*, European Commission, Eurostat 2010, p. 136.

Figure 3. Effective average tax rate (in %)



Source: own calculations based on: Devereux at al. 2009, pp. c1-c420.

Figure 4. Effective marginal tax rate (in %)



Source: see Figure 3.

For most countries the EATR is slightly below the statutory tax rates. However, in some countries, the EATR exceeds the statutory rate. For instance, in 2009 Ireland, France, Cyprus, Spain and United Kingdom were characterised by such a situation. The reasons of that fact were different - France, for example levied a business tax (*taxe professionnelle*) on fixed assets while in Ireland corporations pay the real estate taxes which are particularly high compared to the profit taxes.

According to the rankings presented below, the position of countries by their company taxation, in most cases, does not change significantly regardless of whether the statutory tax rate or effective tax rates are taken into account. Nevertheless, the rates level might differ considerably. The highest disparities are observed between the statutory tax rates and the effective tax rates measured by EMTR. In 2009 Belgium was the country with the highest difference between statutory tax rate and both effective measures while in 1998 these were Ireland and Germany. It is worth adding however, that in 1998 the disparity between the statutory tax rate and both effective measures exceeding 10 percentage points was reported only for the two countries mentioned above. As far as the divergence between the statutory tax rate and EMTR is concerned such big differences were observed for as many as 17 countries. Till 2009 the number of such countries dropped from 17 to 6. Nevertheless, the differences, smaller though, still exist. This leads to the conclusion that one should not ignore the differentiation between the statutory and effective tax rates. Using the statutory rate which do not take into account the tax base as the sole indicator may be misleading.

Table 1. Statutory and effective corporate tax rates in 1998

Country	Adjusted top statutory tax rate	Ranking position*	Effective average tax rate (EATR)	Ranking position	Effective marginal tax rate (EMTR)	Ranking position
Austria	34	8	29,7	8	20,2	7
Belgium	40,2	13	34,5	11	22,7	9
Bulgaria	37	11	32	9	21,2	8
Cyprus	25	2	27,5	7	24,4	10
Czech Republic	35	9	26,4	6	23,0	9
Denmark	34	8	30	8	21,5	8
Estonia	26	3	22,4	4	13,4	4
Finland	28	4	25,9	6	21,5	8
France	41,7	14	39,8	13	36,8	15
Germany	56	15	41,2	14	37,9	16
Greece	40	13	30,4	8	20,5	7
Hungary	19,6	1	19	2	18,7	6
Ireland	32	7	9,4	1	7,8	2
Italy	41,3	14	32	9	9,7	3
Latvia	25	2	22,7	4	17,5	5
Lithuania	29	5	23	4	6,7	1
Luxemburg	37,5	11	32,6	9	22,4	9
Malta	35	9	32,2	9	26,9	12
Netherlands	35	9	32,3	9	27,2	12
Poland	36	10	32,4	9	25,3	10
Portugal	37,4	11	33,4	10	25,5	11
Romania	38	12	34	10	26,0	11
Slovakia	40	13	36,7	12	30,8	13
Slovenia	25	2	20,9	3	10,5	3
Spain	35	9	36,5	12	35,4	14
Sweden	28	4	23,8	5	17,9	5
United Kingdom	31	6	29,7	8	27,3	12

* 1 denotes a country with the lowest tax rate; if the difference in tax rates between countries is lower than one percentage point the same ranking position is granted.

Source: *Taxation trends in the European Union*, European Commission, Eurostat 2010, p. 136; Devereux at al. 2009, pp. c1-c420 and own calculations.

Table 2. Statutory and effective corporate tax rates in 2009

Country	Adjusted top statutory tax rate	Ranking position*	Effective average tax rate (EATR)	Ranking position	Effective marginal tax rate (EMTR)	Ranking position
Austria	25	8	22,7	8	17,4	11
Belgium	34	13	24,7	10	-5,1	1
Bulgaria	10	1	8,8	1	5,5	3
Cyprus	10	1	10,6	2	9,5	5
Czech Republic	20	6	17,5	6	11,2	6
Denmark	25	8	22,5	8	16,7	11
Estonia	21	7	16,5	5	3,6	2
Finland	26	9	23,6	9	18,1	12
France	34,4	13	34,6	13	34,9	18
Germany	29,8	11	28	11	21,7	14
Greece	25	8	21,8	8	14,1	8
Hungary	21,3	7	19,5	7	15,5	10
Ireland	12,5	2	14,4	3	13,3	8
Italy	31,4	12	27,4	11	20,8	14
Latvia	15	3	13,8	3	10,8	6
Lithuania	20	6	16,8	5	8,3	4
Luxemburg	28,6	10	25	10	16,5	11
Malta	35	14	32,2	12	26,9	15
Netherlands	25,5	8	23,7	9	19,6	13
Poland	19	5	17,5	6	13,7	8
Portugal	26,5	9	23,7	9	17,1	11
Romania	16	4	14,8	4	11,9	7
Slovakia	19	5	16,8	5	11,3	6
Slovenia	21	7	19,1	7	14,5	9
Spain	30	11	32,8	12	33,4	17
Sweden	26,3	9	23,2	9	17,4	11
United Kingdom	28	10	28,3	11	28,9	16

* 1 denotes a country with the lowest tax rate; if the difference in tax rates between countries is lower than one percentage point the same ranking position is granted.

Source: see Table 1.

4. Conclusion

Company tax burden can be measured by many different methods. The existence of different indicators reflects the fact that each of them measures different things. That means that different indicators can be more or less appropriate to answer different research questions. When the objective is the analysis of the impact of taxation on the investment behaviour then forward-looking measures are the best indicators. The reason lies in the fact that investment decisions are forward-looking *per se* and are based on the future tax burden underling certain decisions. These measures enable to isolate the structure of incentives provided by the different taxation systems. They permit to compare international tax regimes and they also identify the most important tax drivers influencing the effective tax rates. According to Devereux and Griffith (2003, p. 108) EATR is an appropriate measure to investigate the impact of taxation on the location choice, ranking the investment by the profitability in different locations. EMTR, on the other hand, explains the optimal scaling of a new or existing investment "conditional on the choice of location". Forward-looking indicators are also a useful tool when competitiveness is concerned.

The backward-looking tax measures are particularly useful in analysis concerning the distribution of the tax burden (e.g. by sector or industry). They also permit a better understanding of the sensitivity of tax revenues to the economic cycle. However, besides a number of shortcomings, these indicators are not suited to evaluate the effects of taxation on business decision-making and they cannot give information on the impact of taxation on future competitiveness of firms.

The analysis of corporate taxation should not be restricted to the readily available indicator in the form of the statutory tax rate. The real tax burden of companies is influenced by many factors, which are better or worse captured by more complicated tax measures. The comparison of the statutory tax rates to effective indicators for the EU-27 countries reveals the existence of, in some cases, very high differences between the measures considered.

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Streszczenie

OPODATKOWANIE PRZEDSIĘBIORSTW W KRAJACH UNII EUROPEJSKIEJ

W artykule dokonano przeglądu miar obciążenia podatkowego przedsiębiorstw. Rozpoczynając od wielkości najprostszych, jak stopa nominalna, a kończąc na miarach efektywnych. Każdy ze wskaźników ma wady i zalety, a jego wykorzystanie może prowadzić do różnego uszeregowania państw ze względu na poziom opodatkowania. Jedną z przyczyn jest fakt, iż wielkości te mierzą inne rzeczy. Porównanie stóp nominalnych i efektywnych w krajach UE-27, w latach 1998-2009, wskazuje na istnienie niekiedy bardzo istotnych różnic pomiędzy analizowanymi wskaźnikami. W związku z tym artykuł sugeruje, iż nie należy ograniczać analiz opodatkowania przedsiębiorstw, do najprostszego i najłatwiej dostępnego wskaźnika w postaci ustawowej stopy podatkowej a rozszerzyć je o miary efektywne. Wielkości te, stanowiące lepszy instrument do porównań międzynarodowych, umożliwiają przeprowadzenie wszechstronnych badań.

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Earnings Management in Polish Companies

Abstract

This paper presents results of the investigation of a phenomenon known as „earnings management" (EM) among the companies listed on the Polish stock market. The distribution of earnings per share (EPS) for the stocks around the threshold value of "zero" and the threshold of "recent performance" was analyzed in the period of years 1997-2010. Moreover, the changes of earnings for the stocks, which are suspected to manipulate their earnings, were also investigated. The results, which indicate asymmetric distribution of earnings around the zero threshold along with the relative deterioration of earnings in the year following the period when the companies were suspected to conduct earnings management practices, provide evidence that this phenomenon exists among Polish stock market companies.

1. Introduction

Earnings are one of the most important items of financial reports issued by public companies. Profits of every firm are closely scrutinized by shareholders, investors, financial analysts or boards of directors in order todetermine the attractiveness of a particular stock or to reward the executives for their work and for their financial results. This is the reason why the

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management of a company sometimes decides to deliberately manipulate the firm's earnings, so that the pre-determined targets can be achieved. Such strategy is often called "earnings management" (EM). Healy and Wahlen (1999) state that: *"Earnings management occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes"*. It must be emphasized, however, that earnings management, as we understand it for the purpose of this study, should not be confused with illegal activities, such as financial fraud, which is at the illegal end of continuum of activities of this type, whereas earnings management is at the legal end.

Earnings management may be executed by two kinds of management actions:

- accounting choices which follow legally accepted rules,
- operating decisions.

An example of an accounting choice is adopting the depreciable life for new plant at the high end of industry norms (in order to lower depreciation expenses) or at the level lower than the high end of industry norms.

An example of operating decision is a delay in the execution of normal maintenance procedures in one period in order to reduce maintenance costs in that period and to perform this procedure in the following period.

This kind of earnings management practices may lead to real economic costs, if the company incurs higher operating costs caused by the lack of maintenance in the future period. However, a company may pay real economic costs also *via* accounting choices. For example, it may pay a higher bonus in the subsequent period due to accounting earnings management (Ziv, 1998).

One of the most frequently mentioned targets of earnings management is the, so called, smoothing. Smoothing has existed over decades and there are two general views as to what motivates managers to smooth earnings (Aflatooni and Nikbaht, 2010). According to the first view, smoothing is an efficient vehicle for managers to reveal private information (Ronen and Sadan, 1981, Demski, 1998, Sankar and Subramanyam, 2001, Srinidhi, Ronen and Maindiratta, 2001, Kirshenheiter and Melumad, 2002, and Goel and Thakor, 2003, among others). In such case, it may play a similar role as dividend smoothing (see, for example, Miller and Rock, 1985). The second view of smoothing is the, so called, garbling, according to which smoothing is an action undertaken by managers in attempt to fool financial analysts and the shareholders and to enhance managerial compensation (Beidleman, 1973, Lambert, 1984, Arya, Glover and Sunder, 1998, and Demski and Frimor, 1999, among others).

However, smoothing is not the only possible explanation for the motives behind earnings management. Since accounting numbers have no meaning unless they are compared to some benchmarks, companies have incentive to beat such benchmark as, for example, zero earnings, earnings in the corresponding periods in the past (for example quarter-to-quarter results) or analysts' consensus forecasts (see Ronen and Yaari, 2008, Aflatooni and Nikbaht, 2010, among others). There exists evidence in the literature about earnings management aiming to exceed certain thresholds in form of a discontinuity in frequency of firms' earnings around zero or some other threshold levels (Hayn, 1995, Burgstahler and Ditchev, 1997, Degeorge, Patel and Zeckhauser, 2005).

This paper deals with the latter effect, i.e. with earnings management thresholds. Most studies focused on that problem concern economies of developed countries, but the evidence from emerging markets is limited (see, for instance, Wójtowicz, 2010). The aim of our paper is to find out whether earnings management effects exist among Polish companies and whether they are similar in nature to this phenomenon in other, developed markets.

The paper is organized as follows: section 2 presents methodology of this study, section 3 describes data sample, section 4 offers discussion of empirical results and section 5 concludes.

2. Methodology

According to common opinions, executives care about some threshold levels when they report earnings. Two of them are the main subject of analysis in our study, i.e.:

- the objective to report the profit above zero,
- the objective to achieve at least the last period's profit (i.e. not to worsen recent performance).

Our study follows the methodology of Degeorge, Patel and Zeckhauser (2005) based on the idea that execution of earnings management practices in order to reach or beat certain thresholds affects the distribution of net profits, when analyzed in a large group of companies, and can be explained on the basis of a 2-period model. In each period ($t=1,2$) the firm gets the random, independent and identically distributed draw of "true earnings" (T_1 and T_2). The "true earnings" can not be observed by outsiders who see only the reported earnings (R_1 and R_2). In period $t=1$ the executives can "manage" reported earnings by choosing an amount (M_1) that is added to earnings such that:

$$R_1 = T_1 + M_1. \quad (1)$$

The cost of "earnings management" is paid later in period *t=2*, so that:

$$R_2 = T_2 - K(M_1) \quad (2)$$

where $K(M_1)$ is the positive and increasing marginal costs of moving M_1 away from 0 and $K(0) = 0$.

In this analysis we adopt a simplifying assumption that the discount rate is equal to 0. The general meaning of equations (1) and (2) is that earnings management in period *t=1* towards increasing the net profit by 1 PLN reduces net profit in period *t=2* by more than 1 PLN (in our model M_1 may be also negative; in such case the reduction in profit by 1 PLN in period *t=1* would be followed by earnings increase in period *t=2* by less than 1 PLN).

We also assume that the company ceases to exist after period *t=2* and every relevant information is revealed at this time.

It is important to note that manipulation of earnings does not necessarily have to occur at any profit level. In fact, managers care only about particular values (which we call thresholds), because everyone concerned with the firm's performance behaves the same way. In our study, we focus on two important thresholds, i.e.:

- positive profit,
- recent performance.

Thresholds are important for several various reasons (Degeorge, Patel and Zeckhauser, 2003). Some of them are psychological in nature. First, a perception of positive and non-positive value in human mind is fundamentally different. As a result, there exists a solid division line between achieving and failing to achieve the value of earnings equal to zero. Second, earnings management across thresholds is relevant for the simplification of managers relation with shareholders and board of directors: the rewards for firms' managers – both employment decisions and compensation benefits – often depend implicitly or explicitly on the earnings for which executives are responsible and which they generate (Healy, 1985). Moreover, banks may sometimes have the policies to grant loans only to firms that report positive earnings, which also increases the role and importance of positive earnings threshold.

A certain pattern of earnings over time conveys key information to the markets about company's financial situation and its stability. For example, a report showing that earnings have been increasing during the last 7 years is a cheap and simple way of communicating that the performance of the company is systematically good.

Threshold effects may be meaningful even if only few participants react to them directly. For example, even if only banks care about thresholds, reaching

certain level of earnings will have a positive effect also for other market participants.

Our analysis is divided into the following 3 stages:

1. First, we investigate the distribution of earnings around selected thresholds, i.e. around the EPS = 0 (i.e. the positive profit threshold) and the EPS growth equal to zero (i.e. the positive earnings growth threshold),
2. Second, we check whether there is a discontinuity in the EPS around the thresholds. We apply the test of discontinuity in a univariate distribution proposed by Degeorge, Patel and Zeckhauser (2005) using the statistic τ. We examine the rank of τ at the threshold relative to the other τ's as well as its relative magnitude in order to assess whether discontinuity can be found at the analyzed threshold level.
3. Third, we control whether according to equations (1) and (2) earnings management causes predictable changes in the earnings in the next period. This way we can find out whether the companies suspected to practice EM towards the increase of earnings, experience the decrease of their earnings in the following year.

In the next sections we describe the database used in this study and present empirical results.

3. Data sample

The dataset used in this investigation consists of detailed information from income statements from 359 companies listed on the Warsaw Stock Exchange (WSE) in the period of years: 2000-2009. We selected two thresholds, i.e. positive profit and recent performance on the basis of annual and quarterly reports.

The number of quarterly reports available was 7939 and the number of annual reports was 2726.

The source of all data is "Notoria" database.

4. Empirical results

Our analysis aims to explore the extent to which executives can manage earnings to attain two threshold levels described above. We study the density function for earnings near those thresholds. If managers do indeed manage

earnings to reach certain level of them, we should expect to observe "too few" earnings reports directly below it and "too many" at or directly above it. We should also expect a discontinuity in density at the level of investigated thresholds.

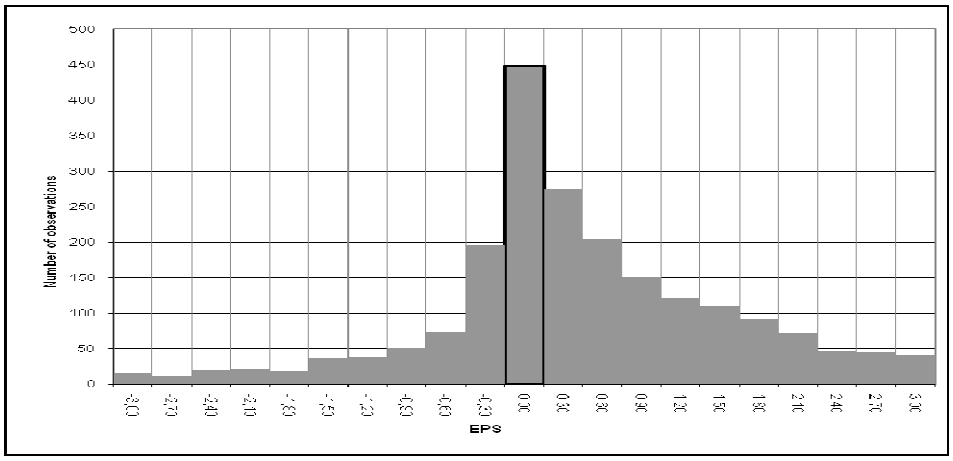
4.1. Positive profit threshold

The first threshold which we consider is probably the most natural one, i.e. the positive earnings. The analysis of this particular threshold level addresses the most important question for shareholders, namely whether the company is profitable at all.

Figure 1 presents the histogram of EPS for the threshold "positive/zero profits" for annual earnings. The distribution shows a considerable jump between the value of -0,30 and zero, which indicates that the managers strongly desire to be able to report positive earnings. The value of τ-statistic (based on the basic test for discontinuity) confirms this pattern. At EPS = 0 we obtain a τ value of 9,8, which is the highest in the sample and confirms discontinuity at that point.

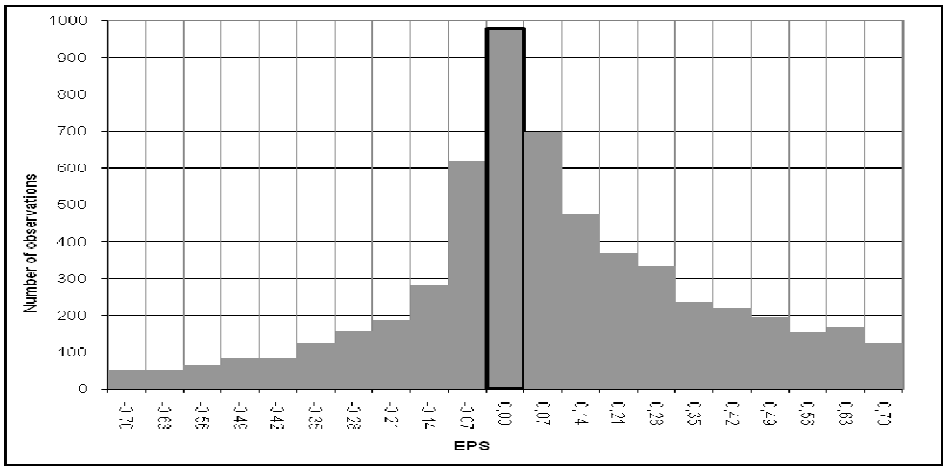
Figure 2 presents the same distribution but for quarterly EPS. The findings for this frequency of data are very similar to the results from annual data. In this case, the distribution also shows a considerable jump between the value of -0,07 and zero, so it appears that managers strongly desire to be able to report positive earnings. The value of a τ-statistic (based on the same test as before) at EPS = 0 is equal to 9,5. This, again, confirms a discontinuity at that point.

Figure 1. Histogram of annual EPS for the threshold "positive/zero profits"



Source: Own calculations.

Figure 2. Histogram of quarterly EPS for the threshold "positive/zero profits"



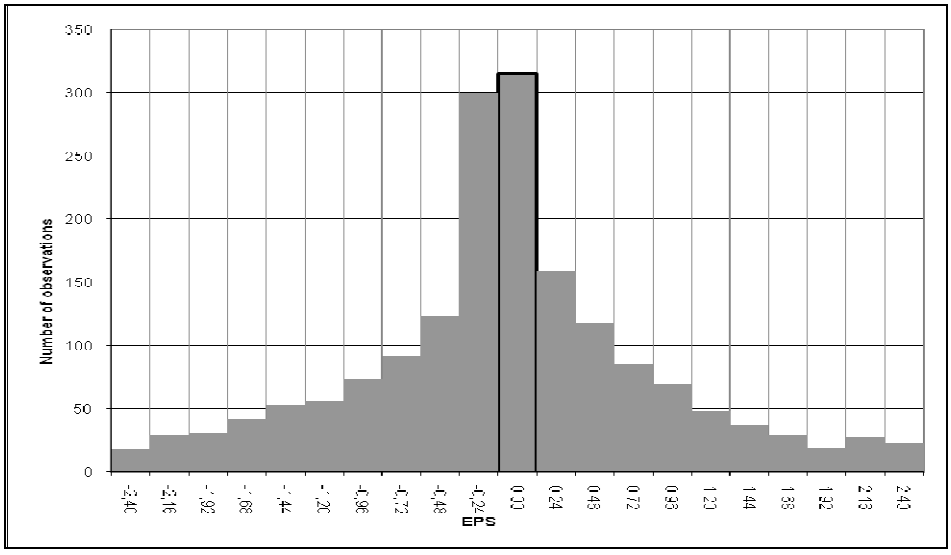
Source: Own calculations.

Summarizing, our results presented in this section provide evidence that the zero value net profit may be treated as a threshold for earnings management among the Polish companies listed at the WSE.

4.2. Positive profit growth threshold

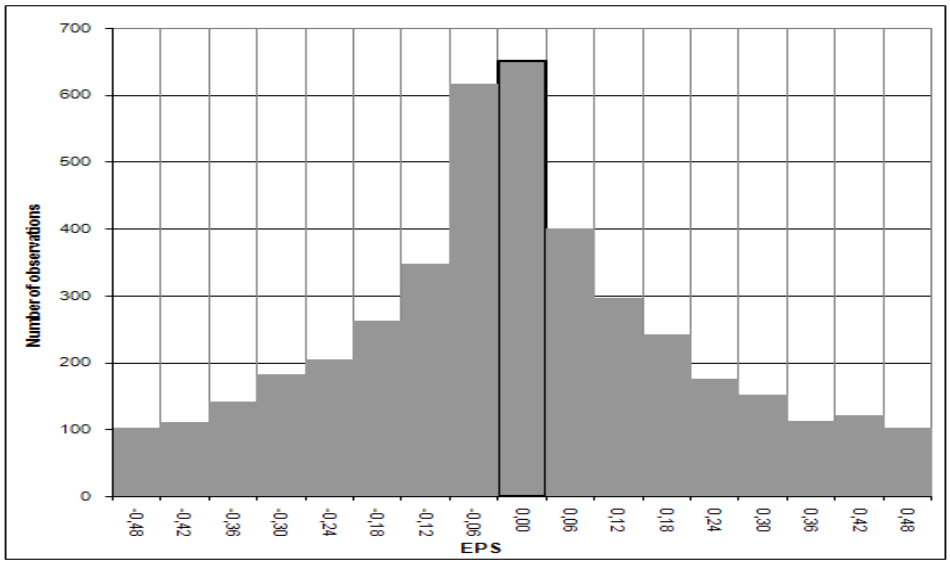
We now turn to the analysis of the positive growth threshold. Figure 3 presents results for annual EPS growth. The change in earnings, denoted as ΔEPS_A, is defined as annual EPS minus annual EPS from four quarters ago. In Figure 3 we can observe a jump in distribution at 0, however it is not as strong as in the case of the previously analyzed EPS threshold. It is worth mentioning, that in that case the jump is stronger at the level value of -0,24. This pattern of ΔEPS_A distribution is, therefore, not so strongly consistent with the view that executives manage earnings in order to achieve or beat the comparable figures relative to the results from four quarters ago (τ–test value is equal to 4,5).

Figure 3. Histogram of change in annual EPS for the threshold of "positive growth"



Source: Own calculations.

Figure 4. Histogram of change in quarterly EPS for the threshold of "positive growth"



Source: Own calculations.

Figure 4 presents distribution of quarterly EPS growth. The change in earnings, denoted as ΔEPS_Q, is defined as quarterly EPS minus quarterly EPS from four quarters ago. Figure 4 also exhibits a jump in the distribution at 0. However also in that case we can observe that a jump in distribution at 0 is not as high as in the case of the previously analyzed EPS threshold. This pattern of ΔEPS_Q distribution is, therefore, not so strongly consistent with the view that executives manage earnings in order to achieve or beat the quarterly earnings from a year ago. Nevertheless, the largest number of companies in the interval (0; 0,06); i.e directly above zero, may partly confirm that at least some managers treat the ΔEPS as a threshold.

In summary, the results presented above may be considered as evidence that positive profit is the earnings management threshold for Polish companies, whereas the positive profit growth seems to be the threshold that is much less visible. Similar evidence for the Polish market presents Wójtowicz (2010).

It is worthwhile to note that our results partly support the findings of Degeorge, Patel and Zeckhauser (2005) for the US market, according to which both the positive profit and the positive profit growth thresholds drive the EM practices, however the thresholds are hierarchically ordered and the most important objective of executives seems to be to generate positive profits whereas the aim to achieve the results at least equal to those from four quarters

ago is of secondary importance. Our study, hence, provides evidence that the behavior of Polish and American managers is similar in that respect.

4.3. The consequences of earnings management for future earnings

According to the model analyzed in equations (1) and (2), earnings management aiming to achieve thresholds in one period will affect next period's earnings. Thus, we now investigate whether following the period with likely EM, the earnings are changing according to any predicable pattern.

As in Degeorge, Patel and Zeckhouser (2005) we examine the performance of the firms suspected to practice EM, i.e. those that just achieved the thresholds relative to the performance of firms which just missed the thresholds or easily surpassed them. We divide firms accordingly into five groups: A, B, C, D and E, depending on their earnings. Each group has a range defined as in Silverman (1986) and Scott (1992), which is related to the variability of the data and (negatively) related to the number of observations:

$$k = 2 \cdot RK \cdot n^{(-1/3)} \tag{3}$$

where RK is the sample interquartile range of the variable and n is the number of observations.

Therefore, we distinguish the following groups:

- Group A consisting of firms, which failed to meet the thresholds, i.e.: $EPS < -k$,
- Group B consisting of firms, which just failed to meet the thresholds, i.e.: $-k \leq EPS < 0$,
- Group C consisting of firms, which just met or exceeded the thresholds, i.e.: $0 \leq EPS < k$.
- Group D consisting of firms, which beat the thresholds easily, i.e.: $k \leq EPS < 2k$,
- Group E consisting of firms which strongly surpassed the thresholds, i.e.: $EPS \geq 2k$.

Group C is likely to include a number of firms which by executing earnings management have increased their earnings in order to reach the thresholds. The number of such firms in Group D should be, presumably, lower.

We denote the average performance of every group by a corresponding lower-case letter and indicate the period by a subscript 1 or 2. By assumption, the following relation should hold:

$$e_1 > d_1 > c_1 > b_1 > a_1. \quad (4)$$

Normally, we would expect some persistence in both the EPS level and in the change of earnings. Thus, in case EM does not exist, we would expect the following: $d_2 > c_2 > b_2$. The question is how might earnings management affect these inequalities? Earnings recorded by companies in group C are suspected of upward manipulation. Hence, according to equation (2) c_2 would move down relative to both d_2 and b_2, so: $d_2 - c_2 > c_2 - b_2$. If the earnings management is substantial, we might even possibly observe: $b_2 > c_2$, i.e. lower performance in period $t=1$ of those companies that just fell short of reaching the threshold would turn into better performance in period $t=2$.

Table 1 presents the data regarding positive EPS level threshold and Table 2 depicts the results for positive earnings growth threshold.

Table 1. Next year's relative performance by groups formed around the positive EPS threshold

	a_1	b_1	c_1	d_1	e_1	a_2	b_2	c_2	d_2	e_2
Mean:	-9,35	-0,11	0,14	0,45	21,10	-5,52	-0,10	-0,08	0,38	8,36
Median:	-1,92	-0,10	0,14	0,45	2,13	-0,21	-0,03	0,12	0,43	1,69
Number:	384	145	360	237	1230	384	145	360	237	1230
	$c_1 - b_1 =$	0,25	<	$d_1 - c_1 =$	0,31	$c_2 - b_2 =$	0,02	<	$d_2 - c_2 =$	0,46

Source: Own calculations.

Table 2. Next year's relative performance by groups formed around the positive earnings growth threshold

	a_1	b_1	c_1	d_1	e_1	a_2	b_2	c_2	d_2	e_2
Mean:	-30,90	-0,11	0,11	0,35	11,39	2,57	0,16	-0,17	0,11	-7,11
Median:	-1,66	-0,09	0,10	0,34	1,80	0,18	0,00	0,00	0,08	-0,06
Numbe:	706	237	254	134	657	706	237	254	134	657
	$c_1 - b_1 =$	0,22	<	$d_1 - c_1 =$	0,24	$c_2 - b_2 =$	-0,33	<	$d_2 - c_2 =$	0,28

Source: Own calculations.

According to the results reported in Tables 1 and 2, group C with companies just reaching the thresholds significantly underperforms the group that missed the thresholds, which may be interpreted as the confirmation of the existence of earnings management practices within Polish companies. In both cases, i.e. the positive earnings and recent performance benchmarks, $e_2 > d_2$, as should be expected if heterogeneity in earnings outweights regression towards the mean effect. However, we are mostly interested in the relation between group C and its neighbours, i.e. groups B and D. In both cases $d_2 > c_2$, which is not surprising because firms from group D did better in period *t=1*. However, also in both cases: $d_2 - c_2 > c_2 - b_2$, which means that the relative performance of group C is worse than that of groups B and D. Moreover, in case of positive growth threshold: $c_2 < b_2$. Firms that just exceed the threshold "positive growth" appear to "*borrow*" earnings from the next year's period, which confirms predictions of the model described by equations (1) and (2).

5. Conclusions

Net profit conveys crucial information for financial analysts, investors and different groups of shareholders, who are strongly interested in financial reports of earnings when they monitor executives' performance. Managerial rewards are often linked to earnings, which in turn creates strong incentives for executives to manage profits of their companies. The analysis presented in this paper assesses the importance of thresholds from the point of view of EM and the consequences that these thresholds have for patterns of reported earnings. Our study shows how efforts to exceed thresholds induce particular pattern of EM among Polish companies listed on the Warsaw Stock Exchange. The empirical findings presented in this paper provide clear support for the existence of EM practices driven by the desire to report positive profits and weaker support for the desire to sustain recent performance. We observe discontinuities in the earnings distributions, which indicates the existence of threshold-based EM effects. It seems, however, that the threshold of positive earnings is more important which provides evidence that the activity of Polish managers in the area of EM resembles the behavior of American executives. We also find evidence that the future performance of firms just reaching the thresholds appears worse than those companies that are suspected to a smaller degree to engage in the EM practices.

Our findings may have important implications for financial analysts, investors and boards of directors in Poland. The relationship revealed in this study for the Polish market may help to predict direction of change in future

earnings and also to control whether the management of a company executes earnings management practices. Explorations of further connection between earnings and stock prices may be useful in creating investment strategies based on the findings from this study, which opens up new space for more research in this area. The results of our analysis confirm also that, similarly to developed markets, the phenomenon of earnings management exists among the companies listed on the stock market in Poland.

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Streszczenie

ZARZĄDZANIE ZYSKIEM W POLSKICH SPÓŁKACH GIEŁDOWYCH

W artykule zaprezentowano rezultaty analizy zjawiska znanego jako „zarządzanie zyskami", wśród spółek z polskiego rynku kapitałowego. Przeanalizowano rozkład zysku na akcję wokół progu „zero" oraz progu wyznaczonego w oparciu o wartości zysku na akcję z okresu przeszłego w okresie 1997-2010. Wyniki badania potwierdziły występowanie asymetrii rozkładu zysku na akcję wokół progu „zero" oraz spadek zysków w latach następujących po „zarządzaniu zyskiem" co wskazuje na występowanie analizowanego zjawiska na polskim rynku kapitałowym.

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