FACULTY OF ECONOMICS
Kazimierz Pulaski University of Technology and Humanities
in Radom

CENTRAL EUROPEAN REVIEW OF ECONOMICS & FINANCE

2015
Vol. 10, No. 4

Articles
Miscellanea

ISSN 2082-8500

Publishing Cooperation:
Instytut Naukowo-Wydawniczy „SPATIUM"
ul. 26 Czerwca 68, 26-600 Radom,
tel. 48 369 80 74, fax 48 369 80 75
e-mail: wydawnictwo@inw-spatium.pl
http://www.inw-spatium.pl

Nakład do 200 egz.

Printing House:
Mazowieckie Centrum Poligrafii,
ul. Słoneczna 3C, 05-270 Marki

Central European Review of Economics & Finance
Kazimierz Pulaski University of Technology and Humanities in Radom
Faculty of Economics
ul. Chrobrego 31, 26-600 Radom, Poland
www.cer.uniwersytetradom.pl
e-mail: cer@uthrad.pl
tel. (+48) 48 361 74 59 fax: (+48) 48 361 74 77

Contents

Articles

Miscellanea

CENTRAL EUROPEAN REVIEW
OF ECONOMICS & FINANCE
Vol. 10, No. 4(2015), pp. 5–18.

Edward Molendowski[1]

10 YEARS OF MEMBERSHIP IN THE EUROPEAN UNION – POLAND IN COMPARISON WITH THE VISEGRAD GROUP COUNTRIES[2]

Abstract

The accession of the Visegrad Group (V4) countries into the European Union was a significant impulse for further changes in those countries; these changes had already been initiated at the beginning of the 1990s, whereas the first years of the membership allowed for the creation of relatively solid and stable foundations for their further development. This paper is an attempt to compare Poland's change of economic situation and that of the other three V4 countries in the post-accession period and to define the most important factors which determine these economic situations. A hypothesis has been made that Poland is among those V4 countries where the effects of the membership have been most diversified. Because of the limitations of the size of the publication, the analysis has been based on the most important indicators characterising the economic situation of the examined countries in 2004-2014. The most important conclusions resulting from this analysis are presented in the conclusions of this paper.

JEL Classification Code: **E-2, E-6, F-4, F-5**.

Keywords: the economies of the Visegrad Group countries, the effects of EU membership, Poland in the EU, the level of economic development in Poland, openness of the Polish economy.

Introduction

Within the ten years since accession to the European Union, the new member states had both a number of successes and failures. The accession was an impulse for further

[1] Associate Professor Ph.D. Habil. Cracow University of Economics.

[2] This publication received financial support from the resources grated to the Faculty of Economics and International Relations of the University of Economics in Krakow as part of the subsidy for the maintenance of the research potential.

changes in those countries; these changes had already been initiated at the beginning of the 1990s whereas the first years of the membership allowed for the creation of relatively solid and stable foundations for their further development. Recent years (after the world economic crisis in particular) show that apart from unquestionable successes, there have been also failures. The alleviation of these failures and their outcomes will require some further structural changes.

The four countries of the Visegrad Group (V4) in the initial stage of their transformation faced the necessity to solve almost identical problems. Yet, coming across the same obstacles, these countries undertook largely diversified methods in dealing with them. The opportunities to modernise the economy and speed up development, resulting from the accession to the European Union, were also used differently. It seems that a 10 year membership in the EU is long enough to make appropriate comparisons and to evaluate the effectiveness of the adopted solutions.

This article is an attempt to compare the changes in the economic situation in Poland and in the other V4 member states as well as the factors which determine these situations in the post-accession period. A hypothesis has been made that Poland is among those V4 countries, where the effects of the membership have been most diversified. The analysis refers to the most significant indicators characterising the economic situation in the studied countries in 2004-2014, such as: GDP growth rate, inflation, unemployment, public finances balance, the relationship between foreign trade turnover and GDP.

The dynamics of economic growth

After the painful process of economic transformation initiated at the beginning of the 1990s, the Visegrad Group countries constructed efficient market economies in a relatively fast way. The market was liberalised and opened up to world competition, companies were privatised and economic policy became stable and balanced. The core institutions of the capital market were created and the banking sector went through a process of thorough change, adapting it to the needs of the new, contemporary economies. Workforce productivity and international competitiveness increased and exports also grew significantly. Countries in this region were receiving a vast inflow of investments. All these processes were crowned with accession to the European Union and EU membership solidified and accelerated these changes (Molendowski, 2009, pp. 151-152).

These positive changes found their confirmation in data concerning the rate of GDP growth, which are the most comprehensive indicators of the economic situation of the examined countries. This is illustrated in Fig. 1.

The integration and the liberalisation of trade with EU countries resulted, among others, in a fast increase in exports to EU countries. This had a positive influence on growth rate of gross national income. As it can be seen from the data presented in Fig. 1, Poland, in the entire period from 2004 to 2014, had a significantly higher rate

of GDP growth than the average rate for the EU-15 countries. The relatively highest indicators were observed in 2006-2007 and 2010-2011 as well as in 2014. As for the remaining countries of the Visegrad group, these tendencies, however, were significantly diversified. During the first 2-3 years of membership in the EU, this rate in all the countries of the Visegrad Group was slightly higher than in Poland; yet in Hungary this was the case only in 2004-2005, in the Czech Republic in 2004-2006 whilst in Slovakia, this tendency persisted slightly longer – from 2004 till 2008. After that period these indicators were significantly higher for Poland.

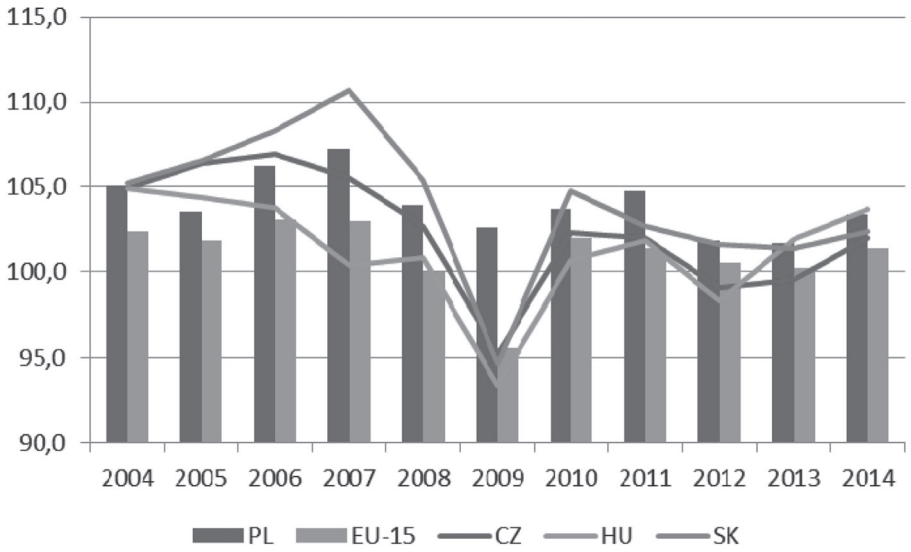


Figure 1. The GDP growth rate in V4 countries (in comparison with the EU-15) in 2004-2014 (the previous year = 100%)

Source: the author's own work on the basis of Eurostat (2015a).

As a result, during the first five years of membership (2004-2008), Poland had one of the highest GDP growth rates in the V4 (in 2008 it was 29.2% higher than in 2003). Only in Slovakia was the GDP growth rate higher at that time (43.3%). In the Czech Republic, the growth rate was slightly lower than in Poland (27.6%). Hungary, in turn, was the country which experienced the lowest GDP growth in the V4 group (by 14.6%). To compare, in the EU-15 countries, this growth amounted to 16.2%. It is worthwhile to stress that the GDP growth in Hungary was also lower than the average growth in the group of the fifteen old EU member states (17.3%). This is illustrated in the data presented in Figure 2.

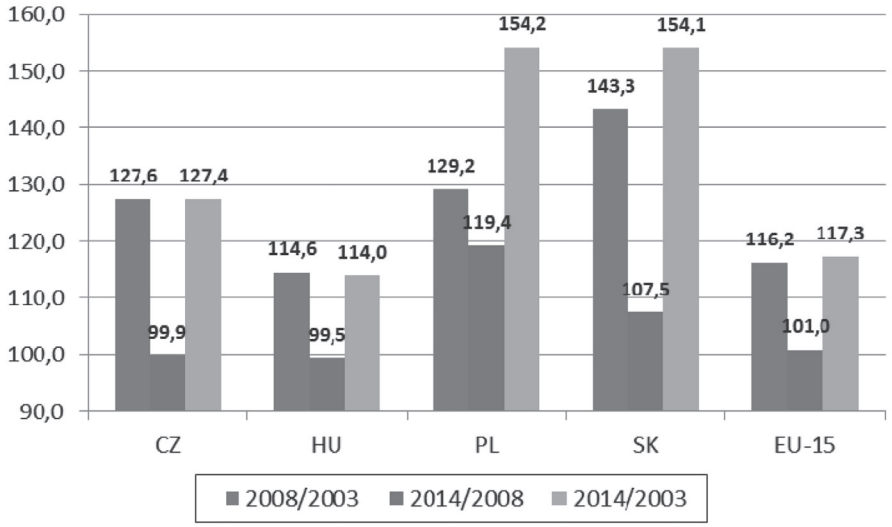


Figure 2. The dynamics of Polish real GDP in comparison with the countries of the V4 and EU-15 in 2004-2014 (in %)

Source: the author's own work on the basis of Eurostat (2015a).

In 2009, when the GDP growth rate in the EU-15 and V4 states significantly dropped as a result of the world economic crisis, growth was still positive in Poland. As a result, in the period immediately following the crisis (2009-2014), Poland's GDP grew by 19.4%. The positive rate of GDP growth was also observed in Slovakia (7.5%). In fact GDP in Hungary and in the Czech Republic in the period directly after the crisis did not increase at all (its value was even slightly lower in 2014 than in 2008).

As a result, in the entire post-accession period (2004-2014) Poland could be characterised as having the highest GDP growth in the V4 group. Its level in 2014 was 54.2% higher than in 2003. Similar growth (54.1%) was observed in Slovakia. At that time the GDP growth in the Czech Republic was 27.4%. The situation was the worst in Hungary, where the GDP growth rate (14.0%) was not only lower than in other V4 countries, but also lower than the rate for the entire EU-15 (17.3%).

One of the most important tasks faced by the countries in transformation, in particular those within the Visegrad Group, was to decrease their lag behind the EU-15. The catching up process comprised many fields, including the GDP *per capita* level calculated according to purchasing power parity (PPP), as the absolute value, and also in relation to the mean value gained by those countries. As a result of the above described rate of Poland's economic growth, which was faster than in the entire EU-15 and V-4 throughout the period following accession, the GDP *per capita* level in Poland was making ground on that of the EU-15. It is worthwhile stressing that Poland (and Slovakia) were the most successful countries in this respect.

As can be seen from the calculations made on the basis of the Eurostat data (Eurostat, 2015b), illustrated in Figure 3, in the first year of EU membership Poland had the lowest level of GDP *per capita* as per PPP in the entire V4 group (43.3% of the EU-15 average), occupying the last position on the list. In 2014 this level in Poland was 62.4% and 19.1 p.p. higher than in 2004. During that period, only Slovakia made better progress (increasing by 20.5 p.p.). The slowest progress was observed in the Czech Republic (7.5 p.p.) and Hungary (7.7 p.p.). It must be mentioned that in 2004 the GDP level *per capita* in Poland was only 10.9 thousand EUR; whilst in 2014 it reached the level of 18.6 thousand EUR (with the EU-15 mean value amounting to 25.4 and 29.8 EUR respectively).

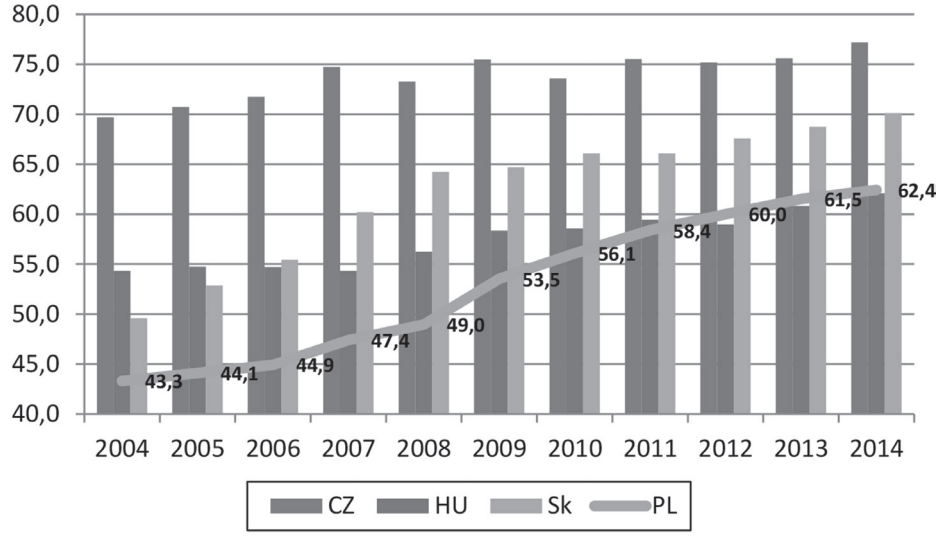


Figure 3. GDP *per capita* as per PPP in Poland in comparison with the V4 countries in 2004-2014 (EU-15=100)

Source: the author's own work on the basis of Eurostat (2015b).

It must also be stressed that since accession into the European Union, the Polish economic situation within the group has significantly improved. Poland's share in the aggregate GDP of all the countries currently belonging to the EU, calculated as per PPP, increased from 3.6% as of 2004 to 4.1% in 2007 and 5.1% in 2014. (Matkowski, Rapacki & Próchniak, 2015, p.19).

This success of Poland was the result of a positive and relatively high GDP growth rate throughout the entire analysed process (including also the years immediately following the world economic crisis). Slovakia's success can be attributed to a relatively short period of GDP decrease during the crisis and membership in the Euro zone. The situation in the Czech Republic, in turn, was greatly influenced by a period of long recession and a high baseline level in 2004. (Gawlikowska-Huecel & Zielińska-

Głębocka, 2015, pp. 146-147). The Hungarian situation resulted from a relatively low GDP growth rate in 2006-2013 (hence, almost the entire period in question). This must be connected in particular with mistakes in the economic policy of consecutive groups in power (see more in Czekaj, 2014).

The situation of the public finance sector

The accession treaties imposed on the new member states an obligation to carry out the reform of public finances in accordance with the requirements of the Stability and Growth Pact and the excessive deficit procedure, as the guarantee of financial stability was regarded as a significant foundation of sustainable economic growth.

The key indicators used in the analysis of financial stability comprise the level of public debt and the budget deficit balance in relation to GDP. The incompatibility of public expenditure to generated income, existing since the beginning of the process of transformation in all of the analysed countries, was still present after the accession to the European Union. This must be considered an adverse phenomenon, as in the long run it poses a serious threat to the perspectives of stable economic growth (see more in Michalski, 2014, p. 51-67: Michalski, 2015, pp. 54-76).

The calculations made on the basis of the Eurostat data (Eurostat 2015c), the results of which are presented in Figure 3, suggest that Poland (apart from Hungary) belongs to those V4 countries which had the highest state budget deficit level over the entire studied period. In the case of Poland, the reference value (-3.0 % GDP) was exceeded each year with the exception for 2007 and in the case of Hungary – for 2012-2014. Yet in the entire period 2004-2014 the average annual state budget deficit in Hungary was 5.0%, whilst in Poland – 4.5%.

Given these criteria, the situation was the best in the Czech Republic and Slovakia, where the reference value was exceeded only 3 (the Czech Republic) and 2 times (Slovakia). It is worth adding that both countries were characterised by a deficit that was lower than 3.0% in 2004-2008. This level was exceeded only in 2009 after the onset of the world economic crisis.

It is also interesting to compare Poland's situation with that of the remaining countries within the Visegrad Group. The Czech Republic, in all the years of the period in question (with the exception of 2012), had a public finances deficit lower than Poland; whereas Slovakia, for the majority of the studied period (except for 2009 and 2012) and Hungary, from 2004 till 2008, had deficits higher than Poland; however, since 2009, these deficits were lower than Poland's. Thanks to the consolidation efforts undertaken by the governments of Hungary, the Czech Republic and Slovakia, in 2013 the level of public debt was lowered, so the excessive deficit procedure was withdrawn in relation to these countries. Only Poland, in 2013, did not meet the convergence criteria (Piotrowski, 2014, p. 36), therefore the excessive deficit procedure towards Poland was withdrawn as late as the first half of 2015.

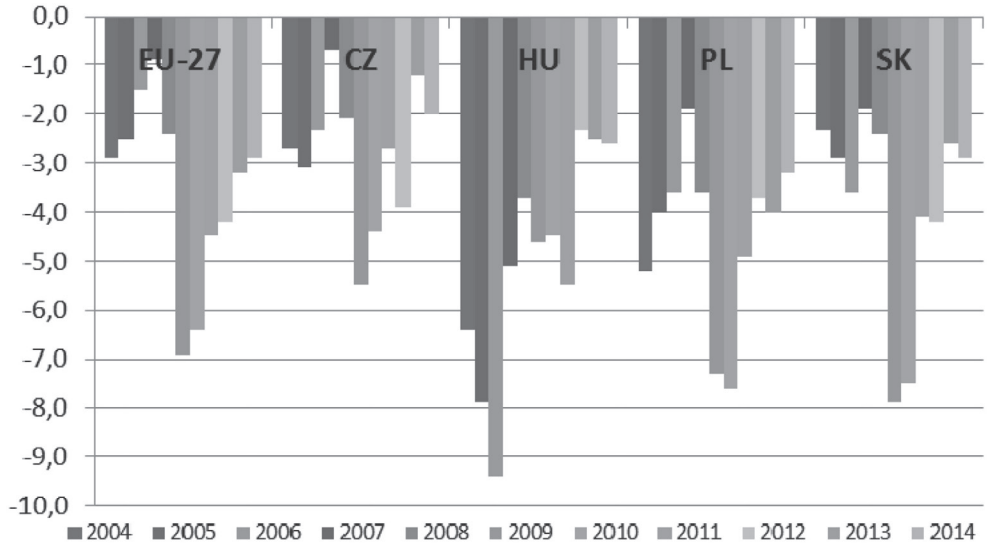


Figure 4. The public finances balance in Poland in 2004-2014, as compared with the V4 c and EU-27 countries (in GDP %)

Source: the author's own work on the basis of Eurostat (2015c).

Maintenance of the high negative deficit of public finance led to the indebtedness of the public finance sector in all V4 countries. This is illustrated by the data presented on Figure 5.

In the case of Poland, the debt amounted to 45.3%, yet in the years to follow, it began to grow (it decreased slightly only in 2007) and since 2010 it has dangerously begun to approximate 60% of GDP (which is one of the two convergence criteria for EU countries) and the prudence threshold of 55%, specified in Polish regulations. In 2014, this adverse tendency stopped.

As far as these criteria are concerned, the situations of the Czech Republic and Slovakia must be regarded as the most advantageous. The Czech Republic, at the beginning of the period in question, already had a relatively low level of public debt (in 2004 it was only 28.5%). This favourable tendency remained until 2008. The world economic crisis and its adverse effects led to a relatively fast increase in this level from 2009 to reach a value of 45.0% in 2013. In 2014 this tendency stopped.

Slovakia was relatively in the best situation, as there, public debt, in relation to GDP in 2004-2008, decreased even year in, year out. This decrease of the debt resulted from the preparations for entry into the Euro zone in 2009 and undergoing efforts to meet the Maastricht criteria. However, despite these actions, since 2009 (similarly to other V4 countries) public debt had begun to grow year by year, stopping eventually in 2014.

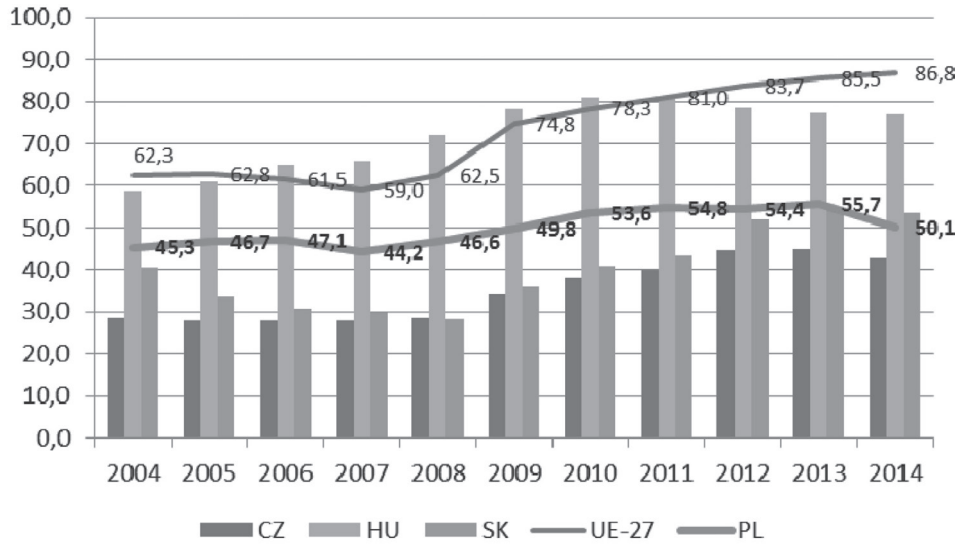


Figure 5. The indebtedness of the public finance sector in Poland in 2004-2014 (in comparison with V4 and EU-27 countries)

Source: the author's own work on the basis of Eurostat (2015d).

The worst situation in this respect could be observed in Hungary. In the case of this country, public debt, in the entire period in question, was the highest among all V4 countries. In 2009-2011 it amounted to as much as around 80% of GDP, falling only in 2012, thanks to, among others, the introduction of significant changes in the system of retirement benefits.

Inflation

The struggle against inflation was one of the core elements in the programs of economic stabilisation implemented in the initial stage of the period of transformation. Ten years after their implementation, the inflation rates in the majority of new member states have been reduced to a one-digit level [Molendowski, 212, pp. 67-70; Molendowski, & Stanek, 2015, p. 178]. In the Visegrad Group countries, in the first years of their EU membership (2004-2006), the average annual inflation rate was decreasing year in, year out. In this period, the highest annual inflation rate was the highest in the case of Hungary and Slovakia (the levels oscillated around 4.0-7.5%). Yet, in 2007-2008, these rates grew significantly in both countries, peaking in Hungary (with a value of 7.9%). This is illustrated in Figure 6.

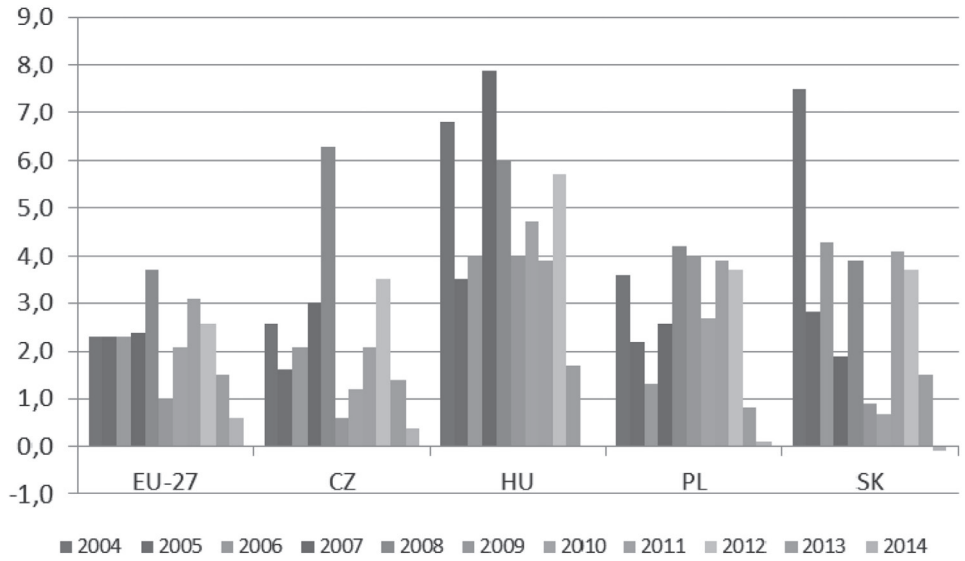


Figure 6. Inflation rate (HICP) in Poland in 2004-2014 (in comparison with V4 and EU-27 countries

Source: the author's own work on the basis of Eurostat (2015e).

It must be stressed that after the sudden increase in the inflation rate in 2007-2008, the years to follow witnessed a downward shift. In 2014, this level was lower than 0.5% in the studied countries, whilst, in Slovakia, there was even deflation (-0.1%). This was the lowest inflation rate since the beginning of the transformation. This situation could be attributed mostly to a decrease of consumption demand and a period of economic crisis. It must be noted that Poland (together with the Czech Republic) belonged to those countries with the lowest inflation rates during the entire period in question; this highlights the great progress made in comparison with the situation from 1990s.

Labour market and unemployment

The situation in the labour market in the Visegrad Group countries significantly improved in the period following the accession. Poland was the most successful here. During the first year of membership in the EU, Poland had the highest rate of unemployment (19.1%). However, the period until 2008 brought significant progress in this respect – the unemployment rate dropped to 7.1%. Similar success was noted also in the case of Slovakia (a decrease from 18.4% to 9.6%). In the case of the Czech Republic, the situation was less spectacular: these rates were 8.3% and 4.4% respectively. In Hungary, in turn, this situation, during the same period was entirely

different. In 2004, the rate of unemployment was relatively low, i.e. 6.1%, growing in the years to follow, and finally stabilising in 2010-2013, reaching the highest level among the V4 countries: 11.0%. This tendency is illustrated in Figure 7.

The deterioration of the economic situation in the second half of 2008 led to the reversal of the earlier trend in employment. A slow-down in economic growth, a decrease of export and industrial production, led to an increase in unemployment. As a result, the unemployment rate, after a period of decline over several years, grew significantly in the whole region. This situation continued in all analysed countries until 2013. In 2014, a slight fall in the unemployment rate was observed in comparison with the preceding year. Eventually, in 2014, the largest unemployment rate was observed in Slovakia (13.2%), then in Poland (9.0%), Hungary (7.7%) and the Czech Republic (6.1%). It must be added that the unemployment rate in the Visegrad Group countries over the whole study period was basically above the EU-27 average (only the Czech Republic and Hungary were an exception here, yet solely in 2004-2006).

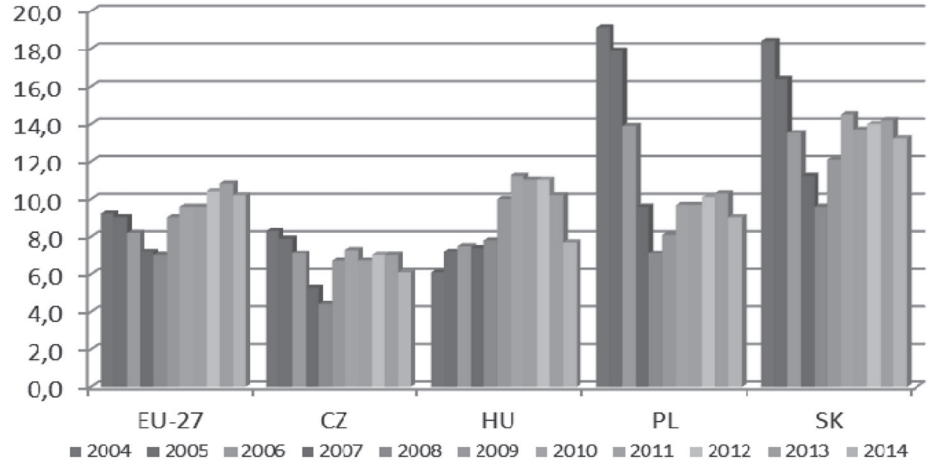


Figure 7. The rate of unemployment in Poland in 2004-2014 (in comparison with V4 and EU-27 countries)

Source: the author's own work on the basis of Eurostat (2015f).

Openness of economies

Openness to foreign trade is a factor which plays a special role in the modernisation of economies and the solidification of their competitiveness. The liberalisation of foreign trade started in the V4 at the beginning of the 1990s and significantly advanced at the moment of EU accession; this led to the large-scale opening up of the economies of those countries to foreign competition. During the first years following the accession, the degree of openness was particularly high in the Czech Republic,

Slovakia and Hungary and much lower in Poland. In 2004, the ratio between trade and GDP amounted to more than 100% in these countries (in the case of Slovakia – 136.2%, the Czech Republic – 121.6% and Hungary – 113.7%), in Poland this was only 64.8%. The years that followed were characterised by an increase in the differences in the level of openness between Poland and the other three countries of the Visegrad Group: the level of economic openness in Hungary in 2014 was higher by 41.7 p.p., in the Czech Republic – by 38.7 p.p., in Slovakia – by 31.8 p.p., whereas in the case of Poland it was only 15.1 p.p higher. As a result, in the last year of the analysis, the level of openness of the Polish economy (the relation between foreign trade and GDP amounting to 80 %) was half as low as in the other Visegrad Group countries. This is illustrated in Figure 8.

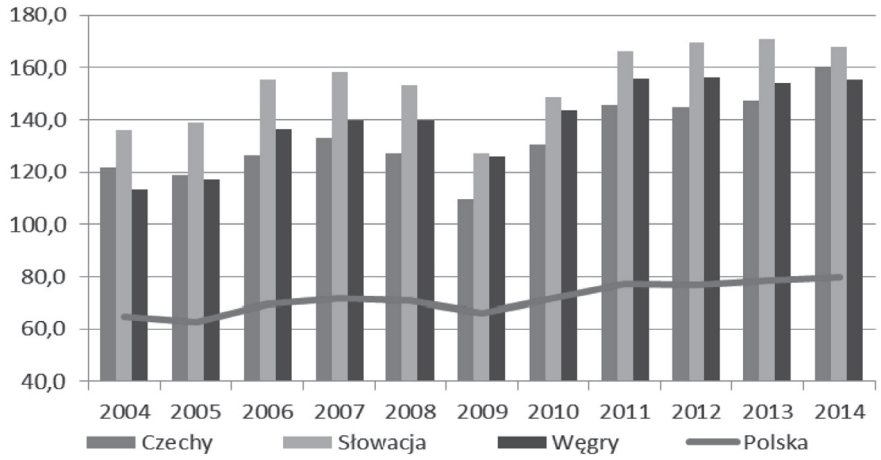


Figure 8. The relationship between trade and GDP in Poland in 2004-2014 (in comparison with V4 countries)

Source: the author's own work on the basis of Eurostat (2015h).

The world economic crisis had an adverse effect on the level of openness of the Slovakian economy. The openness index lowered by 25.5 p.p in 2009 in comparison with the preceding year. It then grew in 2010, yet the level of the year 2008 was exceeded only as late as in 2011. This must be attributed to the susceptibility of the Slovakian economy to cyclical fluctuations of its main partners resulting from the domination in exports of the motor industry, sensitive to the business cycles.

It must be stressed that the strong relationship between trade and the GDP in the case of smaller countries, such as Slovakia, Hungary and the Czech Republic, proves on the one hand their openness to foreign competitiveness and on the other that it might be a source of problems like, for instance, the creation of a dual economy in Hungary (a very effective export sector and a less effective domestic one), or sus-

ceptibility to cyclical fluctuations present among the partners, which is the case for Slovakia. Poland, in turn, as a country with a much larger internal market than in the case of other V4 counters is „bound" to a lesser extent to have trade relations with foreign markets (Zielińska-Głębocka, 2013, pp. 22-23).

Final conclusions

Accession to the European Union gave Poland and other Visegrad Group countries fast economic growth paired with restructuring and modernisation. A membership period of 10 years was long enough to allow for comparisons and an evaluation of the effectiveness of the solutions adopted in Poland and other countries. The following conclusions can be drawn from the presented analysis of the most important economic indicators characterising the changes of the economic situation of the studied countries in 2004-2014:

- In spite of slowing down its dynamics during the economic crisis, GDP grew significantly in all studied countries. Poland (similarly to Slovakia) is noted here as having one of the highest growth rates. It must be stressed that Poland was the only country in the Visegrad Group (and also in the European Union) to avoid the recession during the global economy crisis;
- GDP *per capita* as per PPP in Poland, reached, in 2014, 62.4% of the mean value for the EU-15. This means that in comparison with 2004, our country „caught up" almost 20 p.p. A similar result was observed only in Slovakia. At the same time, Poland managed to outrun Hungary in this respect;
- A great challenge both for Poland and Hungary was to maintain the discipline of public finances. An adverse phenomenon was that an excessive deficit of public finances remained, leading to a surge in public debt. During this entire period, the deficit of public finances in Poland amounted annually to 4.5%, which is much above the reference value. Only in the case of Hungary was the situation worse. The Czech Republic and Slovakia managed to cope better with this situation. As a result, relative public debt was much higher in Poland than in the Czech Republic and Slovakia, and in 2014 it had dangerously begun to approximate 60% of GDP (which is one of the convergence criteria for EU countries). It must be mentioned however that public debt in Poland remained on a lower level than the average for the entire EU;
- The economic growth in the studied countries was taking place in conditions of inflation higher than the average level for the EU, yet its level was reduced almost to 0%. Poland (together with the Czech Republic) belonged to the countries with the lowest inflation rates during the entire period in question; great progress in comparison with the situation from 1990s was made;
- Success in comparison with other studied countries was noted in Poland in the field of counteracting unemployment. During the first year of Poland's membership in the EU, Poland had the highest unemployment rate (19.1%), but in 2014,

the unemployment rate fell to only 9.0%. However, the rate of unemployment here was higher than in Hungary and the Czech Republic;

- A significant role in the modernisation of the economy and increasing its competitiveness is played by openness to foreign trade. Although access to the EU and the liberalisation of foreign trade accelerated Poland's foreign trade, its relation with GDP was one of the lowest in the V4. It seems that many things must be done in this respect, although Poland, as a country with a relatively larger internal market is „bound" to a lesser extent to have trade relations with foreign markets;
- A great challenge for the studied countries was the 2008+ global financial crisis and the crisis of the Euro zone; apart from the unsolved internal problems, there also appeared external ones. Accession into the EU did not protect the studied countries against the negative outcomes of the crisis, but it managed to attenuate them. It must be stressed that Poland, avoiding recession, managed to cope with the outcomes of the crisis most effectively in the studied group;
- In spite of similar historic circumstances and experiences, including the system transformation at the beginning of 1990s and unquestionable success stemming from accession into the EU, the economies of Poland and other countries within the Visegrad Group differ significantly from one another. The analysis carried out in this field allows one to state that Poland (similarly to Slovakia) was the most successful in taking advantage of the post-accession period for the modernisation of its economy and approximating the level of development to the average development level in the EU-15. The worst results in this respect were observed in Hungary.

References

Czekaj, J. (2014, May 26). *Cud nad Balatonem*. Rzeczpospolita.

Eurostat (2015a). Real GDP growth rate – volume. Percentage change on previous year. Retrieved October 24, 2015, from http://ec.europa.eu/eurostat/eurostat/tgm/table.do?tab=table&init=1&plugin=1&language=en&pcode=tec00115

Eurostat (2015b). Purchasing power parities (PPPs), price level indices and real expenditures for ESA2010 aggregates [prc_ppp_ind]. Retrieved October 24, 2015, from http://appsso.eurostat.ec.europa.eu/nui/show.do

Eurostat (2015c). General government deficit (-) and surplus (+) – annual data. Retrieved October 24, 2015 from http://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&plugin=1&language=en&pcode=teina200

Eurostat (2015d). General government gross debt – annual data. Retrieved October 24, 2015 from http://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&plugin=1&language=en&pcode=teina225

Eurostat (2015e). HICP – inflation rate. Retrieved October 24, 2015 from http://ec.europa.eu/eurostat/eurostat/tgm/table.do?tab=table&init=1&plugin=1&language=en&pcode=tec00118

Eurostat (2015f). Unemployment rate, by sex. Retrieved Februar 27, 2015 from http://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&plugin=1&language=en&pcode=tsdec450

Eurostat (2015g). Gross domestic product at market prices. Retrieved December 1, 2015 from http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&plugin=1&language=en&pcode=tec00001

Eurostat (2015h). EU Trade Since 1988 By HS6 Retrieved December 1, 2015Easy Comext DS-016894-EU Trade Since 1988.

Gawlikowska-Huecel, K. & Zielińska-Głębocka, K. (2015). *Doświadczenia 10 lat członkostwa w Unii Europejskiej. Sukcesy i porażki krajów Grupy Wyszehradzkiej w sferze gospodarczej*. In E. Małuszyńska, I. Musiałkowska, G. Mazur (Ed.), *Unia Europejska 10 lat po największym rozszerzeniu*. Poznań: Wydawnictwo Uniwersytetu Ekonomicznego w Poznaniu.

Matkowski, Z., Ryszard Rapacki, R. Próchniak, M. (2015). *Porównanie wyników gospodarczych w latach 2004–2014: Polska na tle UE i wybranych rynków wschodzących*. In M. Weresa (Ed.). *Polska – Raport o konkurencyjności 2015. Innowacje i pozycja konkurencyjna polskiej gospodarki w latach 2007-2014*. Warszawa: Oficyna Wydawnicza Szkoła Głowna Handlowa w Warszawie.

Michalski, R. (2014). *Polityka finansowa państwa wobec groźby zmniejszenia dynamiki wzrostu*. In *Gospodarka i handel zagraniczny Polski w 2013 roku*. Warszawa: IBRKK.

Michalski, R. (2015). *Pokryzysowa polityka finansowa państwa – trop de zéle néolibéral*. In *Gospodarka i handel zagraniczny Polski w 2014 roku*. Warszawa: IBRKK.

Molendowski, E. & Stanek, P. (2015). *Poziom zadłużenia a wzrost gospodarczy i sytuacja ekonomiczna w nowych krajach członkowskich (UE-10) po akcesji do Unii Europejskiej*. In E. Małuszyńska, G. Mazur. P. Idczak (Ed.), *Unia Europejska wobec wyzwań przyszłości. Aspekty prawne, finansowe i handlowe*. Poznań: Wydawnictwo Uniwersytetu Ekonomicznego w Poznaniu.

Molendowski, E. (2009). *Kraje Europy Środkowo-Wschodniej – czy akcesja do Unii Europejskiej pomoże w przezwyciężeniu kryzysu?* In A. Prusek (Ed.), *Wyzwania polityki ekonomicznej w warunkach światowego kryzysu finansowego i gospodarczego*. Kraków, Wydawnictwo Uniwersytetu Ekonomicznego w Krakowie.

Molendowski, E. (2012). *Integracja handlowa w Nowych Państwach Członkowskich (UE-10)*. Warszawa: Difin.

Piotrowski, J. (2014). *Konwergencja Polski z Unią Europejską w ujęciu makroekonomicznym*. In E. Kaliszuk (Ed.), *Dziesięć lat Polski w Unii Europejskiej*. Warszawa: IBRKK.

Zielińska-Głębocka, A. (2013). *Sytuacja gospodarcza państw Grupy Wyszehradzkiej w procesie transformacji i integracji z Unią Europejską*. In A. Zielińska-Głębocka & K. Gawlikowska-Hueckel (Ed.), *Konkurencyjność międzynarodowa i regionalna państw grupy Wyszehradzkiej: Polski, Węgier, Czech i Słowacji*. Gdańsk: Wydawnictwo Uniwersytetu Gdańskiego.

CENTRAL EUROPEAN REVIEW
OF ECONOMICS & FINANCE
Vol. 10, No. 4(2015), pp. 19–33.

Anna Odrobina[1]

CHANGES IN GLOBAL RESEARCH AND DEVELOPMENT: DECENTRALISATION OR A NEW CONCENTRATION?[2]

Abstract

Since the 1990s, the highly concentrated field of global research and development (R&D) has been undergoing a series of changes, which many scholars interpret as a shift toward increased decentralization. A dynamic rise in R&D spending has been accompanied by greater contributions from countries outside the Triad, also via the activity of transnational corporations (TNCs), which boost their R&D expenditure on the one hand, and serve as the driving force behind R&D internationalisation on the other. While it once seemed that decentralisation would continue, a closer analysis of global R&D suggests that its concentration has actually increased since the middle of the second decade of the 21st century. The decentralization of R&D has led to a dynamic rise in the global importance of China and South Korea, which in turn triggered a new concentration process and a shift of global R&D toward a new centre in East Asia. The process of decentralisation, which causes a diffusion of R&D across a large number of actors, including developing countries, affects global R&D to a lesser extent than the new process of concentration, which now seems to be gathering momentum.

JEL Classification Code: **F23,O30, O39**.

Keywords: Global R&D, transnational corporations, concentration ratio, new global R&D structure, R&D decentralisation, R&D global leaders, China, South Asia.

Introduction

For decades, research and development in the world economy has been highly concentrated within a small group of countries. However, decentralising changes

[1] Ph.D., Assistant Professor at the Cracow University of Economics.

[2] The project was financed from funds allocated to the Faculty of Economics and International Relations at the Cracow University of Economics, in the framework of the grants for the maintenance of research capacity.

have already been underway in global R&D since the 1990s; an ever greater role today is played by economies outside the Triad. The investment behaviour of transnational corporations, a key entity in global R&D, likewise seems to proceed toward decentralisation.

The purpose of this article is to determine whether observed changes in global R&D indeed have led to decentralisation, i.e. the diffusion of R&D activity in the world economy. Major trends in global R&D are outlined to enable an analysis of the concentration level in the 1981–2013 period based on two indicators: the Cr_k concentration ratio and the Herfindahl-Hirschman Index (HHI). The analysis is focused on R&D investment in individual economies, as well as a group of one thousand transnational corporations with the highest R&D activity. Results are used to define the current model of global R&D.

Global R&D: evolution and trends

Global R&D investment has seen dynamic growth since the 1980s, owing to the process of globalisation and the associated rapid technological progress, fuelled by greater R&D expenditures aimed at generating new knowledge and technology. Globalisation gave rise to the new concept of the knowledge-based economy, where knowledge represents an essential factor of production, the resources of which determine the standing of a given country in the world. This has increased the importance of knowledge; its dynamic development is now promoted by a boost in research and development investment on an unprecedented scale. The greatest growth has been observed since the middle of the 1990s. In 1981, global R&D amounted to c. 163 billion USD; by 1989, the had figure doubled. In 1995, the value approached 473 billion and reached c. 678 billion in 2000, 1.3 trillion in 2010, and 1.6 trillion in 2015 (fig. 1). To sum up, global R&D investment saw a nearly tenfold increase between 1981 and 2013 and more than trebled in the 1995-2013 period alone. It is also worth noting that global R&D continued to increase even in periods of economic downturn and the global economic crisis. The immunity of R&D investment to recession can be attributed to continuing strong pressure to generate knowledge and technology.

As shown in fig. 1, global R&D investment has always shown a high degree of concentration. Until the end of the 1980s, it was almost the exclusive province of five countries: the USA, Japan, Germany, France, and Great Britain. These five economies accounted for 85% of global R&D, with the US markedly in the lead: the American contribution exceeded the total investment made by the other four countries put together. In the second half of the 1990s, two Asian countries joined the fray: South Korea (in 1995) and China (in 1997). The importance of China, in particular, has been growing ever since. In 2004, it ranked third in terms of R&D investment size (following the US and Japan), and, from 2009 onwards, has been steadily strengthening its position as the world's runner-up. South Korea, on the other hand, has been ranked

fifth worldwide ever since 2010. China and South Korea have thus joined the group of five traditional leaders for the long run. Currently, these seven countries account for nearly 80% of global R&D investment; this new system remains highly concentrated.

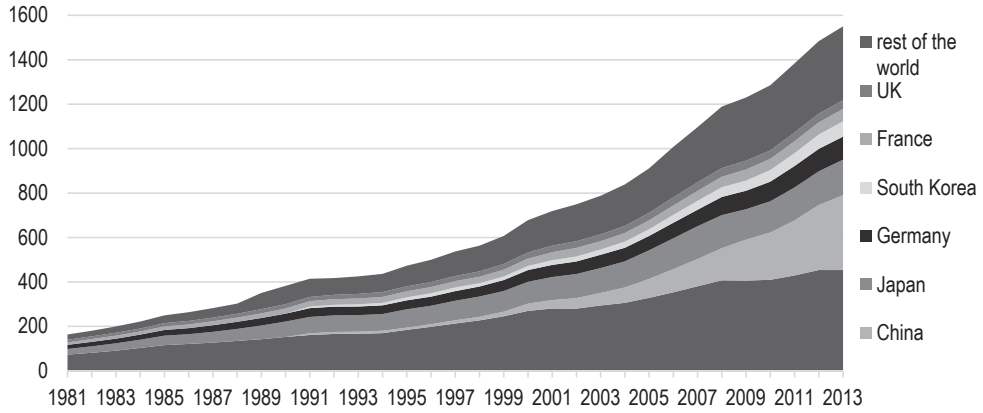


Figure 1. Global R&D investment (billions USD, PPP)
Source: analysed by the author based on OECD (2015).

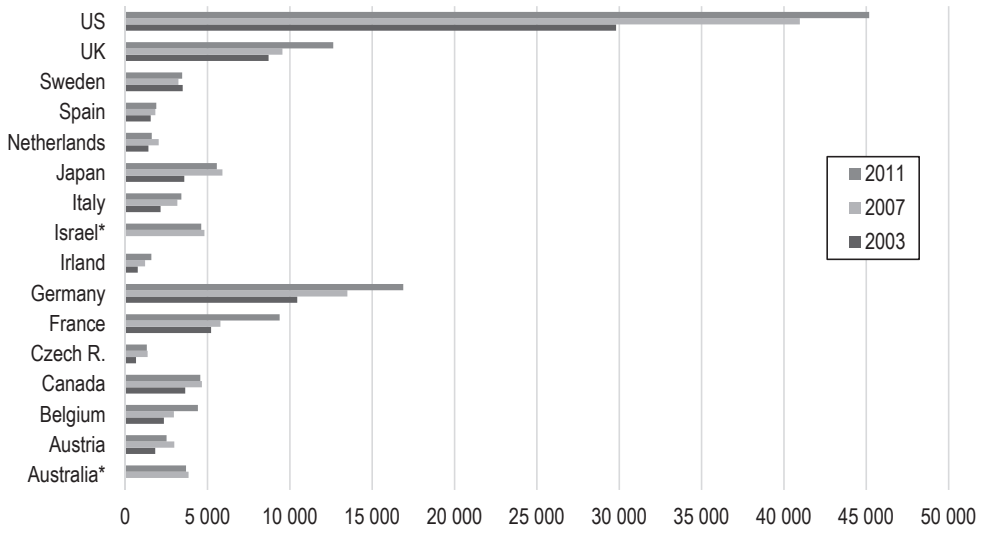
As shown in fig. 1, global R&D investment has always shown a high degree of concentration. Until the end of the 1980s, it was almost the exclusive province of five countries: the USA, Japan, Germany, France, and Great Britain. These five economies accounted for 85% of global R&D, with the US markedly in the lead: the American contribution exceeded the total investment made by the other four countries put together. In the second half of the 1990s, two Asian countries joined the fray: South Korea (in 1995) and China (in 1997). The importance of China, in particular, has been growing ever since. In 2004, it ranked third in terms of R&D investment size (following the US and Japan), and, from 2009 onwards, has been steadily strengthening its position as the world's runner-up. South Korea, on the other hand, has been ranked fifth worldwide ever since 2010. China and South Korea have thus joined the group of five traditional leaders for the long run. Currently, these seven countries account for nearly 80% of global R&D investment; this new system remains highly concentrated.

Despite the high concentration of global R&D, a decentralising process has been underway since the 1990s, and R&D is now on the rise in centres other than the traditional Triad (OECD, 2011; Kehal & Singh, 2006, pp. 432-446). An important surge in R&D investment can be observed in the developing world (Borras & Hakonsson, 2012): in 2013, countries from outside the top seven invested c. 332 billion USD in research and development, as compared to 336 billion in China and approx. 453 billion in the US. Decentralisation has accelerated since 2000, further increasing the

role of other developed and developing countries, primarily Russia, India and Brazil (UNCTAD, 2005a, pp. 3-4; 2005c, pp. 7-10; OECD, 2010, pp. 118-121). Of course, R&D decentralisation is mainly reflected in the success story of China and South Korea, which have now joined the traditional global leaders (Hiratuka, 2011; Lu & Chen, 2012). This issue has been addressed in many publications, including several OECD and UNCTAD reports, which hail it as an opportunity for developing countries to participate in the global mechanism of generating knowledge through increased R&D (UNCTAD 2005b, pp. 97-103; UNCTAD 2009, pp. 29-30; OCDE, 2007). R&D decentralisation is also linked to a process of internationalisation spearheaded by transnational corporations.

It should be noted that TNCs play a particularly important role in global R&D, accounting for nearly half of total R&D investment in the world, and serve as the mainspring of R&D internationalisation through foreign direct investment in research and development activity (OECD, 2008; European Commission, 2012a). TNCs locate their R&D centres in various countries around the world and often create R&D departments as part of their production and services base (UNCTAD, 2011, pp. 6-13; Farrell, 2006, pp. 89-94). They contribute to the internationalisation of research and development, creating global innovation networks that generate knowledge and technology in different countries across the world (Contractor et al, 2011, pp. 168-190). It is precisely the strategy of transnational corporations that propels the diffusion of R&D activity in the global economy; even developing countries can benefit from the process if a TNC selects them as a location for a new R&D centre. The R&D potential of TNCs is substantial; R&D expenditures of individual corporations often exceed those of many countries. For this reason, TNC behaviour will largely determine the shape of global R&D.

As mentioned before, TNCs play a decisive role in the process of R&D internationalisation by moving their R&D centres outside their country of origin (Morcos, 2003). In practice, they often pick locations in developing countries (Shackelford, 2012), but the major R&D investment flows still continue to occur between traditional centres, i.e. the US and Western Europe, as shown in fig. 2. The highest values can be observed in the US-based branches of transnational corporations (c. 45 billion USD in 2011), originating mainly in Europe and Japan. In Europe, on the other hand, investment is attracted primarily by Germany, Great Britain, and France, with the highest activity shown by American companies. It should be noted that foreign TNC investment in these main centres grew between 2003 and 2011, which means that foreign R&D locations also became more concentrated over that period. The principal centres attract the most foreign R&D investment flows. Indeed, TNCs also choose locations in developing countries, but their involvement there is significantly lower (UNCTAD 2005a, p. 12; Contractor et al, 2011, pp. 48-72; UNCTAD 2011, pp. 12-13). On the other hand, for these „new" economies, investment by TNCs has meant a sharp rise in their standing in global R&D.



*no data available for 2003.

Figure 2. R&D of branches of foreign TNCs (millions USD PPP)
Source: as in fig. 1.

As mentioned before, TNCs play a decisive role in the process of R&D internationalisation by moving their R&D centres outside their country of origin (Morcos, 2003). In practice, they often pick locations in developing countries (Shackelford, 2012), but the major R&D investment flows still continue to occur between traditional centres, i.e. the US and Western Europe, as shown in fig. 2. The highest values can be observed in the US-based branches of transnational corporations (c. 45 billion USD in 2011), originating mainly in Europe and Japan. In Europe, on the other hand, investment is attracted primarily by Germany, Great Britain, and France, with the highest activity shown by American companies. It should be noted that foreign TNC investment in these main centres grew between 2003 and 2011, which means that foreign R&D locations also became more concentrated over that period. The principal centres attract the most foreign R&D investment flows. Indeed, TNCs also choose locations in developing countries, but their involvement there is significantly lower (UNCTAD 2005a, p. 12; Contractor et al, 2011, pp. 48-72; UNCTAD 2011, pp. 12-13). On the other hand, for these „new" economies, investment by TNCs has meant a sharp rise in their standing in global R&D.

Analysis of global R&D concentration levels

In order to determine the concentration level of global R&D investment, two indicators will be used:
- the concentration ratio, Cr_k,
- the Herfindahl-Hirschman index (HHI).

The concentration ratio, Cr_k, represents the share (k) of the largest actors in the total market for a given group. It is predominantly used to investigate the concentration level of a product in the market; in the current analysis, global R&D investment will be treated as the market and individual markets assumed as its actors. To arrive at a full picture of global R&D concentration, four indicators will be calculated: Cr_1, Cr_3, Cr_5, and Cr_7, representing, respectively, the share of the global R&D leader, and the total share of the top three, five, and seven R&D highest-investing countries in the global market. The analysis will cover the 1981-2013 period, allowing us to determine whether global research and development has been subject to a decentralisation process through decreasing the share of top R&D-economies.

The Herfindahl-Hirschman Index, on the other hand, represents the sum of squares of the market shares of all actors in the market and can take on values between 0 and 1. In contrast to Cr_k ratios, the HHI takes stock of all the actors, but attributes a greater weight to those with the largest share in the market. An increase in the index signals a rise in market concentration; a decrease represents a more even distribution among the actors and an increase in their number. A market is defined as diffuse when the HHI is lower than 0.1, and values between 0.1 and 0.18 indicate a concentrated market; when the HHI exceeds 0.18, the market is defined as highly concentrated (Department of Justice, 2015).

As mentioned before, over the long term, global research and development activity has been highly concentrated in a relatively small group of countries. This is shown in fig. 3. All four indicators suggest a high concentration of global R&D in the 1981-2013 period, but the values can be observed to decrease, which indicates that a process of decentralisation has begun. In practice, the greatest drop was observed for the Cr_1 indicator, i.e. for the R&D market share of the United States. In the 1980s, the Cr_1 ranged from c. 44 to 47%; it fell to 40% over the next decade and continued to drop even further (down to c. 30%) after 2000. However, the dominance of the American economy remains significant even today. It is worth noting that the market is defined as highly concentrated when the top four actors jointly account for 40% of the market; in the case of global R&D, this level is achieved by the leader alone.

In turn, the Cr_3 ratio, representing the added shares of the top three global R&D countries, exceeded 70% in the 1980s, and steadily decreased over the 1990s. However, beginning in 2004 (58.7), it began to grow again due to the dynamic activity of China, which replaced Germany in the top three. In 2009, China permanently pushed Japan from second position. In 2013, the Cr_3 equalled 61.3.

Cr_5 steadily decreased, going down from c. 85% in the 1980s to c. 70% in the first decade of the 21st century. China joined the top five in 2000, followed by South Korea in 2010. As a consequence, in 2010, the market share of the top five highest-investing countries began to grow and the Cr_5 rose to 72.4% by 2013. At the moment, the indicator includes the shares of the US, China, Japan, Germany, and South Korea.

Cr_7 levels showed a similar trend over the studied period; in the 1980s, the ratio exceeded 90%, only to drop to 76.7% in 2008. Beginning in 2009, it began to grow and rose to 78.6% by 2013. The Cr_7 group now includes South Korea (from 1995) and China (from 1997).

To sum up, concentration ratios attest to a steady decrease in the share of world leaders in global R&D; this could be interpreted as a sign of R&D decentralisation. However, the rise of China and South Korea to the top of the fray reversed earlier trends and triggered the new tendency of R&D concentration, which was observable over the last couple of years. Considering the dynamic growth of R&D expenditure in China, the trend is likely to be reinforced even further. At the same time, it should be emphasised that the market share of the global R&D leader showed a consistent decrease over the studied period.

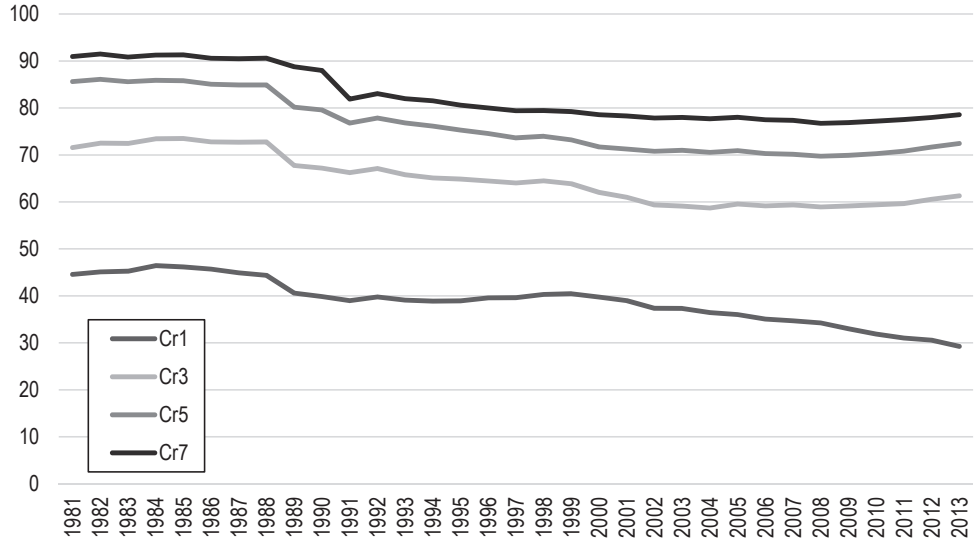


Figure 3. Global R&D concentration indicators
Source: calculated and analysed by the author.

An analysis of HHI trends supports similar conclusions (fig. 4). A very high level of global R&D concentration was observed throughout the 1981-2001 period, with the HHI consistently above the 0.18 mark. However, the figure steadily decreased. In

the 1980s, it was greater than 0.25, which means that R&D was very concentrated in a narrow group of countries and most economies showed no R&D activity at all. In the 1990s, it oscillated around 0.2, signalling an incipient decentralisation of global R&D. The index continued to drop even further, going down to 0.15 in 2011; this figure, however, still indicated a high degree of market concentration. Beginning in 2012, the HHI increased again, signalling a new process of concentration, attributable to the fact that R&D investment grew faster among world leaders than among other countries.

To sum up, even though market concentration markedly decreased, i.e., the decentralisation process began, an analysis of HHI trends suggests that a return to greater concentration is already underway.

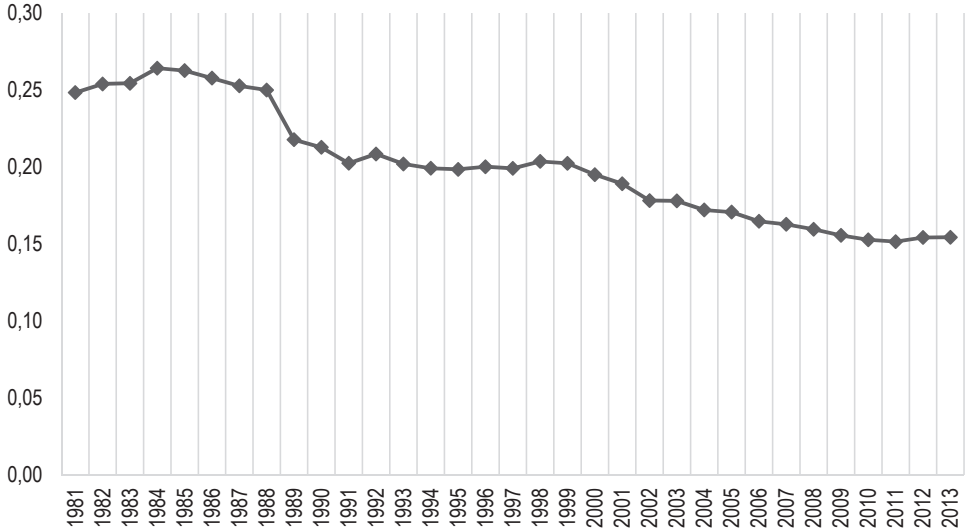


Figure 4. The HHI of global R&D
Source: calculated and analysed by the author.

Since TNCs are the driving force behind global R&D and account for the transformations observed in its structure, an analysis of R&D concentration was performed covering the 1000 highest-spending TNCs. Companies were classified by country of origin; R&D spending was then added for individual countries. In the next step, concentration levels were analysed by calculating Cr_1, Cr_3, Cr_5, Cr_7 ratios and the HHI value. Statistical data came from EU rankings that covered the 2003-2013 period (European Commission, 2004a, 2004b, 2005a, 2005b, 2006a, 2006b, 2007a, 2007b, 2008a, 2008b, 2009a, 2009b, 2010a, 2010b, 2011a, 2011b, 2012b, 2013, 2014a, 2014b).

The analysis of the 1000 highest-spending TNCs (fig. 5) showed a higher degree of R&D concentration than that for the global R&D market, by c. 10% across all four indicators, i.e. Cr_1, Cr_3, Cr_5, and Cr_7. This indicates the continuing dominance of transnational corporations from the US, Japan, Germany, France, Switzerland, and Great Britain. Since 2004, the top 7 has also included South Korean TNCs. Chinese companies, on the other hand, still have a relatively low standing, ranking eighth in 2013 (16 billion USD). Cr_k indicators for TNCs dropped slightly in the 2003-2013 period, i.e. the degree of concentration decreased. The exception to the rule was Cr_1, i.e. the market share of the leader, the US economy, whose corporations continue to be the strongest actors in the R&D market. Beginning in 2010, American TNCs have increased their share in the top 1000.

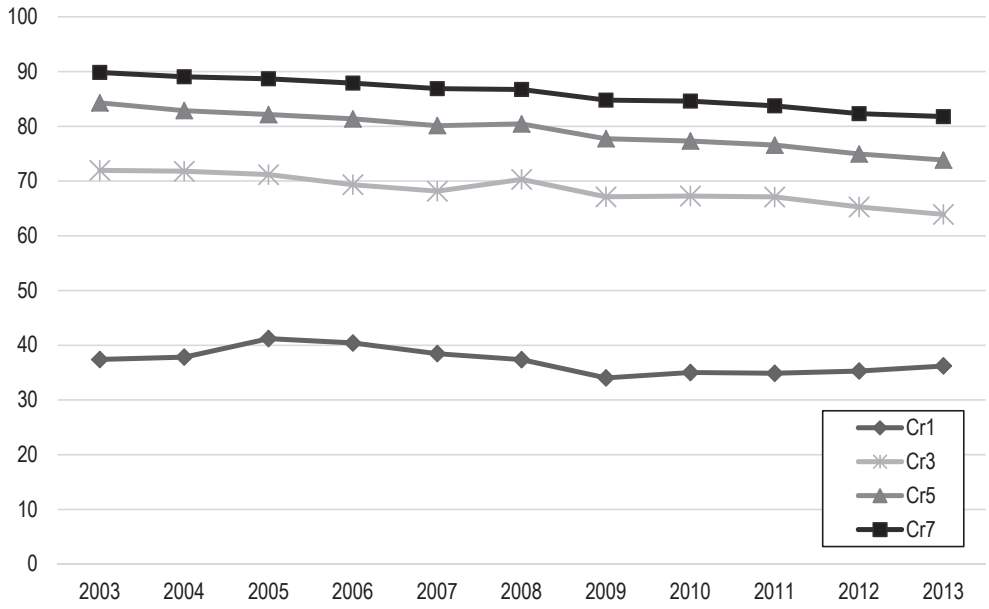


Figure 5. R&D Concentration indicators for the top 1000 R&D highest-spending TNCs
Source: calculated and analysed by the author.

An analysis of the HHI indicator also confirms a very high degree of concentration for transnational corporations (fig. 6). The HHI was greater than 0.2 throughout the 2003-2008 period (with the highest value, 0.23, observed in 2005). Between 2009 and 2013, the figure fell, dropping from 0.19 to 0.18, but the degree of concentration remained relatively high. This suggests that the top 1000 TNCs belonged to a small group of countries strongly dominated by a handful of leaders. In practice, the group only represents as few as 38 countries, most of which make negligible contributions

to the total. In 2013, total R&D investment equalled c. 491 billion USD; of this figure, American TNCs accounted for 178 billion, Japanese TNCs for 79 billion, German TNCs for 57 billion, French TNCs for 27 billion, Swiss TNCs for 22 billion, British TNCs for 21 billion, and South Korean TNCs for 18 billion.

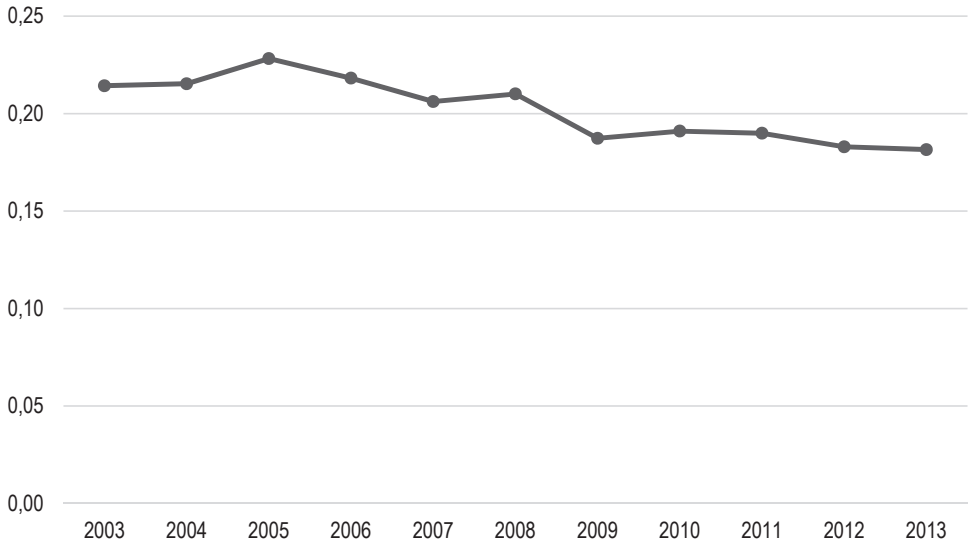


Figure 6. The HHI for the top 1000 R&D highest-spending TNCs
Source: calculated and analysed by the author.

To sum up, R&D in the top 1000 corporations shows a very high degree of concentration, with US corporations far ahead of the rest of the game. On the whole, a consistently high level of concentration can be observed, with the countries of origin of the Triad in the lead.

A new global R&D structure

Related to the processes of decentralisation and concentration, changes in global R&D activity have created a new balance in the world economy; beginning in 2009, the lead has increasingly shifted toward East Asia, including countries such as China, Japan, and South Korea (as well as Taiwan and Singapore). The Asian centre has consistently strengthened its position as a leader and now accounts for nearly 40% of total R&D investment worldwide (fig. 7). Of course, the most important position in the region belongs to China, whose involvement in R&D has shown particularly dynamic growth. It is worth noting that in 2000, the total share of these countries in global R&D amounted to less than 25%.

The second centre is located in the United States, the traditional leader, which accounts for ⅓ of global R&D expenditure today. Even though the US economy is still the strongest R&D actor, and American corporations continue to show the greatest R&D potential, the relative importance of the American centre has been on the wane. In the 1980s, the US accounted for 45% of global R&D spending; it still contributed 40% in the 1990s. However, beginning in 2000, the share steadily decreased and in 2009, the US surrendered its position as a leader to East Asia.

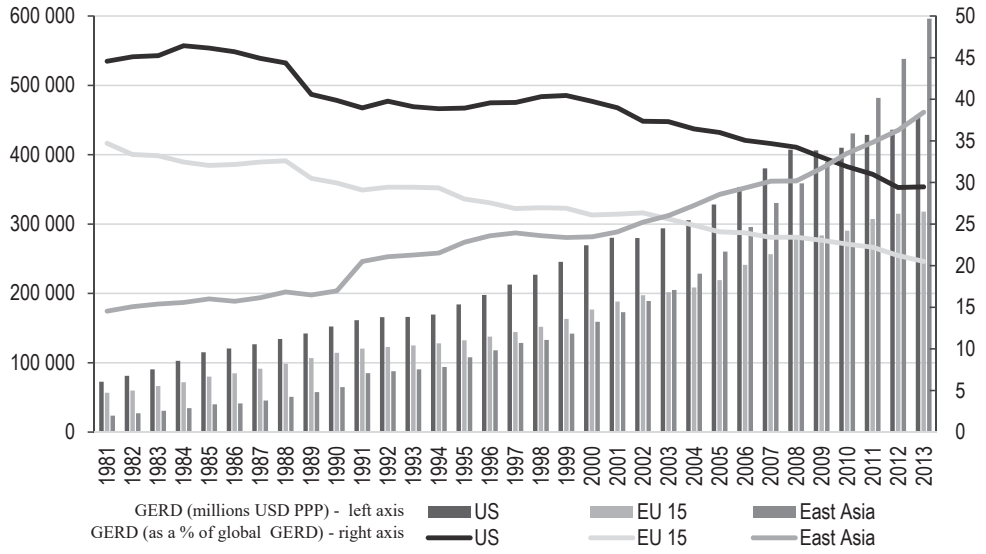


Figure 7. The three centres of global R&D
Source: calculated and analysed by the author based on OECD (2015).

The third R&D centre is focused in EU15, with Germany, France, and Great Britain leading the fray. Europe accounted for 20% of global R&D in 2013. Fig. 7 shows a steady drop in EU15's importance (35% in 1981). Unfortunately, despite a noted growth of R&D investment in Europe over the studied period, the dynamic is too slow to keep up with the other two centres and the role of Europe in global R&D continues to decrease.

It is worth noting that the three major centres currently contribute to c. 89% of global R&D investment; the situation has not changed much since 1981, when the figure stood at 94%. The three centres have accounted for c. 89% of global R&D investment since 2000, even though in some years the share equalled c. 88%, and in 2012 even briefly fell to c. 87%. Nevertheless, there are no grounds to diagnose a real process of R&D decentralisation that would significantly incorporate individual

world economies into the main R&D development trend and considerably reduce the importance of the current leaders.

The paradox lies in the fact that while the decentralisation of R&D allowed China and South Korea to join the game as global R&D centres, the success of these two developing economies further increased R&D concentration worldwide. The new structure of global R&D, with East Asia in the lead, does not preclude R&D growth in countries outside the major centres, which has already been underway. The balance of the whole system, however, has shifted toward East Asia, which seems poised to further increase its R&D spending in the coming years. The growth of R&D investment in the Asian centre is simply impressive: beginning in 2009, expenditure increased by c. 11% per annum and reached a total of nearly 600 billion USD in 2013 (compared to c. 318 billion in the EU15 and c. 457 billion in the US).

The new structure is likely to be entrenched even further, with the Asian centre emerging as the most important actor in the new concentration process. Chances are slim regarding a change in the current system and the trends which can be observed. Concentration will probably remain the dominant trend, but a parallel decentralisation is also likely to occur, whereby an increasing number of countries will join the R&D market. In the coming years, however, these new actors will not have the clout to threaten the dominant position of the concentrated system of East Asia, the US, and the EU15, and reverse the increasing shift toward the Asian centre.

Conclusions

Global R&D activity today remains concentrated within a small group of countries. However, signs of decentralisation can be observed, with countries from outside the Triad increasingly joining the fray. In particular, decentralisation has manifested itself in the rise of two developing countries, China and South Korea, to leading positions in global R&D activity. However, since 2011, a parallel increase in global R&D concentration has also been observed, linked to the growing position of China.

Among the highest-spending transnational corporations, R&D concentration is even higher than in global R&D; the top 1000 continues to be overshadowed by companies from the US, Japan, Germany, France, and Switzerland. The position of China is still weak but South Korean companies are increasingly more visible. R&D internationalisation, significantly fuelled by TNCs, has occurred largely within the Triad, with only negligible R&D investment flow from the Triad to the outside.

To sum up, global R&D concentration has increased again, shaping a new system with East Asia as the leader and China, Japan, and South Korea leading the fray. The second global R&D leader is the United States; its importance, however, is marginally decreasing. The third centre is the EU15, specifically Germany, France, and Great Britain, but its position is seriously threatened. It seems that the decentralisation process that started in the 1990s, which introduced two new countries into the lead

and visibly diffused R&D activity across a larger group of countries, will affect the global R&D system to a lesser extent than the new process of concentration that began in the second half of the second decade of the 21st century.

References

Borras, S. & Hakonsson, S. (2012). *Global Innovation Networks: Evidence and Policy Challenge*, Brussels: European Commission.

Contractor, F.J. et al. (2011). *Global Outsourcing and Offshoring: An Integrated Approach to Theory and Corporate Strategy*, New York: Cambridge University Press.

Department of Justice. (2015). *Concentration and Market Shares*, Retrieved October 10, 2015, from http://www.justice.gov/atr/15-concentration-and-market-shares

European Commission. (2004a). *The 2004 EU industrial R&D investment scoreboard. Ranking of the Top 500 EU companies*, Retrieved September 24, 2015, from http://iri.jrc.ec.europa.eu/scoreboard04.html

European Commission. (2004b). *The 2004 EU industrial R&D investment scoreboard. Ranking of the Top 500 non-EU companies*, Retrieved September 24, 2015, from http://iri.jrc.ec.europa.eu/scoreboard04.html

European Commission. (2005a). *Ranking of the Top 700 EU companies by R&D investment in the 2004 financial year*, Retrieved September 24, 2015, from http://iri.jrc.ec.europa.eu/scoreboard05.html

European Commission. (2005b). *Ranking of the Top 700 non-EU companies by R&D investment in the 2004 financial year*, Retrieved September 24, 2015, from http://iri.jrc.ec.europa.eu/scoreboard05.html

European Commission. (2006a). *R&D ranking of the top 1000 EU companies*, Retrieved September 24, 2015, from http://iri.jrc.ec.europa.eu/scoreboard06.html

European Commission. (2006b). *R&D ranking of the top 1000 non-EU companies*, Retrieved September 24, 2015, from http://iri.jrc.ec.europa.eu/scoreboard06.html

European Commission. (2007a). *R&D ranking of the top 1000 EU companies*, Retrieved September 24, 2015, from http://iri.jrc.ec.europa.eu/scoreboard07.html

European Commission. (2007b). *R&D ranking of the top 1000 non-EU companies*, Retrieved September 24, 2015, from http://iri.jrc.ec.europa.eu/scoreboard07.html

European Commission. (2008a). *The 2008 EU industrial R&D investment scoreboard. R&D ranking of the Top 1000 EU companies*, Retrieved September 24, 2015, from http://iri.jrc.ec.europa.eu/scoreboard08.html (15.02.2015).

European Commission. (2008b). *The 2008 EU industrial R&D investment scoreboard. R&D ranking of the Top1000 non- EU companies*, Retrieved September 24, 2015, from http://iri.jrc.ec.europa.eu/scoreboard08.html (15.02.2015).

European Commission. (2009a). *R&D ranking of the top 1000 EU companies*, Retrieved September 24, 2015, from http://iri.jrc.ec.europa.eu/scoreboard09.html

European Commission. (2009b). *R&D ranking of the top 1000 non-EU companies*, Retrieved September 24, 2015, from http://iri.jrc.ec.europa.eu/scoreboard09.html

European Commission. (2010a). R&*D ranking of the top 1000 EU companies*, Retrieved September 24, 2015, from http://iri.jrc.ec.europa.eu/scoreboard10.html

European Commission. (2010b). *R&D ranking of the top 1000 non-EU companies*, Retrieved September 24, 2015, from http://iri.jrc.ec.europa.eu/scoreboard10.html

European Commission. (2011a). R&D ranking of the top 1000 EU companies. Retrieved September 24, 2015, from http://iri.jrc.ec.europa.eu/scoreboard11.html

European Commission. (2011b). R&D ranking of the top 1000 non-EU companies. Retrieved September 24, 2015, from http://iri.jrc.ec.europa.eu/scoreboard11.html

European Commission. (2012a). *Internationalisation of business investments in R&D and analysis of their economic impact*, Luxembourg: European Union.

European Commission. (2012b). *R&D ranking of the top 1500 World companies*, Retrieved September 24, 2015, from http://iri.jrc.ec.europa.eu/scoreboard12.html

European Commission. (2013). *R&D ranking of the world top 2000 companies*, Retrieved September 24, 2015, from http://iri.jrc.ec.europa.eu/scoreboard13.html

European Commission. (2014a). *EU R&D Scoreboard. The 2014 EU Industrial R&D Investment Scoreboard*, Brussels: European Union.

European Commission. (2014b). *R&D ranking of the world top 2500 companies*, Retrieved September 24, 2015, from http://iri.jrc.ec.europa.eu/scoreboard14.html

Farrell, D. (Ed.). (2006). *Offshoring. Understanding the Emerging Global Labor Market*, Boston: McKinsey & Company.

Hiratuka, C. (2011), *Transnational Corporations and Internationalization of the Research and Development Activities in Developing Countries: The Relative Importance of Affiliates in Asia and Latin America*, In A. Deshpande (Ed.). *Capital without Borders: Challenges to Development*, (pp. 147-164). India: Anthem Press.

Kehal, H.S. & Singh, V.P. (2006). *Outsourcing and Offshoring In the 21st Century: a socio-economic perspective*, Hershey London Melbourne Singapore: Idea Group Publishing.

Lu, L.Y.Y. & Chen, T.M. (2012). *Technology Strategy of R&D Internationalization: An Empirical Study from a Developing Country*, In F. Betz (Ed.). *Creating and Managing a Technology Economy*, (pp. 81-108). Singapore: World Scientific Publishing.

Morcos, J.L. (2003). *International subcontracting versus delocalisation?*, Vienna: UNIDO.

OCDE. (2007). *Les délocalisations et l'emploi. Tendances et impacts*, Paris: OCDE.

OECD. (2008). *The Internationalisation of Business R&D. Evidence, Impacts and Implications*, Paris: OECD.

OECD. (2010). *Perspectives on global development 2010: shifting wealth*, Paris: OECD.

OECD. (2011). *OECD Science, Technology and Industry Scoreboard 2011: Innovation and Growth in Knowledge Economies*, Paris: OECD.

OECD. (2015). *Science, Technology and R&D Statistics*, Data base. Retrieved September 20, 2015, from http://www.oecd-ilibrary.org/science-and-technology/data/oecd-science-technology-and-r-d-statistics_strd-data-en

Shackelford, B. (2012). *Businesses Concentrate their R&D in a Small Number of Geographic Areas in the United States*, InfoBrief NSF, 12-326, 1-6.

UNCTAD. (2005a). *The impact of FDI on development: globalization of R&D by transnational corporations and implications for developing countries*, Geneva: UNCTAD.

UNCTAD. (2005b). *Globalization of R&D and developing countries*, New York and Geneva: United Nations.

UNCTAD. (2005c). *Survey on the internationalization of R&D*, New York and Geneva: United Nations.

UNCTAD. (2009). *World investment prospects survey 2009-2011*, New York and Geneva: United Nations.

UNCTAD. (2011). *Foreign direct investment, the transfer and diffusion of technology, and sustainable development*,Geneva: UNCTAD.

CENTRAL EUROPEAN REVIEW
OF ECONOMICS & FINANCE
Vol. 10, No. 4(2015), pp. 35–51.

Marta Ulbrych[1]

CHANGES OF GLOBAL VALUE CHAINS IN THE INDUSTRIAL PRODUCTION SECTOR[2]

Abstract

Economic globalisation causes increasing international fragmentation of value added chains, whereby companies outsource components of production to foreign markets. These conditions have changed the way of manufacturing organization and the method of measuring international trade. The aim of this paper is the conceptualization of terms such as dematerialisation, deindustrialisation, delocalisation and reindustrialisation of industrial production as well as the global value chain. Followed by analysis of participation of selected economies in global value chains.

JEL Classification Code: **F12, L70**.

Keywords: globalisation, delocalization, manufacturing, value added, global value chain.

Introduction

The evolution of the modern global economy — triggered by the development of information and communication technologies, trade liberalisation, reduction of transport costs, automation of production — has changed the model of operation of manufacturing companies which by seeking to optimise their operations are increasingly implementing production processes as part of global value chains. Globalisation and regionalisation processes allow spatial coordination, improvement or restructuring of manufacturing activities through outsourcing and offshoring of operations.

A feature of globalisation is its dialectical nature which is demonstrated by, inter alia, simultaneous globalisation and fragmentation of industrial production. On one

[1] Ph. D., Assistant Professor, Cracow University of Economics.

[2] The publication was co-financed from the resources grated to the Faculty of Economics and International Relations of the University of Economics in Krakow as part of the subsidy for the maintenance of the research potential.

hand, in recent decades industrial production achieved a global level by overcoming the distinctiveness of national industries and using available technical, financial or organisational solutions. On the other hand, the increasing scope of free movement of goods, services and capital allows companies to take advantage of differences in technologies and prices of production factors between countries, which in turn leads to the fragmentation of production on a global scale. This means a breakdown of the previously integrated manufacturing process into various stages which may be located away from each other. In addition, the international specialisation in manufacturing is not limited only to finished goods but also applies to parts and components used for their production. Such a breakdown of a vertically integrated process of production of final goods into individual stages opens up further possibilities to achieve benefits offered by the specialisation (Cieślik, 2008).

Due to the conditions of the operation of enterprises which are modified as a result of globalisation, systematic research in this area is required. For this reason it is advisable to supplement the existing analyses and to examine the changes of global value chains in the manufacturing sector. To achieve this objective, the structure of the article covers the conceptualisation of fundamental concepts, such as dematerialisation, deindustrialisation, delocalisation and reindustrialisation of industrial production as well as the global value chain. Then, based on the international statistical databases, the position of the traditional Triad countries (USA, Japan, EU) and China in global value chains in the area of manufacturing is analysed.

Globalisation and delocalisation of industrial production

Although it is a widely used term, globalisation still does not have a uniform and universally accepted definition. The literature basically offers two definition approaches to this phenomenon. The first one defines globalisation statically as the next stage in the development of the global economy, characterised by a high degree of integration of the entities participating in it into one united body with new characteristics and patterns of functioning. The second one interprets globalisation dynamically and defines it as a process of further deepening of the international division of labour and its simultaneous transformation into a new global order where roles and responsibilities are shared not necessarily on an international level but also on a transnational or even supranational level (Oziewicz, 2012). The transformations taking place in the global economy determine the opportunities for the development of manufacturing companies whose priority is to build a competitive advantage. When identifying the effects of globalisation in the area of spatial and strategic behaviour of enterprises attention should be paid to the following aspects (Gierańczyk, 2008, p. 86):

- Political aspect demonstrated by the systematic reduction of barriers to the flow of production factors on a global scale.

- Economic aspect resulting in a search for further sources of business activity optimisation.
- Technological aspect which owing to reduced costs of transport and communication allows to conduct business activity in many countries.
- Organisational aspect which owing to the above mentioned factors is conducive to the development of new spatial relations and the fragmentation of production.

The interaction between the above factors results in changes in industrial production which have been observed in the current form since the 1970s. The consequence of these changes is the evolution from the traditional industries to innovative industries. The above changes result from the transition towards a knowledge-based economy whose features contrast with the features of an industrial economy. The existing Ford-style mass production and economies of scale give way to the production and distribution of knowledge and information. One of the key phenomena in this context is dematerialisation of production and a reduction of the degree of human involvement in many phases of the manufacturing process. The term dematerialisation refers to the decline over time in weight of the materials used in industry and products (Herman et al., 1989). In other words, the described process leads to the transformation of tangible assets into intangible assets which determine the enterprise value and become the source of its competitive advantage. Driving this transformation results in three key processes: digitisation (replacing physical goods and services with a digital version), atomisation (shifting manufacturing models toward additive assembly of very small, custom-designed components) and eco-systemisation (component materials are seen as part of a larger physical material ecosystem). These phenomena are accompanied by the reorganisation of manufacturing to happen at all scales, across a greatly distributed network of producers (Cascio, 2012). One option for dematerialisation is the transition from products to services. In this context, a consequence of the dematerialisation of production is servitization, i.e. a relative reduction of the importance of the industry and its lower direct share in the creation of national wealth in favour of services. When describing this trend the word deindustrialisation may be used. Deindustrialisation is an objective phenomenon and a feature of the economic development process. Deindustrialisation may be analysed empirically in two categories — measured by the decline of the share in the overall production and a decline of the share of industry in the overall employment.

An analysis of the data aggregated in figures 1 and 2 shows a decline in the importance of industry in the generation of gross value added in favour of services in the last two decades both globally and regionally. The employment data show in turn a systematic reduction of the level of employment in industry in the Triad countries. Different trends are observed in China where the proportion of the employed both in industry and in services increases at the expense of the employment in the agriculture. A long-term decline in the relative share of employment in industry is a natural consequence of industrial transformation and is attributable to the expansion of the

employment in the service sector. However, it raises a number of concerns regarding the creation of a sufficient number of new jobs in the service sector. When looking for the causes of the decline in the share of industrial production in the GDP creation and employment, the following reasons should be identified (Pilat et al., 2006):

- Saturated demand for manufacturing products.
- Relatively rapid productivity growth in the manufacturing sector, implying that despite growth in real manufacturing output, less employment is needed.

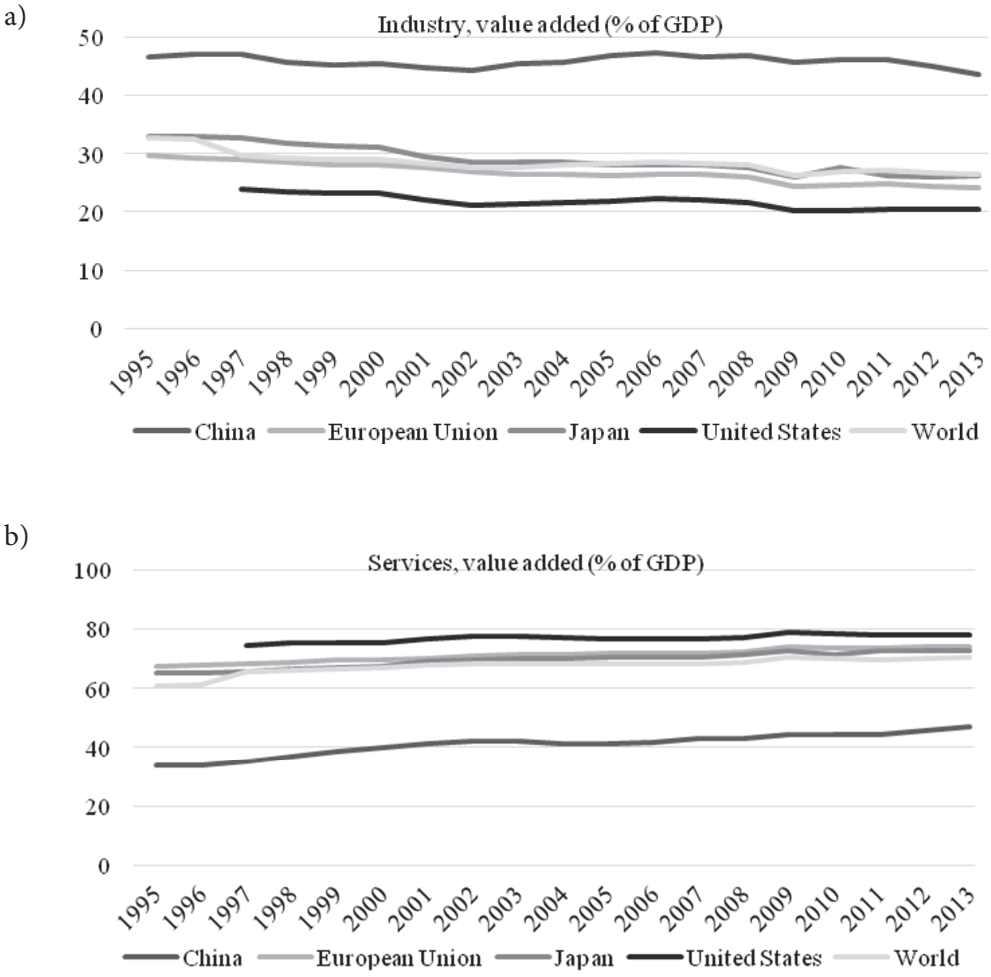


Figure 1. The share of industry and services in value added in selected economies, (% of GDP, 1995-2013)

Source: own study based on World Bank data: http://data.worldbank.org/indicator/NV.IND.TOTL.ZS (accessed on: 02.12.2015).

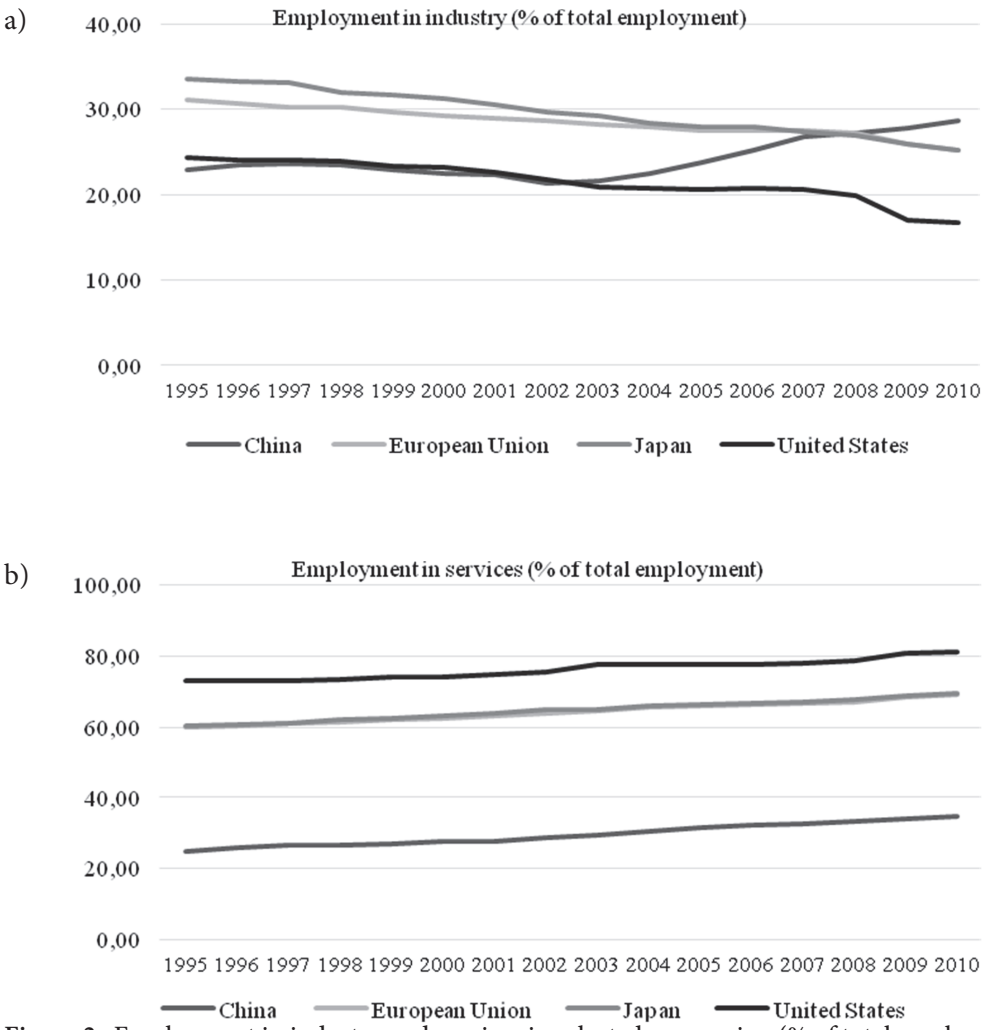


Figure 2. Employment in industry and services in selected economies, (% of total employment, 1995-2010)

Source: own study based on World Bank data: http://data.worldbank.org/indicator/SL.IND.EMPL.ZS, (accessed on: 02.12.2015).

- A blurring of manufacturing with services, where manufacturing firms increasingly capture value in the associated services they provide rather than manufacturing production.
- Manufacturing production has become more and more integrated at the global level.

The last reason emphasizes a high degree of internationalisation of industrial production and the relationship between deindustrialisation and delocalisation.

A practical expression of globalisation is an increasing economic interdependence of economies and a changing nature of competition — from local to global — in numerous areas. A strategic position of companies competing on various markets depends on their position on a global scale and is improving as a result of the innovation introduced in any part of the business and subsequently incorporated in its global production system. For this reason, globalisation gives companies a choice to either compete in a coordinated manner all over the world or to lose their competitiveness (Wysokińska-Senkus, 2006). At the same time companies take advantage of the opportunities offered by globalisation and popularisation of the principles of market economy.

As a result, they have the freedom to choose the location of investments, thus creating their competitive advantage. A major motive is the desire to reduce manufacturing costs and to increase the operational flexibility of the company. In addition, qualifications of human capital, the availability of supply markets and demand as well as the infrastructure and the institutional environment are also important. Free movement of capital, migration and an uneven level of development of the individual economies intensify delocalisation processes. The term 'delocalisation' was popularised in the literature in the mid-1990s as another way of describing the fragmentation of production. Fragmentation is defined as a course of events whereby pieces of the production process are successively broken off, to be carried out in a different country, and then channelled back into the production process towards a final good (Kohler, 2003, p. 92). Similarly to other terms described above, the term 'delocalisation' (dislocation) does not have one universal definition yet. In the ongoing debate on delocalisation, the notion of relocation appears to dominate in the European Union, unlike for example the United States, where offshoring is the prime focus. The European Parliament defines relocation as the closing or scaling down of a firm's activities in the home market following the shifting of parts of the production chain abroad (European Parliament, 2006, p. 3). Therefore, both delocalisation and deindustrialisation describe the process of migration and regression of industrial production, however the latter term additionally points to another phenomenon, i.e. the growth of the service sector.

Delocalisation may be also perceived as a spatial dimension of deindustrialisation. When analysing data on changes in world manufacturing value added (MVA) a decline in the importance of the Triad countries in favour of China and other emerging economies may be observed. A comparison of statistics for 1990 with the current figures shows a significant reduction in the share of EU countries (from 33.5% to 20.2%) and Japan (from 17.4% to 10.9%). The importance of the US economy in the creation of the world MVA is also lower, but only by 3 percentage points. An indisputable leader in the rate of growth of the analysed feature is China whose share increased from 2.6% to 18.4%. Table 1 presents fifteen leading manufacturing economies and their share in the world MVA in 2005, 2010 and 2014. Despite a systematic

increase in the importance of China, the first place in the ranking is still occupied by the USA. Germany, Italy, the United Kingdom, France and Spain are the major economies in the EU with their total share in the world MVA of 16.13% in 2014.

Table 1. Leading manufacturing economies share in world MVA in 2005, 2010 and 2014

Country/Economy	2005	2010	2014
United States of America	22.59	19.44	19.30
China	9.97	14.99	18.41
Japan	12.29	12.01	10.89
Germany	7.47	7.03	6.93
Republic of Korea	3.11	3.79	4.01
Italy	3.88	3.21	2.69
United Kingdom	3.38	2.80	2.54
France	3.29	2.79	2.46
India	1.60	2.26	2.31
Mexico	1.94	1.79	1.81
Brazil	1.86	1.82	1.59
Canada	2.22	1.66	1.58
Spain	2.10	1.69	1.51
Russian Federation	1.63	1.50	1.51
Turkey	1.12	1.20	1.30

Source: Unido, http://www.unido.org/Data1/IndStatBrief/World_Leading_MVA.cfm, (03.12.2015).

The increased involvement of the economies with various levels of socio-economic development in the international division of labour implies the development of global value chains. Companies intensify their activities focused on the creation of international networks which integrate manufacturing activities of enterprises located in different countries. Benefits for companies relocating their business are obvious and they include lower manufacturing costs, entry on new markets, opportunities for just-in-time delivery and acquisition of new employees. An analysis of this issue on a wider, global scale also implies positive effects resulting from the optimal allocation of production factors. However, from the point of view of developed economies from which industrial activities are usually relocated to developing countries, this process leads to divestment and job losses. The literature draws attention to the fact that in the medium and longer term positive effects of the relocation of business in the form of reforms and structural adaptation may outweigh short-term implications (European Parliament 2006a, p. 4-5). However, this problem is a subject of discussion which intensified primarily during the last global economic crisis that significantly interfered

with the development of industrial production in developed countries. The need to adapt to structural changes while counteracting trends leading to the decline of industry in production and employment is becoming an important challenge for most economies. This is because the crucial importance of industry for the growth of the economy is stressed more and more frequently. A new term, i.e. reindustrialisation, has been even developed to describe this trend. This term is popular especially in the EU where in 2012 *A Stronger European Industry for Growth and Economic Recovery* strategy was adopted. This document highlights the need for investments in innovation in order to reindustrialise Europe. Therefore, it seems reasonable to ask a question whether the industry is important since deindustrialisation is a common feature of advanced economies. A reply should point to several key properties of industrial production which, as a sector of the economy, is the main source of innovation, stimulates productivity growth, generates jobs and still has a dominant share in international trade. Following this line manufacturing is a key driver of productivity growth, due to improvements in the division of labour, technological change and economies of scale. Manufacturing also generates externalities in technology development, skill creation and learning that are crucial for competitiveness (UNIDO 2013, 4).

The concept of global value chain and its proliferation

The concept of the global value chain is a key reference point for understanding and analysing the dynamics of the organisation of industrial production and international trade. The concept of the value chain was developed by M. E. Porter in the book entitled *Competitive Advantage: Creating and Sustaining Superior Performance*. The key assumption of the model is a division of business operations into strategically important activities. Therefore, the value chain is a sequential presentation of subsequent functions and links, each of which generates added value. Nowadays, owing to the liberalisation of the flow of production factors and the reduction of communications and transportation costs, companies optimise manufacturing processes by dividing the previously integrated activities into spatially dispersed manufacturing blocks. Global value chain (GVC) can be thus defined as a full range of activities that firms and workers do to bring a product from its conception to its end use and beyond. This includes activities such as design, production, marketing, distribution and support to final consumer (Gereffi and Fernandez-Stark, 2011, p. 4). These activities can be performed within the same company or can be divided among various companies. The fact that they are dispersed and implemented in several countries determines their global nature. The GVC concept was popularised at the beginning of the first decade of the 21st century, on one hand as a result of developments in the world economy and on the other hand as a method of analysis of these phenomena. Among the processes that affect directly international trade in the area of industrial production the following processes can be identified (Backer and Miroudot, 2012, p. 2):

- The increasing fragmentation of production across countries. GVCs link spatially dispersed activities in a single industry and help to understand shifting patterns of trade and production.
- The specialisation of countries in tasks and business functions rather than specific products. Most goods and increasing number of services are „made in the world" and that is why countries compete on economic roles within the value chain.
- The role of networks, global buyers and global suppliers.

GVCs are useful for understanding and describing the interdependence occurring between economies. However, this raises the need to take account of the opportunities and challenges related to the participation of the country in GVCs. There is no doubt that the fragmentation of manufacturing processes has a significant impact on the balance of foreign trade and the evolution of comparative advantage in international trade.

Table 2. Median GDP per capita growth rate by change in GVC participation and domestic value added provided, 1990-2010

GVC participation growth rate	Growth of the domestic value added share of exports		
		Low	High
	High	2.2%	3.4%
	Low	0.7%	1.2%

Source: (WTO, 2014, p. 102)

The literature on GVCs continues to grow which creates some restrictions on the explicit determination of their general impact on economic development. However, a positive correlation between the growing participation in GVCs and the rate of economic growth can be noted. Aggregated data in table 2 confirm this argument. This is because it turns out that during the analysed period the highest median GDP per capita growth rate was reported in the countries which simultaneously upgraded and integrated their economies as part of GVCs. Upgrading refers to broadening value added performance in a GVC in which integration has already been achieved.

Discussion of outcomes of participation in GVCs has been seen as the need to capture a growing share of domestic value added in exports or to target specific „sophisticated" products or production stages. However the point is that the volume of the activity may matter as much as the domestic value added share or sophistication, important benefit can be derived from specialising in less sophisticated assembly activities according to comparative advantages and performing them on a large scale (Kowalski et al., 2015, p.7). However, in view of the world economy dynamism and the changing determinants of competitiveness it seems that this strategy is well-

founded in the case of developing countries. Initial integration into GVCs often triggers beneficial structural transformation in economies at early stages of development. In this case GVC integration is typically associated with large productivity and welfare gains because labour is moved from agriculture into manufacturing or services. Although activities in the latter sectors also tend to be labour intensive and low skill in the early stages of development, their productivity is generally higher. Baldwin suggests however that because the learning process involved is less complex, industrialization is easier to achieve but it might also be less durable. Capabilities are now narrower and therefore easier for competitors to replicate. Simultaneously he argues that resisting GVC participation may be ineffective, because it hinders domestic firms in accessing inexpensive or more sophisticated inputs and potentially causing their products to be uncompetitive on world markets (WTO, 2014, p. 95-99). In result participation in GVCs may involve risks, competitive advantage can become more fleeting and followed by increasing vulnerabilities to relocation of firms.

International trade has been characterized by the growing interconnectedness of production processes across countries, with each country specializing in particular stages of production. Due to the spread of GVCs and a rapid growth of the trade in semi-finished products classic international trade measures based on the gross value are losing their relevance. Consequently, a number of institutions undertake works on new methods of calculating the value of trade which take into account the actual contribution of the domestic value added in exports. At this point the TIVA (trade in value added) database should be mentioned which results from the cooperation of the WTO and the OECD. Involvement in the production fragmentation processes is measured using two indices: forward participation and backward participation. Forward participation describes the part of the domestic value added comprising the exports of other economies (exported semi-finished products are a part of more complex products which are exported). Backward participation refers to the share of the value of foreign semi-finished products in domestic exports.

Table 3. GVC participation index[3], 1995-2009

Countries	1995	2000	2005	2009
All	39,8	46,2	51,0	48,5
Developed	39,6	46,3	49,9	47,2
Developing	40,5	45,9	53,5	50,9

Source: (WTO, 2014, p. 84)

[3] GVC participation index captures the import content of exports (backward participation) and domestic value added embodied as intermediate inputs in third countries' gross exports (forward participation).

Looking at the changes across time, a majority of the economies (apart from Africa) increased their participation in GVCs. Table 3 shows that the global GVCs participation index has increased since the mid-1990s. It is worth to notice that the participation of developing countries in GVCs is slightly higher: 51 per cent of gross exports of developing countries in 2009 relates to their participation in international production networks.

Participation of selected economies in global value chains

One may therefore agree that the integration of the economy in GVCs enables a rapid development of trade and allows to attract foreign direct investments and hence the flow of knowledge and technology spillovers. As a result, the economic development of the country is facilitated. However, not every economy is competitive enough to be able to benefit from the participation in GVCs. When examining the determinants of GVC participation several structural features may be basically distinguished (Smith et al., 2015, p. 7-8):

- Market size: a large size of the domestic market implies a lower level of the country's backward participation and a higher level of forward participation. Larger market sizes generate more opportunities for orders for semi-finished products.
- Level of development: the higher the level of income per capita, the greater the participation index — both forward and backward participation. Economically developed countries participate intensely both in import and export of intermediate and final products.
- Industrial structure: The higher the share of the manufacturing sector in GDP the higher the backward engagement and the lower the forward engagement.
- Location: GVC activity is organised around large manufacturing hubs, a premium can be noticed for being located close to large and developed economies.

Objective factors, such as the level of customs tariffs and participation in regional trade agreements, inward foreign direct investment openness, the level of infrastructure and the quality of institutions, are also important. They are all directly correlated with foreign trade and industrial policy pursued in a given country.

Specialisation and fragmentation processes are mainly driven by international corporations which in order to optimise costs and profits take advantage of differences in the affluence of the individual countries and regions. In this way, they seek to achieve the highest possible added value by cost reduction and the maximum use of the capabilities and attributes of a given location. In this situation, companies from the most developed countries, seeking opportunities to reduce costs and raise productivity, started to move their manufacturing activities, mainly those requiring a high labour input and low technical sophistication, to developing countries. This trend causes a strong increase in competition and forces companies to internation-

alise manufacturing processes. This results in two major phenomena. The first one is boosting international trade in semi-finished products and supply products which constitute a component in the production of final goods. The second phenomenon is an increase in the importance of international trade of developing countries. Taking into consideration the data contained in table 1, concerning the share of leading manufacturing economies in world MVA, a further analysis of changes in international trade in manufactures will focus on the following countries: China, Japan, the United States and major EU producers, i.e. France, Germany, Italy, Spain and the United Kingdom. The data used relate to 1995 and the most recent data cover 2011.

Statistics presented in table 4 emphasise the above described changes, pointing to a decreasing share of developed countries (Japan, the US and analysed EU) in the imports of intermediate products. While in 1995 the share of these economies in the imports of intermediate products of the entire group of the analysed economies was 95.12%, in 2011 it was only 76.39%. During that period the share of China increased from 4.88% to 23,61%. The development of the manufacturing base in China and other Southeast Asia countries allowed to prepare platforms for the export of semi-finished products. In this way the fragmentation of production is implemented through vertical specialisation where individual economies focus on manufacturing components or performing activities assigned to various chain links of a specific product.

Table 4. The selected countries' share of gross imports of final products and intermediate products in their common import, (1995, 2011)

Country	1995		2011	
	Final products	Intermediate products	Final products	Intermediate products
France	11.06	10.65	10.24	7.85
Germany	21.57	15.42	14.79	12.96
Italy	7.84	8.81	7.28	7.19
Japan	13.43	14.39	8.96	11.08
Spain	3.89	5.03	5.23	4.96
United Kingdom	10.88	10.34	10	7.71
United States	28.19	30.47	31.78	24.64
China	3.15	4.88	11.73	23.61
Sum (US dollar, millions)	1 239 614	1 696 243	3 206 973	5 952 670
Developed countries' share	96.85	95.12	88.27	76.39

Source: own study based on TIVA data: http://stats.oecd.org/Index.aspx?DataSetCode=TIVA2015_C1 (03.12.2015).

Figure 3 presents the position of the analysed economies in GVCs in the area of manufacturing. In all cases the scale of participation between 1995 and 2011 increased, with the largest increase recorded in Japan. In 2011 nearly 41% of Japanese exports was implemented as part of GVCs, of which 28.4% of gross exports was the forward participation, i.e. a share of the domestic value added forming a part of the exports of other economies. Backward participation, i.e. the share of the value of foreign semi-finished products in Japanese exports amounted to 12.5%. The rest of the exports are the domestic value added which are sold to foreign final markets. The share of the US increased by 5.2 percentage points from 25% in 1995 to 30.2% in 2011. This economy has built strong export competitiveness with a limited degree of integration in GVCs and it is dominated by the forward participation. The relatively low index of participation in GVCs in the area of manufacturing can be attributed to the size of the internal market (larger share of the value chain is domestic) and a significant share of the service sector in the economy. A characteristic feature of all analysed EU countries is a higher level of participation in GVCs than the average in the EU. This level was also higher in 2011 in comparison with 1995. If the abovementioned countries are to be sorted by the level of participation, they should be listed as follows in descending order: Germany, Italy, France, Spain and the United Kingdom. However, in all cases, except for the United Kingdom, the share of the foreign value added was greater than the share of domestic value added in gross exports. This demonstrates a relatively high imports input for the export of manufacturing of EU countries.

The country which is considerably involved in manufacturing fragmentation processes is obviously China which implements 43% of exports as part of GVCs. China remains the country with the highest level of GVC participation, reflecting its primacy as a very important region for export-oriented manufacturing. Despite the growing share of the forward participation, the involvement in GVCs is still dependent because the dominant part — 30% is the backward participation. However it should be mentioned that many studies have confirmed the importance of imported intermediates for exports specialisation in final products (Beltramello et al., 2012). With GVC-driven development, countries generate growth by moving to higher value added tasks by embedding technology.

The above analysis is obviously a certain generalisation because the participation in GVCs may significantly differ depending on the industry. Moreover, developed countries aim at concentration in those phases of the manufacturing process that have the highest value added. In this way the production requiring the most advanced technologies, highly skilled human capital or modern management methods is located in the home country. Therefore, it seems reasonable to determine the domestic value added in individual industries. An analysis of the data presented in table 5 shows however that the results of the EU countries in this area are worse than the results of their main competitors, i.e. the USA and Japan. In the most technologically advanced industries, i.e. „electrical and optical equipment" and „chemicals and

non-metallic mineral products" the average domestic value added of the European countries is 70.16% and 60,95% respectively. These values are lower than the corresponding values recorded in Japan and the USA by more than 10 percentage points.

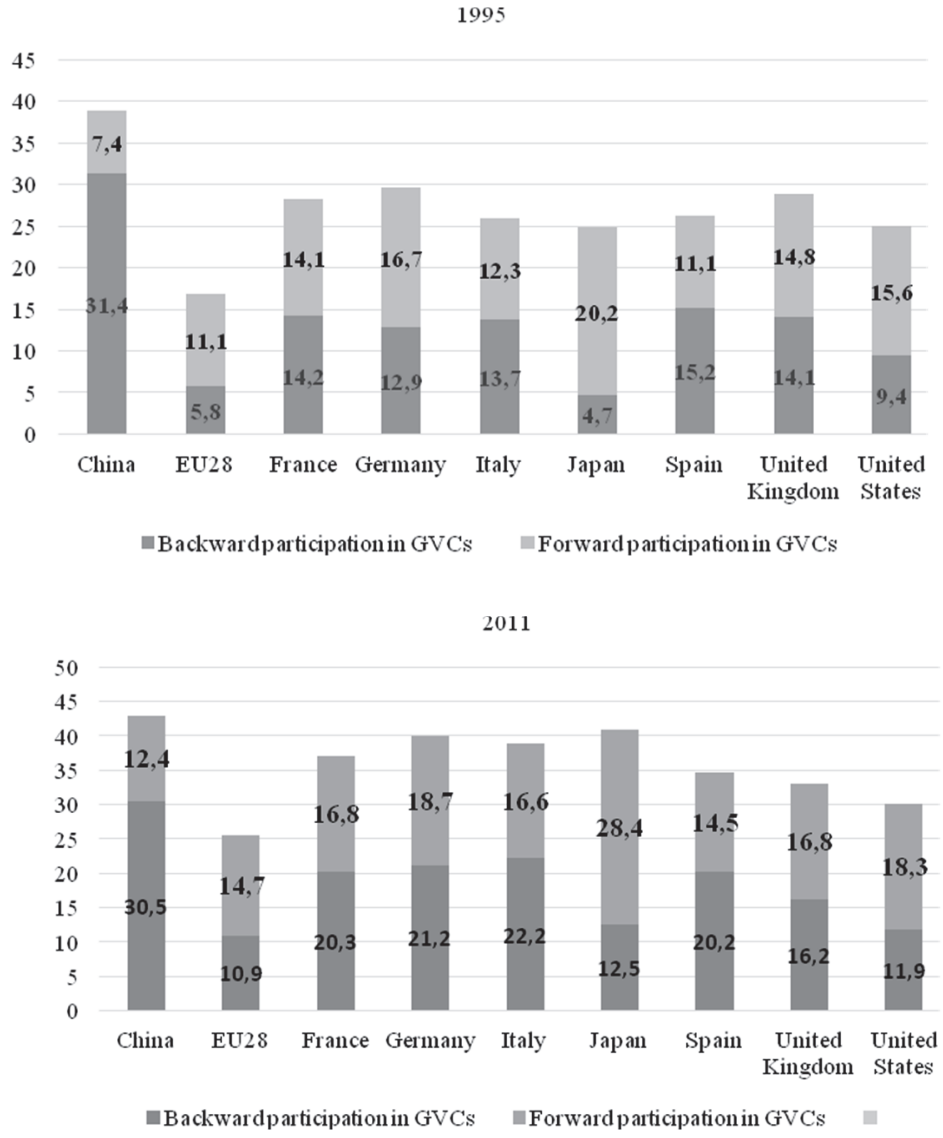


Figure 3. Forward and backward participation in GVCs in selected economies in 1995 and 2011 (as % of total gross exports of total manufactures)

Source: own study based on TIVA data: http://stats.oecd.org/Index.aspx?DataSetCode=TIVA2015_C1 (03.12.2015).

Table 5. Domestic value added share of gross exports by industries in 2011

	France	Germany	Italy	Japan	Spain	United Kingdom	United States	China
Total manufactures	66.62	69.74	68.01	81.97	62.55	64.26	78.47	59.88
Food products, beverages and tobacco	77.31	72.49	76.89	87.24	72.55	73.69	86.43	74.59
Textiles, textile products, leather and footwear	68.58	69.25	72.55	76.03	66.68	73.16	81.69	73.52
Wood, paper, paper products, printing and publishing	78.44	79.01	77.56	89.21	78.53	80.36	88.1	57.97
Chemicals and non-metallic mineral products	63.09	67.61	57.62	74.16	54.91	61.53	76.38	58.6
Basic metals and fabricated metal products	71.8	61.83	62.09	78.49	67.28	54.99	72.76	67.48
Machinery and equipment, nec	71.71	73.32	74.2	85.63	72.57	66.92	76.1	69.58
Electrical and optical equipment	69.64	74.9	71.86	83.09	66.44	67.96	85.22	46.19
Transport equipment	59.14	67.92	67.44	85.77	55.97	59.82	71.06	70.03
Manufacturing nec; recycling	71.06	73.72	75.84	81.37	72.27	71.91	85.05	77.68

Source: Own study based on TIVA data: http://stats.oecd.org/Index.aspx?DataSetCode=TIVA2015_C1 (03.12.2015)

Generally economies can be positioned upstream or downstream in GVCs depending on their specialisation and their position may change over time. Upstream economies export natural resources or knowledge assets at the beginning of the production process, while downstream economies assemble processed products (OECD, 2013, p.29).

Conclusions

The contemporary internationalisation phase is subordinated to the development of an innovative economy and the dispersion of the value added chain. The international production, trade and investments are nowadays organised in global value chains where various stages of production are located in different countries. The liberal policy of countries, resulting in the opening of the domestic markets, contributed to the increasing relocation of links of the value added chain. The strategy of the dispersion of economic operations favours the optimal allocation of resources on a global scale and becomes a part of the global effectiveness of international companies. However, when analysing this process in the regional context its negative consequences may be pointed out in the form of relocation of industrial activities to the regions which guarantee lower production costs. A change of the location of the industrial production in the system of macroeconomic links gives rise to implica-

tions that are in particular severely experienced at the local level, for instance in the form of the reduction in employment.

Countries derive the greatest benefit by supporting the potential of the domestic economy and by strengthening its linkages with GVCs. All analysed economies (the USA, Japan, major producers in the EU, and China) have increased their participation in GVCs in the last decade. It should be noted however that the mere fact of the increased participation does not guarantee a long-term increase in benefits from participation. It seems important to achieve a comparative advantage in certain industries. The effectiveness of management is nowadays determined by the degree of technological advancement of the given country. In this context diminishing benefits of the analysed EU countries should be mentioned which result from a relatively lower domestic value added in the production of high technologies in comparison with Japan and the USA. This is a challenge for EU countries, because how countries engage with GVCs determines how much they benefit from them.

References

Backer K., Miroudot S. (2012), *Mapping global value chains*, Paper prepared for the final WIOD Conference: Causes and Consequences of Globalization, Groningen, The Netherlands, April 24-26, 2012, http://www.wiod.org/conferences/groningen/Paper_DeBacker_Miroudot.pdf (November 20, 2015)

Beltramello A., De Backer K. and Moussiegt L. (2012), *The Export Performance of Countries within Global Value Chains (GVCs)*, OECD Science, Technology and Industry Working Papers, 2012/02, OECD Publishing.

Cascio J. (2012), *Dematerialization. The growth of atomically precise manufacturing*, http://www.iftf.org/uploads/media/SR-1473_TYF12_DematerialForecast_sm.pdf

Cieślik A. (2008), *Wpływ przedsiębiorstw międzynarodowych na fragmentaryzację produkcji i handel wewnątrzgałęziowy w Polski z krajami OECD*, „Gospodarka Narodowa" 10(206), Rok XIX.

European Commission, *A Stronger European Industry for Growth and Economic Recovery*, (COM(2012) 582 final).

European Parliament (2006a), *Relocation of EU Industry. An Overview of Literature*, IP/A/ITRE/NT/2006-14.

European Parliament (2006), *Delocalisation of EU Industry. Delocalisation and challenge of structural adjustment. A review of policy options*, IP/A/ITRE/FWC/2006-087/Lot1/C1/SC1.

Gereffi G., Fernandez-Stark K. (2011), *Global Value Chain Analysis: A Primer*, Center on Globalization, Governance&Competitivness, Duke University, North Carolina, USA.

Gierańczyk W. (2008), *Problematyka definiowania zmian w tendencjach lokalizacyjnych przedsiębiorstw przemysłowych w dobie globalizacji*, Prace Komisji Geografii Przemysłu Polskiego Towarzystwa Geograficznego, Warszawa–Kraków, vol. 11.

Herman R., Ardekni S. A., Ausubel J. H. (1989), *Dematerialization*, in: Ausubel J. H., Sladovich H. E. (eds.), *Technology and Environment*, Washington, D.C.: National Academy Press.

Kohler W. (2003), *The Distribution Effects of International Fragmentation*, German Economic Review 4(1).

Kowalski P. et al. (2015), P*articipation of Developing Countries in Global Value Chains: Implications for Trade and Trade-Realated Policies*, OECD Trade Policy Papers, No. 179, OECD Publishing, Paris.

Leamer E. E. (1996), *The Effects of Trade in Services, Technology Transfer and Delocalisation on Local and Global Income Inequality*, Asia-Pacific Economic Review Volume 2, Number 1, p. 44-60.

OECD (2013), *Interconnected Economies: Benefiting from Global Value Chains*, http://dx.doi.org/101787/9789264185560-en

Oziewicz E. (2012), *Globalizacja gospodarki światowej*, in: Orłowska R., Żołądkiewcz K., *Globalizacja i regionalizacja w gospodarce światowej*, PWE, Warszawa.

Pilat D., Cimper A., Olsen K. and Webb C. (2006), *The Changing Nature of Manufacturing in OECD Economies*, STI Working Paper 2006/9, OECD, Paris.

Porter M. E. (1985), *Competitive Advantage: Creating and Sustaining Superior Performance*, NY: Free Press.

UNIDO (2013), *Industrial development Report 2013. Sustaining Employment Growth: The Role of Manufacturing and Structural Change. Overview*, UNIDO ID/446.

TIVA data: http://stats.oecd.org/Index.aspx?DataSetCode=TIVA2015_C1

Unido data, http://www.unido.org/Data1/IndStatBrief/World_Leading_MVA.cfm

World Bank data: http://data.worldbank.org/indicator/SL.IND.EMPL.ZS

World Bank data: http://data.worldbank.org/indicator/NV.IND.TOTL.ZS

WTO (2014), *World Trade Report 2014. Trade and Development: recent trends and the role of WTO*, https://www.wto.org/english/res_e/booksp_e/world_trade_report14_e.pdf

Wysokińska-Senkus (2006), *Ewolucja standaryzacji i zarządzana jakością w sektorze gospodarki żywnościowej na świecie a proces globalizacji*, Rocznik Akademii Rolniczej w Poznaniu – CCLXX.

CENTRAL EUROPEAN REVIEW
OF ECONOMICS & FINANCE
Vol. 10, No. 4(2015), pp. 53–74.

Jacek Pera[1]

THE RISK OF GLOBALISATION FOR THE STABILITY OF FINANCIAL MARKETS – THE CASE OF THE EUROPEAN UNION

Abstract

The way the global market economy is developing, includes the risk of destabilisation related to uneven pace of growth and changes in the structure of economy and financial markets. As has been shown by recent experiences, the countries and markets are becoming more related to each other. The difficulties appearing in one country within a particular sector may be easily transferred to other areas and countries. This correlation between markets and countries combined with the increase of globalisation will also get stronger, causing greater risk of destabilisation. Apart from advantages, globalisation also entails a range of dangers in various areas. The main risk of globalisation for the international financial system is the increased danger for the world's financial stability. The world of finance has become multipolar. Globalisation of financial markets plays an important role in this process. It is necessary to remember, that globalisation, influencing some markets, will result in the increase of risk for the remaining markets – due to their growing correlation.

The aim of this paper is to describe the parameters affecting the stability of financial market, which still receive little attention in the existing stabilisation procedures within the EU, and which, according to the author, are crucial for maintaining the balance of this system.

JEL Classification Code: **G1, G2, G3, F32, F41**.

Keywords: globalisation, risk, stability, financial system, imbalance.

Introduction

The way the global market economy is developing, includes the risk of destabilisation related to uneven pace of growth and changes in the structure of economy and financial markets. As has been shown by recent experiences, the countries and markets

[1] Ph.D. Assistant Professor, Cracow University of Economics, Faculty of Economics and International Relations, Department of International Economic Relations.

are becoming more related. The difficulties appearing in one country within a particular sector may be easily transferred to other areas and countries. This correlation between markets and countries combined with the increase of globalisation will also get stronger, causing greater risk of destabilisation. Apart from advantages, globalisation also entails a range of dangers in various areas. The main risk of globalisation for the international financial system is the increased danger for the world's financial stability.

In the last several years, financial markets have undergone a real metamorphosis. They are no longer local "capital islands" focused in several financial centres. Due to the development of communication technologies, removing legal and psychological barriers as well as the search for new sources of income and the diversification of investments, the financial markets are becoming more global. This process has been inhibited, but not reversed, during the crisis that began in 2007.

The world of finance has become multipolar. Globalisation of financial markets plays an important role in this process. It is necessary to remember, that globalisation, influencing some markets, will result in the increase of risk for the remaining markets – due to their growing correlation.

The aim of this paper is to describe the parameters affecting the stability of financial market, which still receive little attention in the existing stabilisation procedures within the EU, and which, according to the author, are crucial for maintaining the balance of this system.

The fulfilment of the aim has been based on discussing the following issues: description of present financial markets, globalisation of international financial markets and the question of their stability, European Union as the example of globalisation's effect on financial market's stability.

The present international financial market – description

Financial market is the place where the supply and demand for financial instruments meet. It is also the place where mobilisation, allocation, transformation and capital valuation take place. Depending on the character of instruments and the type of transaction the following markets are distinguished: money, capital, primary, secondary, public and private.

The present financial market performs the following functions:

- Capital mobilisation – savings get transformed into investments. People who decide to resign from ongoing consumption to the benefit of investment, stand chances of making profit, constituting a reward for their sacrifice and risk.
- Capital allocation – the flow of financial resources occurs where they may be the most needed. It brings profit to those areas of economy or entities, which provide the most effective use of capital.
- Money turnover – financial market institutions and financial instruments enable quick, safe, efficient and cheap transfer of capital between different places.

•

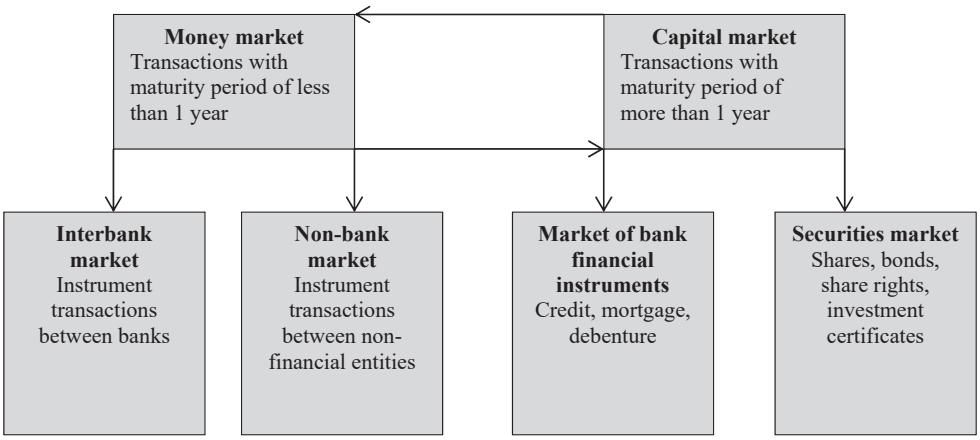


Figure 1. Structure of the global financial market

Source: R. Bęben, *Marketing inwestorski jako proces zaspokajania potrzeb na rynku kapitałowym*, Difin, Warsaw 2013, p. 14, [in]: E. Ostrowska, *Rynek kapitałowy*, Polskie Wydawnictwo Ekonomiczne, Warsaw 2007, p. 36.

- Capital and risk valuation – financial investment are associated with risk resulting from the uncertainty of investment's effects. Effective financial market, with a lot of investment possibilities, enables objective evaluation of the investment's effects and the risk related thereto.
- Economic situation barometer – the situation on the financial market derives from the general situation of economy and public finances. It may also give signals that anticipate changes of the economic situation.

The increase of enterprise activity on the international market and the development of export related thereto, caused the expansion of financial institutions' activity. Dynamic development of companies must have been supported with relevant financing sources and their supranational range has determined the growth and globalisation of local financial markets. Capital flow and technical development on financial markets have driven the further growth of economies forward, joining them into one global network of dependencies.

The most important determinants of changes on present financial markets are (Kacprzak, 2015):

– technical and technological development, especially the development of IT and the Internet,
– high standardisation of information and faster flow of information,
– process of deregulation and liberalisation on domestic financial markets,
– growing competitiveness on financial services market,

– process of integration of local financial markets,
– globalisation of national economies, especially in terms of capital, knowledge ad people transfer.

According to Chrabonszczewska (Chrabonszczewska, Waszkiewicz, 2010), the present financial markets are becoming increasingly important in the world's economy. It results from several trends that are becoming more and more clear. These include: considerable dynamics of financial markets, increased correlation between financial markets and the world's economy, globalisation of financial markets, internationalisation of business and markets, as well as the increase of risk related to financial market instability.

Table 1 shows a short description of the world's biggest financial centres, in terms of their turnover capitalisation in 2014, whereas table 2 shows selected indicators for financial markets in the European Union (EU), USA, China and the world.

Table 1. World's biggest financial centres in 2014

Current position in the ranking	Financial Center	Previous rank	The capitalization turnover in millions USD
1.	London	3	3626,78
2.	New York	4	2908,90
3.	Hong Kong	1	2700,88
4.	Singapore	2	2697,03
5.	Tokyo	5	2602,21
6.	Zurich	8	2598,67
7.	Boston	9	2345,76
8.	Geneva	10	1676,65
9.	Frankfurt	7	1543,45
10	Seoul	6	456,45

Source: own study on the basis of: Global Financial Centres Index for 2014.

Table 2. Selected indicators for the world's biggest financial markets in 2014 in billions USD

Specification	World	EU	China	USA
1.GDP	107 921	18 526	17 617	17 418
2. Gold reserves	3095	932	365,0	120
3. Market capitalization	41 235	12 786	10 300	18 668
4. Debentures	99 555	34 567	29 666	69 849
5. Banking assets	121 345	58 765	51 577	50 675
6. (3+4+5)	262 135	106 118	91 543	139 192
7. Part 6 in % in GDP	**243**	**573**	**520**	**799**

Source: currency Composition of Official Foreign Exchange Reserves 2014; Trading Economics 2015.

As the data in table 2 show, financial markets grow several times faster than the GDP for: the EU: 573%, China: 520 and the USA: 799%. Such dynamics of the financial markers causes the occurrence of tensions between the real sphere and the financial sphere. Fast development and growth of financial markets in relation to GDP increase the sensitivity of the real economy to the changes that are currently taking place in the world of finance. It also constitutes the potential danger of turbulence and financial crises.

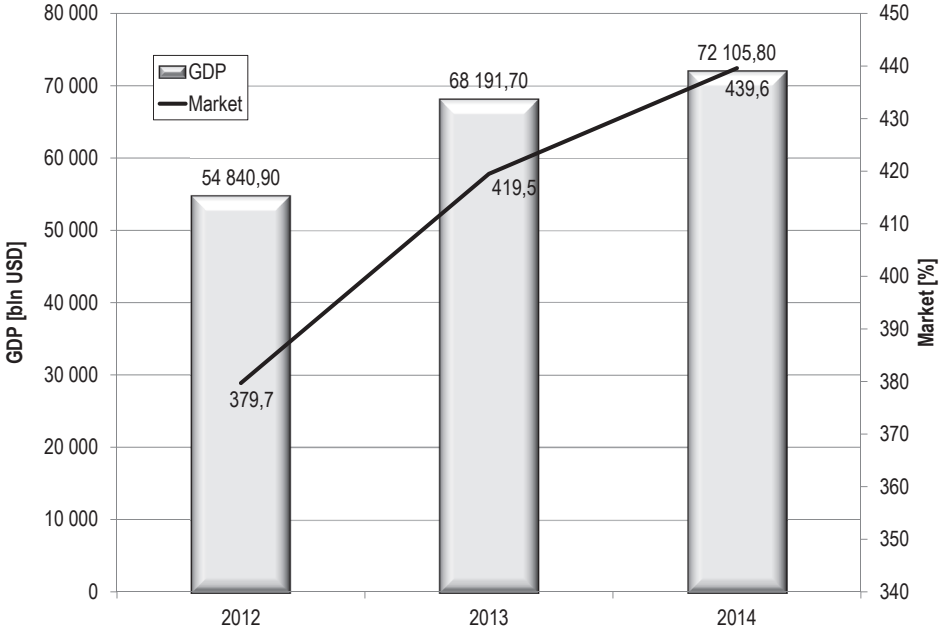


Figure 2. Size of global financial markets in billions USD in relation to the world's GDP in the years 2012-2014

Source: Own study on the basis of: Global Stability Report IMF 2012-2014.

The global size of present financial markets – with the provision of: market capitalisation, bonds and bank assets in relation to the world's GDP amounted to: in 2012: 379.7%, in 2013: 419.5%, and in 2014: 439.6%.

The size and dynamics of financial markets for the EU, China and the USA, in relation to the world's GDP is different from global markets. As can be seen on fig. 3, the size of financial markets in relation to GDP in 2014 was the biggest in the EU, and amounted to: 17.2%, then in China: 16.3% and the USA. The results for the remaining countries (first 10) are as follows: India: 6.8%, Japan: 4.4%, Germany: 3.4%, Russia: 3.3%, Brazil: 3.0%, Indonesia: 2.5%, France and Great Britain: 2.4%. As can be seen, the size of financial markets is much smaller than of the first three countries.

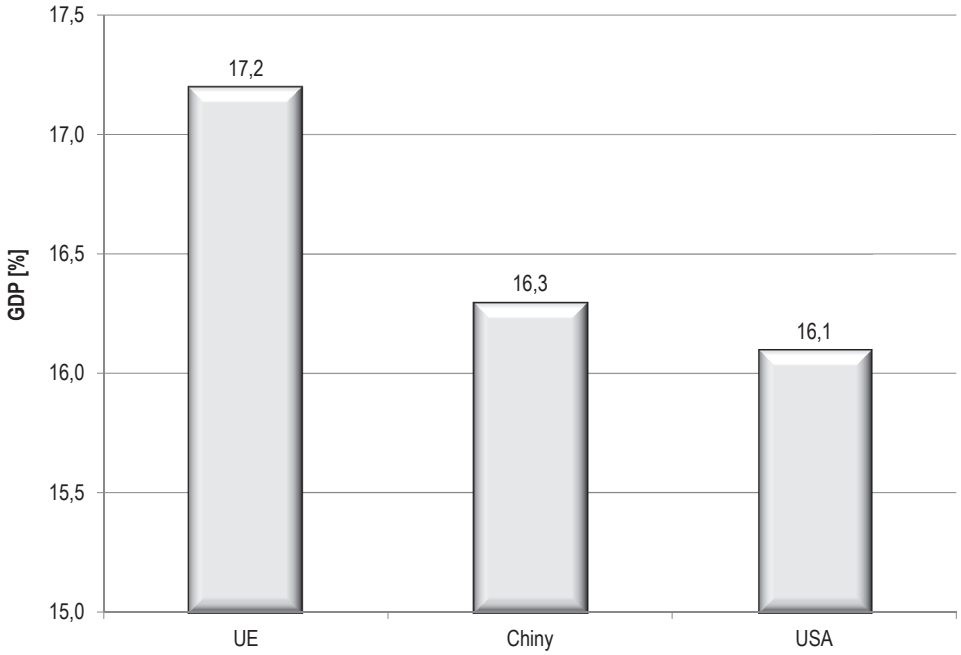


Figure 3. The size of the biggest financial markets in % in relation to the world's GDP in 2014
Source: Own study on the basis of: MFW – *World Economic Outlook Database*, April 2015" (By Countries)

Globalisation of international financial markets and the question of their stability

The globalisation of international financial markets is related to three groups of factors, which are the preconditions of its present scale. They are (Woelfel, 1994):
- deregulation of financial markets and services,
- technological development allowing to monitor the world's markets, transactions, analysis of benefits and risk,
- increased institutionalisation of financial markets.

Thanks to globalisation, investors and lenders from different countries can compare bonds, shares or loans available on international markets with the conditions of domestic supply of these instruments.

Apart from advantages, globalisation also entails a range of dangers in various areas.

The main risk of globalisation for the international financial system is the increased danger for the world's financial stability (Chrabonszczewska, Waszkiewicz, 2010).

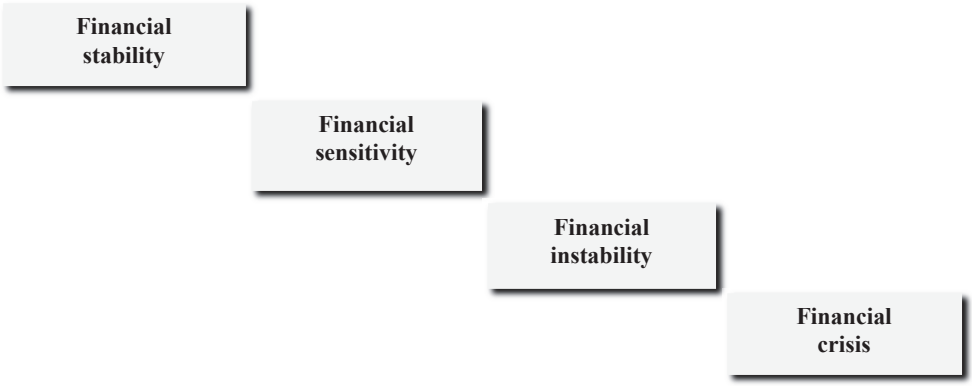


Figure 4. From the financial system's stability to its instability
Source: K. Mitręga-Niestrój, *Niestabilność finansowa i jej źródła we współczesnym świecie*, Wydawnictwo Uniwersytetu Ekonomicznego w Katowicach, Katowice 2014, p. 11.

Figure 2 shows the process of transition from financial stability to instability, and in consequence to financial crisis. This process is preceded with the period of financial instability.

Why is stability important? Maintaining financial stability allows to avoid financial crises as well as the restrictions of business activity, foreign investments, high inflation, excessive variations of interest rates and currency exchange or the deterioration of the standard of living.

Financial stability is a broader concept and has more than one definition. It is also the topic of numerous discussions. Publications emphasise also the connection between financial and monetary stability, as well as the dynamics of financial processes, which make the maintenance of stability require constant attention. A lot of definitions see stability as the lack of instability or disturbances, financial instability itself is not understood in the same way.

F. Mishkin describes financial stability as the state, where "shocks directed to financial system overlap with information streams, resulting in the financial system's inability to perform its functions as the means of transferring funds without losing investment benefits" (Mishkin, 1999).

In his book, J. Schinasi presents the following definition of financial stability, which seems to exhaust its various aspects touched upon in the previous definitions: "Financial stability is the situation, where the financial system is capable of performing its three basic functions at one time. First, financial system is efficient and facilitates interim allocations of resources from the savers to the investors and the allocations of general economic resources. Second, financial forward risk is accurately defined and validated and it is relatively well managed. Third, financial system is in

such a condition that allows to absorb financial and economic surprises and shocks in an efficient and convenient manner" (Schinasi, 2006).

Financial stability has changed its primary meaning during the period of globalisation (Chrabonszczewska, Waszkiewicz, 2010).

The world's present financial system includes such mechanisms which influence its stability in a significant way. One of them is a bank run. Runs on financial institutions happen, because deponents (or the buyers of short-term securities emitted by a given institution), who have learnt about the possible problems of a given institution may withdraw their deposits or refrain from rolling (purchasing another emission) the securities they own. It results in a sudden decrease of resources remaining at the financial institution's disposal and causes bankruptcy (provided that the bank has indeed suffered losses due to other operations, exceeding its own resources) or at least significant losses resulting from the necessity of sudden sale of assets at prices lower than their real value.

Another mechanism is related to the balance of financial institutions and results from the necessity of maintaining a certain relation between own resources and assets (mainly due to the requirements of financial supervision). It is a measure of capital adequacy on one hand and of financial *leverage*, characteristic of a given institution, on the other hand. The bigger the leverage, the greater rate of return (i relation to own resources) may be achieved by a given institution. On the other hand, if losses occur, too little own resources may not be enough to absorb them. In such a situation, the financial institution decides to sell its assets (which may lead to a decrease in their price and further losses), or to limit credit activity (which is unfavourable, because it limits the income). Thus, rigid requirements related to capital adequacy cause procyclical behaviour of financial institutions – in case of good economy, they inflate their balances excessively (and take up excessive risk) whereas during a situation of crisis, they rapidly restrict their appetite for risk and financing various enterprises.

Another mechanism and a very significant one is the strong correlation between modern financial institutions. They form a complicated network, where each of them is a lender and a borrower at the same time, and only slightly less frequently a *market makeras* well. Those markets which involve the biggest financial institutions are of an unstructured manner (*over-the-counter*, OTC), which means that there is little clarity and a lack of a central agency for settling transactions (*clearingis* not possible), as well as a lower level of supervision and regulation. This network has become much more complicated as the result of financial innovations of recent years and of using new financial instruments enabling the transfer of risk.

Yet another mechanism, being the consequence of imperfect information and overshooting (down) effect is pointed to by A. Krishnamurthy (Krishnamurthy, 2009). In a situation of a sudden increase of instability on financial markets after the crisis outbreak, their participants are not able to precisely evaluate the level of

risk (and they realise they had underestimated it previously). While doing the new evaluation, they will probably assume the most pessimistic scenario of further actions (instead of the basic scenario – the most likely one). This causes further decrease of asset prices in relation to the fall of their expected value, which results not only from the change of estimated distribution of price probability, but also from changing the scenario to the most pessimistic one. The evoked theoretical model seems to relatively well describe the reality of financial markets on the eve of the crisis, when the degree of financial instruments complexity (e.g. higher order or synthetic CDO's) made it practically impossible to estimate the risk in a reliable manner (Stanek, 2011).

The described mechanisms reveal one more aspect determining the level of financial system's stability. They are financial instruments. Examples of instruments which have in particular contributed to the increase of system risk in the period preceding the outbreak of the crisis are mainly CDO (*collateralised debt obligations*) and CDS (*credit default swaps*).

Many economists indicate that the world's economy is not in the state of balance at the moment. They give several reasons of such a situation. Four hypotheses and their combinations dominate among the appearing opinions.

The first one is based on the theory of "twin deficits", according to which the reason of imbalance is the high level of budget deficits in different countries.

The second hypothesis points to the exchange rate policy run by Far East countries. Third, there are opinions that the deficit of current account is related to a durable, long-term increase of productivity. Also the global saving glut is discussed.

The exchange rate policy of Far East countries is another factor listed as the cause of the occurrence and maintenance of global imbalance (Dooley, Folkerts-Landau, Garber 2004; 2005) claim that the exchange rate of Asian countries is the main cause of global imbalance.

Also currency speculations and currency policy run by different countries play a significant role here. A good example in that regard is China's recent activity. After several years of "stable exchange rate policy", Chinese authorities decided to devaluate the yuan (CNY) and change the mechanism of determining its exchange rate against the world's major currencies. Key effects of CNY devaluation/depreciation on the world's economy are as follows: (1) export of disinflation/deflation to the global economy – both by means of the exchange rate effect and limiting Chinese demand for raw materials and the fall of their prices (2) reduction of GDP growth outside China due to increased competitiveness of Chinese goods, (3) reaction of other central banks (additional alleviation or future tightening of monetary policy and a possible intensification of "currency wars"). The effect of CNY's devaluation/depreciation on the global economy will depend on its scale and speed.

CNY devaluation will strengthen the deflation/disinflation tendencies in Europe. Assuming the depreciation of the CNY by 10% (and similarly, the depreciation of

other Asian currencies), and taking into account the share of China and other Asian countries related to it in import (10% on average) and the share of import goods in the consumed goods (approximately 15% on average), inflation path in the EU countries may drop by 0.1-0.2 pp.

The scale of impulse for the EU and eurozone Member States should be similar and equals 0.5% and 10.3% respectively – taking into consideration China's (and other Asian countries') share in import similar to different European countries – e.g. for Great Britain it is: 14%, for Italy: 10.6%, for Germany: 10.4%, for France: 7.8%.

The negative aspects of financial markets globalisation include:

- "carry-over effect" – the disturbances on one national market are easily carried over to other markets,
- the scale of international capital flows and the easiness to reverse this trend,
- the possibility of accumulating – as a consequence of the ease of obtaining funds for global economy imbalances to an extent that may turn out dangerous for the economy's stability in the future (Borcuch, 2009).

The most dangerous aspect of financial market globalisation is the carry-over effect, which involves destabilisation and as a consequence – lack of financial markets security. Potential destabilising factors are transferred by means of: international trade, investors' herding behaviour, global diversification of investment portfolio and direct foreign investments. These factors bring further effects, as they transfer the destabilisation onto financial system, making it unstable. Here, it is worth taking a look at the problem of investors' herding behaviour. When any disturbances occur in a given national economy, they either tie up the investments or withdraw their capital – depending on the degree of these disturbances. As the result of the miming effect – typical herding behaviour, which, due to the development of globalisation – very quickly transfer these disturbances onto the rest of the world's economy.

A typical example of such behaviour is the implications resulting from the turmoil on Chinese financial market. Investors are increasingly more worried about China's economy, which is becoming significantly weaker. Although the country's authorities undertake actions aimed at supporting the economy, investors are not convinced that they are able to inhibit China's increasing slowdown.

Bad information of China's economy give rise to the concern that the demand will drop radically in the country, which is the world's second biggest consumer of oil and a greedy importer of raw materials. Investors worry that China, as well as other important rising markets will reduce import; the world's fragile economic growth is in danger.

China's rapid inhibition is a global threat, especially with view to the fact that the big Brazilian economy is collapsing, the condition of rising markets is bad and Europe is struggling to get over stagnation.

As the consequence of this information, on 24/08/15 there was a fall on Asian markets that dragged down the world's stock exchanges and oil prices. The wave of

falls began on Asian markets and their main indicators reported the greatest falls. Shanghai index reported the biggest loss for more than 8 years.

All indexes in Europe fell: stock exchanges in Frankfurt, Paris, Madrid, Amsterdam and Brussels lost more than 7% and the index in Lisbon lost 8.04% just before the end of session. Wall Street reacted with falls already at opening, when the most important index Dow Jones lost 5.75%, and Nasdaq lost 7.72 %. Brazilian index Ibovespa in Sao Paulo lost 5.67 %.

The price of American oil dropped below the psychological threshold of USD 40 per barrel and equalled USD 38.76 USD per barrel of U.S. crude (WTI) after session opening.

The index in Shanghai (Shanghai Composite) dropped by 8.49% at closing – it was the biggest fall for 8.5 years. Hang Seng index in Hongkong lost 5.17%, and Japanese Nikkei lost 4.61%. Indian stock exchange (BSE Sensex) lost 5.96 %, and the Australian index ASX – more than 4 %.

Also the currencies and debts of rising markets reported major falls. Such was the reaction to Chinese sales and the reduction of raw material prices.

As has been mentioned before, there is a direct correspondence between globalisation of financial markets and the global financial market itself. The stability of this market depends on the globalisation processes stability. The most important consequences of the instability of these processes in financial markets are:

- the escalation of the phenomenon of contagion between financial institutions and financial markets on local and international level,
- increase in short-term capital in the form of short-term and portfolio capital flows,
- enhanced destruction and imperfection of the global financial market (Borcuch, 2009).

The scale and strength of these factors occurrence is de facto the scale of the instability of the global financial system and the source of potential financial crisis.

The present financial system in Europe includes, apart from the above mentioned, the following factors able to cause crisis:

- great internal imbalances, which have caused a fast growth of foreign debt and serious dependency on foreign capital,
- capital outflow and national currencies depreciation,
- too easy an access to loans for economic entities and households,
- lack of dynamic increase of domestic deposits in the situation of enhanced loan actions,
- problems with the liquidity of international financial institutions in the conditions of growing aversion to risk,
- restriction of the amounts of granted credits, which caused a drastic decrease of internal demand.

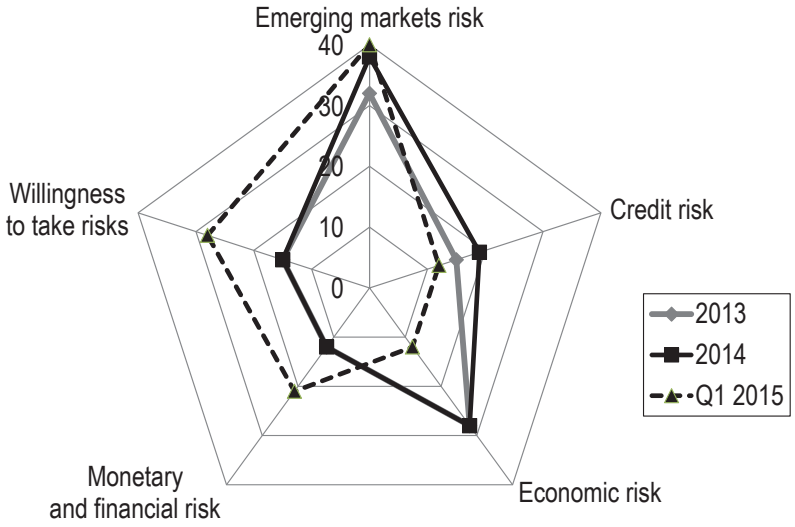


Figure 5. Map of global financial stability in 2014
Source: Own study on the basis of: Global Stability Report IMF 2015.

The way the global market economy is developing, includes the risk of destabilisation related to uneven pace of growth and changes in the structure of economy and financial markets. The difficulties appearing in one country within a particular sector may be easily transferred to other areas and countries. This correlation between markets and countries combined with the increase of globalisation will also get stronger, causing greater risk of destabilisation.

All the discussed mechanisms function on the level of a single country (financial system), as well as on the international level – hence, due to strong capital connections between financial groups and due to their cross-border activity and capital transfer (especially in the form of portfolio investments, also in secondary instruments), they constitute a significant risk for financial stability in Europe.

The situation pictured on fig. 5 clearly shows the deterioration of basic indicators of stability on the global scale in terms of: monetary and financial risk, tendency to risk and the risk of rising markets. The following tendencies have an influence on this situation: GDP global decrease, increased inflation tendencies and current deficits, imbalanced fiscal policy in the majority of national economies, caused by the pressure of particular social groups, increased consumption and tendencies towards tax lowering, as well as global paying imbalance caused by growing international debt.

The European Union as an example of globalisation's effect on financial market stability

The world crisis of 2007 has made it necessary to perform a general review of the quantitative and qualitative evaluation of the EU financial market[2]. The crisis character has shown global connections between the Member States economies ("domino effect", "the risk of contagion"), which has reinforced the financial market imbalance.

Below is the description of those parameters influencing the EU's financial market stability, which, in the author's opinion, are crucial for maintaining the balance of this system and are the consequence of globalisation processes, but which are paid little attention in the EU's stabilisation procedures.

According to ESRB's data (ESRB, 2015) – fig. 5 and table 3 – the biggest share of foreign currency credits in all the credits in 2014 was the biggest in Latvia: 88%, Lithuania: 74%, Croatia: 72%, Bulgaria: 65%, Romania: 65%, Hungary: 58% and Poland: 35%.

In 2012 and 2013, the share of foreign currency credit was respectively: for Latvia: in 2012: 86% and in 2013 in remained on the level of 2014; for Lithuania: 69% and 70%; for Croatia: In 2013: 91%, for Bulgaria: 60% and 63%; for Romania: 60% and 61%; for Hungary: 54% and 60%; and for Poland: 29%.

These countries are the most vulnerable to the negative causes of exchange rate risk and they constitute potential risk of European financial system's imbalance. The share of currency credits in other EU countries have been on a low, acceptable level.

The structure of currency credits is mostly taken out in the euro. Only in Poland, Austria, Greece and Slovenia, Swiss-franc loans constituted a significant proportion, and sometimes even a great majority. Negative effects of the exchange rate risk could be observed in these countries at the beginning of 2015, after the decision of Swiss National Bank to float the franc. This led to strong appreciation of the Swiss franc against other currencies and to the increase of debt in these countries.

According to ESRB's opinion, excessive increase of foreign currency debts not only is the source of risk for various banks, but may also constitute the risk for financial and macroeconomic stability on the EU level. Dangers related to foreign currency loans include the risk of liquidity and access to funds, the risk of unstable booms on asset markets, decreased efficiency of domestic monetary policy and the economies' increased sensitivity to capital flow changes (Manko, 2015).

[2] On 16 December 2010, a special independent body of the EU was established – European Systemic Risk Board (ESRB). The main function of this organ is to perform a macro-prudential supervision over the European financial system. ESRB's most important task is to monitor, counteract and limit the system risks in the EU, as well as to quickly react to them. This type of risk may occur as a result of close relationships between financial institutions, markets, countries as well as due to macroeconomic and structural changes.

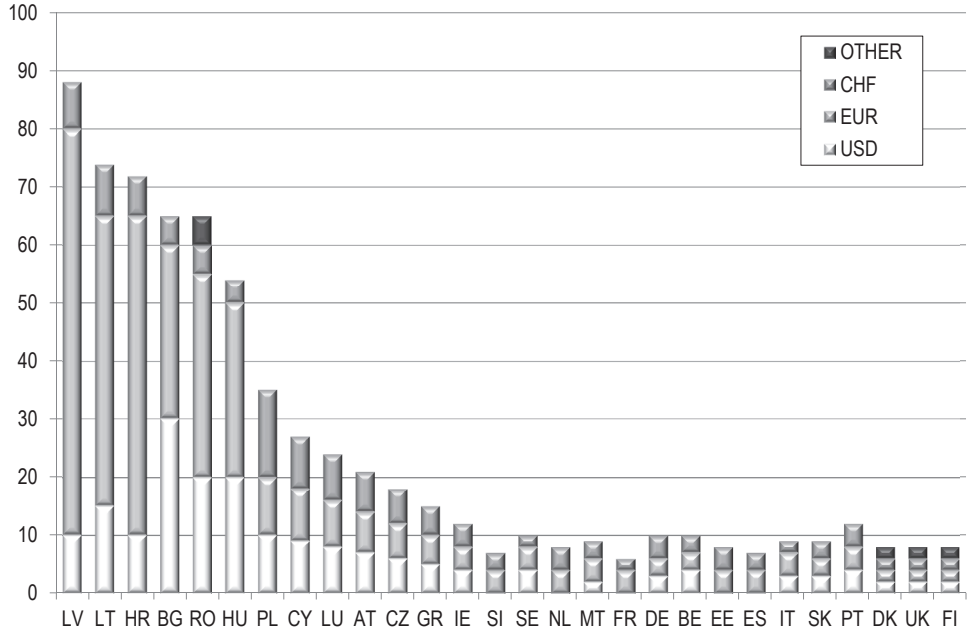


Figure 6. Foreign currency loans in the EU Member States according to the currency in 2014 in %

Source: ESRB Risk Dashboard 2015; CHF Lending Monitor 2015.

The risk related to excessive foreign capital is the second factor influencing financial market stability. It is the result of the world's economy being subject to the processes of deregulation and liberalisation of financial markets.

According to R. Kacprzak (*twojbiznes.byd.pl/userfiles/files/Rynki_finansowe_globalizacja _RK.doc*) it was the liberalisation of capital flows that had the greatest influence on the growth of global financial market.

In the opinion of M. Janicka (Janicka, 2014) – it is necessary to remember that domestic economy's excessive dependency on foreign capital may contribute to the decrease of a country's external safety, whose specific sign is its loss of financial liquidity.

Growing volume of transferred financial resources may cause anxiety related to the stability of domestic economy, including also the financial system, in the face of changing sentiment of foreign investors in the situation of possible deterioration of economic condition of the country where they have done investments. In case of the EU Member States there is no possibility of going back to the restrictions imposed upon financial flows (with some exceptions), which means that these countries have lost the ability to freely control their openness in case of excessive increase of the volume of the capital flowing in or flowing out. (Janicka, 2014).

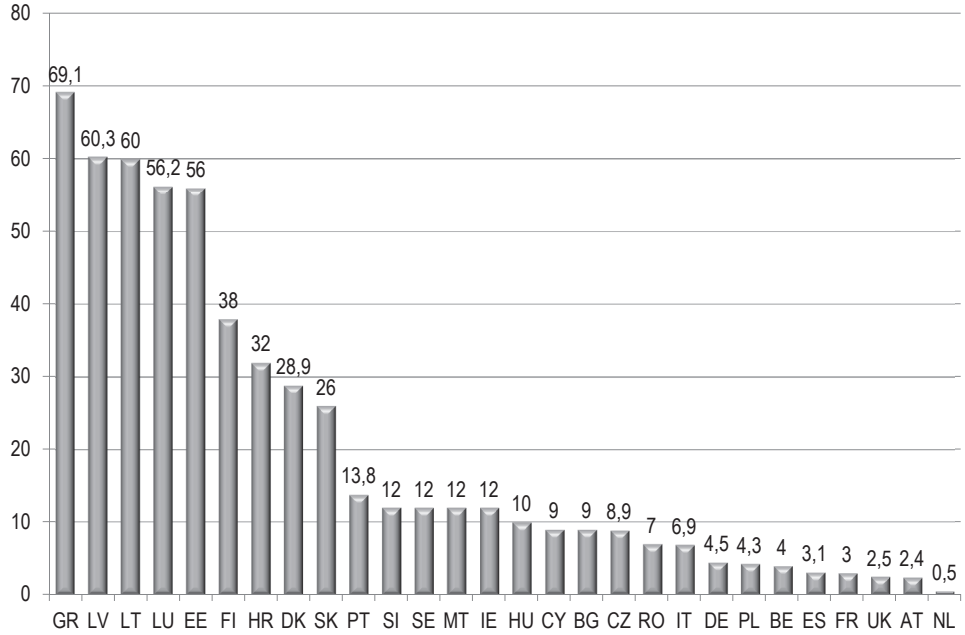


Figure 7. The level of foreign direct investments flowing *per capita* to the UE in 2014 in %
Source: own study on the basis of: Trading Economics 2015, ESRB Risk Dashboard 2015, UNCTAD 2015.

It is necessary to remember that excessive (uncontrolled) increase of foreign capital and the fact that the recipient country is dependent upon it are a significant risk for this country. Its internal and external safety is compromised due to the decrease of resistance to financial crisis absorption, currency fluctuations and the loss of liquidity.

Excessive capital mobility may also cause negative consequences for the real and financial sphere of economy. They are related to the growing changeability of exchange rate and its influence on foreign trade competitiveness, price stability and operating costs of external debt. Furthermore, the influx of foreign capital may weaken the mechanism of monetary policy transmission and entails the risk of credit booms, speculative bubbles and dangers related to a sudden outflow of capital, contagion effect and restricted liquidity (NBP, 2012).

The situation of foreign capital level in the EU in 2014 is shown on fig 8 and table 3.

In 2014, the countries which were characterised with excessive involvement of foreign capital *per capita* were: Greece: 69.1%, Latvia: 60.3%, Lithuania: 60%, Luxembourg: 56.2%, Estonia: 56.0%, Finland: 38.0%, Croatia: 32.0%, Denmark: 28.9% and Slovakia: 26.0%. In each of these countries the level of involvement dropped in

relation to 2012, yet, for countries like: Greece, Latvia, Lithuania, Luxembourg and Estonia it still remains on a very high level, much over 50%.

In case of Greece, the level depends on considerable financial support for this country, due to the risk of its bankruptcy and potential exit from the eurozone.

In case of other countries this level depends on population size, yet – as has been mentioned before, it remains on a very high level.

All the above mentioned countries are a significant, potential source of danger for the stability of EU's financial system.

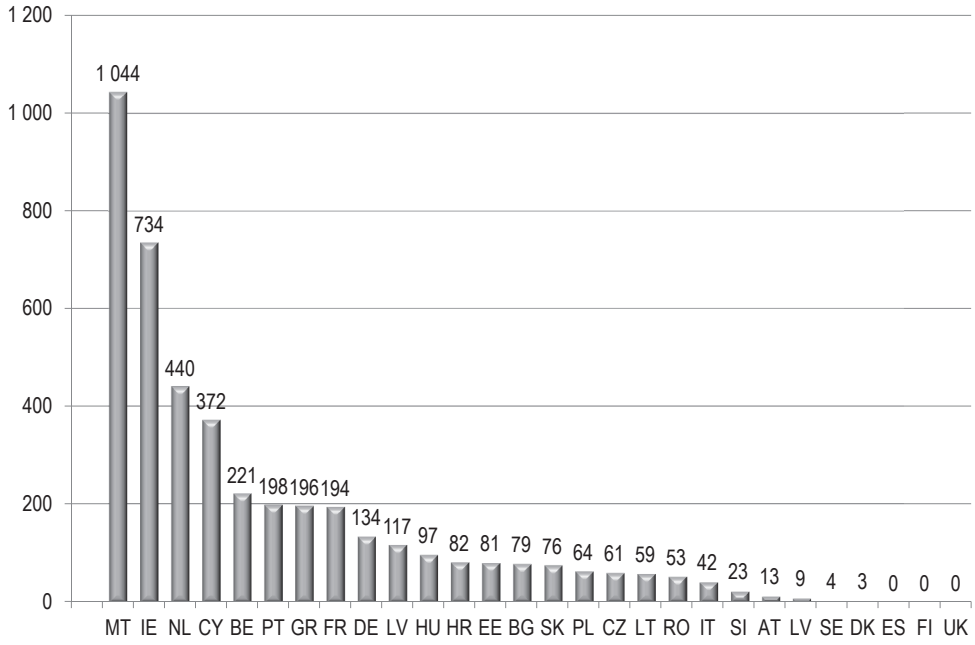


Figure 8. Level of the EU Member States foreign debt in 2014 as % of GDP
Source: own study on the basis of: Trading Economics 2015, ESRB Risk Dashboard 2015, UNCTAD 2015.

International debt is currently the global problem and pertains to a great number of countries around the world. Hence, it is a problem of a lot of countries and it may have a negative effect on other countries with view to the modern world's characteristics related to the process of globalisation. The features of modern, global economy favour the occurrence of international debt and its expansion.

Table 3. Selected indicators determining the stability of EU's financial market in the years 2012-2014

	AT	BE	BG	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE	IT	LT	LU	LV	MT	NL	PL	PT	RO	SE	SI	SK	UK
Proportion of foreign currency loans in all loans in %																												
2012	1,2	2,3	60,0	0,2	4,2	1,9	1,0	35	4,2	2,2	3,2	16,0		54,0	2,1	1,9	69,0	2,3	86,0	0,2	1,2	29,0	3,4	60,0	1,5	1,6	2,1	0,4
2013	2,5	1,9	63,0	0,9	4,8	2,1	1,2	39	4,4	2,3	3,4	16,3	91,0	60,0	2,1	1,8	70,0	3,1	88,0	0,3	1,3	29,0	3,2	61,0	1,5	1,6	1,8	0,6
2014	4,8	2,6	65,0	0,9	4,9	2,4	1,4	42	4,8	2,5	3,6	16,5	72,0	58,0	2,0	1,9	74,0	2,9	88,0	0,3	1,7	35,0	3,4	65,0	1,5	1,9	1,8	0,9
Foreign direct investments flowing in *per capita* in %																												
2012	2,7	4,1	9,6	12,0	10,8	5,0	31,8	61,9	3,9	41,1	3,5	73,7		10,9	13,9	8,2	63,7	64,3	67,4	10,1	0,5	4,6	15,2	7,2	12,4	12,3	27,2	2,7
2013	2,4	4,1	9,1	11,0	10,8	4,6	29,7	56,2	3,5	39,0	3,3	65,3	32,5	10,3	12,5	7,2	62,3	56,2	61,6	11,3	0,5	4,3	14,0	7,2	12,0	12,2	26,1	2,5
2014	2,4	4,0	9,0	9,0	8,9	4,5	28,9	56,0	3,1	38,0	3,0	69,1	32,0	10,0	12,0	6,9	60,0	56,2	60,3	12,0	0,5	4,3	13,8	7,0	12,0	12,0	26,0	2,5
Foreign debt as % of GDP																												
2012	14	235	80	442	49	139	4	87	0,1	0	201	196		109	839	36	67	7	117	1019	455	74	207	52	4	7	65	0
2013	14	199	77	369	53	120	3	78	0,1	0	196	193	79	98	789	36	59	9	110	951	430	73	193	45	4	17	69	0
2014	13	221	79	372	61	134	3	81	0,1	0	194	196	82	97	734	42	59	9	117	1044	440	64	198	53	4	23	76	0
Capital daily flows in a domestic perspective in billions USD																												
2012	162	911	49	21	136	1788	150	19	644	96	1029	25		103	339	363	13	124	13	16	624	235	119	78	364	15	55	1482
2013	183	924	52	21	135	1851	158	21	715	101	1081	27	32	111	377	403	15	141	15	14	670	252	128	84	378	15	58	1605
2014	192	999	56	23	145	1992	162	22	799	112	1191	28	34	119	400	409	16	147	17	15	691	283	136	93	400	15	60	1799

Instruction:
Values based on the data of 31/12 of the given year.
Euro/USD exchange rate = 1.1190 of 31/08/2015
SEK/USD exchange rate = 0.118 of 31/08/2015
DKK/USD exchange rate = 0.1502 of 31/08/2015

Lack of the EU membership

Exceeding the reference value or the biggest value

Source: own study on the basis of: Trading Economics 2015, ESRB Risk Dashboard 2015, UNCTAD 2015.

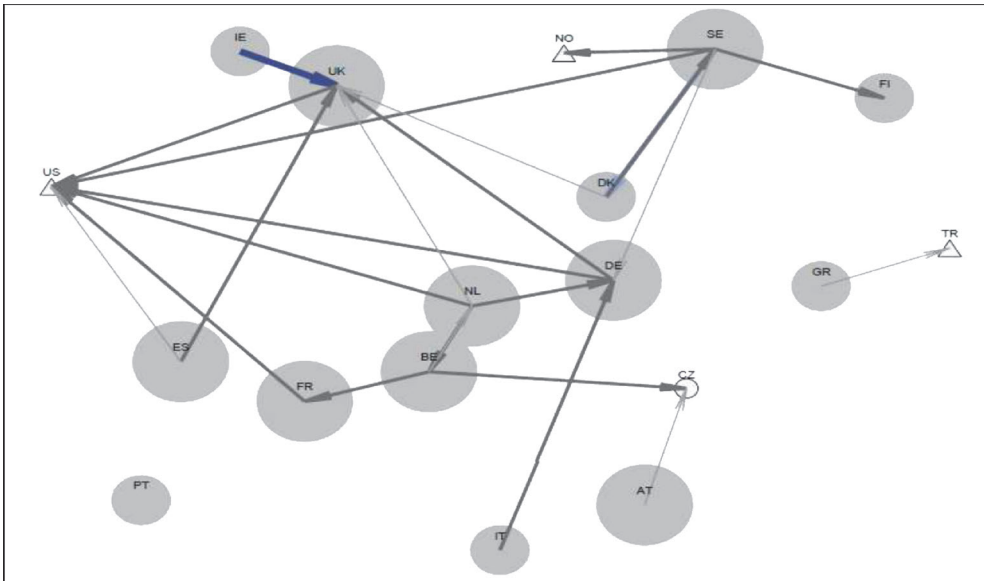
This phenomenon within the EU is described in fig. 8 and table 3. The level of EU Member States foreign debt in the analysed period was unfavourable. In case of 10 countries, the debt exceeded their GDP by more than 100%. The most indebted countries in 2014, which also constitute a threat for the EU financial system's stability were: Malta: 1044%, Ireland: 734%, the Netherlands: 440%, Cyprus: 372%, Belgium: 221%, Portugal: 198%, Greece: 196%, France: 194%, Germany: 134% and Latvia: 117%. In the remaining countries of the region – except for Finland and Great Britain, which are not indebted – the level of debt was roughly 100% of their GDP.

Globalisation has a negative effect on financial system's stability, as the real and financial dependencies between countries have become stronger. The consequence of this process is that the financial sectors of Spain, Ireland and Great Britain have become closely interlinked (figure 3). The share of mutual foreign claims between Ireland and England is over 300%, which confirms very high risk of contagion in these countries. Mutual foreign claim exceeding 100% occurs between Italy, which currently have a lot of financial problems, and Germany. That is why the deterioration of Italian situation can be quite clearly visible mainly for German lenders. The banking sector in the majority of the EU's big economies had resources deployed in American banks. Hence, the last economic crisis, which began in the USA in 2007 quickly appeared in the EU, bearing significant negative consequences. Another interesting feature is the close mutual interrelationship of the banking sector in Scandinavia. It generates an additional factor of risk not only for a specific country, but also for the whole region. Convergence processes of the EU Member States financial markets cause a very fast transfer of shocks and undesirable phenomena between countries. It increases the risk of transforming these shocks into the financial risk of the whole region (Manko, 2015).

Global processes shaping the modern financial system are also reflected in the increased value of capital flows on domestic and international level. This increase is very dynamic and the scale of this phenomenon is described by the following data (BIS 2015): average value of of non-cash payments in payment systems of EU Member States has increased in the years 2002–2015 more than twentyfold, at the same time the number of transactions increased tenfold; it is estimated that daily currency turnover in 2014 was as big as USD 8 trillion; in the years 2012–2014 there was an almost fivefold increase of international transfers on the global level, by 18% per year on average; one of the reasons of the international increase of capital flows is the possibility of making foreign investments, which is the effect of liberalisation.

Dynamic growth of the value of international capital flows may have serious negative implications for domestic financial systems within the EU. Such is the case when the flows are of a short-term nature. Quick increase of GDP in some EU Member States (e.g. in Poland) encourages new investors to locate their short-term capital, and at some point the capital will start "flowing out", causing crisis. Furthermore, it is worth stressing that a great majority of payments executed in the EU Member

States payment systems are large-value payments. They are extremely important from the point of view of the potential instability of the financial system. Irregularities of large-value payments expose the participants to potentially big losses (in relation to the liquidity and capital value of a given institution), which – due to their extent – may pose a threat of a system nature (Mitręga-Niestrój, 2014).



Note: The data for foreign claims relate to the claims against the main debtor.
The size of the circles corresponds to the relation of foreign claims to consolidated own capitals of the banking sector in a given country. Arrow thickness depends on the relation of a given country's foreign claims (i.e. the claims of country A banks against lenders in country B) to the whole value of the capital of banking sector having these claims. The arrows come out only from those EU Member States which report to BIS and those, where the relation of this type of claims to own resources is more than 75%.

Figure 9. Level of cross-border banks' claims

Source: Study on the basis of: Manko Maryan, (2015), *Analiza oddziaływania ryzyka kraju na ryzyko systemowe w UGW*, Krakowska Szkoła Biznesu, Krakow, p. 20.

This phenomenon on the level of EU's individual economies is described in graph 7 and table 3. The greatest value of daily capital flows in 2014 was recorded in those EU Member States, which have stock exchanges, i.e. Germany, Great Britain and the Netherlands. The remaining big daily capital flows – yet much smaller than USD 1 trillion – were recorded in: France, Belgium Spain, Italy, Ireland and Sweden. These countries pose a potential danger for the stability of EU's financial system.

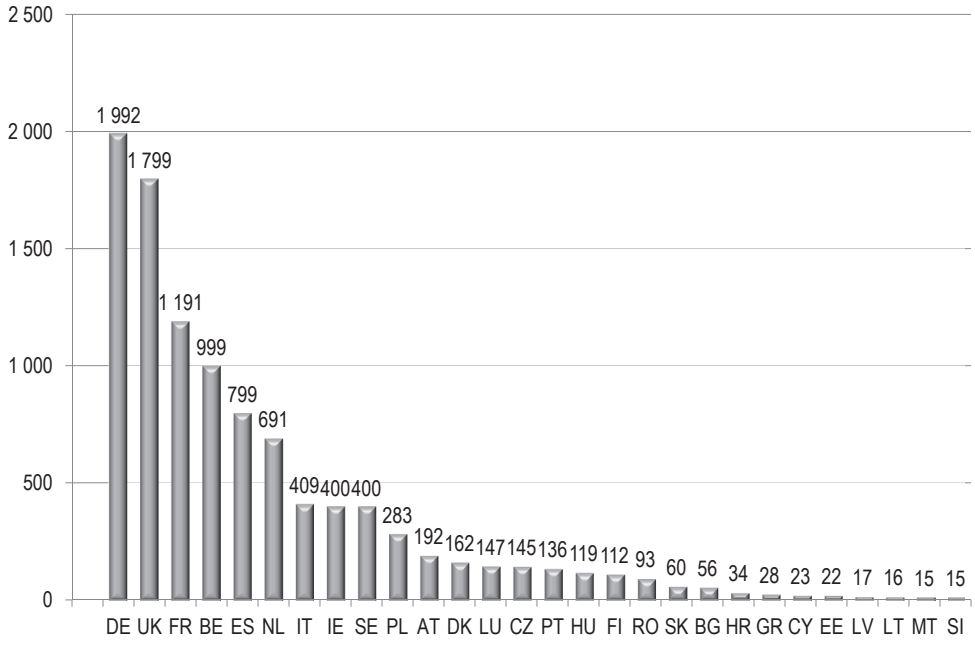


Figure 10. The value of capital daily flows in a domestic perspective in billion USD
Source: own study on the basis of: Trading Economics 2015, ESRB Risk Dashboard 2015, UNCTAD 2015.

Summary

The problem of financial instability and its sources is a very complex issue and requires a comprehensive approach, the ability to discern various related phenomena, and often involves interdisciplinary nature of considerations. This paper has only signalled problems related to the sources of financial instability, many of them definitely require further in-depth research.

The history of international finance shows that instability has been the immanent feature of financial systems. These systems move from stability to instability and crises. The sources of financial instability constitute a complex bundle of causes and factors coming from the inside of the financial system itself and its surroundings.

Countries such as: Lithuania, Croatia, Bulgaria, Romania, Hungary and Poland are the most vulnerable to the negative causes of exchange rate risk and they constitute potential risk of European financial system's imbalance.

In 2014, the countries which were characterised with excessive involvement of foreign capital *per capita* were: Greece, Latvia. Lithuania, Luxembourg, Estonia, Fin-

land, Croatia, Denmark and Slovakia. The level of involvement in case of: Greece, Latvia, Lithuania, Luxembourg and Estonia still remains on a very high level, much over 50%. All the above mentioned countries are a significant, potential source of danger for the stability of the EU's financial system.

The most indebted countries in 2014, which also constitute a threat for the EU financial system's stability were: Malta, Ireland, the Netherlands, Cyprus, Belgium, Portugal, Greece, France, Germany and Latvia. In the remaining countries of the region – except for Finland and Great Britain, which are not indebted – the level of debt was roughly 100% of their GDP.

Convergence processes of the EU Member States financial markets cause a very fast transfer of shocks and undesirable phenomena between countries. It increases the risk of transforming these shocks into the financial risk of the whole region.

A great majority of payments executed in the EU Member States payment systems are large-value payments. They are extremely important from the point of view of the potential instability of the financial system.

References

Bęben R., (2013), *Marketing inwestorski jako proces zaspokajania potrzeb na rynku kapitałowym*, Difin, Warszawa, p. 14.

Borcuch A., (2009), *Globalny system pieniężny*, CeDeWu, Warszawa, pp. 33-34.

CHF Lending Monitor 2015.

Chrabonszczewska, E., Waszkiewicz, A. (2010). *Ryzyko na międzynarodowych rynkach finansowych*, Prace i materiały Instytutu Gospodarki Światowej, 302, Szkoła Główna Handlowa, Kolegium Gospodarki Światowej, Instytut Gospodarki Światowej. Warszawa.

Dooley M., Folkerts-Landau D., Garber P. (2005), *Savings gluts and interest rates: The missing link to Europe*, „Working Paper", No. 11520, NBER, Cambridge.

Dooley M., Folkerts-Landau D., Garber P., (2004), *The revived Bretton Woods system: The effects of periphery intervention and reserve management on interest rates and exchange rates in center countries*, „Working Paper", No. 10332, NBER, Cambridge.

ESRB, ESRB Risk Dashboard, http://www.esrb.europa.eu [reading date: 25.08.2015].

Global Financial Centres Index, (2013).

Global Stability Report IMF (2015).

Janicka M. (2014), *Ocena stabilności zewnętrznej Polski w latach 2000-2012, Biznes międzynarodowy w gospodarce globalnej*, Warszawa, pp. 676-677.

Kacprzak R., Twojbiznes.byd.pl/userfiles/files/Rynki_finansowe_globalizacja_RK [reading date: 20.08.2015].

Krishnamurthy A. (2009), *Amplification Mechanisms in Liquidity Crises*, „NBER Working Paper" no. 15040, Cambridge, p.25.

Manko Maryan, (2015), *Analiza oddziaływania ryzyka kraju na ryzyko systemowe w UGW*, Krakowska Szkoła Biznesu, Kraków, pp.13-14, 20.

MFW, April 2015 *World Economic Outlook Database* (By Countries).

Mishkin F., (1999), *Global Financial Instability: Framework, Events, Issues*, Journal of Economics Perspectives, Vol. 13, p.7.

Mitręga-Niestrój K., *Niestabilność finansowa i jej źródła we współczesnym świecie*, Wydawnictwo Uniwersytetu Ekonomicznego w Katowicach, Katowice 2014, p. 11.

NBP (2012), *Przepływ kapitału w krajach rozwijających się w latach 2000-2011*, www.nbp.pl/publikacje/przeplywy/przeplywy.pdf, [reading date: 1.06.2015], p. 3.

Schinasi J.G., (2006), *Safeguading Financial Stability IMF*, p. 82.

Stanek P., (2011), *Zmiany regulacji rynku finansowego w Unii Europejskiej w konsekwencji światowego kryzysu gospodarczego*, [in:] *Natura i różnorodność przebiegu światowego kryzysu gospodarczego*, Miklaszewski S, Garlińska-Bielawska A, Pera J, (eds.) Difin, Warszawa, p. 41.

Trading Economics 2015.

Woelfel Ch. J., (1994), *Encyclopedia of Banking & Finance. Tenth Edition IRWIN Chicago*, London, Singapore, p. 521.

CENTRAL EUROPEAN REVIEW
OF ECONOMICS & FINANCE
Vol. 10, No. 4(2015), pp. 75–90.

Agnieszka Pach-Gurgul[1]

THE ENERGY-CLIMATE PACKAGE AND REALISATION OF ITS OBJECTIVES WITHIN THE CONTEXT OF THE SUSTAINABLE DEVELOPMENT OF THE EUROPEAN UNION

Abstract

The climate policy of the European Union, concerning the struggle against global warming, concentrates, among others, on the realisation of the objectives of "the energy-climate package 3x20" adopted by the European Council, envisaging a 20% reduction of greenhouse gas emissions, a 20% increase in energy efficiency and a 20% share of energy produced from renewable sources in the overall energy balance by 2020. The commitment to meet these objectives has been underlined with directives aimed at promoting the use of renewable energy sources, the reduction of greenhouse gas emissions, the improvement and extension of the European Union Emission Trading Scheme (EU ETS) geologic storage of carbon dioxide and the public support for the actions aiming at environmental protection. The agreed energy-climate package means that EU member states are going to face many challenges, imposing on them the obligation to take a number of measurable steps towards implementation of these directives. On the one hand, the main objectives of the package fit very well into the concept of sustainable development, whilst, on the other, meeting these objectives is very costly and controversial, in particular for countries whose energy is based on conventional sources. What is the essence of the energy-climate package given the climate change theory and within the context of sustainable development? What has been the success of the realisation of the package so far? These are the main research questions in this paper.

JEL Classification Code: **A12, Q01, Q2, Q43, Q52**.

Keywords: energy and climate package, sustainable development, energy efficiency, CO_2 emissions, renewable sources of energy, theories of climate change.

[1] PhD, Assistant Professor at the Department of International Economics at Cracow University of Economics, the publication was financed from the resources grated to the Faculty of Economics and International Relations of the University of Economics in Krakow as part of the subsidy for the maintenance of the research potential.

Introduction

The energy-climate package is a collection of principles and objectives which are planned to be achieved by the European Union by 2020 in the energy and climate policy. This package is a foundation for the realisation of the EU 3x20% targets in energy policy (a 20% reduction of greenhouse gas emissions, a 20% increase in the share of renewable energy, a 20% increase in energy efficiency by 2020). This is the main guideline for the creation of a low carbon economy which will counteract climatic change. The main objectives of the package seem to be the sustainable development of the EU, such as methods of carrying out commercial activities that guarantee economic growth, paralleled with minimising negative effects on the natural environment and society.

The guidelines of the energy and climate package have had a significant influence on the energy and climatic policies of the EU. The package merged these two policies, creating "the new energy policy" of the European Union, in which the key issue is to guarantee energy security, whilst underpinning the protection of the natural environment.

The package itself is a controversial document, as meeting its main objectives seems to be very costly for specific member states, in particular those whose energy production is based on hard coal. The immense financial resources designated for the realisation of the package objectives call into question the sense of such ambitious measures from the EU, given the lack of any interest in this area from China or India. Moreover, such policy is the outcome of not only concern for the environment, but also of the actions of a powerful business lobby which hopes for the export of innovative energy-saving technologies designed for the development of renewable sources of energy, such as: wind turbines, photovoltaic cells, solar thermal collectors and *Carbon Capture and Storage* clean coal technologies. These doubts are additionally heightened by intensifying scientific debate about the theories of climate change concerning both global warming and cooling. Therefore, the question whether the energy package is really an authentic tool for sustainable development must be asked. Will it bring about long-term positive outcomes for future generations or is it rather a group of overly ambitious objectives rooted in a powerful game of international interests?

The theories of climate change and the energy and climate package

Climatic changes and their impact on many spheres of life have been at the centre of a global debate for many years. Initiatives to counteract these changes have become the priority for many world countries and also for integration formations, including the European Union. However, diverse theories concerning climate change have given rise to a lot of concern. Are European Union countries confident what they are fighting against and does it make sense in the light of China's or India's passivity? Are the enormous sums from the EU budget designated for the counteraction of climate change appropriately allocated, given the grave problems of unemployment, poverty and exclusion?

Climate change is nothing more than a change of the weather, which might be chaotic and difficult to be predicted in the future. Climate, in turn, is defined by some kind of average weather, more or less within a period of 10 years. Changes in weather are more observable than those of climate, as they concern a longer period of time in which the fluctuations have been occurring (Archer, 2011).

The question that more and more frequently arises is whether we are now counteracting global warming or global cooling and whether the climatic changes are the effect of human activity or are they occurring by themselves?

Svante Arrhenius, a Swedish physicist and chemist, already in 1896, laid the foundations for the theory of climate change. He observed that the combustion of fossil fuels led to the emission of large quantities of CO_2, affecting the climate (Arrhenius,1896). This theory was not treated seriously because CO_2 emissions at that time were not large and the changes were quite slow. The theory, however, found its followers, such as Thomas C. Chamberlin and E. O. Hulburt, who, in 1931, repeated Arrhenius's research, thus confirming his theory. Their studies were followed by Guy Stewart Callender, who, on the basis of his own research, confirmed the increase in temperature over a few decades. Moreover, he observed that doubling the CO_2 concentration in the air resulted in the climate warming by 2°C (Archer & Rahmstorf, 2010).

The theory defining the basis of climate change as the increase of the concentration of greenhouse gases was coined the greenhouse effect. This process comprises the temperature increase in the troposphere, caused by the emission of carbon dioxide and other greenhouse gases, such as methane, nitrogen oxides and freons. (Winiecki, 2009).

The international debate on this subject has many diversified opinions concerning the theory of climate change. According to the Intergovernmental Panel on Climate Change (IPCC), further emission of greenhouse gases in the future will cause long-term changes with grave effects for people and the ecosystem. The risk of these changes could be minimised by significant and permanent curbs in emissions. The scale of the emissions will depend significantly on the climatic policy with appropriate tools for changing the scale of the emissions and on the social and economic development (IPPC, 2014).

The opposite side of this scientific discussion is represented by scientists from the Nongovernmental International Panel on Climate Change (NIPCC), founded in Vienna in 2007. This organisation unites scientists with a sceptical view on the extent of human influence on global climate change; they believe that carbon dioxide is a mild gas with an insignificant influence on the greenhouse effect. The aim of the organisation was to create an independent evaluation of available scientific evidence on the effect of global warming caused by carbon dioxide. In 2008, the panel started cooperation with the Heartland Institute, to create the report, *Nature, Not Human Activity, Rules the Climate*. This summary of their research was communicated to politicians and widely disseminated. It was the first complex alternative to the alarming reports provided by the IPCC.

From 2008 on, articles concerning global cooling have begun to appear on the Internet portals. It was already in 2008 that professor Zbigniew Jaworowski presented a paper (2008) contradicting the omnipresent theory of global warming. According to the four main systems of monitoring the Earth, January of 2008 was exceptionally cold. It was 0.75°C colder than the January of the preceding year with the stratosphere temperature lower by 0.5°C. *Polska, The Times*, in 2009, published Professor Jaworowski's statement claiming that humans have no effect on global warming. This conclusion was based on research carried out in the Norwegian Arctic. In the professor's opinion, climate warming was a natural process and the fluctuations of carbon dioxide levels were not caused by human activity, but instead by the influence of the oceans. There is fifty times more carbon dioxide in sea waters than in the atmosphere and the solubility of CO_2 in water depends on temperature, thus if water temperature is higher, the solubility is lower. This process results in the passage of carbon dioxide into the atmosphere: an ocean simply "breathes it out". The cooler the climate is the more gas is absorbed by sea waters (Koźinski & Jaworowski, 2009).

Also, according to the US National Climatic Data Center (NCDC), the temperature in January 2008 was for the first time in 26 years lower than the 20th century average.

Similarly, scientists from the European Institute for Climate and Energy (EIKE) observed in their research that by 2010, the temperature had significantly dropped. Their studies concerned the oscillation cycles of the Atlantic and Pacific Oceans and solar cycles. This opinion is shared by Professor Miko Lockwood from the University of Reading and by Habibullo Abdussamatov from the Russian Academy of Sciences. They claim that starting from 2014 there will be a profound cooling down processes following maximum solar activity. The trend for global cooling is also observed by a Japanese scientist, Mototaka Nakamura, who bases his conclusions on studies of the Greenland Sea and the cycles of the North Atlantic. He claims that from 2015 on, the Northern hemisphere will experience a period of observable cooling (Researcher predicts cooler climate in Northern Hemisphere from 2015, http://ajw.asahi.com/article/behind_news/social_affairs/AJ201306300011).

Therefore the scientific milieu does not speak with one voice about global climate change. The European Union supports its actions with the theory of global warming.

The tool which is meant to facilitate the struggle against global warming possible, and, at the same time, against greenhouse gas emissions, is the energy-climate package, which has become the chief element of EU energy policy, as energy production has the highest emissivity in the EU (cf. fig 1).

Energy production is responsible for about 30% of total emissions. This sector significantly exploits natural resources and strongly affects the natural environment, depending on the type of natural resource and the technology used in its conversion.

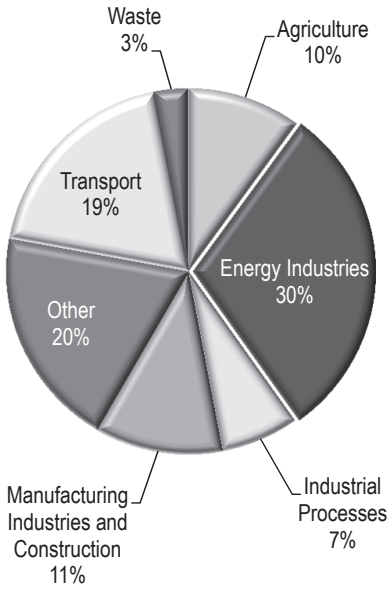


Figure 1. The emission of greenhouse gasses in 2013 in EU-28 as broken down by specific sectors (million tonnes of CO2 equivalent)

Source: The author's own study on the basis of: http://www.eea.europa.eu/data-and-maps/data/data-viewers/greenhouse-gases-viewer, Greenhouse gas emissions by sector, http://ec.europa.eu/eurostat/tgm/refreshTableAction.do?tab=table&plugin=1&pcode=tsdcc210&language=en

That is why the actions undertaken by the European Union in the field of energy policy aim at providing member states with energy produced from sources which do not have a negative impact on climate. Therefore, after 2007, climate change and global warming have become the determining factors for the development of the "new energy policy". This new policy concentrates a strategic aim consisting in maintaining an increase of the Earth's average temperature below 2°C in comparison with the industrialisation period. (Communication from the Commission of 10 January 2007, Limiting Global Climate Change to 2 degrees Celsius – The way ahead for 2020 and beyond, COM(2007)).

The objectives and principles of the energy-climate package and its implications for the concept of the EU's sustainable development

In recent years, the concept of sustainable development has gained a lot of interest; in the light of the *Europe 2020 strategy*, it signifies:

– the creation of a more competitive low-carbon economy, which will employ natural resources in a rational and economical way;

– the protection of the natural environment, curbs on greenhouse gas emissions and prevention of the loss of biodiversity;
– the use of Europe's leading position for working out new, environment-friendly production methods;
– the introduction of effective, smart energy networks;
– the use of the Europe-wide network for guaranteeing additional market advantages for European based companies (in particular – for small production enterprises);
– the improvement of conditions for the development of entrepreneurship, especially in relation to small and medium-sized enterprises;
– assistance for consumers in making more conscious choices.

EU politicians stress that energy policy unceasingly intertwines with the concept of sustainable development. In recent years, more and more attention has been devoted to the fact that by getting dependent on conventional fuels, such as crude oil, gas or hard coal, the European Union puts consumers and entrepreneurs at risk of very painful price shocks, which can threaten economic security and negatively impact climate change.

Therefore, on 23rd January 2008, the European Commission presented the *energy-climate package*, containing, among others, proposals for counteracting climate change. The package consisted of 6 documents, listed in table 1 below.

Table 1. Energy-climate package

Title and type of document	EUR – Lex number
Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions of 23 January 2008 entitled: "Supporting early demonstration of sustainable power generation from fossil fuels"	COM (2008) 13
Directive 2009/29/EC of the European Parliament and of the Council of 23 April 2009 amending Directive 2003/87/EC so as to improve and extend the greenhouse gas emission allowance trading scheme of the Community	COM (2008) 16
European Parliament legislative resolution of 17 December 2008 on the proposal for a decision of the European Parliament and of the Council on the effort of Member States to reduce their greenhouse gas emissions to meet the Community's greenhouse gas emission reduction commitments up to 2020	COM (2008) 17
Directive of the European Parliament and of the Council on the geological storage of carbon dioxide and amending Council Directives 85/337/EEC, 96/61/EC, Directives 2000/60/EC, 2001/80/EC, 2004/35/EC, 2006/12/EC and Regulation (EC) No 1013/2006	COM(2008)18 final
Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC	COM (2008) 19
Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions 20 20 by 2020 Europe's climate change opportunity	COM (2008) 30

Source: Author's own study

This package is known as 3x20% by 2020, with its main objectives being (Pach-Gurgul & Soliński, 2013):

- the increase of the renewable resources share in the total energy energy balance of the European Union to 20% by 2020;
- a 20% reduction in CO_2 emissions in comparison with the level of emissions from 1990;
- the 20% limitation of the use of primary energy in the European Union in comparison with the basic prognosis for 2020, presented in 2007.

Additionally, an increase of the share of biofuels as part of the EU's total fuel consumption to 10%. The package differentiates the reduction objectives for the European Union, for the sectors covered and not covered by the EU ETS (The EU Emissions Trading System), i.e.:

- 21% emission reduction by 2020 in comparison with 2005 in the sectors covered by EU ETS, which are powers stations and large industrial installations – this system encompasses about 40 % of all greenhouse gas emissions;
- 10% emission reduction by 2020 in comparison with 2005 in the sectors not covered by EU ETS, such as transport (cars and trucks), the construction industry (heating in particular), services, smaller industrial installations, the agriculture and waste sector, which are currently responsible for approximately 60 % of the aggregate greenhouse gas emissions in the EU.

In total, this makes up a 14 % reduction in emissions in comparison with 2005, which corresponds to a 20 % reduction in comparison with 1990. A larger reduction is necessary in the sectors covered by EU ETS, as a decrease in emissions in this sector is less expensive than in the majority of remaining sectors.

The impulse for the European Union to initiate actions aimed at climate projection was made by the United Nations Framework Decision on Climate Change. By adopting the energy-climate package in 2008, the European Union undertook an individual struggle for prevention of climate change. This undertaking obliged member states to take measures aimed at changing national energy policies, which are not easy, given the diversity of energy cultures in these countries[2].

The energy-climate package defines the general objectives for the EU: 3x20% by 2020 which is comprised of some individual aims concerning the share of renewable energy in energy mixes as well as a decrease in CO_2 emissions. These aims vary between specific member states because of the differentiation of their resource base, national energy mixes, the consumption of energy by industries, GDP per capita and their national energy policy, etc (cf. Fig 3).

[2] The notion of energy culture was discussed in A. Pach-Gurgul, B. Soliński, *Kultura energetyczna kraju jako czynnik determinujący „nową politykę energetyczną" Unii Europejskiej*, „Zarządzanie Publiczne" 2013,1(23) Kraków-Warszawa, pp. 17-19.

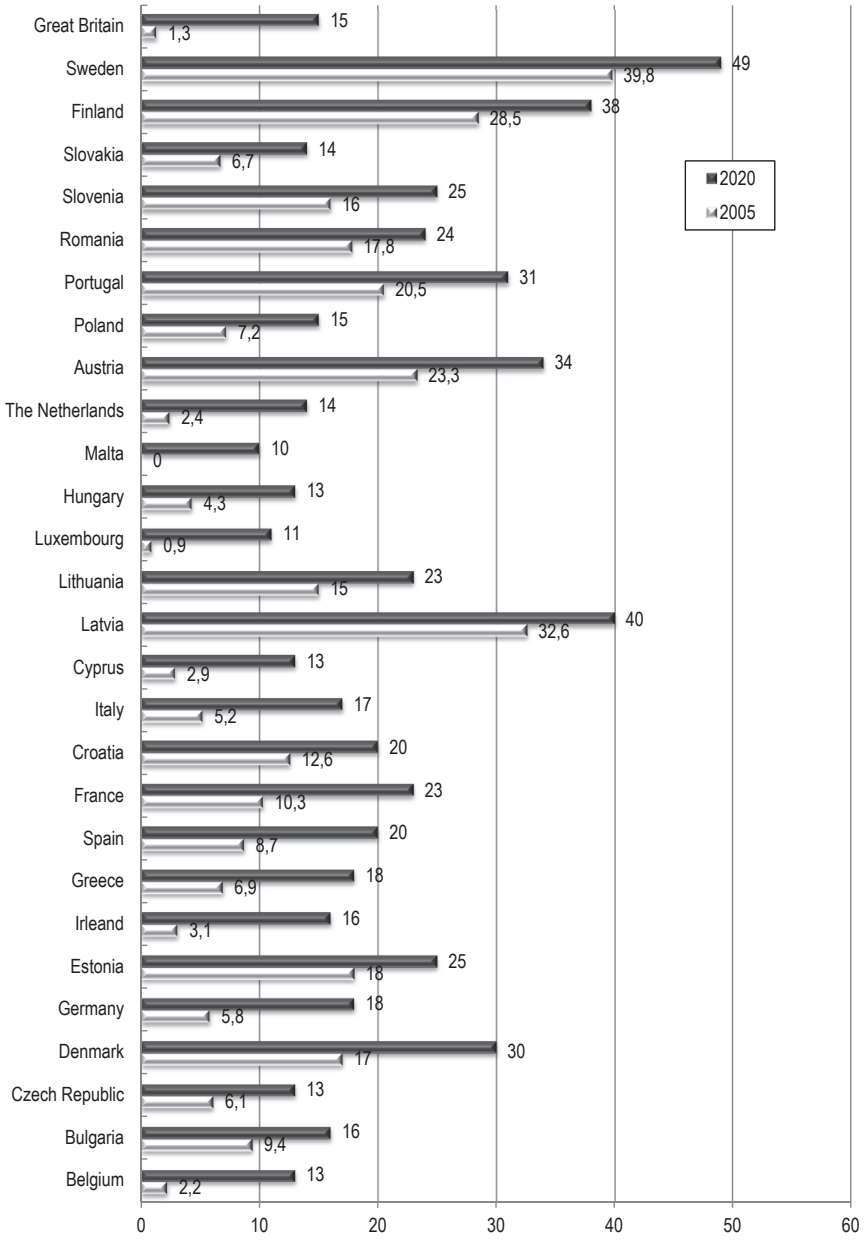


Figure 2. The share of renewable energy in the final energy consumption in 2005 versus the target share in 2020 (in %)

Source: the author's own study on the basis of: Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC (OJ L 140/16), 05.06.2009.

And thus in the case of the increase of the share of renewable energy resources in the energy mix, the highest goal was set in Sweden, where it is supposed to make up 49% of the national energy balance, as Sweden, even in 2005, had a very high share of renewable energy sources in its energy mix. In turn, for those countries which did not have any renewable sources of energy in their energy balances (Malta-0%), (Cyprus 2.9%), this goal was set at a much lower level (10% and 13% respectively). That said, this is going to be a great challenge for these countries.

The key operation included in the energy-climate package is curbs on greenhouse gas emissions, in particular, in the energy sector. This is planned to be achieved by means of the two remaining objectives of the package: an increase in energy efficiency and the use of alternative methods of obtaining energy (Sachs, 2008).

The current effects of the implementation of the energy-climate package

The energy-climate package specifies the limits of greenhouse gases emissions for the EU member states to be met by 2020 in comparison with the levels of these emissions in sectors of production not covered by the EU Emissions Trading System (EU ETS) (Decision No 406/2009/EC of the European Parliament and of the Council of 23 April 2009).

Basically, these countries were divided into two groups: those which are obliged to reduce their emissions and those which were given a threshold allowing for an increase in emissions (Poland was included in the latter group, with the allowance for the increase of the emissions by 14%). Table No. 2 presents the greenhouse gas emissions from non-ETS sectors in 2005 and 2010, the required thresholds for 2020, the required further reductions (or allowable increases) of emissions for 2011-2020, and the amount that threshold has been exceeded for 2020 as of 2010.

Currently, the largest shares in emissions of greenhouse gases in the non-ETS sector belong to: Germany (20%), France (15%), Great Britain (14%), Italy (10%) and Spain (8%).

The table shows that Germany, France, Great Britain, Finland, Luxemburg, Ireland, Austria, the Netherlands, Belgium and Estonia are the countries which must still significantly reduce emissions in the sectors not covered by the ETS system; it was for those countries that the Directive stipulated the most stringent thresholds for greenhouse gas emission. Less restrictive thresholds have been stipulated for Malta, Great Britain, Denmark and Spain. Observation of the progress in the reducing greenhouse gas emissions shows that only three countries: Sweden, Italy and Greece by 2010 had lowered their emissions below the thresholds designated for 2020. Poland belongs to those countries whose greenhouse gas emissions, in spite of an increase in 2005-2010, are significantly below the level for 2020.

In the area of energy from renewable resources some positive changes can be seen in all the member states (cf. fig. 3.). In the entire EU in 2005-2013 there was an

increase in the share of energy from renewable sources in the EU energy balance. This share increased from 8.7% in 2005 to 15% in 2013 because all member states increased their shares of renewable energy in their national energy mixes during this time period.

Table 2. The thresholds for greenhouse gas emissions for the EU member states to be attained by 2020 in comparison with the levels from 2005. [CO_2 million tonnes equivalent]

Country	2005	2010	Thresholds of greenhouse gas emissions for 2020 in comparison with the levels from 2005	The required threshold for 2020	Amount exceeding the threshold for 2020 in 2010
Denmark	43.4	35.2	-20%	34.7	0.5
Ireland	46.7	42.9	-20%	37.3	5.6
Luxembourg	10	9.5	-20%	8	1.6
Sweden	17.1	9.6	-17%	14.2	-4.7
Austria	52.1	50.1	-16%	43.8	6.3
Finland	6.9	11.2	-16%	5.8	5.4
The Netherlands	133.6	128.3	-16%	112.3	16.1
Great Britain	417.3	357.9	-16%	350.6	7.3
Belgium	87.4	84	-15%	74.3	9.7
France	400.5	380.3	-14%	344.4	35.9
Germany	538	499	-14%	462.7	36.3
Italy	295.2	253.3	-13%	256.8	-3.5
Spain	227.3	205.5	-10%	204.5	0.9
Greece	61.5	55.7	-4%	59	-3.3
Portugal	47.8	37.9	1%	48.3	-10.3
Slovenia	3.2	2.9	4%	3.3	-0.4
Malta	1	1,1	5%	1	0
Czech Republic	57.6	58.4	9%	62.8	-4.4
Hungary	49.1	41.4	10%	54	-12.5
Estonia	-3.1	2.3	11%	-3.5	5.7
Slovakia	20.7	18.3	13%	23.4	-5
Poland	150.4	159.8	14%	171.4	-11.6
Lithuania	14.4	3.4	15%	16.5	-13.1
Latvia	-9	-8.3	17%	-10.5	2.2

Source: the author's own study on the basis of Opracowanie analiz, materiałów merytorycznych i koncepcji, Krajowa Izba Gospodarcza [National Economic Chamber] Warsaw, May 2013. http://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&pcode=t2020_35&plugin=1,

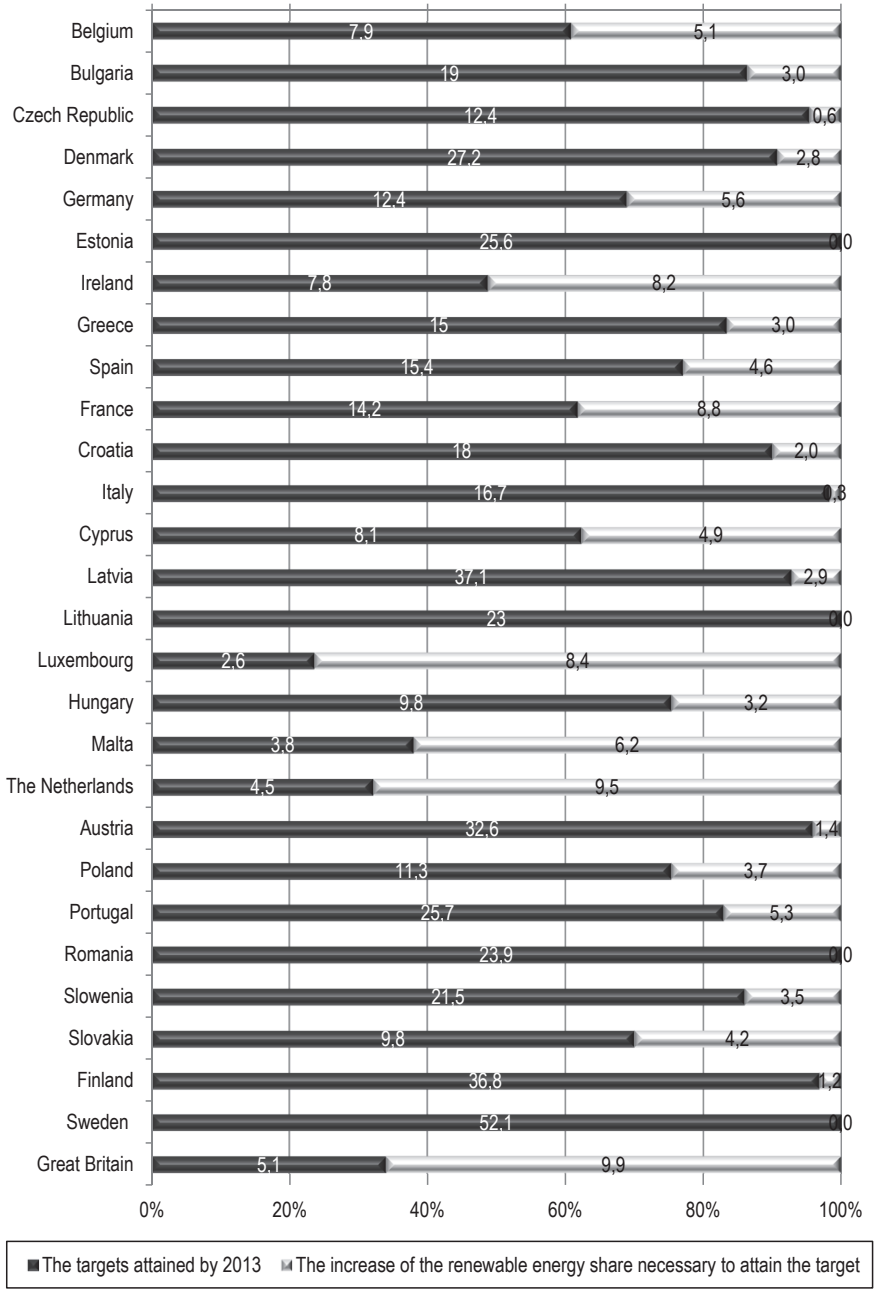


Figure 3. The share of the renewable sources of energy in 2013 and the amount necessary for attaining the target for 2020 in the EU countries (in %)

Source: the author's won study on the basis of: Eurostat, http://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&pcode=t2020_31&plugin=1, [access 18.09.2015].

Among the member states presented in figure 3, the share of the energy coming from renewable resources in the final gross energy consumption ranged, in 2013, from 52.1% in Sweden to 5.1% in Great Britain. Eight countries doubled their share of renewable sources of energy. This group comprises, among others, Bulgaria, where in 2005, this share amounted to 9.4% and by 2013 had risen to 19%, Greece increased their share from 7% to 15%; the Czech Republic – from 6% to 12.4% and Hungary – from 4.5% to 9.8% (Eurostat, http://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&pcode=t2020_35&plugin=1).

The European Union, in its objective to create an economy with sustainable development, which supports the environment, must learn how to use natural resources (including also energy, such as electricity or thermal energy) in an effective way. Given that goal, attaining the third objective of the energy and climate package concerning an increase in the efficiency of energy consumption seems to be of particular importance.

An analysis of statistical data shows clearly that in the entire EU primary energy consumption decreased by 8.3% and amounted to 1 566.5 Mtoe in 2013 in comparison with 2005, when it was 1 709 Mtoe.

In 2013 final energy consumption amounted to more than two thirds (70%) of the primary energy consumption in the European Union. In 2005 final energy consumption for the entire European Union was 1 186.4 Mtoe, whereas, in 2013 it decreased by 7%, amounting to 1 104.6 Mtoe (Eurostat, <http://ec.europa.eu/eurostat/tgm/refreshTableAction.do?tab=table&plugin=1&pcode=t2020_34&language=en>).

Figure 4 illustrates final energy consumption for selected EU member states in 2005 and 2013.

None of the countries (presented in figure 5) noted an increase in final energy consumption, yet the results were quite diverse in scope. Germany, the Netherlands, Austria, Finland, Slovenia and Latvia are all currently facing the challenge to increase the efficiency of energy consumption. Among those countries, the decrease in the final consumption of energy varies from 2% to 1%. Greece, in turn, is the country with the largest decrease in final energy consumption – by 27%, which certainly is also the outcome of a production decrease during the period of economic crisis beginning in 2008. The countries where very large decreases in such consumption were observed include: Hungary (18%), Spain (17%), Ireland (15%) and Bulgaria (14%).

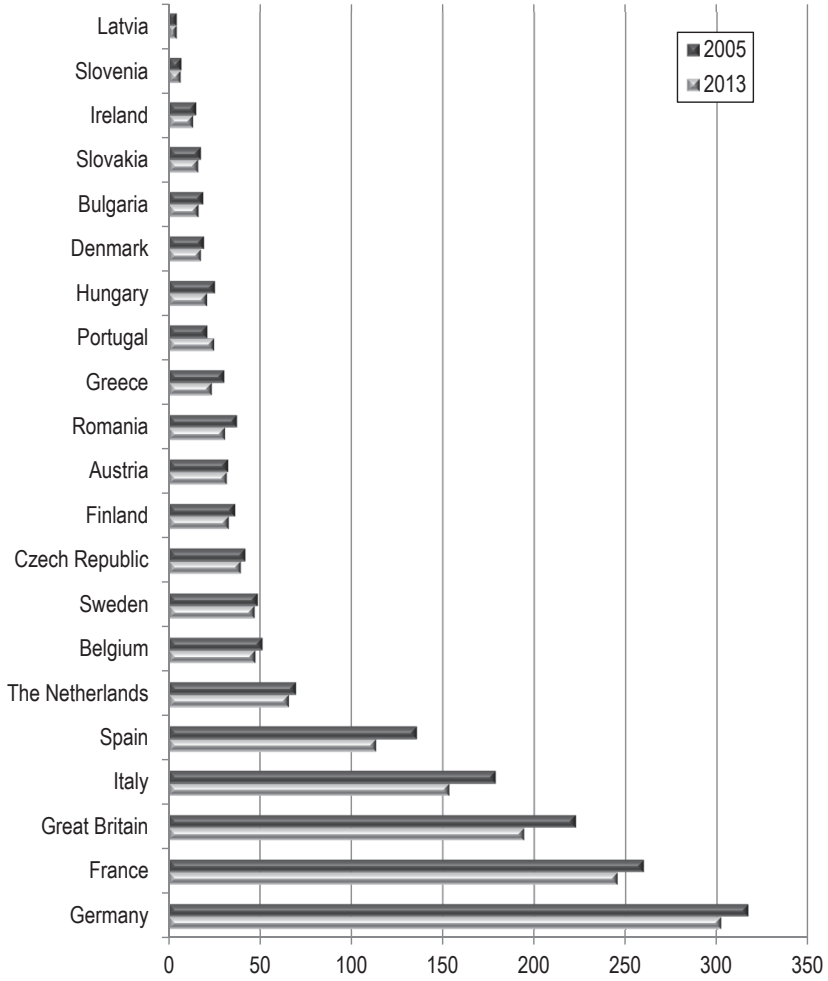


Figure 4. The amount of the primary energy consumption in selected EU member states in 2005 and 2013. (in Mtoe)

Source: author's own study on the basis of Eurostat, <http://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&plugin=1&pcode=tsdcc120&language=en>, [access 30.4.2015].

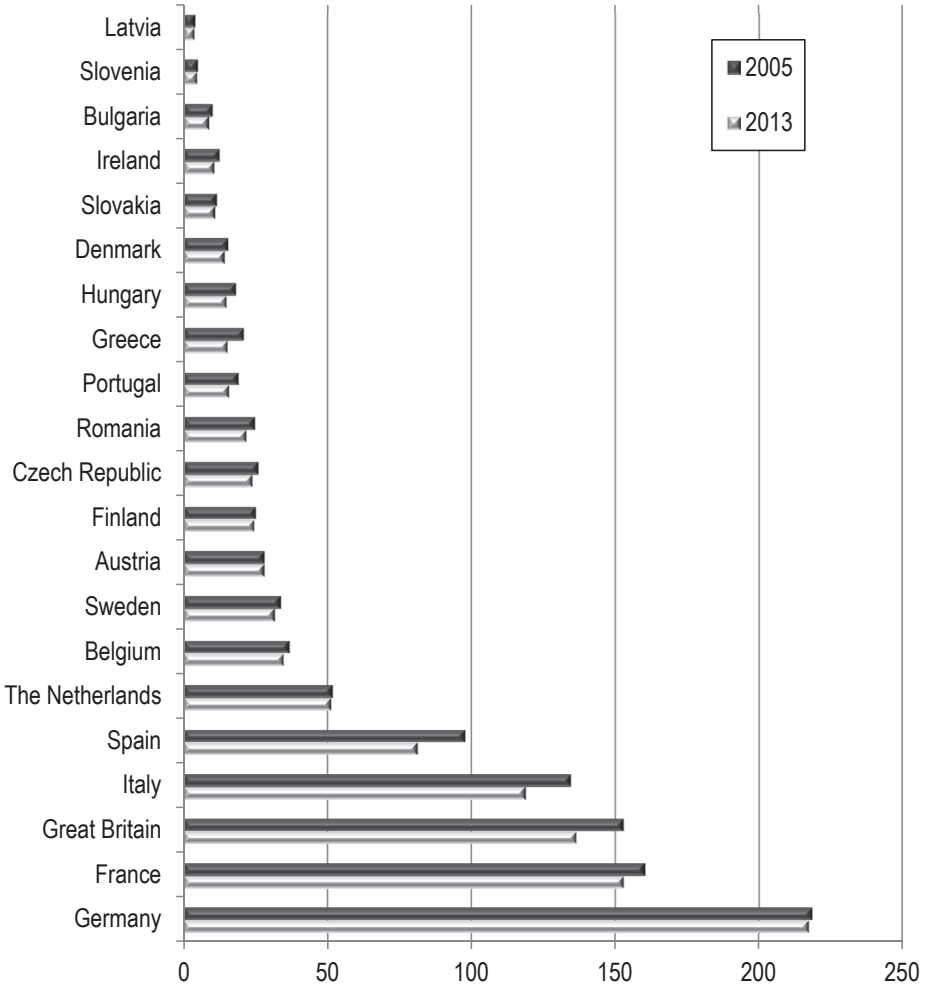


Figure 5. The amount of final energy consumption in selected EU member states in 2005 and 2013 (in Mtoe)

Source: author's own study on the basis of Eurostat, <http://ec.europa.eu/eurostat/tgm/refreshTableAction.do?tab=table&plugin=1&pcode=t2020_34&language=en>, [access 30.4.2015].

Conclusion

Sustainable development has become a global challenge, a field of political games and a trial of economic strength. The European Union treats the pursuit of a vision of carrying out commercial activity in a way that guarantees economic growth with minimal negative impact on the environment and society with utmost seriousness.

Each year it spends billions of Euro on their very costly climate policy, including the objectives of the energy-climate package. Its main targets, 3x20%, a 20% decrease of emissions of CO_2 in general energy balance by 2020, a 20% increase of energy efficiency (in comparison with 1990), and a simultaneous increase of the share of energy from renewable resources, fit very well into the concept of sustainable development. However, a significant part of the energy-climate package is the subject of international debate due to the lack of certainty over climate change theories, which sometimes refer to global warming and, at other times, cooling.

Awareness of the question, "what we are struggling against?" is essential, as the pursuit of such lofty aims generates immense costs, and wasting money on an international lobby is unthinkable given the grave economic and social problems facing the EU, such as: high unemployment rate, counteracting the economic depression, the crisis of the Euro zone, the necessity to increase the competitiveness of the EU's economy, and the demographic crisis. What seems significant is the reconciliation of such ambitious climate objectives with economic targets, so important in these times, which fit into the concept of sustainable development.

Therefore it seems that EU climate policy (including the realisation of the energy-climate package) should encompass the following elements (Instytut Kościuszki, 2012):

- Connecting climate objectives with the economic possibilities of individual EU member states – a detailed analysis of such possibilities should precede the decision-making process for setting targets in climate policy;
- Connecting those obligations concerning the climate adopted by the EU with obligations on a global scale;
- The conclusions of the monitoring of "carbon leakage" and the level of competitiveness of the EU economy and its member states on global markets;
- A compensation mechanism on the EU level, which should guarantee socio-economic cohesion in the spirit of solidarity.
- An extremely significant aspect in this context seems to be the ability to provide stability in economic development for those member states whose energy mix diversification varies greatly.

References

Archer, D.(2011). *Globalne ocieplenie. Zrozumieć prognozę*. Wydawnictwo Naukowe PWN, Warszawa.

Archer, D.; Rahmstorf, S. (2010). *The Climate Crisis: An Introductory Guide to Climate Change*. Cambridge University Press.

Arrhenius S. (1896), *On the Influence of Carbonic Acid in the Air upon the Temperature of the Ground*. Philosophical Magazine and Journal of Science, 41.

Communication from the Commission of 10 January 2007, *Limiting Global Climate Change to 2 degrees Celsius – The way ahead for 2020 and beyond*, COM(2007)).

Decision No 406/2009/EC of the European Parliament and of the council of 23 April 2009 on the effort of Member States to reduce their greenhouse gas emissions to meet the Community's greenhouse gas emission reduction commitments up to 2020 (OJ L 140/136), 06.2009.

Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC (OJ L 140/16), 05.06.2009.

Instytut Kościuszki (2012). *W kierunku nowego porozumienia klimatycznego dla europejskiej konkurencyjności gospodarczej -– szanse i wyzwania Pakietu Energetyczno-Klimatycznego Unii Europejskiej*. Krakow.

IPCC, (2014). Climate Change 2013. The Physical Science Basis.

IPPC, (2014). Climate Change 2014. Synthesis Report. Summary for Policymakers.

Jaworowski, Z.(2008). *Idzie zimno. Czy globalne ocieplenie to tylko chwyt biznesowy*. „Polityka", 15.

Koziński, A., Jaworowski, Z. (2009, kwiecień 24). *Ekolodzy oszukują ludzi w sprawie zmian klimatu*, Polska The Times.

Pach-Gurgul, A. & Soliński, B. (2013). *Kultura energetyczna kraju jako czynnik determinujący „nową politykę energetyczną" Unii Europejskiej*. „Zarządzanie Publiczne". Kraków-Warszawa, 1(23), pp. 17-19.

Sachs, J.D.(2008). *Common Wealth: Economics for a Crowded Planet*, Penguin Books, New York, p. 102.

Winiecki, J. (2009). *Kryzys globalny. Początek czy koniec?*, Towarzystwo Ekonomistów Polskich, Gdańsk, p. 111.

Internet sources Europe 2020,http://ec.europa.eu/europe2020/europe-2020-in-a-nutshell/priorities/sustainable-growth/index_pl.htmlEurostat, <http://ec.europa.eu/eurostat/tgm/refreshTableAction.do?tab=table&plugin=1&pcode=t2020_34&language=en>, [dostęp 30.4.2015].

Eurostat, <http://ec.europa.eu/eurostat/tgm/refreshTableAction.do?tab=table&plugin=1&pcode=t2020_34&language=en>, [dostęp 30.4.2015].

Eurostat, http://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&pcode=t2020_31&plugin=1, [dostęp 18.09.2015].

http://www.eea.europa.eu/data-and-maps/data/data-viewers/greenhouse-gases-viewer,

Greenhouse gas emissions by sector, http://ec.europa.eu/eurostat/tgm/refreshTableAction.do?tab=table&plugin=1&pcode=tsdcc210&language=en

Researcher predicts cooler climate in Northern Hemisphere from 2015, <http://ajw.asahi.com/article/behind_news/social_affairs/AJ201306300011>, [access: 19.2.2015].

CENTRAL EUROPEAN REVIEW
OF ECONOMICS & FINANCE
Vol. 10, No. 4(2015), pp. 91–104.

Andrzej Abramowicz[1], **Karolina Ziółkowska**[2]

STATE AID FOR POLISH AIRLINES LOT S.A.

Abstract

In the article economic effects of the state aid for restructuring of Polish Airlines LOT S.A. in Warsaw granted by the Polish state in 2012 were discussed. Financial situation of PLL LOT in years 2009 to 2012 i.e. in the period before applying for the state aid was also discussed. In the synthetic way restructuring measures and effects of the state aid achieved as a result of the implementation of the Restructuring Plan for years 2013–2015 with use of aid measures were also discussed. Achieved effects and factors that determine the effectiveness of the state aid were presented.

JEL Classification Code: **G32, G34, H41, L93**.

Keywords: Restructuring, Public aid, Air Transportation, Finance outcomes.

Introduction

PLL LOT S.A., financial problems have begun in 2008. That year hasn't been difficult only for LOT. That's the year, when the economic crisis started in Europe and also included air carriers [9]. Quickly rises of fuels prices and finishing the cooperation with Lufthansa -the German carrier caused significant decrease of transports profitability provided by LOT. The company Management Board conducted the restructuring systematically based on its own funds obtained from the sale of subsidiaries to State Treasury companies. Therefore in November 2012 the European Commission carried out an investigation in which recognized, that the sale of independent entities did not constitute state aid [5]. In spite of this actions the company has made financial losses for few years. Their accumulation contributed to negative capital of the company. Such a situation caused the lack of the credit rating. Accord-

[1] M.A., Ph.D. student, Kazimierz Pulaski University of Technology and Humanities in Radom, Faculty of Economics.

[2] Ph.D., Społeczna Akademia Nauk w Łodzi.

ing to the company Management Board a decision on the application for state aid was the only way to solve the difficult economic situation of the company. In May 2013 the European Commission agreed to grant the company of public aid in form of a rescue loan of 100 million Euro, however conditioned this with presenting LOT Restructuring Plan by Poland which would lead LOT to a restoration of its ability to compete on the Community market [6].

The Polish state met this condition and in June 2013 the plan of restructuring PLL LOT S.A. was presented to European Commission, in which the stated aid equivalent of 200 million Euro for the purpose of increasing capital of the company was established. In November 2013 the European Commission began investigation [7] and notification process [1]. In the article in the synthetic way the company situation since 2010 was presented together with the restructuring conducted in 2010–2012 with the help of its own financial means. Furthermore a state aid for restructuring, the fundamental assumptions and the restructuring plan elements associated with obtaining the state aid were presented. Effects of the state aid for the restructuring were also discussed.

The company's financial situation

PLL LOT S.A. is a member of the Star Alliance. As of May 15 the company had a fleet of 45 planes. LOT is flag carrier having 1% of the Euromarkets. Between October 2009 and May 2010 the company limited employment from 3500 to 3100 workers. According to the state from November 1, 2012 the company was hiring 2166 employees and in May 2013 – 1 841. In a half-year of 2014 employment kept falling down to 1660 workers.

In 2011 the company recorded a loss of 145.7 million PLN. For the company 2013- despite making a profit cast serious doubts about continuing further activity. At the end of 2013 the company reached the net profit of 25.7 million PLN as compared to 399.8 million PLN of the loss in 2012 wasn't a significant achievement, because definitely a state aid of 400 million PLN which the company received from Ministry of State Treasury affected this result. The company operating activity also brought a profit of 54.7 million PLN as compared to 420.3 million PLN of the loss in 2012 r constituted distinct improvement. However it is necessary to explain, that the loss at the end of 2012 resulted from the PLL LOT S.A. management board decision about the fixed-asset revaluation fund which burdened the result of 2012 with the amount of the impairment write-off. The write-offs value was – 479.5 million PLN. Write-offs included in the financial result of 2012, concern the entire company's assets, including inter alia Embraer 145, 170, 175 and 195 planes, and the planes spare parts[3]. In 2013 a sequence of adverse occurrences occurred in the company. For example the company negative own capital reached -258 million PLN. Short-term liabilities exceeded the company current assets for over 462 million PLN. Also the

financial fluidity ratio didn't fit within the safe range. In 2013 PLL LOT liabilities and provisions for liabilities rose by more than a half billion in relation to year 2012 and amounted almost 3.7 billion PLN. However a crucial financial issue is still increasing company debt and associated with it fluidity, which rates exceeded the safest level.

In 2012 the company economic situation required radical improvement in the fluidity therefore the company Management Board applied for state aid to the Treasury Minister of 400 million PLN. The help was granted with omitting the notification at the EC [11]. In spite of getting the state aid the company's financial situation required contributing LOT with further external funding of 400 million PLN at the end of 2013 [4]. Temporary state aid in the form of a rescue loan of 400 million PLN as a result of applying regulations of the State Treasury Minister from 30 August 2011 on rescue and restructuring aid of companies and due to elaborating the restructuring according to these regulations became a state aid for the restructuring [8]. After all LOT reported the restructuring help in the total amount of 804.29 million PLN (around 200 million euro). Accordingly to that request Poland submitted the restructuring plan of PLL LOT S.A. to the European Commission as a purpose of notification.

Restructuring PLL LOT in 2009–2012

PLL LOT is a Joint Stock Company. Its owners are: The State Treasury (67.97 %), belonging to state – Financial Company Silesia (25.1 %) and the company employees (6.93 %).

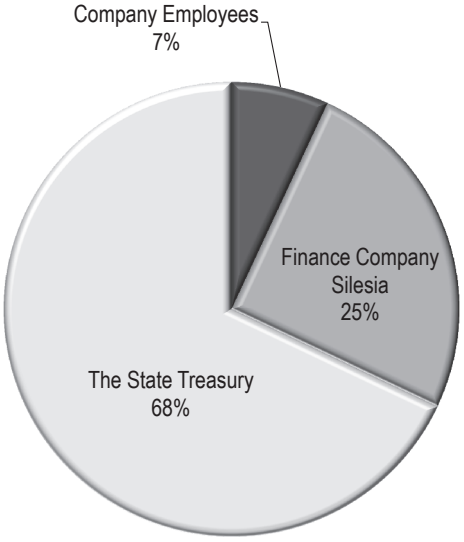


Figure 1. The ownership structure of PLL LOT S.A.
Source: own study on the basis of the Ministry of Treasury data.

PLL LOT is a dominating company in LOT Group. In recent years composition of the Group Flight has considerably changed. LOT sold subsidiaries, as well as assets described in table 1. This decision was dictated by restructuring which the company led between 2009–2012.

Table 1. List of the revenue from the sale of assets of PLL LOT in period of 2009 -2012, of companies, of which PLL LOT S.A. was the owner and of companies, in which LOT divested its shareholdings [2], and other assets.

No	Company name	Year of the company sale or shares sale
1.	LOT Services Sp. z o.o.	2010–2012
2.	LOT Catering Sp. z o.o.	2010–2012
3.	LOT Aircraft Maintenance Services Sp. z o.o.	2010–2012
4.	Petrolot Sp. z o.o.	2012*
5.	Eurolot Sp. z o.o.	2012*
6.	Casinos Poland Sp. z o.o.	2012*
No	Other assets	Year of sale
7.	Pekao S.A. Bank shares	2009
8.	Real estate at 17 Stycznia street	2011
9.	Catering Terminal	2011
10.	Cargo Terminal	2011
11.	Real estate at 17 Stycznia street	2012
12.	Real estate in Gdańsk	2012
The total amount earned on the sale		**1 313 mln PLN**

* Year of signing the preliminary contract for shares sale.

Source: Own study based on financial statements.

The restructuring failed even though the company sold the considerable reverence of assets, and funds obtained in this way dedicated for restructurings in period of 2009-2012. After the sale of assets listed in table 3 the company operates in the LOT Group. The Group doesn't establish the consolidated balance sheet however it is possible to omit conclusions of such balance sheet since the financial results of companies belonging to the group constitute only a small per cent of LOT incomes. In 2012 the total income of subsidiaries amounted of around 3% of LOT incomes and their losses of 12.4 million PLN.

In the regular passenger traffic from/to Poland in 2012 PLL LOT was the largest carrier. Its shares in the European market amounted of 28.3%. Next places belonged to Ryanair, Wizzair, and Lufthansa. Altogether these four carriers had 88% of the market.

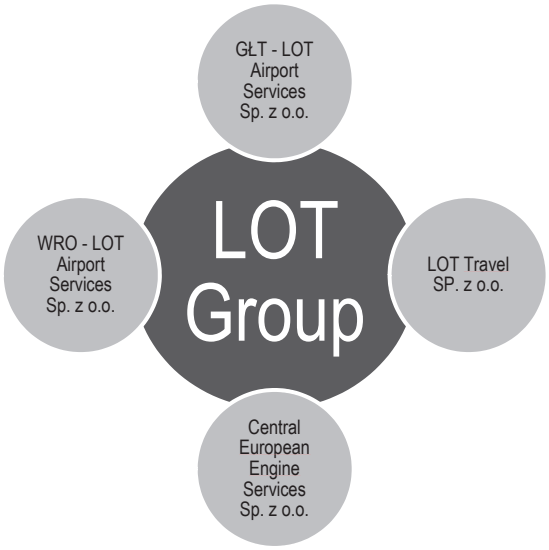


Figure 2. PLL LOT S.A. Group
Source: Own study based on the financial statement from 2012

Table 2. Scope of functioning of companies dependent from PLL LOT S.A. belonging to the LOT Group.

No	Company name	Scope of functioning
1.	LOT Travel Sp. z o.o.	tourist services market
2.	GLT-LOT Airport Services Sp. z o.o	airport and ground crew services
3.	WRO-LOT Airport Services Sp. z o.o	airport and ground crew services
4.	Central European Engine Services Sp. z o.o.	technical support of aircraft

Source: Own study based on financial statements of PLL LOT from 2012, 2011, and 2010.

Table 3. Financial data of LOT from 2010-2012 (in million PLN).

Financial data	Years		
	2010	2011	2012
Net assets	500,1	186,8	-265,5
Interest expenses	60,2	81,4	87,4
Sales revenue	2 958,8	3 156,8	3 303,3
Loss on core activities	-5,8	-124,6	-146,5
Net loss	-56,2	-118,0	-399,9
Debt	1 606,9	2 016,7	2 683,2
Supplies	252,1	230,8	198,5

Source: Own study based on financial statements of PLL LOT from 2012, 2011, and 2010.

Share of the company in the European passenger transport market from/to Poland which amounted over 55 % in 2000 fell to nearly 28 % in 2012. This year the market was divided between four companies. Remaining few carriers held altogether only 22 % of market. The division of the market is shown on picture 3.

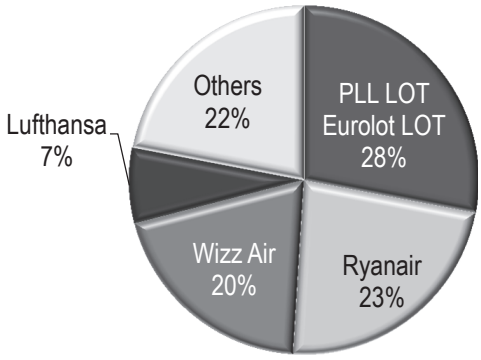


Figure 3. Share of four the biggest carriers in the European passenger transports market from/to Poland in 2012

Source: Own study on the ULC basis data.

State aid for restructuring PLL LOT in years of 2012–2015

In 2012 a few months before the end of the year PLL LOT was on the verge of loss of financial liquidity and was forced to ask for the state aid – rescue loan in order to avoid the bankruptcy. The 2012 company PLL LOT finished with net loss of 399.9 million PLN. This situation forced the company Management Board to take a decision on applying for the state aid for restructurings including the earlier help for rescuing. In table 3 chosen company's financial data in years 2010–2012 was presented. On December 20, 2012 the company received the loan from the Polish State in the amount of 400 million PLN which the EC approved on May 15, 2013. The Treaty on the Functioning of the European Union (TFUE) requires that each state aid irrespective of the kind and the form, would obtain approval from the EC. In view of these requirements before Poland notified the Commission of the rescue measure, had granted the Company with state aid in form of rescue loan of 400 million PLN. The loan was approved by the EC on May 15, 2013. Eventually the Ministry of Treasury on June 20, 2013 notified the state aid for restructuring the PLL LOT in the amount of 804.29 million PLN. The notified aid will consists in conversion of granted on December 20th rescue loan into equity in amount of 423 million PLN (400 million PLN + interest from June 20, 2013) and extra amount of 381.29 million PLN for increasing the capital. On November 6, 2013 the EC expressed doubts about the compatibility of the notified aid with the internal market and required Polish government as well as

interested parties to submit their comments on the measure. The Commission also requested Poland to submit all information that may help the assessment of these aid measures with state aid rules.

By the end of July 2014 the restructuring plan was considered credible by the EC as, will lead to restoration of viability by PLL LOT in the near future.

As was underlined earlier the basic document for applying for the state aid besides the conclusion is the restructuring plan, the PLL LOT S.A Restructuring Plan in this case.

Restructuring measures – actions in five following areas play a major role in this plan:

1) 1modernization of the fleet and route network,
2) change of the regulator-driven structure,
3) product distribution and additional revenues,
4) optimization and improvement of organizational efficiency,
5) optimization of trade agreements, additional initiatives.

Following actions will allow obtaining economical effects in the form of improvement in the financial result. Below every of the actions were described.

Fleet modernization is about using four Dreamliner planes. Remaining Embraer 170 planes will be sold. Also Boeings 737 – 400 will be withdrawn from use at the end of a leasing period. Boeing 767 planes will be replaced by the model B 787. Standardization of B 787 planes is a reason for this exchange in contrast to B 767 planes which are differently configured and each has got different equipment. Among 8 ordered Boeings 787 the company collected 6 pieces to the 1st half-year of 2014. After modernization the company fleet will be limited from 45 to 31 planes.

The plan assumes that restoring the company's viability depends mainly on implementing at company's fleet the B 787 planes. The modernization of the fleet and route network will allow for significant reduction of operating cost.

All five actions may lead to achieve benefits which were presented in table 4.

Table 4. Planned material and financial effects in individual areas of the restructuring

Action	Benefit Description	Material Effect	Financial Effects since 2015
Modernization of the fleet by implementing B787 planes into the use.	Lower fuel consumption per the block hour and shorter travel time	Fuel savings of about 15% per flight.	Improvement in the financial result in the period from 135 up to 165 mln PLN annually.
	Higher arterial speed and associated with it staff optimising in long-distance flights	Shorter flight time of about 5% at the route network	
	Lower service charges of planes	Savings of about 30%.	
	Increased possibilities of carriage of cargo	Increasing the income of about 15%.	
	Fleet standardization	Unification of the standard and equipping the new fleet.	

Table 4 continued.

Action	Benefit Description	Material Effect	Financial Effects since 2015
Modernization of route network	Closing five unprofitable connections	Savings of salaries, fuel and other operation costs.	Improvement in the financial result from 2,2 up to 2,6 mln PLN annually.
Product distribution and extra incomes	Implementing additional services: – SkyBar offers on short, – distance connections, – sale of duty-free products, – sale of the additional space for legs, – site selection, – priority of the embarkation	Revenue increase	Improvement in the financial result from 76 up to 94 mln PLN in 2015.
	Limiting sale costs.		
	Making advertising space accessible.		
	Reorganization of offices of sales network		
	Participating in tenders for the travelling services of large institutions and companies.		
	Implementing the promotion „Flight for companies"		
Revenue management	Moving 9-11% passenger places about one class higher in flights with the higher indicator of 76-94% and 4-6% of places for two classes higher	Rise of revenues on long-distance flights	Improvement in the financial result from 62 up to 76 mln PLN in 2015.
	Implementing the possibility of buying flight in higher class.	Filling 10% of places which would stay empty.	
	Change of the „First Minute" tariff structure into economically justified.	Elimination of too low prices.	
	Liquidation of the business class in domestic flights,	Freeing three places in DH4 planes	
	Improving the internal control system	Liquidation of the unjustified right to withdraw from tariffs conditions.	

Table 4 continued.

Action	Benefit Description	Material Effect	Financial Effects since 2015
Aspiration to improve and optimize organizational efficiency	Reduction in costs of fuel by using the dynamic indicator Cost Index.	Fuel savings in relation to minimising the fuel use and flight time sometime.	Improvement in the financial result from 156 up to 190 mln PLN in 2015.
	Reduction in the labour costs.	Decreasing full-time jobs (FTE) of 833 places in comparison to the position from December 31, 2012.	
	Sales of fixed assets	Eliminating unnecessary, not effective assets.	
	Limiting administrations cost.	Decreasing expenses of marketing, business trips, office supplies etc.	
Optimization of trade agreements	Negotiations of agreements with „Przedsiębiorstwo Państwowe Porty Lotnicze"	Lower charges of airport taxes	Improvement in the financial result from 54 up to 66 mln PLN in 2015.
	Negotiations of agreements with Polska Agencja Żeglugi Powietrznej	Improvement in trade relations	
	Negotiations of agreements with LOT Aicraft Maintenance Servis sp. z o.o.	Optimization of repairs, servicing and settlements processes.	
	Negotiations of agreements with Eurolot sp. z o.o.	Optimization of mutual relations.	
Additional initiatives	Change of organizational culture and management system.	Greater crew mobility,	An effect in money wasn't established.
	Improvement in managing the financial liquidity.		

Source: Own study based on the restructuring plan.

Altogether the modernization of the fleet and the route network is supposed to contribute into improvement of financial result from 137.2 up to 167.6 million annually.

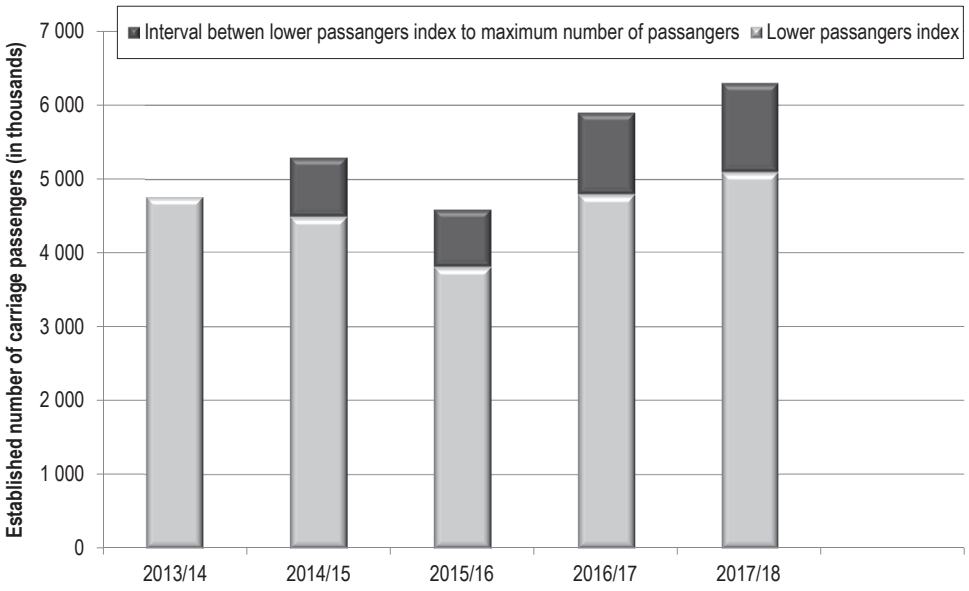


Figure 4. Forecast of number of passengers to be transported in season 2014 to 2018
Source: Own study based on the restructuring plan.

Restructuring costs

Restructuring costs according to the plan will be from 2000 to 2400 mln PLN and include:

- own financial contribution from 1200 up to 1600 mln PLN, (60-66 %)
- state aid of 804 mln PLN,
- return of rescue loan of 423 mln PLN with interest.

In table 5 individual tasks comprising restructuring costs were described.

Table 5. Restructuring and tasks costs

No	Task	Cost(mln PLN)
1	Purchsing five B 787 planes	1577–1977
2	Withdrawing B 737-400 planes from use	
3	Withdrawing Embraer planes	
4	Covering part of operating losses and financial gap	
5	Restructuring of employment	
6	Returning the rescue loan with interest	423

Source: Own study based on PLL LOT restructuring plan.

Sources of financing for the restructuring

The restructuring will be financed from two sources – state aid (34%) and own financial contribution (66%) of planned financial restructuring means.

Table 6. Sources of financing for the restructuring plan

No	Source	Amount (in mln PLN)
1	Financial lease of five B787 planes	1 200–1 600
2	Sale of fixed assets	
3	State aid	804
4	Together	2 000–2 400

Source: Own study based on PLL LOT restructuring plan.

Compensatory measures

Since every state aid may impede the competition on the Community market the state aid beneficiary is obliged to describe compensating envisaged measures in the restructuring plan [12]. As a part of compensating means PLL LOT presented liquidation of 19 profitable lines and reduction of frequency in 5 connections. Suggested liquidations and frequency reductions of mergers are equivalent to decrease in the transport capacity from 13.5% to 16.5 % in terms of ASK – (available seat kilometers) in comparison with October 2012.

Economic effects of the state aid (of restructuring)

The economic effect planned for achievement in the restructuring plan were drawn up in three variants of the financial forecast, optimistic, pessimistic and realistic: base. The base variant assumes that using all restructuring funds will amount 85%, while in the pessimistic scenario it was underlined, that if the actual accomplishment of the expected financial potential of all restructuring funds according to the base forecast gets below 70 %, the company can lose its fluidity. Comparing these two variants shows that the indicator is too high what the European Commission also raised and requested Poland to circumstantiate why such a high indicator is realistic.

Moreover such a high indicator may raise doubts if the company carrying out the restructuring plan is able to achieve sustainable viability and an ability to compete on the passenger transport market. In table 7 chosen financial data for the realistic variant was presented. In table 8 the company's financial results from two first years of restructuring were shown.

As results from comparing data from tables 7 and 8 shows generated profit from the core activity in 2013 was on average higher of 90 mln PLN, and in 2014 on average around 30 mln PLN higher than established in the restructuring plan. It is dif-

ficult to establish why such a high underestimating of planned to achieve operating profit took place without access to all company data. Individual effects of carried out action are based on the sum of the restructuring effects associated with the state aid:
– renegotiation of agreements with suppliers,
– more effective managing the network routes,
– increasing the possibility of transferring passengers,
– correcting flexibility of offered tariffs,
– starting additional services and the extension of their distribution channels,
– entering mobile solutions of services and tickets distribution,
– entering Dreamliner planes into use.

Table 7. Variant of the base forecast. Chosen financial data and indicators

No	Chosen data and financial indicators %	Years					
		2013	2014	2015	2016	2017	2018
1	Total sales revenues	2 900 to 3 400	2 900 to 3 400	2 650 to 3 50	3 300 to 3 800	4 050 to 4 550	4 300 to 4 800
2	Profit or loss on ordinary activities	- 57 to -130	64 to 78	113 to 137	200 to 240	210 to 250	175 to 215
3	Net profit or loss	-220 to -180	-20 to -16	67 to 80	155 to 90	180 to 220	140 to 170
4	Cash flow from ordinary activities	-175 to -145	170 to 206	300 to 360	360 to 440	370 to 450	335 to 415
5	Profitability rate ROCE in %	-4,4 to -3,6	2,7 to 3,3	5 to 6	9 to 11	10 to 12	8 to 10
6	Profitability rate ROE in %	-62 to -52	-5,5 to -4,5	16 to 20	27 to 33	23 to 28	15 to 18,5

Source: Own study based on PLL LOT restructuring plan.

Table 8. Financial results for two years of the restructuring with the participation of the state aid.

No	Financial data (mln PLN)	Year		
		2012	2013	2014
1	Net profit	-399,9	26,0	-263,4
2	Profit or loss on ordinary activities	-420,3	-3,8	99,4
3	EBITDA	- 346,0	156,0	291,0

Source: own study based on PLL LOT reports. (EBITDA is a net profit before taxes, depreciation and interest).

Increase in the cost-effectiveness in the core activity and increasing total revenues were possibly because of cutting costs of:
– administrative,
– employment,

– fuel consumption,
– distribution of ticket sale.

It should be emphasized that in 2014 the company also reached higher revenue from cargo than in previous years.

Conclusion

After receiving the first component of aid (400 million PLN) in December 2012, in June 2014 the company presented the European Commission its restructuring plan which considered the aid of 804 million PLN.

The European Commission approved the aid in July 2014. The European Commission decision means that LOT restructuring plan will allow the firm to restore its long term viability and this way the company will restore its ability to compete on the Community market. After all LOT used the aid in two tranches in amount of 527 million PLN [13]. However, taking into account that the company hasn't used the second tranche of the aid fully yet, but only ⅓ may be a sign of not very accurate market analysis of passenger air transports. According to the author resignation from ⅓ of the granted aid is a mistake, especially because financial result for 2015 won't decide about achieving the permanent ability to compete on the Community market by PLL LOT. It can often happen that after completing the restructuring the first year is finished with the profit and the good level of profitability, and keeping the profitability is more difficult in next years.

This assumption is supported by the company's difficult financial situation which appeared in the third quarter of 2015. Then MSP also made a decision to find the financial partner for the company [10]. It seems that this decision won't guarantee changes in the economic condition of the company because, in case of airlines a the best decision would be the one to seek the strategic partner from the branch. It is very probable, that the financial partner won't bring any changes in managing the company, but only capital will make a contribution to the company's capital.

It seems that the privatization should be considered against entering the company into the holding of European companies rather than seeking for the financial partner. We should remember about experiences of air carriers from Hungary and Bulgaria which are already outside the market and were closed because of privatization mistakes.

Before the introduction LOT to the holding company the restructuring should be completed and it should also get funds for the subsequent development which according to the company Management Board statements is essential and planned. Certainly the privatization of LOT now and with such financial results wouldn't be beneficial for MSP. LOT must find direction of the expansion not only in Centre Europe, but also on Asian markets, consolidate on these markets so that the Chopin

airport of in Warsaw would become the centre of this market. Moreover the company Management Board should regulate relationships with the crew and gain the favor of trade unions for restructuring measures, which activity, particularly in 2015 when their payroll requests may paralyze flights, what wouldn't be advantageous in the period of the recent month of PLL restructuring.

References

Commission adopts new rules governing aid to firms in difficulty, Brussels, 7 July 2004, MEMO/04/172

Communication from the Commission – *Community guidelines on State aid for rescuing and restructuring firms in difficulty*: OJ C 244, 1.10.2004, p. 2–17.

Decision C(2012) 8212 final from 20.11.2012 r*egarding State aid SA.33337 – Poland Possible aid to LOT Polish Airlines*: OJ C 81, 20.3.2012.

Komunikat Zarządu PLL LOT z 2013 roku.

Macario R., Van de Voorde E., *The impact of the economic crisis on the EU air transport sector*, European Parliament, Directorate General for Internal Policies, Policy Department B: Structural and Cohesion Policies, Transport and Tourism, October 2009.

MSP oczekuje od zarządu LOT-u dokończenia restrukturyzacji, http://www4.rp.pl/Biznes/309019834-MSP-oczekuje-od-zarzadu-LOT-u-dokonczenia-restrukturyzacji.html (Access 01.09.2015)

Opinia biegłego rewidenta z KPMG Audyt z 31.03.2014 r.

Rozporządzenie Ministra Skarbu Państwa z dnia 20 marca 2015 r. *w sprawie pomocy publicznej udzielanej w celu ratowania lub restrukturyzacji przedsiębiorców*: Dz. U. 2015, poz. 531.

Rozporządzenie Ministra Skarbu Państwa z dnia 30 sierpnia 2011 r. *w sprawie pomocy publicznej na ratowanie i restrukturyzację przedsiębiorców*: Dz. U. 2011, poz. 406.

State aid: Commission finds sale of LOT Polish Airlines' subsidiaries did not involve state aid. Brussels, 20 November 2012, http://europa.eu/rapid/press-release_IP-12-1243_en.htm (access 21.05.2015).

State aid: Commission opens in-depth inquiry into €200 million restructuring aid for LOT Polish Airlines. Brussels, 6 November 2013, http://europa.eu/rapid/press-release_IP-13-1045_en.htm (access 12.11.2015).

State aid: Commission temporarily approves rescue aid for LOT Polish Airlines. Brussels, 15 May 2013, http://europa.eu/rapid/press-release_IP-13-431_en.htm (access 21.05.2015).

Ustawa z dnia 10 maja 2013 r. *o uchyleniu uchyleniu Ustawy z dnia 14 czerwca 1991 r. o przekształceniu własnościowym przedsiębiorstwa państwowego Polskie Linie Lotnicze LOT*. Dz. U. 2015, poz. 778.

Ustawa z dnia 30 kwietnia 2004 r. *o postępowaniu w sprawach dotyczących pomocy publicznej*, art. 16, art. 36, art. 73 oraz art. 86–89 Traktatu WE: Dz. U. 2004, nr 123, poz. 1291.

CENTRAL EUROPEAN REVIEW
OF ECONOMICS & FINANCE
Vol. 10, No. 4(2015), pp. 105–115.

Joanna Garlińska-Bielawska[1]

A NEW PARTNERSHIP OF DEVELOPING REGIONS: AFRICA – CHINA, INDIA, BRAZIL, AND ITS IMPORTANCE FOR THE OPERATION OF AFRICAN REGIONAL ECONOMIC COMMUNITIES (RECs)[2]

Abstract

With the emergence of Brazil, Russia, India, and China (the BRIC countries) as new sources of global economic, trade and investment growth, the world economy has experienced a relative shift in economic power in the 21st century. The dominance of these new rights has accompanied a significant improvement in economic prospects for Africa. According to The Economist, „Over the past decade, Africa has gone from being the 'hopeless continent' to a 'rising star' and the next major growth pole in the world economy".

In this peculiar situation in world economy, the aim of this paper is to analyse the economic co-operation between African states and China, India, and Brazil in the 21st century, and its importance for the integration processes on the continent. The paper uses an analytical and descriptive method, and also national and international literature, and statistical data from the United Nations Conference on Trade and Development – UNCTAD. United Nations Economic Commission for Africa – ECA and Standard Bank.

The analysis shows the necessity for African RECs to develop a consistent policy in the area of co-operation with emerging economies, in order to increase the benefits of regional integration and strengthen the bargaining position of the region.

JEL Classification Code: **F630, F150**.

Keywords: developing countries, emerging markets, Africa, economic integration, RECs.

---

[1] Ph.D., Assistant Professor in the Department of International Economics at Cracow University of Economics.

[2] The project was financed from funds allocated to the Faculty of Economics and International Relations at Cracow University of Economics, in the framework of the grants for the maintenance of research capacity.

Introduction

The African continent treated as a whole is regarded as the poorest continent in the world, while at the same time, due to its huge natural resources, it is a uniquely rich region. Africa is also a continent where relatively the greatest number of integration organisations and agreements in the world (in relation to the number of countries) have been established, based on the integration model used by developed (European) countries. However, after around half a century of its operation, it can be said that it did not help African countries to develop or to „integrate". Due to weak state structures in many countries of this region, and due to numerous, ineffective aid programmes, towards the end of the 20th century, Africa still remained on the periphery of world economy. Moreover, the African continent was regarded as a „victim" of the globalisation process, which, due to its varied impact on different countries and social groups, provoked a great deal of controversy and negative connotations.

The 21st century has brought visible changes in the economic environment of the African continent. With the emergence of Brazil, Russia, India, and China (the BRIC countries) as new sources of global economic, trade and investment growth, the world economy has experienced a relative shift in economic power.

At the same time, China, India, and Brazil have become successful players on African markets. A particular expansion has been observed on the part of China, which since 2009 has become the biggest trading partner for the continent. A growing demand for raw materials, from these „emerging economies" among others, has resulted in rapid acceleration in economic growth in Sub-Saharan Africa, exceeding 5% per year. According to *The Economist* „Over the past decade, Africa has gone from being the 'hopeless continent' to a 'rising star' and the next major growth pole in the world economy" (Vickers, 2013, p. 673).

In this peculiar situation in world economy, the aim of this paper is to analyse the economic co-operation between African states and China, India, and Brazil in the 21st century, and its importance for the integration processes on the continent. The paper uses an analytical and descriptive method, and also national and international literature, and statistical data from the United Nations Conference on Trade and Development – UNCTAD, United Nations Economic Commission for Africa – ECA and Standard Bank.

The main areas of co-operation: Africa – China, India, and Brazil

Since the time the African countries gained independence, their main economic partners have been the developed countries of Europe (France and Great Britain) and the United States. The beginning of the 21st century was a time of change, characterised by a more intense economic co-operation between the continent and the so-called emerging markets, particularly China, but also India and Brazil. The main areas of this co-operation include trade, investments and aid.

- **TRADE** Africa's trade with the BRIC, has grown faster than the continent's trade with any other region in the world, doubling since 2007 to $340 billion in 2012, and it is projected to reach $500 billion by 2015, roughly 60 per cent of which (US 300 bn) will consist of China-Africa trade (Standard Bank, 2013, p. 1).
- **INVESTMENT** FDI inflows from the BIC (Brazil, India, China) were, until 2002, dwarfed by those from the United Kingdom, France and the US. Recent data suggest that FDI flows to Africa from India, China and Brazil have risen from 18 per cent of the total in 1995–1999 to 21 per cent in 2000–2008. The focus of these countries has been largely on countries rich in natural resources (United Nations Economic Commission for Africa, 2013, p. 1).
- **AID** The type of aid varies. Brazil differs from China (and from India) in providing very few loans, emphasizing the importance of in-kind technical assistance instead, and subsidizing the operations of its state and privately owned multinationals in Africa. China and India frequently provide project grants and concessional loans, but usually tie them to the purchases of equipment and services from their domestic companies – or, in some cases, to the access to Africa's natural resources (United Nations Economic Commission for Africa, 2013, pp. 1-2).

The main areas of co-operation between China, India, Brazil and Africa are shown in Table 1.

Perhaps more than any in case of any other external actor in Africa, China's approach to the continent reflects the strategic integration of trade, FDI and aid. This is driven by two major objectives, the need for resources to fuel China's sustained growth and the need for political support as China seeks to enhance its global profile in economic and political forums. In the field of trade, a large market for resource exports from Africa, China is a source of cheap consumption and intermediate goods, and cheap and appropriate capital goods; potential for growth in the agricultural sectors. Hitherto, the most of Chinese FDI has been large projects in the oil and minerals sectors. This is changing rapidly and there are increasing FDI flows to Africa in manufacturing and services. Additionally, China offers abundant aid to Africa, often bundled with FDI in order to secure long term access to materials. This aid takes a variety of forms, including finance, concessional market entry, funds and technology for infrastructure, technical assistance and training (United Nations, 2010, p. 45).

India is a source of demand for African products, particularly for oil and minerals, but also for some agricultural commodities such as nuts and fruit. India has the capacity to provide important inputs for Africa, including capital goods, low-price consumer goods and business services. Low-cost pharmaceuticals, perhaps linked to incoming Indian FDI, represent a particular trading opportunity. Indian companies have the capacity to assist Africa in the commodities sector, in agriculture and in the pharmaceuticals and telecommunications sectors. Indian aid, linked to incoming FDI, might contribute to enhancing infrastructure, to developing mineral and oil deposits and particularly to health and pharmaceutical sectors. Technical assistance and training are also key areas for Indian technical assistance (United Nations, 2010, p. 53).

Table 1. Selected indicators determining the stability of EU's financial market in the years 2012-2014

	Africa's importance to emerging economy	Emerging economy's importance for Africa	Exports to Africa	Imports from Africa	FDI to Africa	Aid to Africa	Strategic integration by emerging economy	Strategic integration by Africa
CHINA	Energy, minerals; support in global forums	Source of low-cost technology and low-priced consumer goods	Wide range of products, of increasing technological contents	Oil predominates, and is of growing importance; some imports of minerals	Predominantly in resource sectors, but increasing flows to manufacturing and services	through FOCAC; tied to Chinese companies and inputs; extensive technical assistance; prestige projects (parliament, sports stadiums) are important and widespread. Aid concentrated in oil-exporting economies; debt cancellation	Very high–initiator of numerous forums for coordinated discussions; close interlinking of aid and FDI to trade interests, particularly securing long-term access to Africa's resources; China also seeks African support in global arena	Very little, mainly through FOCAC forums organized by China
INDIA	Market (present); source of raw materials (future)	Source of cheap products; technical assistance	Refined petroleum products; pharmaceuticals	Oil, gold	In clothing in order to gain AGOA access to the United States; oil in Sudan and elsewhere; geographically concentrated in East Africa, but growing in Libya and Côte d'Ivoire	Predominantly lines of credit tied to Indian goods. But recent years have seen substantial increase, linked to access to minerals and oil	The Indian Government becoming more active in promoting a strategic focus, especially in minerals sector; more focused in its approach to Africa than China	Very little, mainly through Indian-organized forum, which is less developed than that of FOCAC
BRAZIL	Energy (short term); minerals; market for goods and services	Technology, particularly in health; support for infrastructure	Food, transport, refined petroleum, iron ore	Crude oil (formerly refined oil products)	Oil and iron ore and coal; infrastructure	Debt relief, infrastructure; AIDS projects; training; biofuels	Weak; Brazil seeks African support in global arena. African–South America Cooperative Forum established, coordinated by Brazil and Nigeria	Very little, apart from South Africa

Source: oown study, based on Africa's Cooperation with New and Emerging Development Partners: Options for Africa's Development, United Nations, New York (2010), pp. 32-33.

Perhaps more than any in case of any other external actor in Africa, China's approach to the continent reflects the strategic integration of trade, FDI and aid. This is driven by two major objectives, the need for resources to fuel China's sustained growth and the need for political support as China seeks to enhance its global profile in economic and political forums. In the field of trade, a large market for resource exports from Africa, China is a source of cheap consumption and intermediate goods, and cheap and appropriate capital goods; potential for growth in the agricultural sectors. Hitherto, the most of Chinese FDI has been large projects in the oil and minerals sectors. This is changing rapidly and there are increasing FDI flows to Africa in manufacturing and services. Additionally, China offers abundant aid to Africa, often bundled with FDI in order to secure long term access to materials. This aid takes a variety of forms, including finance, concessional market entry, funds and technology for infrastructure, technical assistance and training (United Nations, 2010, p. 45).

India is a source of demand for African products, particularly for oil and minerals, but also for some agricultural commodities such as nuts and fruit. India has the capacity to provide important inputs for Africa, including capital goods, low-price consumer goods and business services. Low-cost pharmaceuticals, perhaps linked to incoming Indian FDI, represent a particular trading opportunity. Indian companies have the capacity to assist Africa in the commodities sector, in agriculture and in the pharmaceuticals and telecommunications sectors. Indian aid, linked to incoming FDI, might contribute to enhancing infrastructure, to developing mineral and oil deposits and particularly to health and pharmaceutical sectors. Technical assistance and training are also key areas for Indian technical assistance (United Nations, 2010, p. 53).

Brazil's interest in Africa reflects its needs for energy (although in recent years Brazil has discovered significant oil deposits of its own) and commodities, and to some extent a market for its technology and exports. Brazil also sees Africa as a major partner in its desire to increase its influence on global economic and political forums.

The major opportunities for Africa in trade comprise a market for commodities. However, value added in commodity exports to Brazil has fallen, and only South Africa shows signs of exporting a wider range of products to Brazil. There is thus some scope for export diversification. On the import side, Africa has the capacity to benefit from Brazilian expertise in biofuels and pharmaceutical products (including AIDS-related products and services). For food-deficit African countries, Brazil may also be a source of animal feeds. In mining and construction, Africa has many opportunities to gain from the expertise and market access provided by large Brazilian commodities firms, particularly in iron ores. Brazilian companiess also have expertise in infrastructure, although (as in Angola) they find it hard to compete with Chinese ones. There are many opportunities for African economies to benefit from

Brazilian assistance in health care, in agriculture, especially in the biofuels sector, and in low-cost technology (United Nations, 2010, p. 39).

African Regional Economic Communities (RECs)

Africa is a continent where relatively the greatest number of regional economic communities and agreements in the world (in relation to the number of countries) have been established[3]. The majority of them were established within small time intervals after gaining independence by African countries, inspired both by external institutions (United Nations Economic Commission for Africa, ECA; Organisation of African Unity, OAU) and the solutions that did not necessarily take the specific character of African countries into account. The ECA in particular, actively promoted regionalism for many years, as a strategy for the development of the region. It made an assumption that African regional economic communities should cover with their influence the majority of countries in that part of the world, in order to create large markets for developing industries (in line with an anti-import strategy), and as the result increase self-sufficiency of the continent (Foroutan, 1998, p. 438). It is known that in many cases this idea led to the development of largely ineffective businesses, protected by high tariff barriers, luck of trust in market rules and a demand for state subsidy. However, African countries still wished to be members of integration organisations, which was not always supported by a real will of integration nor a realistic assessment of abilities. As the result, the main problems of African regionalism in the 21st century are, among others: overlapping membership, divergence of political interests of particular members of a given organisation, and high regional protectionism (Schmieg, 2015, p. 6). Overlapping memberships in multiple regional economic communities pose the basic problem in the region. Most countries belong to two or more integration communities. There are differences in political interests concerning integration. As the African Union has noted, certain countries fear the political and economic power of stronger partners, and African integration consequently suffers from delays in implementing agreements and from the unwillingness to relinquish some aspects of sovereignty as well as strong regional protectionism. According to the AU, certain states impose tariffs averaging 13.3 percent on imports

[3] The regional economic communities operating in Africa include: Southern African Customs Union, SACU; Southern African Development Community, SADC; Common Market for Eastern and Southern Africa, COMESA; East African Community, EAC; West African Economic and Monetary Union, WAEMU; Economic Community of West African States, ECOWAS; Economic Community of Central African States, ECCAS), Economic and Monetary Community of Central Africa, EMCCA (franc. *Commununauté Economique et Monétaire de l'Afrique Centrale*, CEMAC) ; Intergovernmental Authority on Development (IGAD); The Community of Sahel-Saharan States (CEN-SAD); The Arab Maghreb Union (AMU).

from other African countries. This is higher than the continent's average overall external protection, which is 8.7 percent. This not only fails to promote African domestic trade, but also, in fact, discriminates against it in comparison to trade with countries outside Africa. The reason for this apparently counterintuitive situation is probably that while strong economic interest in trade with other regions and the influence of the World Bank and IMF lead to tariff reductions on a most favoured national basis (i.e. applicable to all), these relate less to products that are largely traded within the region (Schmieg, 2015, p. 6-7).

The main areas of co-operation between China, India, Brazil and Africa, and the development of integration processes on the continent

African countries (especially Sub-Saharan ones) generally trade mainly with developed countries, from which inward investment is also primarily sourced; even there has been some diversification towards emerging markets, especially China, in recent years. Within this, the bulk of extra-regional export comprises undifferentiated commodities that are generally not needed in the regional supply chain, owing to the serious underdevelopment of the manufacturing industry. Therefore, it is not surprising to find that that aggregate levels of intraregional trade in Africa still remain the lowest in the world, verging around 10 percent (Draper, 2013, p. 73-74). The situation has not changed, despite the fact that trade within the continent of Africa has noted, over the past decade, an average growth of 15%. This proves the fact that, on the one hand, despite the aforementioned limitations, trade has a significant potential; and on the other hand, that this potential has not been tapped by the integration organisations, established in fact for this very purpose (Schmieg, 2015, p. 6). In the context of this key integrational problem in the continent (multiple membership of countries in the communities) and weak cooperation both within and between the African communities, it should be emphasised that in June this year, the Tripartite Free Trade Area, T-FTA, was established between three regional organisations: EAC, COMESA and SADC, which gather 26 African countries. The members of the Tripartite Free Trade Area are listed in Table 2.

Tripartite FTA represents an integrated market with a combined population of 632 million people which is 57% of Africa's population; and with a total Gross Domestic Product (GDP) of USD 1.3 Trillion (2014) contributes to 58% of Africa's GDP (Schmieg, 2015, s. 6). It is also worthwhile to add some change in the approach towards the agreements with the groups from other world regions. The Southern African Customs Union (SACU) countries have negotiated limited preferential trade agreements with the MERCOSUR (signed) and India (under negotiation). This stands in sharp contrast to SACU's rejection of an FTA with the US in 2006.

Table 2. Tripartite Free Trade Area (T-FTA)

REC	Date of Establish	Member countries
East African Community **(EAC)**	2001 (EAC II)	Kenya, Uganda, Tanzania, Burundi, Rwanda
Common Market for Eastern and Southern Africa **(COMESA)**	1994	Burundi, Comoros, Democratic Republic of Congo, Djibouti, Egypt, Eritrea, Ethiopia, Kenya, Libya (since June 2005) Madagascar, Malawi, Mauritius, Rwanda, Seychelles, Sudan, Swaziland, Uganda, Zambia Zimbabwe
Southern African Development Community **(SADC)**	1992	Angola, Botswana, Democratic Republic of Congo, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Zambia, Zimbabwe

Source: the author's own work on the basis of the World Trade Organization (2015).

A geographical structure analysis of the economic co-operation between China, India, Brazil and the countries of the African continent (Table 3) shows that the main trading partners are relatively well-developed, large countries of the region. Dominant here is co-operation with South Africa, which also belongs to BRICS, and in a sense plays the role of an intermediary between the emerging economies and the rest of the countries of the continent. Besides South Africa, there is mainly Nigeria, the largest country in the region in terms of population (162 million inhabitants), Egypt and Angola, which has rich oil deposits.

Taking into account that the economies of African countries are in great majority small and often monocultural[4], in the current situation, they are not able either to attract a large part of expenditure from other countries, or to spend a lot of money on import themselves. As the result, trade moves from trade between Africa and the EU, to trade between Africa and China[5]; however, as far as the African part is concerned, the main beneficiaries do not change – they are large, dominating economies, that also play key roles in particular regional economic communities (South Africa in SACU and SADC, and Nigeria in ECOWAS). Their main asset consists in greater external trade, which, thanks to a multiplier effect, can stimulate growth and economic development; however, it has a moderate impact on stimulating intraregional trade between African communities. While in SADC intraregional trade did grow from 11.7%

[4] Three-quarters of over 50 African economies have a population smaller than 15 million, and one-third – smaller than 3 million. For around 20 countries of the region, one product constitutes 60% of export. Read more in: P. Lamy (2010), p. 39.

[5] In 2001, EU countries were recipients of nearly half of global, African export, and in 2011, as little as 30%. Import rates changed in a similar manner: in 2001, the EU provided over 40% of goods and services to the African market, while in 2011, its share decreased to around 30%. ECA&AU (2013), pp. 46-48.

to 19.3% over the period of 14 years (2000-2014), in ECOWAS, it did not change at all, and both in 2000 and in 2014, it amounted to 8.9% (UNCTAD, 2015, p. 37).

Table 3. Geographical structure of economic co-operation between China, India, Brazil and African countries (as a % of the total involvement of emerging economies on the continent)

Country	Export	Import	Investment (stock)*	Aid
China	South Africa (20) Egypt (12) Nigeria (10) Algeria (7)	Angola (33) South Africa (19) Sudan (13) Congo (8)	Sudan (22) Algeria (11) Zambia (10) South Africa (7)	Sudan (19) Algeria (15) Nigeria (11)
India	South Africa (20) Nigeria (14) Egypt (10) Kenya (8)	South Africa (28) Morocco (17) Egypt (8) Tanzania (5)	Mauritius (12) Morocco (11) Senegal (7.5) South Africa (7)	no data
Brazil	South Africa (19) Nigeria (19) Egypt (18) Angola (11)	Nigeria (47) Algeria (24) Egypt (18) Angola (6)	Angola Botswana Congo Djibouti	Angola (45) Sao Tome and Principe (32)

* – in the case of Brazil, there is a lack of data concerning share.

Source: own study based on the United Nations (2010), pp. 39-60.

China has its representation in such communities as COMESA, SADC, and ECOWAS (Sprysak, 2012, p. 344); however, negotiations are still carried out at a national, and not regional level, which weakens the bargaining position of Africa.

Since the times of decolonisation, France and Great Britain, and the United States, have continued to be the chief „investors" in Africa, despite the fact that together they now own only half of the investment on the continent. The share of the main investors has been gradually decreasing successively, in favour of two countries in particular: China and India. Although their share in the global investment in Africa continues to be small (4% and 0.8% respectively), the tempo of investment growth from these countries is impressive. In the years 2000–2010, Indian investments grew by 26.6% a year, and Chinese – by almost 100% (91.7%) a year (ECA&AU, 2013, p. 86). Chinese investments are greatly different from these coming from Europe and North America. Throughout history, Western and Japanese Direct Foreign Investment in Sub-Saharan Africa have come from private corporations and focused on maximum profit over a relatively short period of time, while Chinese investments come to a great extent from state or partly state-owned companies, that have access to low-cost capital and focus on long-term access to raw materials, or are closely connected with aid provision (Kaplinsky, McCormick & Morris, 2010, p. 396), and are also indirectly connected with the development of infrastructure, and are a manifestation of a new approach to capital co-operation between developing countries (UNCTAD, 2007, pp. 51-69).

This is particularly important if the analysis is carried out from the point of view of operation of integration organisations groups in Africa. A dramatic underdevelopment of infrastructure is one of the factors that slow down the already slow integration processes, including the development of intraregional trade. China carries out numerous infrastructure investments, particularly in SADC and EAC, where new roads and railway connections are being constructed, and ports, power plants, water supply systems and telecommunication systems are being modernised. In Angola itself, Chinese investment in these facilities amounts to 3.2 billion USD (Shelton, 2010, p. 4).

Angola also receives almost half (45%) of the total Brazilian aid for Africa. Since the mid-1970s, Brazil's efforts have been concentrated on the Portuguese-speaking countries in Africa, namely Angola, Cape Verde, Guinea-Bissau, Mozambique and Sao Tome and Principe. Coincidentally, most of these economies are oil exporters, or have the potential to become oil exporters (United Nations, 2010, p. 42).

Final conclusions

The analysis leads to the conclusion that a new partnership („new" due to its new characteristic features and intensity, and not due to time frames) between developing regions is a fact, and provides a chance for a mutually beneficial co-operation in numerous areas (table 1). A challenge remains to use this chance by Africa as a region of the world, and by particular integration organisations operating in Africa. „Emerging" economies, including China in particular, have a strategy for Africa; while Africa's strategy for China, India, and Brazil has a vague outline, both at a national, regional and continental level.

Vickers (2013, p. 679) said, that „Africa's fragmentation into several nominally sovereign states places the continent at a strategic disadvantage in terms of bargaining power *vis-ŕ-vis* the 'mega-states' of Brazil, China and India. It is now widely recognized that African countries require joint strategies and common positions, preferably at the AU or sub-regional level, if they are to negotiate effectively with the rising and established powers. The logic of a club approach is compelling, since a more coordinated African response can help avoid contradictory bargaining positions among African states or ward off incentives".

As presented in the paper, the main problems of African integration are overlapping membership, divergence of political interests of particular members of a given group, and high regional protectionism. To these problems one should also add the fact that the majority of organisations do not fulfil the basic requirements of integration, i.e. lack of (even potential) complementarity of economic structures of member states, too low (despite economic growth) level of development (33 out of 48 least developed countries in the world lie in Sub-Saharan Africa), geographical barriers, lack of real will of integration and weak infrastructure. As far as the last element is concerned, „new" investments could be of significant support; however, under the condition that they would be carried

out in a correct manner, that is through tightening internal relations on the continent, and not only between African countries rich in raw materials and emerging economies.

References

Draper, P. (2013). *Breaking Free from Europe: Why Africa Needs Another Model of Regional Integration?* In: L. Fioramonti (ed.) *Regionalism in Changing World. Comparative Perspectives in the New Global Order*, USA-Canada: Routledge.

ECA&AU. (2013). *Making the Most of Africa's Commodities: Industrializing for Growth, Jobs and Economic Transformation*. Economic Report on Africa 2013. Ethiopia. Retrieved December 01, 2015, from http://www.uneca.org/sites/default/files/publications/era2013_eng_fin_low.pdf

Foroutan, F. (1998). *Regional integration in Sub-Saharan Africa: past experience and future prospects*. In: Ch. Milner (ed.) *Developing and Newly Industrializing Countries*, vol. I, Cheltenham, UK; Northampton, MA, USA: Edward Elgar Publishing Limited.

Kaplinsky, R. McCormick, D. & Morris, M. (2010), *Impacts and challenges of a growing relationship between China and sub-Saharan Africa* In: V. Padayachee, *The Political Economy of Africa*, Routledge, London and New York.

Jovanovic, M. N. (2006). *The Economics of International Integration*, Cheltenham, UK; Northampton, MA, USA: Edward Elgar Publishing.

Lamy, P. (2010). *Regional integrations in Africa: ambitions and vicissitudes*. Retrieved December 01, 2015, from www.notre-europe.eu.

Schmieg, E. (2015). *Trade Policy Options for Sub-Saharan Africa. TTIP, EPAs, WTO and African Integration*. SWP Comments: German Institute for International Security Affairs.

Shelton, G. (2010), *China: Transport Network Partner for African Regional Integration?*, The China Monitor.

Sprysak, J. (2012). *Zaangażowanie Chin w rozwój gospodarczy Afryki*. In: K. A. Kłosiński (Ed.), *Afryka o godność życia*. Wydawnictwo KUL, Lublin.

Standard Bank. (2013). Africa Macro. EM & Africa. UK. Retrieved October 10, 2015, from https://research.standardbank.com.

UNCTAD. (2015). *Handbook of Statistics*, Retrieved December 10, 2015, http://unctad.org/en/PublicationsLibrary/tdstat39_en.pdf.

United Nations. (2010). *Africa's Cooperation with New and Emerging Development Partners: Options for Africa's Development*, New York.

United Nations Economic Commission for Africa. (2013). *Africa–BRICS Cooperation: Implications for Growth, Employment and Structural Transformation in Africa*, Addis Ababa.

Vickers, B. (2013). *Africa and the rising powers: bargaining for the 'marginalized many'*, International Affairs vol. 89 no. 3.

World Trade Organization. (2015). *Membership of Regional Trading Arrangements (RTAS)*. Retrieved December 01, 2015, from www.wto.org.

CENTRAL EUROPEAN REVIEW
OF ECONOMICS & FINANCE
Vol. 10, No. 4(2015), pp. 117–131.

Grażyna Agnieszka Olszewska[1]

FINANCIAL HOLDING COMPANY AS A MEANS FOR PURSUING DEVELOPMENT STRATEGY FOR BANKS ON THE UNITED STATES MARKET

Abstract

The aim of this paper is an attempt to answer the question whether creating financial holding companies facilitates the implementation of banks' business development strategies, attracting new customers and increasing market share, as illustrated by the experience of the United States financial markets.

The paper includes a historical outline of how the American banking system was created and presents its main characteristics. In addition, holding company is presented as an example of a specific organizational and legal form of enterprise, including benefits resulting from choosing such development strategy as well as the associated risks caused by the situation on the world financial markets.

JEL Classification Code: **G2, G21**.

Keywords: banking, holding, strategy, development.

Introduction

Nowadays, having experienced the financial crisis, in specialist literature, periodical press and social media, we can often encounter negative opinions on the direction of financial markets development. This concerns both international and national markets. The depression of the 1930s as well as the recent financial crisis both started in the United States. Therefore, the American market has tended to be seen as the main source of irregularities in the development of financial markets. Another reason might be the fact that the entire process of creating the banking system and other segments of the US financial market has been based on negating and consciously

[1] PhD, assistant professor at the Department of Business and International Finance, Economic Faculty of the Kazimierz Pulaski University of Technology and Humanities in Radom.

rejecting the models from home countries of the settlers who were building political and economic structures of their new homeland.

The most commonly raised objection is the excessive concentration of assets on financial markets, within its specific segments as well as combining different kinds of financial agency within financial holding companies. In consequence, risks from different areas of the financial market are cumulated, both in functional and geographical sense, within one financial institution, and „infect" other financial institutions, related by capital. In 1933, in reaction to the crisis that began in the US in 1929, some regulations were enforced restricting the combining of different kinds of financial operations. These restrictions were waived in 1980. For the opponents of financial holding companies, this proves their negative impact on the stability of financial systems due to the possibility of affecting the pricing of assets and thus creating speculative bubbles (Dungey, Fry, Gozales-Hermosillo, Martin, p.11-13).

When speaking about financial crisis, alienation or financialization of financial markets, the notion of *financial holding company* is often associated with the term moral hazard as an effect of, and sometimes even the motive for creating holding companies (Chossudovsky, 2008.) Leaning towards such views, one can see the creation of financial holding companies as a way of uniting allies in order to misuse funds or perform fraud. In Polish terminology, *moral hazard* is translated as *pokusa nadużycia*, which can be literally retranslated as „a temptation of malfeasance" (Witwicki, 1957, p. 20). In the author's opinion, this is an unfair and exaggerated view.

Another term that also frequently appears in this context is *shadow banking*. Institutions performing some banking activities, often focused on transforming risks on the secondary credit market, which constitute part of a financial holding company and thus are not subject to the supervisory banking authority, can pose a threat to individual banks and entire financial systems (Zarazik, 2012). Here, it is hard not to agree with those who voice the need to regulate the activities of institutions referred to as *shadow banking*.

Undoubtedly, the financial crisis revealed a number of irregularities concerning both the directions and the strategy for business development of individual financial institutions and of entire financial sectors. The process of globalization and deregulation of financial markets, coupled with integration of the European Union financial market and the creation of the euro zone, was quite a challenge for financial markets and institutions. They have faced the problem of a completely new quality of competition in the area of cross-border services. Despite the development of technology that gives immediate access to information, information asymmetry is still present on financial markets. The fact that some market participants are put at risk gives others an opportunity for speculation. And this opportunity can be seized mostly by the big participants of the market.

The aim of this paper is to try to answer the question whether creating financial holding companies fosters the delivery of business development strategies, attracting

new customers and increasing market share, as illustrated by the experiences of the US financial markets.

Holding company as an organizational form of enterprise on the financial market

In Polish legislation, there is no notion of holding company as a legal form of enterprise organization. The source of definition for this organizational structure are business practices (Jagoda i Haus, 1995, p. 13-16). The notion of holding company prevails in the Anglo-American world (Kreft, 2004, p. 23-32). The Gramm-Leach-Bliley Act, enforced in the US in 1999, regulates the conditions for banking holding companies to apply for the status of financial holding company (FHC), which allows them to operate more broadly on the financial market (Furlong, 2000).

We can talk about an FHC when there are the following interrelations between two or more business entities:

- they are all legal entities and share-holding companies,
- at least one of them has shares in the remaining companies,
- they are interrelated in such a way that only one of the capital-related companies (called the parent company) has majority shares in the remaining companies,
- due to its advantages, the parent company works towards strategic goals using its own resources and those of the affiliated entities.

The advantages of the parent company most often result from capital links. The dominant position may also have other causes, especially when the holding company's activity is subject to licensing. In such a case the parent company often is the entity that has, under the license obtained, the right to provide the broadest range of operations (production, distribution or services). This is something we encounter on the financial services market. In this case, these are banks and insurance companies that have such a privileged position. When the source of domination of the parent company is capital, the remaining companies of an FHC are often called subsidiaries.

The organizational form of enterprises' operations depends on several factors. The size of the entity, the line of business, the form of market, the extent of liberalization of the market where the given entity operates, both nationally and internationally, are of fundamental importance. In case of financial institutions, the nature of these factors favors the creation of financial holding companies.

The size of individual financial entities operating in different segments of financial markets results from capital minima (and, importantly, from the capital's origin), defined in the terms for obtaining license for conducting business in the given market area. This limits the number of entities on the market. In case of the banking market, the capital minimum is additionally connected with the line of business and area of the bank's operations. The license-granting authority may set this minimum indi-

vidually for each of the applying entities. If the given entity does not have sufficient capital, it can pursue its development strategy as part of a holding company.

The line of business, meaning here the scope of financial activities, is strictly defined in the source legal acts referring to different types of financial institutions. Among these activities, some are reserved for specific types of institutions. The most characteristic example are, of course, banks. Due to their direct role in creating money, they are more limited by legal prudential standards on the one hand, but on the other they do have the broadest scope of activities reserved for other financial institutions.

The form of market where an enterprise operates, is an indicator of competition that can appear on this market and of available operating strategies. Financial market is quite a typical example of monopolistic competition evolving towards oligopoly (Dach, 2002, p. 175-180). In the 1980s and 1990s in the United States and in most of the European countries, regardless of the model of financial market, there was a tendency to strengthen the stability of financial systems basing on 3 to 5 largest banks on the given market. The same went for other segments of financial markets. Besides these handful of the biggest ones, there were many smaller institutions of the given type. In such circumstances, prices on the market are dictated by the group of its largest participants, while others strive to increase their market share through product differentiation and forms of information and advertising. Here, an oligopoly may be created as a result of market alliances formed by groups of weaker (in terms of capital) participants of the market, or as a consequence of taking them over by dominating entities. In an oligopoly, non-price forms of competition prevail, through advertising, improving the quality and attractiveness of products and introducing new ones, and using sales forms and condition that are convenient for customers. On the financial market, where specific kinds of activity require separate licenses, the most convenient form of pursuing this strategy is the creation of holding companies (Berger & Saunders & Scalise & Udell, 1998, p. 187-229).

What was of key importance for choosing business development strategy for banks and a suitable organizational form, were the changes in the scope of liberalization of both national and international financial markets. The increasing significance of cross-border services in banks' development strategies made smaller entities willingly enter alliances with bigger actors. When customers are satiated with basic financial products, there is more interest in financial innovations which are mostly targeted at wealthy customers as part of private banking. It is easiest to develop financial innovations and attract new wealthy customers having at one's disposal the resources of not one but many different entities, representing different segments of the financial market, which in turn makes it possible to pursue a cross-selling strategy.

Development of banking in the United States of America: major stages

The history of banking in the United States encompasses roughly 250 years. Originally, the system was completely decentralized and fragmented. One reason was strong opposition by the public against any attempts to strengthen banks by the government. Lack of regulations enabling banks to create money hindered economic growth. With big government investments, such as building railways and developing shipbuilding, capital was in soaring demand. Since these investments won acceptance of most of the society, it became possible to overcome the resistance to strengthening financial institutions with legal regulations and to the government's financial support for them. In 1791, the First Bank of the United States was created on the government's initiative, with a 20-year license (Down, 1992, p. 226 and Rolnick & Warren, 1983, p. 1080-1082). The time-restricted license was designed to reduce the possibility of monopolistic practices through collusion with private banks. The bank gained approval of the public and paved way for private enterprises that were more accepted by the society than the government-financed bank (Bukowski, 2007, p. 119). Until the early 20th century the US banking system developed with no greater problems. Most of the banks established in this period survived. However, the Revolution of 1905 that shook up the European markets and made people withdraw bank deposits damaged also the stability of the American banking system. The Federal Reserve System, established in 1913 under the Federal Reserve Act, was in fact the beginning of central banking in the US. It has been responsible for securing reserves and for developing and implementing federal monetary policy. Until 1933 it was not obligatory to insure deposits with the Fed and most commercial banks did not belong to this system at the outbreak of the crisis in 1929. That is why until 1930 the Fed did not react to financial problems and bankruptcies of non-affiliated banks.

In 1933, the Banking Act, also called the Glass-Stegall Act, one of the best known banking laws in the US, was introduced. The provisions that were the most important for the future shape of the US financial market, were the following:

- compulsory insurance of bank deposits by all the banks operating in the US – the Federal Deposit Insurance Corporation (FDIC) was established,
- separating commercial and investment activity and the ban on forming capital groups by these institutions,
- rules for banks on opening branches in other towns and creating interstate structures,
- strengthening the Fed's supervisory authority over banks, with such means as controlling interest rates.

The Great Depression made the American public wary of combining commercial banking with investment banking. It was now believed that commercial banks managing citizens' small savings should be separated from speculative operations. This was to guarantee a sense of financial security to an average American.

Until the mid-1970s, banking law regulations in the US had not been changed in any significant way. The changes began with the crisis that was the result of the collapse of the gold currency system, and were introduced in order to enable American banks to adapt to the completely new conditions of competition. In 1980 the Monetary Control Act was enforced. It made it possible for banks not belonging to the Federal Reserve System to apply for the Fed's financial support. In addition, all financial institutions, not only commercial banks, as it had been to date, were allowed to offer bank accounts (Reed & Gill, 1989). These and other provisions of the Act meant considerable liberalization of the previous regulations. They opened up a possibility for financial institutions in the US to form alliances and combine monetary and non-monetary activity. Thus, legal conditions for forming financial holding companies were created. However, the situation on the market did not yet encourage their formation.

When two institutions could offer almost identical products, and only one of them was subject to prudential regulations, negative selection took place among financial institutions. There was yet no need for consolidation because it was simpler and cheaper to start business in an area that was more „liberal" in terms of prudential standards. This weakened the financial sector in the US and contributed to the recession in real terms. A reaction to this situation was the Gramm-Leach-Bliley Act of 1999. It did not toughen the legal regulations, just specified them more precisely. Contrarily to what was intended, as it were, it reduced the Fed's supervisory authority. Bank Holding Companies were replaced by Financial Holding Companies, which clearly meant an enterprise comprising not just banks but also non-banking financial institutions (Halley M., Ruud J., 2002).

Subsequent amendments to the US banking law went in a more restrictive direction. In many aspects, it was a return to the early 20th century regulations (Jachimiak, 2004, p. 20). This did not change the direction of the development of the financial sector in this country, however, and did not have any significant impact on development strategies of individual banks or non-banking institutions. Financial holding companies became a permanent feature of the US market.

The market model and the conditions for banks' development

Business development strategies for banks to a certain extent reflect development strategies for financial systems they originate from. A market based on banking culture creates different opportunities for institutions that operate on it than a market with stock-exchange culture. It can be well said that the creation of the financial market in the US was based on deliberate rejection of the European solutions dominated by banking culture and a tendency to strengthen banks by the governments.

A banking-oriented model is created by institutions preferring long-term financial relationships with their customers. The core of this financial system are commercial

banks with the bank loan as the basic instrument for capital allocation. Their offer a wide range of services with constant demand in the long term. This type of offer naturally favors diversification of the banks' investment portfolios. Lower risk of banking activity, however, means a lower rate of profit than in the case of specialized institutions. This is the cost that universal banks pay for lowering the risk of losses, including the risk of bankruptcy in case of crisis (Olszewska, 2013, p. 53).

Institutional solutions characteristic of the Anglo-American model were created in the US. This model is marked by institutional diversity which means that banks and other financial institutions narrow their offer down to a small number of products but are able to develop and modify them depending on the current preference of the market. Financial institutions and instruments they create emerge when there is a demand for them in the economy. That explains why the number and kinds of banks and shadow banking institutions on the market change so much in a relatively short time. The system is formed by specialized institutions offering only a narrow range of services to their customers. Such offer means the banks have a higher level of investment portfolio risk than in the previously discussed system. The reward for taking such a risk is a high rate of profit that can be achieved. The costs of this risk are partly incurred by customers who pay for a high quality product. Despite strict prudential standards characteristic of the American market in the times of recession, banks often face the risk of being closed down. This is connected to the drop in demand for products offered by the given type of banks. Until recently, it did not undermine confidence in the banking system as a whole because usually it did not mean bankruptcy. Mergers and acquisitions of banks were a widespread phenomenon in this banking model.

Regardless of the financial market model and of the chosen business development strategy, banks, along with other financial institutions, perform certain specific functions, such as: making and settling payments, aggregating and disaggregating funds, transferring funds (or funds allocation), obtaining and processing information, risk management, taking over agency and transaction risks (Sinkey Jr, 2002, p. 4). An additional factor affecting banks' strategies on the American market are the strict prudential standards, interest rate control on bank risk by the Fed, and the Fed's strong participation in open market operations on the relatively small interbank market. Such an arrangement is very convenient for monetary authorities.

This advantage of the Anglo-American banking model also constitutes certain impediment for monetary authorities as far as effectiveness of monetary policy is concerned. Open market operations as instruments of general control affect the monetary market in a steady way, not causing shocks. However, with the growing globalization of markets, monetary impulses of the central bank are often neutralized on the capital market or are „shifted" to other markers along with the movements of foreign capital (Friedman & Schwartz, 1963, p. 357-359). These movements of capital have an opposite direction to that expected by monetary authorities. Money has no

homeland and always follows the highest rate of return. The broader the range of financial instruments on the market and the higher the number of institutional investors offering access to foreign financial markets, the more prudent and measured the decisions of monetary authorities have to be in terms of the kind and intensity of the instruments used.

Business development strategies for banks

Since the 1970s, globalization, deregulation of financial markets, liberalization aimed at removing barriers to capital flow, concentration of financial institutions' assets and technological progress have led to some changes in demand for banking services. While global demand for generally defined financial services has definitely increased, in case of banking services the rise was much smaller. This is certainly associated with competition from insurance companies or brokerage houses, and the more and more widespread use of electronic money. With a large number of substitutes for bank services on the market, banks were forced to look for new areas of activity (Casals, 1997, p. 245-246).

In contemporary banking, an important competition strategy is globalization. At present, the costs of capital flow have become lower than the costs of transportation of goods. Therefore, the ratio of the value of international trade turnover to the value of capital flow worldwide can be considered a measurable indicator of the financial markets' globalization level. Assuming that the underlying cause of banks' foreign operations was the servicing of settlements in international trade, the enormous „surplus" of their value shows the scale of opportunities given to banks and other financial institutions by the reduction of barriers in capital flow (Oręziak, Pietrzak, 2000/2001, s. 39). It is these benefits, resulting from markets' globalization, that caused a process of further deregulation. Strict regulations restricting the capabilities of national institutions can weaken their position relative to foreign competitors (Casals, 1997, s. 277-280).

The main benefit of deregulation was transferring the costs of protecting the country's financial system from government onto institutions that were part of this system. Deregulation, as a natural result of liberalization, means replacing regulations with standards. It was assumed that public trust institutions such as banks would be interested in keeping up standards as a condition for retaining customers. However, the growing expectations about the rate of return on financial investments, especially among banks' wealthy customers (while interest rates on the market were at a historical low), made the banks willing rather to lower standards than to keep them up. When a narrow group of customers of financial institutions becomes increasingly wealthy, banks are motivated to attract these customers (Olszewska, 2012, p. 83). Regardless of the economic situation, the amount of their deposits remains constantly at a very high level. In the same period, many customers might be forced to finance

their current consumption with their savings. Thus, they withdraw their deposits from banks and often default on their loan payments.

Concentration, just as globalization, has been one of the targets of strategic managements in contemporary banking, using *economies of scale* (Solarz, 1997, p. 169-179). It was assumed that in the event of deregulation of financial markets they would be more stable if the majority of assets was controlled by several (3 to 5) institutions in the given market segment. Market concentration is not synonymous with creating financial holding companies although it can be mistaken for it. Concentration is about combining assets of homogenous institutions. It was expected that highly concentrated financial systems would emerge as a result of this concentration, and thus would be stable in times of economic downturn. However, the myth of institutions that are „too big to fail" was busted with the fall of Lehman Brothers. Therefore, economies of scale do not explain the increase of financial holding companies' share in the financial market, both worldwide and nationally. A much better explanation of their formation are *economies of scope*. This effect can be observed on the market of products and services that are produced using similar methods, or on markets where customers expected several products in one package from the same producer or supplier (Heggernan, 2007, p. 34). In case of financial markets, the latter seems to be of more significance. Customers of financial institutions more and more often tend to seek one services provider, often via Internet.

Since the early 1990s, the structure of financial institutions' customers, especially banks', has changed profoundly. The growing stratification of personal income resulted in the emergence of a new group of customers. These are individual customers with assets of value comparable to the assets of medium and large economic entities. Banks began to develop a comprehensive, customized form of service provision dedicated to the wealthiest customers (Dziawgo, 2003, p. 14), called *private banking*. The basis for this form of activity is the direct contact of the customer and account manager, aimed at identifying customer's needs and bonding with them (Weldon, 1997, p. 17). Since these customer's needs often go beyond standard banking services and refer to broadly defined lifestyle (the fad for keeping fit, healthy food, environmentally friendly products), financial holding companies have a chance to develop the private banking strategy effectively.

One of the crucial development strategies for banks at the turn of the 20th and 21st century is called *cross-selling*. It is based on identifying customer's preferences concerning financial services, basing on a main type of product used by the given customer. These can be products related to saving, obtaining capital or providing security. They form the basis for creating a customized offer and for selling selected „complementary" products to the given customer (Szczepaniec, 2003, p. 95). The strategy is also called complementary selling and is used by the banks when developing the private banking strategy.

Combining the effects of the presented factors marking banks' strategic choices, it can be said that financial holding companies have been a natural choice for American banks. The benefits of selecting this form of organizational structure are associated with the following:

- a synergy effect consisting in multiplying benefits due to combining different financial institutions and using their resources,
- cutting costs,
- diversifying investment portfolios and the sources of risk and income,
- getting access to larger resources of information, e.g. on the risk of undertaken operations,
- an opportunity to provide holistic services reducing the risk of losing customers, which is especially important on the specialized institutions' market,
- supporting individual institutions within a capital group, so that such an entity may survive an economic downturn, which would not be possible if it operated individually,
- ability to absorb losses incurred by a member of the group, including the member's bankruptcy.

In the right circumstances, the sources of benefits mentioned above may give some managers an excessive sense of security, while others might have a sense of impunity. In addition, for each source of potential benefits, a set of conditions can be found that would make it a source of risks instead.

The main source of risks associated with a holding company is the possibility of moving reserve capital among the members of the capital group and thus „cheating" the supervisory authority. When the formation and development of such organizational structures is allowed on the financial market, it requires the financial supervision system to be adapted adequately (Menkes, 2013, p. 143-144).

Under specialized supervision in the United States, some financial institutions operating as part of financial holding companies can quite successfully hide in the „shadow" of banks (Kasiewicz, Kurklinśki L. (eds.), 2012, p. 177-178, and Olszewska, 2012, p. 230). This can lead to a situation where, after a collapse of a financial institution, customers who were not directly associated with it are at risk of losses (Lagunoff, Schreft, 2001, p. 220-222).

Also, the way a holding company is created can be the source of risks. There are three possibilities here:

- creating a holding company from scratch, forming completely new entities and building a holding structure based on them,
- creating a holding company as a voluntary alliance of entities already operating on the market,
- creating a holding company basing on hostile takeovers (Iwanicz-Drozdowska, 2001, p. 73-88).

In case of creating a holding company from scratch, the most common source of risk is „too broad a front" where the battle for customers goes on. In the second case, there is the risk of wrong pricing of the costs of combining the previously independent entities. In the third case, this is compounded by internal conflicts. If a holding company comprises entities operating abroad, they can be easily infected with crisis and spread it onto the affiliated entities and markets they operate on.

The situation of financial holding companies on the United States market

The overall specificity of the American banking system favors the creation of financial holding companies. The 1990s were the most active period of mergers and acquisitions on the US financial market, with the effect of creating financial holding companies with international reach. Speaking in terms of total asset value, among 40 biggest financial holding companies in the world, 5 are located in the US. Due to the ownership structure and the area of activity, from the point of view of systemic risk they are classified as global institutions. The participants of financial markets learned the significance of these factors when the last financial crisis broke out in 2007.

Table 1. The value of assets of selected financial holding companies as % of the US GDP

Year	Name				
	American Expres	Bank of America	Citigroup	General Electric	JP Morgan Chase
2005	0.001	12.9	14.9	5.4	12.0
2006	0.012	13.4	15.5	5.2	12.4
2007	0.127	14.6	10.1	5.5	13.3
2008	0.010	14.5	15.4	5.3	17.3
2009	0.010	17.5	14.3	5.0	17.7
2010	0.010	16.1	13.6	4.3	15.0
2011	0.010	14.3	12.6	3.9	15.2
2012	0.010	14.5	12.3	3.5	15.7
1013	0.010	13.3	11.9	3.3	15.3
2014	0.009	12.0	10.6	2.8	14.7

Source: own work based on data from Table 2 and the OECD.

In several cases, the assets to GDP ratio slightly exceeds 15% (see table 1). The ratio is sufficiently high to constitute a significant challenge for the financial supervisory authorities. In case of the US financial market this supervision is fragmented. It is performed in a specialized system – by several institutions in parallel. The events of the crisis indicated a lack of coordination among the links of the supervisory

system (Menkes, 2013, p. 146-147). It may seem disturbing that regulations on supervision over financial holding companies are not keeping up with the development of these companies.

Table 2. Total assets of the selected financial holding companies (USD in millions)

Year	Name				
	American Expres	Bank of America	Citigroup	General Electric	JP Morgan Chase
2005	113,901	1,291,842	1,489,139	540,615	1,198,911
2006	127,875	1,459,731	1,679,502	564,743	1,347,040
2007	149,743	1,715,701	1,187,480	646,528	1,562,147
2008	126,074	1,817,918	1,938,470	661,019	2,175,052
2009	125,145	2,223,321	1,857,415	650,311	2,031,989
2010	147,042	2,264,907	1,914,362	605,406	2,117,605
2011	153,337	2,129,043	1,874,012	584,617	2,265,792
2012	153,140	2,210,025	1,865,176	539,422	2,389,141
1013	153,375	2,102,311	1,880,043	516,838	2,415,689
2014	159,103	2,104,507	1,853,231	500,201	2,573,126

Source: Annual reports published at official websites of the analyzed institutions

Table 3. Net income of the selected financial holding companies (USD in millions)

Year	Name				
	American Expres	Bank of America	Citigroup	General Electric	JP Morgan Chase
2005	3,712	16,528	11,46	16,354	8,496
2006	3,658	21,099	12,127	20,832	14,444
2007	4,012	14,982	7,930	22,219	15,365
2008	2,699	4,008	27,711	17,416	5,605
2009	2,130	6,276	15,325	11,031	11,728
2010	4,057	2,238	14,703	11,645	17,370
2011	4,935	1,446	14,418	14,159	18,976
2012	4,485	4,188	14,116	13,644	21,283
1013	5,359	11,431	15,607	13,069	17,923
2014	5,885	4,833	10,725	15,231	21,762

Source: Annual reports published at official websites of the analyzed institutions

Data analysis (see tables 2 and 3) shows that the period of financial crisis did not have a negative impact on the situation of the studied holding companies. The banks that form a part of them did not escape financial problems, some of them needed subsidizing – e.g. Bank of America – but as a capital group they endured the financial crisis well.

Conclusion

Financial holding companies have a relatively short history on the American market. However, their experiences coincide with an interesting period for the development of financial markets. Technological progress, electronic money, changes in customers' preferences, globalization and the financial crisis are but a few challenges facing financial institutions. Their consequence is, on the one hand, an increase in systemic risk, and on the other, the emergence of the previously unknown development opportunities. This makes market participants search for new development strategies. One of them are financial holding companies. Their experiences to date show that benefits outweigh the risks associated with their formation.

It can be concluded from the review of the opinions presented in the literature on the subject as well as from the analysis of the basic statistics that creating financial holding companies on the American market favors the implementation of the banks' development strategies. Attracting new customers and increasing market share due to the development of private banking and cross-selling is possible largely thanks to the consolidation within holding companies. So far, the risks related to the formation of holding companies, discussed above, have not been observed. This does not mean, however, that they cannot be revealed in the future.

References

Berger A., Saunders A., Scalise J., Udell G., (1998), *The Effects of Bank Mergers and Acquisitionon Small Business Lending*, „Journal of Financial Economics".

Bukowski S.I.,[2007], *Unia monetarna, teoria i praktyka*, Difin, Warszawa.

Casals J., [1997], *Strategie konkurencyjne w europejskiej bankowości*, PWN, Warszawa.

Chossudovsky M., (2008), *Who are the Architects of Economic Collapse?* http://www.globalresearch.ca/who-are-the-architects-of-economic-collapse/10860

Claassen R. (2015), *Financial Crisis and the Ethics of Moral Hazard*, „Social Theory and Practice", vol. 41, no. 3, www.rutgerclaassen.nl/.../Claassen-Financial-Crisis-and-Moral-hazard- preprint-version.doc

Dach Z. (2002), *Mikroekonomia*, Wydawnictwo Akademii Ekonomicznej w Krakowie, Kraków.

Down K. (1992), *UA Banking In the 'Free Banking' Period*, (in:) K. Down (editor), *The Experience of Free Banking*, Routledge London, New York.

Dungey M., Fry R. A., Gozales-Hermosillo B., Martin V. L. (2011), *Transmission of Financial Crises and Contagion. A Latent Factor Approach*, Oxford University Press, New York.

Dziwago L., (2003), *Private banking – istotny element współczesnej bankowości*, „Bank i Kredyt", nr 2.

Federal Reserve Act of 1913, http://www.federalreserve.gov/aboutthefed/fract.htm

Friedman M., Schwartz A. J.,(1963), *A monetary History of the United States 1867-1960*. Princeton, New Jersey.

Furlong F., (200), *The Gramm-Leach-Bliley Act and Financial Integration*, Federal Reserve Bank of San Francisco Economic Letter, March 31 2000. http://www.frbsf.org/economic-research/publications/economic-letter/2000/march/the-gramm-leach-bliley-act-and-financial-integration/

Glass-Steagall Act of 1933, https://archive.org/details/FullTextTheGlass-steagallActA.k.a.TheBankingActOf1933

Gramm Leach Bliley Actof 1999, https://www.gpo.gov/fdsys/pkg/PLAW-106publ102/pdf/PLAW-106publ102.pdf

Halley M., Ruud J., (2002), Report of the House Committee on Financial Services. Federal Deposit Insurance Reform Act of 2002, April 17, http://archives.financialservices.house.gov/media/pdf/041702ar.pdf

Heffernan S., [2007], *Nowoczesna bankowość*, PWN, Warszawa.

http://www.federalreserve.gov/aboutthefed/fract.htm

Iwanicz-Drozdowska M., (2001), *Fuzje i przejęcia w sektorze bankowym*, „Bezpieczny Bank", nr 1-2.

Iwanicz-Drozdowska M., (2007), *Integracja rynków finansowych w Unii Europejskiej od A do Z - Konglomeraty finansowe*, 06/2007, Wydawnictwo NBP.

Jachimiak K. (2004), *Kierunki ewolucji systemu bankowego w Stanach Zjednoczonych*, Bank i Kredyt, Październik.

Jagoda H., Haus B., (1995), *Holding, organizacja i funkcje*, PWE, Warszawa.

Kasiewicz S., Kurkliński L.(red.), (20120, *Szok regulacyjny a konkurencyjność i rozwój sektora bankowego*, WIB, Warszawa.

Kreft Z. [2004], *Holding. Grupa kapitałowa*, PWE, Warszawa.

Lagunoff R., Schreft S.L., (2001), *A Model of Financial Fragility*, Journal of Economic Theory, Vol. 99, No. 1-2.

Menkes M., (2013), *Reforma systemów nadzoru finansowego w UE i USA ze szczególnym uwzględnieniem kryzysu z lat 2007-2008*, http://kolegia.sgh.waw.pl/pl/KGS/publikacje/Documents/ZN_37.pdf

Monetary Control Act of 1980, http://www.federalreserve.gov/aboutthefed/fract.htm

Olszewska G.A., (2012), Finansjeryzacja gospodarki a problem bezrobocia, [w:] Ekonomiczne i społeczne aspekty funkcjonowania współczesnego rynku pracy, Kotlarz D., (red.), Zeszyty Naukowe Uniwersytetu Ekonomicznego w Katowicach, Katowice

Olszewska G.A., (2012), Komu naprawdę potrzebny jest nowy nadzór finansowy?, [w:] Nowe zjawiska na rynku finansowym, Gruszecki T., Bednarz J., (red.), Wydawnictwo KUL, Lublin

Olszewska G.A., (2013), *System bankowy a uwarunkowania wzrostu gospodarczego w krajach Europy Środkowej na przykładzie Polski, Czech, Słowacji i Węgier*, Instytut Naukowo-Wydawniczy „Spatium", Radom.

Oręziak L., Pietrzak B., (2000/2001), *Bankowość na świecie i w Polsce. Stan obecny i tendencje rozwojowe*. Warszawa, Instytut Naukowo-Wydawniczy OLYMPUS.

Pietrzak J., (2002), *Private banking – strategia konkurencyjności na wąskim segmencie rynkowym*, „Bank i Kredyt", nr 7.

Reed E.W., Gill E.K. (1989), *Commercial Banking*, New Jersey, Prentice Hall.

Rolnick Arthur J. and Warren E. Weber (1983), *New Evidence on the Free Banking Era*, (in:) *American Economic Review*, December 1983, No 73.

Sczepaniec M., (3003), *Sprzedaż krzyżowa (cross-selling) produktów bankowych*, „Bank i Kredyt", nr 3.

Sinkey J.F. Jr., (2002), *Commercial Bank Financial Management In the Financial Services Industry*, Prentice Hall, Upper Saddle River, New Jersey http://www.worldcat.org/title/commercial-bank-financial-management-in-the-financial-services-industry/oclc/477097366?ht=edition&referer=di

Sokołowicz W., Srzednicki A., [1998], *Holding. Tworzenie,. Funkcjonowanie. Wzory dokumentów*, Wydawnictwo CH Beck, Warszawa.

Solarz J.K., (1997), *Zarządzanie strategiczne w bankach*, Poltext, Warszawa.

Toborek–Mazur J. [2010], *Holding jako podmiot rachunkowości*, Wolters Kluwer Polska sp. z o.o., Kraków.

Weldon L., (1997), *Private banking: a global perspective*, Woodhead Publishing, Cambridge.

Witwicki W., (1957), *Pogadanki obyczajowe*, PWN, Warszawa.

Zarazik Z., (2012), *Shadow banking rzuca cień na cały system finansowy*, http://www.obserwatorfinansowy.pl/ematyka/bankowosc/shadow-banking-rzuca-cien-na-caly-system-finansowy/

Menkes M., (2013), *Reforma systemów nadzoru finansowego UE i USA ze szczególnym uwzględnieniem kryzysu z lat 2007–2008*, International Journal of Management and Economics (Zeszyty Naukowe KGŚ) No. 37, http://www.sgh.waw.pl/ijme/

CENTRAL EUROPEAN REVIEW
OF ECONOMICS & FINANCE
Vol. 10, No. 4(2015), pp. 133–141.

Katarzyna Sieradzka[1], **Radosław Luft**[2]

THEORETICAL ASPECTS OF ENTERPRISE COMPETITIVENESS

Abstract

Competitiveness of enterprises is a multi-dimensional and relative notion without a universally approved definition. It is most commonly understood as the ability for rivalry against other market players. A competitive enterprise is capable of flexible and beneficial adaptation to changing operational conditions. Contemporary theories of enterprise competitiveness stress the ability to employ available knowledge and skills. Permanent competitive advantage in the market is assured to those having rare resources which are difficult to imitate and have no substitutes in the market.

JEL Classification Code: **L210**.

Keywords: competitiveness, enterprise, competitive advantage.

Introduction

In the contemporary economy, market success comes to those enterprises which become more competitive by constant modernisation and can offer more attractive products to their customers. Pressure for continual growth of enterprise competitiveness arises from ongoing globalisation processes and the consequent propagation of technological standards and integration of national economies.

Competitiveness of enterprises is a multi-dimensional and relative notion without a universally approved definition. Management theorists and practitioners are not in full agreement concerning determinants of enterprise competitiveness. Location of its sources inside or outside an enterprise, material or intangible nature of sources of competitiveness are subjects of discussion.

[1] Ph.D. Assistant Professor, Kazimierz Pulaski University of Technology and Humanities in Radom.

[2] M.A., Teaching Assistant, Kazimierz Pulaski University of Technology and Humanities in Radom.

The complex notion of enterprise competitiveness

The concept of competitiveness is problematic. Its scope, evaluation metrics and conditions determining growth of competitiveness are debated in both Polish and international specialist literature. Competitiveness is often used to refer to ability of an organisation to compete and be successful [Grzebyk, 2011, p. 109]. It can also be understood as the capacity for rivalry and competition. The notion can be addressed with reference to economies of specific countries, regions and business entities. The latter encompass enterprises, their associations, groupings and networks as well as organisations regarded as strategic business units. Therefore, the conceptual extent of competitiveness is extremely broad and variously interpreted in the literature. Competitiveness can be said to be of a multi-level nature, therefore. It may take place on the mega (group of countries, macroregion), macro (a state), mezzo (sector, industry, branch), micro (enterprise) and micro-micro (a product/ service) levels [Gorynia, 1998, p. 10].

Competitiveness as a microeconomic category emphasises dynamism, entrepreneurship and the ability to create and absorb modern technologies, administrative efficiency, quality of production and the environment. Competitiveness as a microeconomic and multi-dimensional category is perceived in terms of relations between: a business, its potential, abilities and skills and market structure and opportunities [Skawińska, Zalewski, 2009, p. 44]. Such an approach distinguishes between basic and key competitiveness. The former comprises '… processes and systems which make a firm a leader of its industry', whereas the latter involves 'skills required to gain a continuing competitive advantage in a given market' [Faulkner, Bowman, 1996, p. 44]. Basic competitiveness comprises operational (particular technical skills necessary to operate in a market) and systemic (overall and cost effectiveness) competitiveness.

Competitiveness is most commonly understood as the ability for rivalry against other market players. Competitiveness of enterprises is also understood as [Skawińska, Zalewski, 2009, p. 48]:

- A process whereby market players attempting to pursue their interests try to offer better price, quality, after-sales support or other characteristics determining decisions to close transactions than those offered by others,
- Capacity of an enterprise for sustainable development in the long term and the tendency to maintain and expand its market share,
- Relative ability to enforce its own system of objectives, intentions or values,
- Ability of an enterprise to improve its internal operational effectiveness by reinforcing and improving its market standing,
- Ability to design, manufacture and sell products whose price, quality and other strengths are more attractive than the corresponding characteristics of goods offered by competitors,
- Ability to win and/or maintain competitive advantage.

Definitions of competitiveness stress greater efficiency of production and supply of products and services than of competitors [Wattanapruttipaisan, 2002], the ability to continue providing added value to enterprise stakeholders [Dwyer, Kim, 2003] or to be profitable and maintain a dominant market standing [Lombana, 2006, p. 34]. Competitiveness is frequently identified with price or quality of a product, productivity of resources, production costs or the competitive advantage itself [Lombana, 2006, p. 33].

In specialist literature, attempts at defining the notion of competitiveness produce two types of theories [Olszewska, Piwoni-Krzeszowska, 2004, p. 508]:

- Static – a condition representing capabilities of a given enterprise relative to its competitors,
- Dynamic – ability of an enterprise to take advantage of its own potential and external conditions in order to respond to market changes, as well as to create and improve its standing in reference to competitors.

The notion of competitiveness is connected primarily to an enterprise and only then to its goods and services. The market offer and its perception by customers are parts of external image of an enterprise. Competitiveness of goods and services is a narrower concept than competitiveness of an enterprise: the former is an external symptom of the latter.

Competitive advantage of enterprises

Analyses of enterprise competitiveness state it means the ability to create and maintain competitive advantage. Competitive (or strategic) advantage involves a favourable positioning of an enterprise against its rivals in the process of customer service and acquisition. It is the foundation for the process of continuing value creation and appropriation to a degree greater than attainable by competitors [Obłój, 2001, p. 3]. It is the source of performance better than of competitors and is therefore of central significance to the strategy of and capacity for competing. It concerns to products and is relative. Competitive advantage is 'a configuration of competitive potential components which enable to generate more effective instruments of competition than those created by other enterprises' [Stankiewicz, 2000, p. 103]. Competitive advantage is normally assumed to denote better market positioning of an enterprise relative to its competitors. In essence, competitive advantage means an enterprise does something better or different than its rivals or is capable of actions its rivals are unable to realise and thus performs better [Adamkiewicz-Drwiłło, 2002, p. 33].

The notion of an enterprise's competitive advantage is dynamic and involves the ability to continue adding value. It is measured with added value and market share. Competitive advantage has three dimensions: type, scale and permanence (size)

[Godziszewski, 2001, p. 59]. Three fundamental division criteria are usually distinguished [Wolak-Tuzimek, 2010, p. 102]:
– Scale of a field of competition where a business has gained or desires to gain competitive advantage,
– Basis of competitive advantage,
– Period for which the advantage is maintained.

Following on the scale criterion, global and local competitive advantage are distinguished [Stankiewicz 2005, p. 175]. As part of the former type, products of an enterprise are effectively offered in markets subject to global competition, the latter implies an enterprise is only able to compete in some markets.

Competitive advantage is a result of actions of an enterprise and situation in its environment over a certain time. Depending on the period of time, permanent and temporary advantage are distinguished [de Wit, Meyer, 1999, p. 201]. The one refers to a continuing state of market acceptance, constant range of products and unchanging instruments of competition. The other means evaporation of an enterprise's competitive advantage due to shifts in the environment and/ or sources of the advantages being copied by competitors.

M.E. Porter uses the base criterion to cite three types of advantages [2006, p. 60]:
– Arising from cost leadership,
– Arising from differentiation,
– Based on concentration.

Competitive advantage arising from cost leadership has an enterprise becoming a sector leader in respect of overall costs. An enterprise tends to incur minimum costs among its competitors without altering quality of its products/ services. Competitive advantage arising from differentiation, in turn, involves finding of attributes which are important to customers and different from those offered by other firms. Products or services stand out from those of competitors and thus can claim a higher price. Levels of costs generated are not the core strategic objective of these enterprises yet they cannot be neglected. Both the strategy of cost leadership and of differentiation are designed to acquire competitive advantage in a broad spectrum of a market or industry. The advantage based on concentration means an enterprise focuses its actions on a specific segment (customer group, a product range or geographic market) and is thus capable of suiting its offer to customer requirements. A narrow market specialisation enables an enterprise to support a segment better than its competitors.

Selected models of enterprise competitiveness

Competitiveness of enterprises is a recurring subject of research and analysis. A variety of approaches to the issue can be noted. Foreign authors commonly analyse competitive advantage rather than competitiveness in order to determine sources of the former. Terms of both competitive advantage and competitiveness are employed

in Polish literature. They are occasionally used interchangeably, competitive advantage is sometimes treated as an element of competitiveness. Problems of competitiveness have been addressed by J.M. Stankiewicz, M. Gorynia, H.A. Adamikiewicz-Drwiłło, K. Obłój, E. Skawińska, among others.

The most developed theory of competitiveness has been proposed by M.J. Stankiewicz. He regards competitiveness of enterprises as a system of four structural elements affected by the general environment and interacting with the competitive environment include [Stankiewicz, 2002, p. 89]:

- Competitiveness potential – all tangible and intangible resources of an enterprise necessary for an entity to function in the competitive market;
- Competitive advantage – such use of competitiveness potential (including environment conditions) that allows for effective generation of an attractive market offer and effective instruments of competing;
- Instruments of competing – means created by an enterprise to acquire commercial partners. They include price of products/ services, quality of products/ services, difference of other features offered from those of competitors, flexibility of the offer suited to customer needs, variety of product range, frequency with which new products/ services are introduced, accessibility of products/ services (time and place), terms of payment, brand, image of enterprise, publicity, sales promotion, terms and period of guarantee, scope, quality and pricing of after-sales service;
- Competitive standing is a result achieved by an enterprise competing in a given sector compared to results of other enterprises.

The model specifies components of competitiveness and indicates cause-and-effect relations among them: competitiveness potential influences competitive advantages, on which instruments of competing depend that condition a certain competitive standing (fig. 1).

The mechanism of building competitiveness of an enterprise based on M.J. Stankiewicz's approach is employed by a number of authors. For instance, E. Skawińska's model [2002, p. 83] builds on M.J. Stankiewicz's concept. The model presents causes, effects and instruments as streams making up competitiveness in the market of production factors and final goods. Creation of an enterprise's competitiveness involves continual, premeditated and planned action on its individual sub-systems in consideration of their mutual feedbacks.

As part of the model, competitive potential is an intra-organisational source of competitive advantage that determines its basic dimensions: type, size and permanence. Competitive advantage is the starting-point for offering products and application of certain instruments of competing which, once evaluated by the market, provide for a competitive standing.

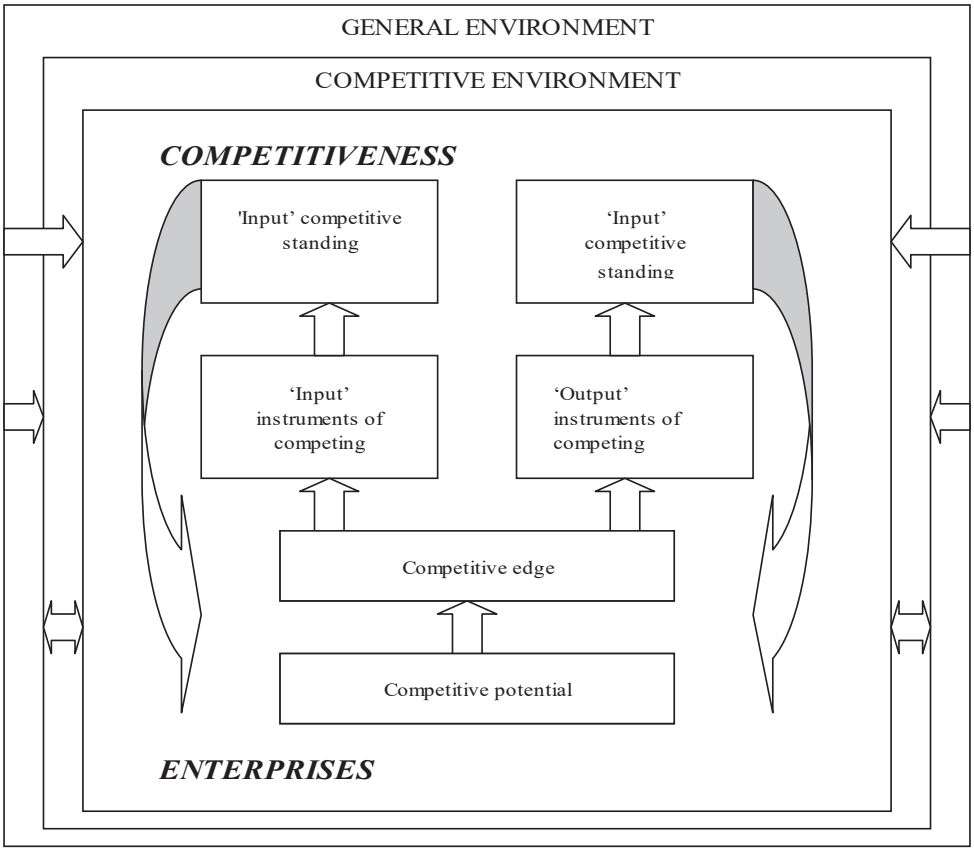


Figure 1. Model of enterprise competitiveness by M.J. Stankiewicz
Source: Stankiewicz, 2005, p. 87.

Z. Pierścionek's model of enterprise competitiveness has customers and their needs as the key elements [Pierścionek, 2003, p. 203]. Products and services that meet those needs to a greater extent than those offered by competitors make an enterprise competitive in the market. Competitiveness of an enterprise arises from key competences or abilities distinguishing the enterprise. The entire cause-and-effect chain which provides for an enterprise's competitiveness is constantly affected by the external environment including: domestic competition, requirements of the domestic market, standard of associated sectors, standard of domestic production factors (Fig. 2).

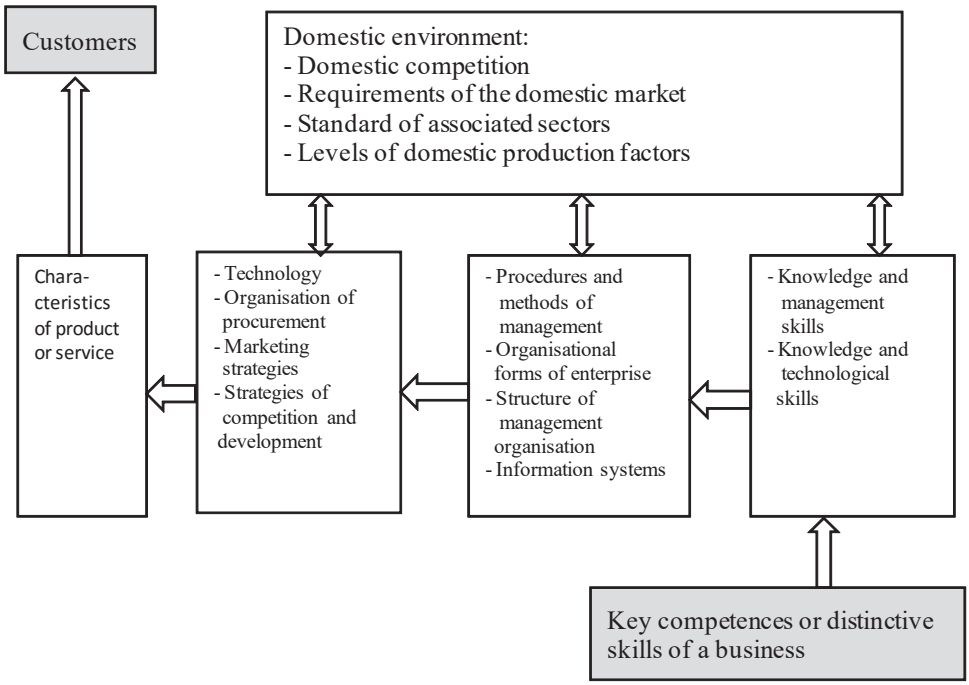


Figure 2. Model of enterprise competitiveness by Z. Pierścionek
Source: Pierścionek, 2003, p. 203.

The model of enterprise competitiveness by M. Gorynia [2002, p. 61] assumes the competitiveness is impacted by three groups of factors: macroeconomic, mezzoeconomic and microeconomic.

Macroeconomic factors are constituted by the external conditions of an enterprise and include:
- Scale and structure of available production resources,
- Effective use of these resources,
- National socio-economic system and economic policies of the government,
- Potential to influence the international economic environment.

Mezzoeconomic factors comprise:
- Factors of production in place,
- Demand factors,
- Development of an appropriate sectoral arrangement,
- Conditions of enterprise foundation, organisation and management,
- Nature of competition in the domestic market.

Microeconomic factors encompass elements that directly affect competitiveness of an enterprise, namely:

– Competitive standing of an enterprise,
– Competitive potential of an enterprise,
– Competitive strategy.

Conclusion

To be successful in the market, an enterprise is forced to take effective advantage of its financial, material and human resources and to analyse its environment. This causes an enterprise in the process of development to continue evolving and adapting functions, objectives, goals and methods of management to fluctuating conditions in a highly competitive market.

A competitive enterprise is capable of flexible and beneficial adaptation to changing operational conditions. Contemporary theories of enterprise competitiveness stress the ability to employ available knowledge and skills. Permanent competitive advantage in the market is assured to those having rare resources which are difficult to imitate and have no substitutes in the market.

The discussion of enterprise competitiveness must end by emphasising:

1. Attempts to improve competitiveness are a key objective of businesses in the market,
2. Major controversy surrounds consequences of the growing intensity of competition in the market,
3. Neither Polish not international literature concur in offering a single definition of enterprise competitiveness.
4. This ambivalence arises from significant diversity of approaches to defining sources and models of enterprise competitiveness.

Reference

Adamkiewicz-Drwiłło A.H., 2002, *Uwarunkowania konkurencyjności przedsiębiorstw*, Wyd. PWN, Warszawa.

De Wit B., Meyer R., 1999, *Strategy synthesis. Resolving strategy paradoxes to create competitive advantage*, International Thomson Business Press, London.

Dwyer L., Kim Ch., 2003, *Destination competitiveness: determinants and indicators*, „Current Issues in Tourism". Vol. 6, No. 5.

Godziszewski B., 2001, *Zasobowe uwarunkowania strategii przedsiębiorstwa*, Wyd. UMK, Toruń.

Gorynia M., 1998, *Konkurencyjność przedsiębiorstwa – próba konceptualizacji i operacjonalizacji* [w:] Najlepszy E. (red.), *Strategia przedsiębiorstw w warunkach konkurencji międzynarodowej*, Zeszyty Naukowe, seria I, z. 266, Akademia Ekonomiczna w Poznaniu.

Gorynia M., 2002, *Konkurencyjność przedsiębiorstwa – próba modelu*, [w:] M. Gorynia (red.), *Luka konkurencyjna na poziomie przedsiębiorstwa a przystąpienie Polski do Unii Europejskiej*, Akademia Ekonomiczna w Poznaniu, Poznań.

Grzebyk M., Kryński Zdz., 2011, *Konkurencja i konkurencyjność przedsiębiorstw. Ujęcie teoretyczne*, Zeszyty Naukowe Uniwersytetu Rzeszowskiego nr 20 Nierówności społeczne a wzrost gospodarczy. Uwarunkowania sprawnego działania w przedsiębiorstwie i regionie.

Lombana J.E., 2006, *Competitiveness and trade policy problems in agricultural export*, University of Gotingen.

Obłój K., 2001, *Logika przewagi konkurencyjnej*, „Przegląd Organizacji", nr 9 cz. I, nr 10, cz. II.

Olszewska B., Piwoni-Krzeszowska E., 2004, *Partnerstwo z klientami szansą zwiększania konkurencyjności przedsiębiorstwa*, [w:] Olesiński Z., Szplit A. (red.), *Przedsiębiorstwo i region w zjednoczonej Europie*, Akademia Świętokrzyska.

Pierścionek Z., 2003, *Strategie konkurencji rozwoju przedsiębiorstwa*, Wyd. PWN, Warszawa.

Porter M.E., 2006, *Strategia konkurencji. Metody analizy sektorów i konkurentów*, Wyd. MT Biznes sp z.o.o, Warszawa.

Skawińska E. (red), 2002, *Konkurencyjność przedsiębiorstw – nowe podejście*, Wyd. PWN, Warszawa.

Skawińska E., Zalewski R.I., 2009, *Klastry biznesowe w rozwoju konkurencyjności i innowacyjności regionów. Świat – Europa – Polska*, Wyd. PWE, Warszawa.

Stankiewicz M.J., 2005, *Konkurencyjność przedsiębiorstwa. Budowanie konkurencyjności przedsiębiorstwa w warunkach globalizacji*, Towarzystwo Naukowe i Organizacji i Kierownictwa, Stowarzyszenie Wyższej Użyteczności „Dom Organizatora", Toruń.

Stankiewicz M.J., 2000, *Istota i sposoby oceny konkurencyjności przedsiębiorstwa*, „Gospodarka Narodowa" nr 7/8.

Wattanapruttipaisan T, 2002, *SME subcontracting as bridgehead to competitiveness: an assessment of supply-side capabilities and demand-side requirements*, „Asia-Pacific Development Journal", Vol. 9, No. 1.

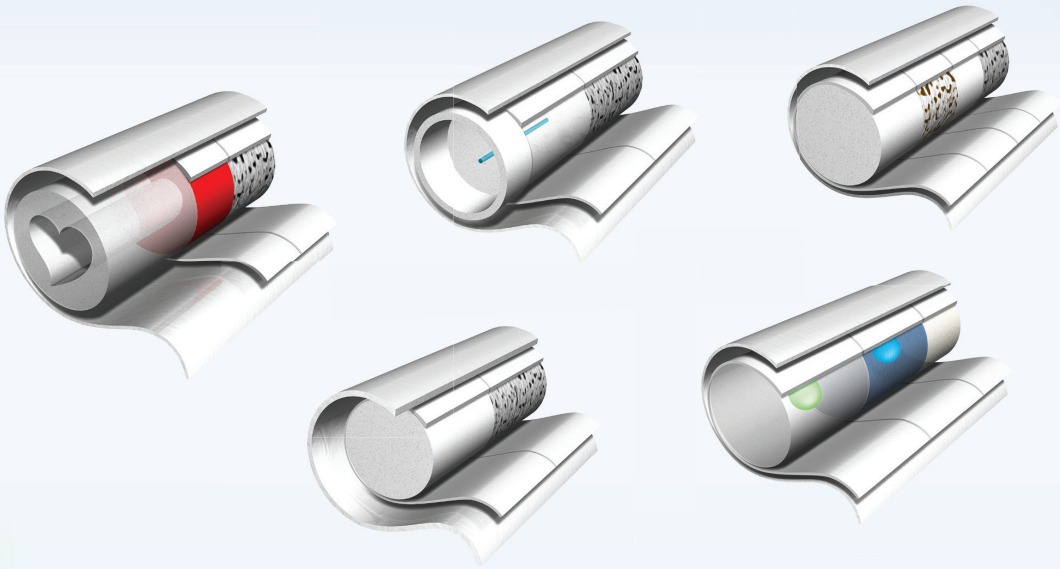
Wolak-Tuzimek A., 2010, *Determinanty rozwoju małych i średnich przedsiębiorstw w Polsce*, Wydawnictwo Naukowe PWN, Warszawa.

filter of tomorrow

Leading innovator for the TOBACCO INDUSTRY with a passion to serve

Solaris

Ready 4 the future



MULTI SEGMENT FILTER COMBINER

- Quadruple filters - 4 segments
- High quality processing
- Configuration flexibility
- Filter diameter: 4,5 mm up to 9 mm
- Segment length: 5 mm up to 46 mm
- Unlimited material possibilities
- Cost saving

Find out more:
www.itmgroup.eu/solaris-multi

itm