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THE SITUATION ON THE CREDIT MARKET VERSUS THE RATE OF ECONOMIC GROWTH IN CHOSEN COUNTRIES OF EAST-CENTRAL EUROPE

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ABSTRACT

The article concerns the comparative analysis concerning credit market situation on the background of economic growth changes in Poland, the Czech Republic, Lithuania and Hungary. The main objective of this article is to identify the similarities and differences in the economic situation of the whole economies and credits market conditions in individual countries. This relationship has been verified for each country. To determine the strength of the relationship between the dynamics of changes in the value of credits and GDP, Pearson correlation analysis was used. The basis of the analysis presented in the article was data from central banks, Central Statistical Office and Eurostat. Time horizon under investigation covered the period of 2004-2013. The results of analysis indicate that both the economic condition of entire economies, as well as the situation in the credit market remained diverse in all analyzed countries. Among the most significant similarities there was found that changes in the rate of economic growth in the analyzed countries remained at a moderate depending on the dynamics of changes in the credit market. Although the analyzed countries experienced a financial crisis, not all of them recorded a negative growth rate of GDP and credits.

KEY WORDS

gross domestic product, credit, convergence criteria, growth rate

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INTRODUCTION

The paper presents a comparative analysis of a credit market versus the rate of economic growth in chosen member states of the European Union (EU). On the basis of a correlation analysis the dependency assessment is going to be carried out between the credit values change dynamic and GDP in Poland, Czech Republic, Lithuania and Hungary. The aim of this paper is to indicate the similarities and differences of economic conditions of entire economies as well as the situation on a credit market in individual countries. The above aim execution is supposed to allow the verification of the hypothesis which assumes

that progressing convergence and synchronisation of periodical fluctuations of the economies of East-Central European countries (Barczyk et al., 2010) leads to a similar shape of a credit market.

The basis of analyses in the paper will be quarterly data of central banks, Central Statistical Office of Poland (Central Statistical Office) and Eurostat. The research was carried out for entire countries and the research horizon covered years from 2004 to 2013.

1. THE CONVERGENCE CRITERIA AND THE SITUATION OF CHOSEN COUNTRIES OF EAST-CENTRAL EUROPE

The documents approved during EU summits conclude that accepting new union candidates will be admitted only when they demonstrate that they „have the ability and the will to take on and implement effectively the aims of economic and monetary union” (Lutkowski, 2002). Poland and other countries which joined the EU in May 2004 had to present the agenda of satisfying convergence criteria. The criteria concerned the necessity of reaching defined values of basic economic parameters which determine the stabilisation of economy in coming years. The necessary condition to join the structures of The Economic and Monetary Union (EMU) is the presence in Europe, participation in the Exchange and Rate Mechanism II (EMR II), satisfying the convergence criteria of Maastricht and replacing domestic currency with European currency (EURO), (Pszczółka, 2006).

However, meeting the Maastricht criteria was not a necessary condition to become a member of the EU but the candidates should pursue such economic results which would allow to satisfy the criteria. This is the way to restrict the threat of occurrence of such negative phenomena as the increase of unemployment, inflation or economic stagnation. Checking the convergence criteria also comes down to the inspection of nominal criteria (Wrona & Sokołowska-Woźniak, 2005).

According to The Maastricht Treaty (formally, the Treaty on European Union – TEU) the basic aim of the European Central Bank is the stability of prices and exchange rates. According to the regulations of the Treaty in the country which shows an appropriate price stability the inflation rate cannot exceed more than 1,5% of an average inflation rate in member states which are characterised by the lowest inflation level in the whole EU. So it refers also to those member states which do not belong to the euro zone. However, „the lowest inflation rate” does not have to mean the optimal level of inflation. Monetary policy focused on price stability has a positive effect on the economy, especially on an economic growth and employment. In line with the recommendations of the European Central Bank the optimal inflation is

close to the level of 2 percentage points (Bednarczyk, 2012). At the same time, the European Central Bank was obliged to support fundamental targets of the EU, such as, for instance, lasting and non-inflationary economic growth or a high level of employment and social care. In 2003 members states of the lowest inflation rate were Lithuania (deflation of 1,1%), Czech Republic (deflation of 0,1%) and Poland (0,7%). Therefore the reference value was 1,3% and was much lower than the optimal value determined by the European Central Bank (Zamojska, 2000).

The criterion of a long-term interest rate is met if it is not higher than 2 pp. from the average of analogous interest rates in three European member states of the most stable prices (de Grauwe, 2003). A year preceding the moment of the evaluation of meeting the criterion is taken into consideration. Hence, the interest rate criterion can be treated as an extension of the inflation criterion for the convergence assessment in this scope allows to monitor the creditability of a permanent decrease of inflation rate. If the market participants are convinced of a lasting character of a disinflation process, the long-term expectations of inflation and long-term state securities profitability diminish which, in turn, enables to meet the interest rate criterion (Krajewski, 2003).

A success of the Monetary Union and Common Monetary Policy require coordination of domestic budgetary policies and determining specific restraints with respect to the budget balance and a size of public debt. Monetary Union membership aside, a high level of deficit also raises the cost of public debt service which, in turn, creates a threat of so-called debt spiral and results in so-called crowding-out effect of private investments by governmental purchases. Negative consequences of the occurrence of long-term, excessive deficits are widely known. They contribute to interest rates growth, hinder capital availability for companies and as a result they have a very disadvantageous influence on economic growth (Detken et al., 2004).

Admittedly, budgetary policy within EMU was left at the national level, however, TEU contains conditions which are supposed to secure the discipline of public finance in member states. Hence, budgetary deficit cannot exceed 3% of GDP of an individual country. In turn, the level of public debt should not exceed 60% of GDP measured in market prices. Both requirements are classified as fiscal criteria and mean that the state striving for budget stability should also

implement the policy of decreasing the budgetary deficit (Żukowska, 2009). In accordance with art. 126 Treaty on the Functioning of the European Union, the European Commission monitors the budgetary discipline of the EU member states. Because of exceeding or a threat of exceeding one of the above reference values the stages of excessive deficit procedures are determined. They cover, among the others, Commission's report on budgetary and economic situation which initialises the proceedings, the opinion of Economic and Financial Committee on legitimacy of procedures, Ecofin Council's decision on occurrence of excessive deficit in an individual member state and Council's recommendation determining the date and way to eliminate an excessive deficit and a decision of Ecofin Council which finalizes the procedure which repeals the decision on excessive deficit occurrence. The procedure of an excessive deficit, legal basis of which was included in the Treaty establishing the European Union, was an original mechanism which disciplined member states within public finance (Nowak-Far, 2007).

After that countries of the East-Central Europe became members of the EU in 2004, the processes of a real convergence of these member states in relation to Western Europe visibly accelerated. It not only concerns the tendency to the level of incomes but also the tendency to the periodical fluctuations. Synchronisation of the other, in terms of euro zone, is especially high in countries of Central Europe (Poland, Hungary, Czech Republic, Slovakia, Slovenia) and remarkably lower in Baltic Republics (Lithuania, Latvia and Estonia) and Balkan countries (Romania and Bulgaria). This situation is a result of progressing economic integration and intensive trade exchange (Matkowski & Próchniak, 2009).

2. COMPARISON OF GDP GROWTH RATE IN SELECTED COUNTRIES

GDP growth rate in four studied countries was shaped in a different way, although there can be found some similarities in selected sub-periods. The worst economic situation in all of the countries was in 2009. However, despite the significant deterioration of economic situation only in Poland GDP growth rate remained positive. In other countries, there were significant declines in GDP, of which the strongest were noticed in Lithuania (decline by as much as 15.8%), (Fig. 1). The highest rate of economic growth each country recorded in different year. In Lithuania, the highest rate of GDP growth was in the third quarter of 2007 (11.1%), in the Czech Republic in the first quarter of 2006 (8.3%), in Poland in the first quarter of 2007 (7.5%) and in Hungary in the third quarter of 2004 (4.9%). Attention is drawn by relatively high maximum rate of growth of GDP in Lithuania and less than half in Hungary.

In the analyzed period, the average growth rate was the highest in Poland and amounted 3.9% on average. The second place is taken by Lithuania with a slightly lower average GDP growth rate, which takes the value of 3.3%. In the Czech Republic the average GDP growth rate was significantly lower and amounted 2.4% on average, and in Hungary only 0.7%. In other two countries such poor result was observed due to relatively high number of quarters with negative growth rate of GDP, which took place in the Czech Republic in the course of 11 quarters, and in Hungary during the 14 quarters in the whole period analyzed (IIIQ2004 – IVQ2013), (Tab. 1).

Tab. 1. Statistics for GDP growth rates in selected countries for the period IIIQ2004 – IVQ2013

	POLAND	CZECH REPUBLIC	LITHUANIA	HUNGARY
mean	3.9	2.4	3.3	0.7
minimum	0.4	-5.9	-15.8	-8.0
maximum	7.5	8.3	11.1	4.9
over „0”	38	27	32	24
below „0”	0	11	6	14

Source: own calculations based on data from Central Statistical Office and Eurostat.

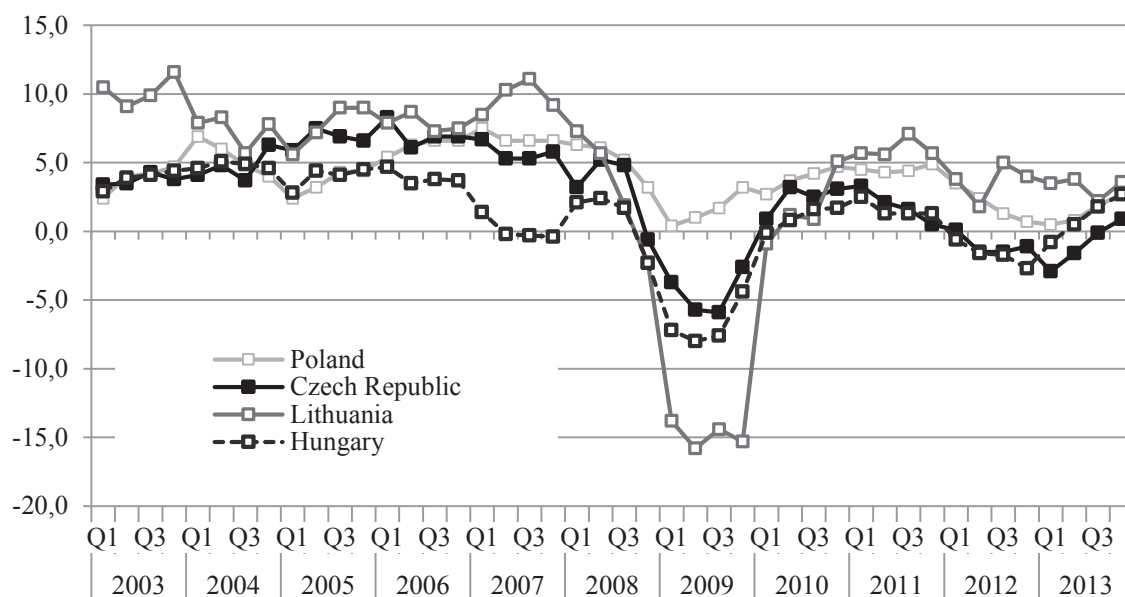


Fig. 1. GDP growth rates in selected countries for the period IIIQ2004 – IVQ2013

Source: own calculations based on data from Central Statistical Office and Eurostat.

Comparing the economic growth rate in four countries in each quarter, it can be found that most often – as much as 24 times – the highest rate of GDP growth recorded Lithuania, Poland was the leader 11-fold, while the Czech Republic only 3 times. On the other hand, the lowest value of basic indicator of economic development most often – as much as 21-fold could be observed in Hungary. The Czech Republic and Lithuania were 6-fold at the weakest position compared to the whole group of four countries. On the other hand, Poland had only 4 times lower GDP growth rates than three other countries.

3. COMPARISON OF CREDITS GROWTH RATE IN SELECTED COUNTRIES

The value of credits granted to residents by other monetary financial institutions has grown most rapidly in the early years (until 2008) in Lithuania. Since 2009, almost every quarter, the highest rate of increase in the value of credits was recorded in Poland. For almost the whole of this period, the situation in Lithuania was the worst of all the countries compared and there was a negative growth

Tab. 2. Statistics for growth rates of credits value in selected countries for the period IIIQ2004 – IVQ2013

	POLAND	CZECH REPUBLIC	LITHUANIA	HUNGARY
mean	14.4	7.0	18.4	7.5
minimum	0.2	0.0	-9.3	-13.7
maximum	32.6	16.8	66.4	25.9
over „0”	38	37	20	28
below „0”	0	1	18	10

Source: own calculations based on data from central banks.

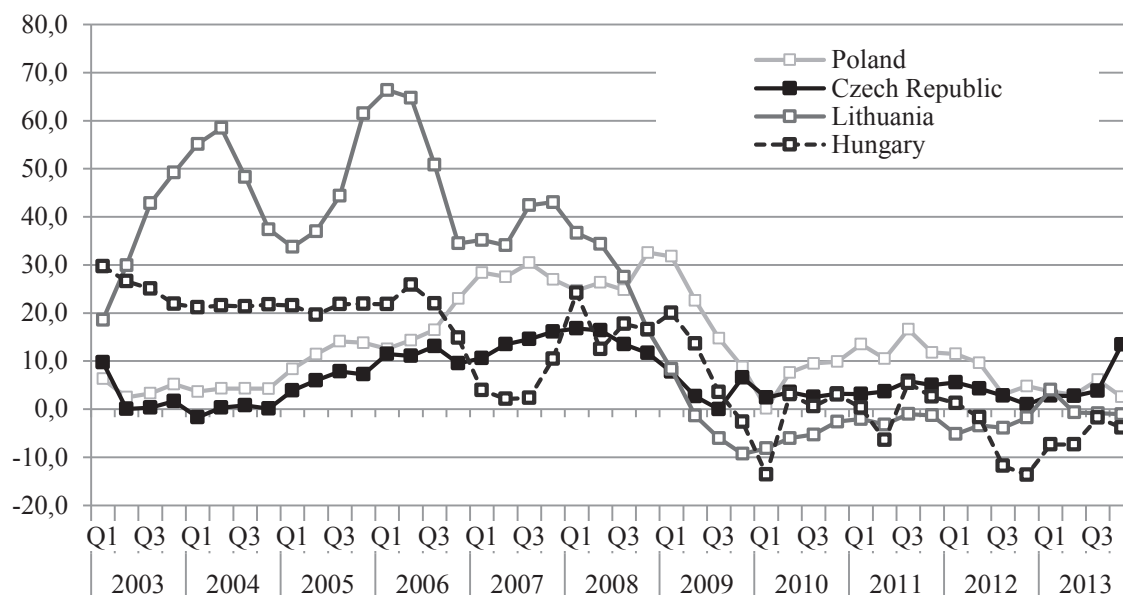


Fig. 2. Growth rates of credits value in selected countries for the period IIIQ2004 – IVQ2013

Source: own calculations based on data from central banks.

rate of credits. It should be also noted huge differences in growth rates of credits between particular countries in the years 2004-2008, and then in subsequent years a significant reduction in differences (Fig. 2).

Comparing the average rate of growth for the value of credits in the analyzed countries, it can be found that the highest value was obtained for Lithuania (18.4%). The second place took Poland with an average growth rate of credits amounting 14.4%. The average growth rate of credits is significantly lower in Hungary (7.5%) and the Czech Republic (7.0%). The same order of countries would be in ranking built on the basis of the maximum rate of growth of credits (Tab. 2). It is worth noting that the only country in which there was always positive growth rate is Poland. The largest drop was observed in Hungary and Lithuania reaching respectively as much as -13.7% and -9.3%. Negative growth rates were recorded in these two countries more often than in other countries – in Lithuania during 18 quarters, and in Hungary during 10 quarters.

During the whole period, the growth rate in Lithuania was higher than in three other countries 18-fold. Equally often (18 times) Poland was the country with the highest growth rate of credits. The lowest rate of growth in the value of credits was achieved most frequently, as much as 14-fold, by the Czech Republic and 13 – fold by Hungary.

4. THE ASSESSMENT OF RELATIONSHIP BETWEEN THE GROWTH RATE OF CREDITS AND GDP IN SELECTED COUNTRIES

The results of analyses show that countries with the highest rate of economic growth (Poland and Lithuania) have also the highest rate of growth in the value of credits. In order to evaluate the convergence of credits and GDP growth rate shaping over time the changes of both categories for each of the four countries will be analyzed.

In the analyzed period, it can be observed a distinct coincidence in the development of the GDP growth rate and the value of credits in Poland. The increase in one variable is usually accompanied by an increase in the other. There is also a certain shift in time between these two variables in some subperiods. The highest GDP growth rates occurred in 2006-2008, while in the case of credits the highest ones were observed in 2007-2009. This shift resulted mainly from changes in the exchange rate of PLN and a significant increase in the importance of foreign currency credits in the above period. The strong depreciation of PLN which took place in late 2008 and early 2009 contributed to an overstatement of growth rates of credits. For the period IIIQ2004 – IVQ2013 Pearson correlation

coefficient has a value of 0.49, indicating moderate strength of the relationship between the variables.

The two analyzed variables – GDP growth rate and growth rate of credits in the Czech Republic also showed strong similarity in the development in the period IIIQ2004 – IVQ2013. The period of the highest GDP growth rate was 2005-2006, and although the next two years also remained at a rela-

tively high level, showed a slight downward trend. In case of credits between 2005 and 2008 the growth rate increased. The highest growth rate of credits throughout the analyzed period occurred in 2007-2008. Both variables were characterized by a strong downward trend ongoing since the third quarter of 2008 to the third quarter of 2009. As a result, GDP growth reached the lowest level during the entire

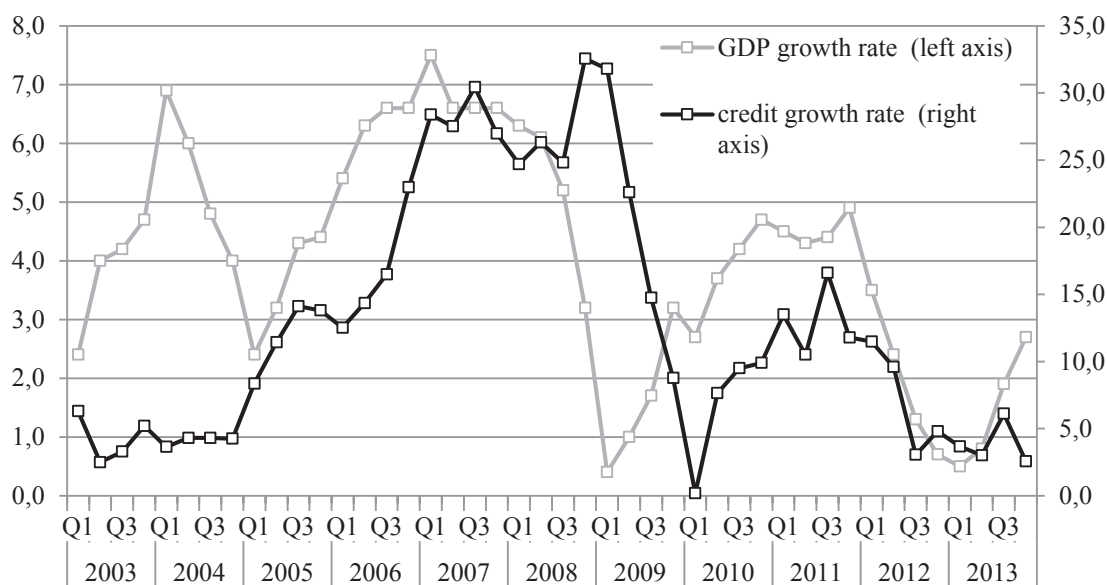


Fig. 3. Growth rates of credits value and GDP in Poland for the period IIIQ2004 – IVQ2013

Source: own calculations based on data from Central Statistical Office and National Bank of Poland.

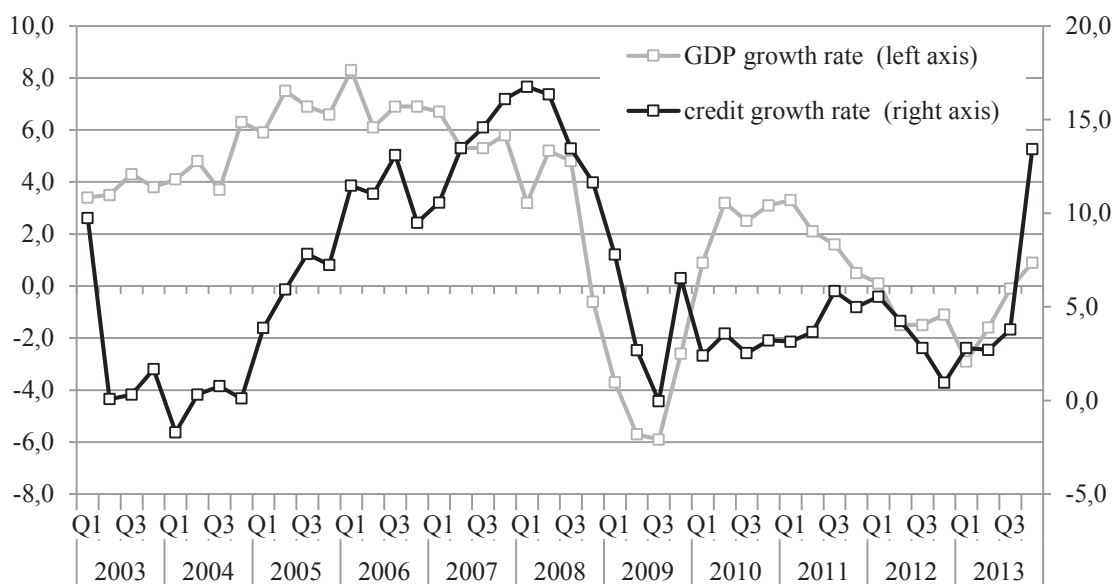


Fig. 4. Growth rates of credits value and GDP in Czech Republic for the period IIIQ2004 – IVQ2013

Source: own calculations based on data from Eurostat and Central Bank of Czech Republic.

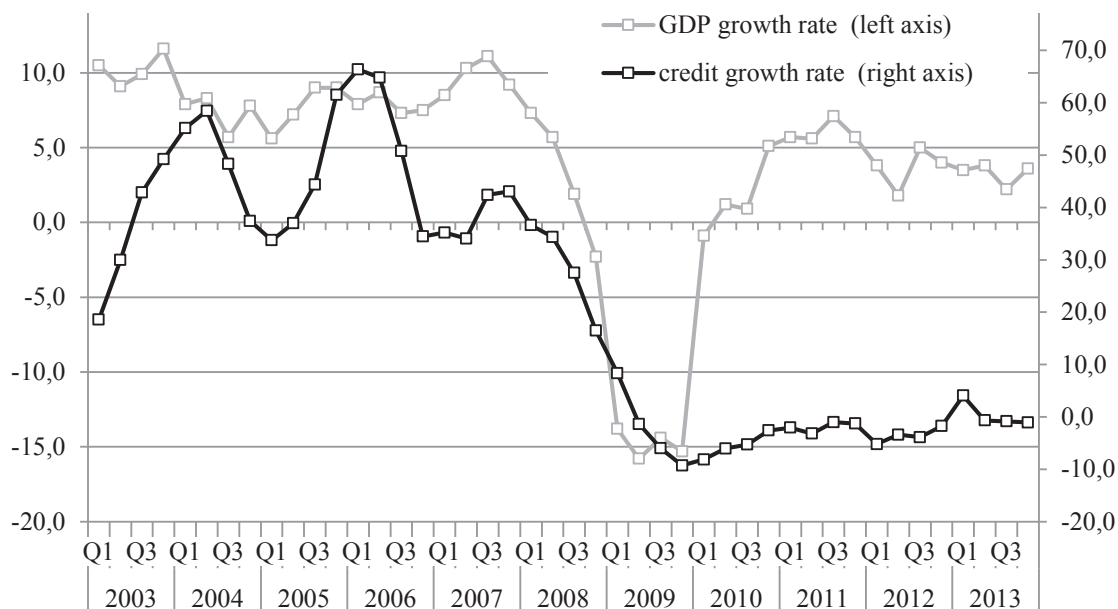


Fig. 5. Growth rates of credits value and GDP in Lithuania for the period IIIQ2004 – IVQ2013

Source: own calculations based on data from Eurostat and Central Bank of Lithuania.

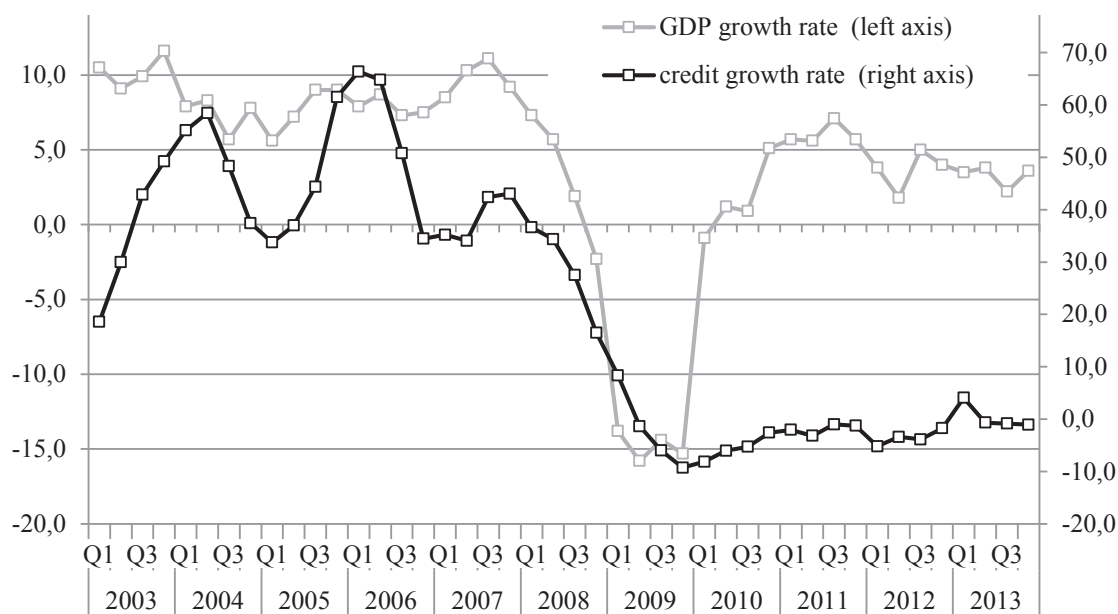


Fig. 6. Growth rates of credits value and GDP in Hungary for the period IIIQ2004 – IVQ2013

Source: own calculations based on data from Eurostat and Central Bank of Hungary.

period covered by the analysis and was -5.9%. The growth rate of credits decreased to 0.0%, the lowest level in the period considered. The strong similarity in terms of trends in the GDP growth rate and the growth rate of credits also occurred in 2012-2013. Pearson correlation coefficient between these variables during the period IIIQ2004 – IVQ2013 amounts 0.47 and indicates a moderate relationship.

The situation of Lithuania was slightly different

than in the case of Poland and the Czech Republic. GDP growth rate in the period IIIQ2004 – IIQ2008 remained relatively high, ranging from 5.6% to 11.1%. Nevertheless, a strong downward trend has yet been initiated in the fourth quarter of 2007 and continued until the second quarter of 2009, when GDP growth rate reached the lowest level of 15.8%. In case of credits growth rate, downward trend was also reported in the corresponding period – from the first quarter of 2008 to the fourth quarter of 2009. In the

first quarter of this period, the growth rate of credits amounted 36.6%, and in the last quarter declined to -9.3%. In subsequent quarters, the growth rate of credits remained negative (with the exception of the first quarter of 2013). On the other hand, the GDP growth rate until the third quarter of 2011, was on an upward trend, and moreover from the second quarter of 2010 was already positive. During the whole period since the third quarter of 2004 to the fourth quarter of 2013, Pearson correlation coefficient indicates a moderate positive correlation between these two variables (Tab. 3).

Tab. 3. Pearson correlation coefficients between growth rates of credits value and GDP in selected countries for the period IIIQ2004 – IVQ2013

	POLAND	CZECH REPUBLIC	LITHUANIA	HUNGARY
Pearson correlation coefficient	0.489	0.470	0.544	0.368
Statistical significance	0.0018	0.0029	0.0004	0.0232

Source: own calculations based on data from central banks, Eurostat and CSO

Comparing the formation of the growth rate of credits and the GDP growth rate in Hungary, it is worth noticing that there is observed the delay of the first variable relative to the other one, which is visible on the graph. This is also confirmed by correlation analysis carried out for the period IIIQ2004 – IVQ2013. The relationship between the growth rate of GDP time delayed by two quarters and the rate of credits growth is strongest because Pearson correlation coefficient amounts 0.62 indicating a moderate strength of the relationship. If there is no mutual shifts of both variables the relationship can only be considered weak because the Pearson correlation coefficient reaches a value of 0.37. Furthermore, it is worth noting the strong downward trend of both variables caused by the global financial crisis. In the case of GDP the growth rate dropped from 1.7% to -8.0% in the period IIIQ2008 – IIQ2009. In the case of credits, the downward trend begins and ends three quarters later. In the second quarter of 2009, the credit growth rate amounted 13.6% and in the first quarter of 2010 reached the level -13.6%.

CONCLUSIONS

The condition of economies as well as a credit market situation varied in all analysed countries. However, some similarities between considered

countries can be noticed. Changes of the economic growth rate in the states analysed in this paper were moderately dependent on the dynamic on the credit market. A higher average rate of GDP was usually accompanied by a higher average growth rate of granted credits (see Adamowicz et al., 2012). In all the countries there was a slight delay in a growth rate of credits compared to the rate of GDP growth. Moreover, all the studied countries experienced financial crises which resulted in a significant weakening of an economic growth.

Some differences must be also stressed. Not all the countries experienced negative GDP and credit rates. Only in Poland the GDP rate remained a positive number. The analyses carried out allow to indicate the countries, which economic condition and credit market situation were significantly better than in other countries or took frequently first place in the group of four analysed countries, but also those with higher average rates of economic growth.

LITERATURE

- Adamowicz, E., Dudek, S., Pachucki, D., & Walczyk, K. (2012). *Wahania cykliczne w Polsce i strefie euro* [Cyclical fluctuations in Poland and the euro area]. Warszawa, Poland: Prace i Materiały IRG SGH.
- Barczyk, R., Lubiński, M., Konopczak, K., & Marczewski, K. (2010). *Synchronizacja wahań koniunkturalnych. Mechanizmy i konsekwencje* [Synchronization fluctuations. Mechanisms and consequences]. Poznań, Poland: Wydawnictwo Uniwersytetu Ekonomicznego w Poznaniu.
- Bednarczyk, J. L. (2012). Inflacja neutralna (NDEGRI) czy apriorycznie określony cel inflacyjny [Inflation neutral (NDEGRI) or a priori defined inflation target]. In I. Pyka, & J. Cichorska (Eds.), *Finanse w niestabilnym otoczeniu – dylematy i wyzwania* [Finance in an unstable environment – dilemmas and challenges]. Katowice, Poland: Wydawnictwo UE w Katowicach.

- Detken, C., Gaspar, V., & Winkler, B. (2004). *On prosperity and posterity. The need for fiscal discipline in a monetary union*, Working Paper Series No 420, European Central Bank. Retrieved from <https://www.ecb.europa.eu/pub/pdf/scpwps/ecbwp420.pdf?a0073b04c99a4fbbec4d1b2f21f493bb>
- Grauwe de, P. (2003). *Unia walutowa [Monetary union]*. Warszawa, Poland: Wydawnictwo PWE.
- Krajewski, P. (2003). Bariery wstąpienia Polski do Unii Gospodarczej i Walutowej [Barriers to Poland's joining the Economic and Monetary Union]. *Gospodarka Narodowa*, 4(14), 81-103.
- Lutkowski, K. (2002). Problem polityki kursowej na drodze Polski do członkostwa w Unii Europejskiej i Unii Gospodarczej i Walutowej, Euro od A do Z [Problems of exchange policy on the road to Polish membership in the European Union and Economic and Monetary Union, Euro from A to Z]. *Bank i Kredyt*, 5(33).
- Matkowski, Z., & Próchniak, M. (2009). Zbieżność rozwoju gospodarczego Polski i innych krajów Europy Środkowo Wschodniej w stosunku do Unii Europejskiej [The convergence of the economic development of Poland and other countries of Central and Eastern Europe in relation to the European Union]. *Zarządzanie Ryzykiem*, 30, 53-97.
- Nowak-Far, A. (2007). *Pakt stabilności i wzrostu. Funkcje, działanie i przyszłość [Stability and Growth Pact. Features, performance and future]*. Warszawa, Poland: Biblioteka Monitora Prawniczego, C.H. Beck.
- Pszczółka, I. (2006). *Euro a integracja europejskich rynków finansowych [Euro and the integration of European financial markets]*. Warszawa, Poland: Wydawnictwo CeDeWu.
- Wrona, B., & Sokołowska-Woźniak, J. (2005). Dylematy związane z uczestnictwem Polski w Unii Gospodarczej i Walutowej [Dilemmas associated with the Polish participation in the Economic and Monetary Union]. *Zeszyty Naukowe Wyższej Szkoły Ekonomicznej w Bochni*, 3, 111-133.
- Zamojska, A. (2000). *Unia Gospodarcza i Walutowa [Economic and Monetary Union]*. Warszawa, Poland: Wydawnictwo SGGW.
- Żukowska, K. (2009). Polityka konsolidacji budżetów państw w świetle wymogów Unii Gospodarczej i Walutowej [Consolidation of public budgets in the light of the requirements of Economic and Monetary Union]. In D. K. Rosati (Ed.), *Euro – ekonomia i polityka [Euro – economics and politics]*. Warszawa, Poland: Wyższa Szkoła Handlu i Prawa im. Ryszarda Łazarskiego w Warszawie.