THE DEVELOPMENT OF EXTERNAL MACROECONOMIC IMBALANCES IN THE EU COUNTRIES

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Abstract

The economic crisis has revealed the existence of significant and long persisting external macroeconomic imbalances in European countries. The aim of the article is to evaluate the development of synchronisation of external macroeconomic imbalances in the EU countries using a comparative overview Macroeconomic Imbalances Procedures (MIP) in European countries in the years 2004–2014, and mainly to draw conclusions whether in the area of macroeconomic imbalances the Eurozone countries (monetary union, EMU) showed development in time different from the development in European countries outside the Eurozone which represent a lower degree of economic integration (common market, non EMU). For the creation of the spatial concept of macroeconomic imbalances detection and for the evaluation of their development synchronisation the Cluster Analysis Method has been used. Based on the comparison it has been proven that in the course of the observed eleven years in the area of macroeconomic imbalances synchronisation no clearly positive development occurred. In the observed period, countries outside the Eurozone responded to economic shocks with a higher degree of similarity and a lower degree of volatility than the Eurozone countries, and at the same time in these countries the remedy in the post-crisis period was faster and more intensive.

Keywords

External Macroeconomic Imbalances, Macroeconomic Imbalances Procedures, European Integration, Hypothesis of the Integration Process Endogeneity

I. Introduction

Macroeconomic balance is an important prerequisite of sustainable economic growth. It contributes to the creation of new jobs, facilitates structural changes and the inflow of foreign investments, results in better functioning of the financial sector and strengthens private investments. The occurrence of macroeconomic imbalances is caused by a number of factors. It is related to the level of economy, to the course of an economic cycle, to the situation on financial markets, to the behaviour of economic entities or to the monetary and fiscal policy. Global macroeconomic imbalances increased in the period of the world economy expansion as a result of high development of the financial sector, liberalisation of capital flows, sufficiency of free financial means, low interest rates and optimistic expectations of the future development. (P. Bednářová and V Hovorková Valentová, 2016)

Regulation (EU) No. 1176/2011 on prevention and correction of macroeconomic imbalances defines a macroeconomic imbalance as "*any trend giving rise to macroeconomic developments which are adversely affecting, or have the potential to adversely affect, the proper functioning of the economy of a Member State or of the Economic and Monetary Union, or of the Union as a whole*", while excessive imbalances are "*severe imbalances that jeopardise or risk jeopardising the proper functioning of the Economic and Monetary Union*" (EUR-Lex 2011). In the EU countries external macroeconomic imbalances are examined as part of the so called Macroeconomic Imbalances Procedure (MIP). The Macroeconomic Imbalances Procedure belongs to systemic anti-

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crisis measures which run in compliance with the so called European Semester (EC, 2016). The concept of the European Semester as part of the Europe 2020 Strategy[2] combines the concept of a macroeconomic policy and structural reform within which economic policies of individual member countries are coordinated through a number of tools not following one from the other up to that time, or through completely new tools. The European Semester is based on an intergovernmental agreement, its supranationality and integration into the European legislation is connected with the introduction of the so called Six-pack (EUR-Lex, 2011), which represents a package of six reform measures effective since December 13, 2011, for the whole EU.

Due to the mutual interconnectedness of EU economies, macroeconomic imbalances can flow from one country to another one and cause that the decrease in the performance of one country results in the deterioration of the standards of living in another one. In the last years problems in the Eurozone functioning have been pointed out by a growing flow of academic literature which illustrates that the Endogeneity Hypothesis in the process of integration is rather not supported in the case of the Eurozone (J. Hurník et al., 2010; W. Hankel et al., 2010; A. Estrada at al., 2013; A. Cavallo and A. Ribba, 2015). The Endogeneity Hypothesis was defined by J. Frankel and A. Rose (1998) as an extension to the Theory of Optimum Currency Areas (OCA)[3]. The central idea of the Endogeneity Hypothesis is the thesis that the criteria of an optimum monetary area (e.g. eight OCA criteria are defined by F. P. Mongelli (2002) and they are production factors mobility criterion, high economy openness criterion, production diversification criterion, fiscal integration criterion, price and wage flexibility criterion, financial market integration criterion, similar inflation development criterion and political integration criterion) are met after a monetary union is entered, it means ex-post and exactly due to the intensification of the mutual integration of the respective countries. P. Rozmahel (2006) writes, that *"the OCA Criteria Endogeneity Hypothesis is based on the existence of a mutual link between deepening economic integration of the participating countries in the process of monetary unification and satisfaction of OCA characteristics. The adoption of a single currency represents the elimination of a significant barrier in the mutual trade intensity, which leads to the intensification of economic links of the participating economies and subsequently to their economic cycles and shocks harmonisation. The thesis of the endogenous character of OCA criteria including economic cycles synchronism leads to the conclusion that countries entering a single monetary area meet the given criteria ex post – i.e. after the adoption of a single currency".*

The Endogeneity Hypothesis is traditionally tested in four areas, namely:

- economic integration endogeneity in price and trade,
- shock symmetry and output synchronization endogeneity,
- labour market flexibility endogeneity and
- financial integration endogeneity.

P. Bednářová (2016) extended the testing of the Endogeneity Hypothesis by a fifth area which is:

- macroeconomic imbalances synchronisation endogeneity.

The main aim of the article is to evaluate the spatial synchronisation of the development of external macroeconomic imbalances in the EU countries and to compare the achieved results for groups of

[2] Europe 2020: Strategy for smart, sustainable and inclusive growth; full wording: EUROPEAN COMISSION. EUROPE 2020: Strategy for smart, sustainable and inclusive growth. [online]. 2010. Europe 2020, apart from other things, focuses on closer cooperation within EMU. It draws attention to the necessity to strengthen coordination which would include a framework for more detailed and broader supervision which would monitor not only budget discipline but also the development of competitiveness and macroeconomic imbalances.

[3] The Theory of Optimum Currency Areas was published in 1961 by R. Mundell in American Economic Review in an article with the title The Theory of Optimum Currency Areas. (Mundell, 1961). Based on this theory the suitability of entry of a country into a monetary union is evaluated.

the EU countries, the Eurozone countries and countries outside the Eurozone. The first partial aim is to define macroeconomic imbalances in relation with the Macroeconomic Imbalances Procedure in the EU countries. The second partial aim is to present the results of the Cluster Analysis Statistical Method on the example of external macroeconomic imbalances in the EU countries. The research questions are directed to the areas whether it is possible to find and identify clusters of countries according to the mutual similarity of the development of their macroeconomic imbalances. Is it possible to identify the causes of this similarity? Does the development of macroeconomic imbalances in relation to an economic cycle in the Eurozone countries differ from the development in the EU countries which are not members of the Eurozone?

II. External macroeconomic imbalances

Macroeconomic imbalance can be measured and evaluated by means of indicators the aim of which is to comprehensively describe internal macroeconomic imbalances and external imbalances and economy competitiveness. The list of these specific indicators is included in Regulation No. 1176/2011 (EUR-Lex, 2011) referred to as the *Scoreboard*. The Scoreboard includes 5 indicators of external macroeconomic imbalances, 6 indicators of internal macroeconomic imbalances and 3 new indicators of unemployment. As the theoretical basis for the selection of suitable indicators of macroeconomic imbalances in the Scoreboard the study by J. Frankel and G. Saravelos (2012) was used with the title *Can Leading Indicators Assess Country Vulnerability? Evidence from the 2008–09 Global Financial Crisis.* To design the Scoreboard, the results of the study were used by the European Commission which, in selecting and quantification of the indicators, cooperated with the Council, European Parliament and European Systemic Risk-Board (ESRB). *"The Scoreboard is formed by several relevant, practical, straightforward, measurable and accessible macroeconomic and macrofinancial indicators for the member countries. Its purpose is to enable timely indication of a macroeconomic imbalance which appears for only a short time as well as imbalance which occurs as a result of structural and long lasting trends."* (EC, 2011) The existence of macroeconomic imbalances in the individual countries is detected in the case when the indicator threshold values are exceeded and these thresholds can differ for countries which are part of the Eurozone and for the European countries which have not been participating in the project of the single currency yet. The indicators of external macroeconomic imbalances from the Scoreboard including their calculation and thresholds are shown in the following Table 1.

Table 1 Indicators of external imbalances and competitiveness (MIE)

Current account balance, % of GDP, 3 year average (MIE_CA)	$\frac{\left(\frac{CA}{GDP}\right)_t + \left(\frac{CA}{GDP}\right)_{t-1} + \left(\frac{CA}{GDP}\right)_{t-2}}{3} . 100$	< -4 %, >6 %
Net international investment position, % of GDP (MIE_NIIP)	$\frac{NIIP_t}{GDP_t} . 100$	< -35 %
Real effective exchange rate - 42 trading partners, HICP deflator, 3 years % change (MIE_REER)	$\frac{(REER\_HISC\_42)_t - (REER\_HISC\_42)_{t-3}}{(REER\_HISC\_42)_{t-3}} . 100$	± 5 % (EA) ± 11 % (non EA)
Export market share - % of world exports, 5 years % change (MIE_EXP)	$\frac{\left(\frac{EXP_c}{EXP_{world}}\right)_t - \left(\frac{EXP_c}{EXP_{world}}\right)_{t-5}}{\left(\frac{EXP_c}{EXP_{world}}\right)_{t-5}} . 100$	< -6 %
Nominal unit labour cost index (2010=100), 3 years % change (MIE_ULC)	$\frac{(ULC)_t - (ULC)_{t-3}}{(ULC)_{t-3}} . 100$	+ 9 % (EA) + 12 % (non EA)

Source: Authors' own calculation based on the data from EC (2011)

The supervision over macroeconomic imbalances has to be based on high quality and reliable statistical data. The legal framework for European statistics is provided by Cl. 338 of the Treaty on the Functioning of the EU (ČSÚ, 2016), where it is also stated that *"In the production of Union*

statistics, impartiality, reliability, objectivity, scientific independence, cost-effectiveness and the confidentiality of statistical information are respected; economic operators may not incur excessive costs". With the aim to ensure reliable and independent statistics the member states should ensure professional independence of internal statistical offices in accordance with the European Statistics Code of Practice, as it is set in the Regulation of the European Parliament and Council (EU) No. 223/2009 dated 11/03/2009 on European Statistics and the Regulation of the European Parliament and the Council (EC) No. 223/2009 on European Statistics (EUR-Lex, 2015).

III. The methodology of the spatial concept of macroeconomic imbalances detection

For the illustration of the spatial concept of macroeconomic imbalances detection and for the evaluation of their development synchronisation, the Cluster Analysis Method can be used. The Cluster Analysis Method is based on the classification of the observations of a statistical sample into groups (clusters) in such a way so that countries belonging to the same cluster were very similar from the viewpoint of the characteristics monitored and countries belonging to different clusters were very different (Stankovičová, Vojtková, 2007). The selection of variables (i.e. individual EU members) which will represent specific clusters, was performed on the basis of the calculation of the degree of similarity, or distance, specifically by means of the standardized squared Euclidian distance (Hebák, Hustopecký, Jarošová, Pacáková, 2007, p. 41).

$$D_N(i,i') = \sqrt{\sum_{j=1}^{p} d_j^2(i;i') / s^2(x_j)} \tag{1}$$

where $d_j(i;i')$ is the distance between the i-th and i´-th variable,

$i \neq i' = 1,2,...n$, i.e. $d_j(i;i') = x_{ij} - x_{i'j}$, $j = 1,2,..., p$ and $s^2(x_j)$ is a sample variance of the *j*-th variable.

This metric requires the variables not to be correlated. For the verification of this hypothesis, the t-test about the significance of the correlation coefficient was used which presupposes that the pair coefficient of correlation is not statistically significant (equals a zero), which expresses the assumption that the selected variables are not correlated. The alternative hypothesis was formulated as two tailed; i.e. the correlation coefficient is not equal to zero. The test statistic used is t-statistic which is distributed as Student´s t distribution with $\nu = n-2$ (Pacáková et al. 2009, p. 225).

$$t = \frac{r_{xy}}{\sqrt{1-r_{xy}^2}} \cdot \sqrt{n-2} \tag{2}$$

In the tested sample there are all values of the test criterion which in their absolute value are higher or equal to the quantile of the Student's distribution $t_{1-\frac{\alpha}{2}}(n-2)$.

The Hierarchical Agglomerative Clustering Algorithm of the Furthest Neighbour Method was applied to the observed data. This methods resides in putting together into a specific cluster such observations between which the distance between their furthest elements is minimal (Stankovičová, Vojtková, 2007). A problem which may occur in clustering of observations is the occurrence of the so called **outlier observations,** i.e. observations which significantly differ from others. If basic clustering algorithms are applied to a data sample in which there are outlier observations, these variable from independent clusters. If outlier observations are detected, these variable should thus be excluded from the initial matrix because they could cause an undesirable distortion of results.

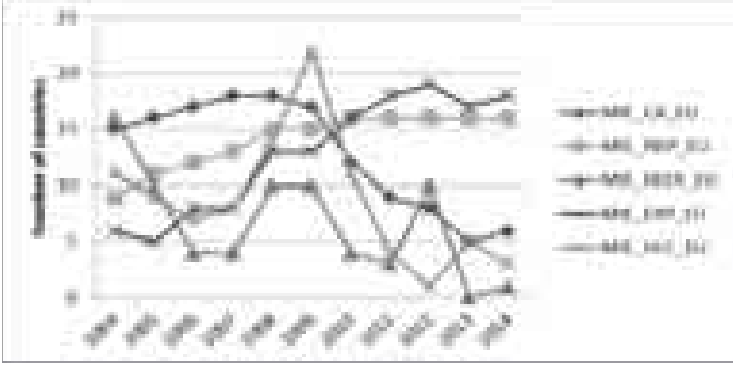
The problems of outlier observations identification are dealt with by e.g. V. Vintrová, T. Vintr, H. Řezanková and V. Úradníček (2014). Results of the hierarchical clustering algorithms can be graphically illustrated by means of tree diagrams, so called dendrograms, which will be used in the following analysis. Based on them and also by means of heuristic approach it is possible to determine a suitable number of clusters, which is a prerequisite for gaining clear and well interpretable results. The distance of the connection of countries within clusters determines mutual similarity of values of macroeconomic imbalances indicators, i.e. the lower the distance is the more similar the countries inside the cluster are and vice versa.

For the identification of macroeconomic imbalances and their development 5 external macroeconomic imbalances indicators were used from the Scoreboard from Macroeconomic Imbalances Procedure (MIP) in the European Union. The analysis will be performed for the year 2004 (the year when 10 new countries entered the EU, the firsts year when macroeconomic imbalances were monitored according to the definitions by the Eurostat), for the year 2007 (the year before the economic crisis), for the year 2010 (the year with the most significant accumulative effect of the course of the economic crisis in the EU countries on macroeconomic imbalances) and for the year 2014. Macroeconomic imbalances were observed in all the EU countries; the studied sample includes: 1. Belgium (BE), 2. Bulgaria (BG), 3. Czech Republic (CZ), 4. Denmark (DK), 5. Germany (DE), 6. Estonia (EE), 7. Ireland (IE), 8. Greece (EL), 9. Spain (ES), 10. France (FR), 11. Croatia (HR), 12. Italy (IT), 13. Cyprus (CY), 14. Latvia (LV), 15. Lithuania (LT), 16. Luxembourg (LU), 17. Hungary (HU), 18. Malta (MT), 19. Netherlands (NL), 20. Austria (AT), 21. Poland (PL), 22. Portugal (PT), 23. Romania (RO), 24. Slovenia (SI), 25. Slovakia (SK), 26. Finland (FI), 27. Sweden (SE) a 28. The United Kingdom (UK). The sources of the data were as follows: *Alert Mechanism Report 2012, 2013, 2014, 2015, 2016* (Reports of the Commission to the European Parliament, Council, European Central Bank and European Economic and Social Committee, prepared in accordance with Clauses 3 and 4 of regulation (EU) 1176/2011 on prevention and correction of macroeconomic imbalances defines a macroeconomic imbalances); the calculations and graphs were prepared by means of statistical software Statgraphics Centurion XVI.

IV. The development of the number of countries with an external macroeconomic imbalance

The following graph on Figure 1 shows the number of European countries with the occurrence of an external imbalance in the monitored period.

Figure 1 The development of the number of countries with an external macroeconomic imbalance



Source: authors' own: EC: Statistical Annex of AMR 2015

From the Figure 1 it is obvious that the origination, existence and development of external macroeconomic imbalances are causally related to the economic development in European countries, or to the degree of the growth of their real GDP. According to the European Commission

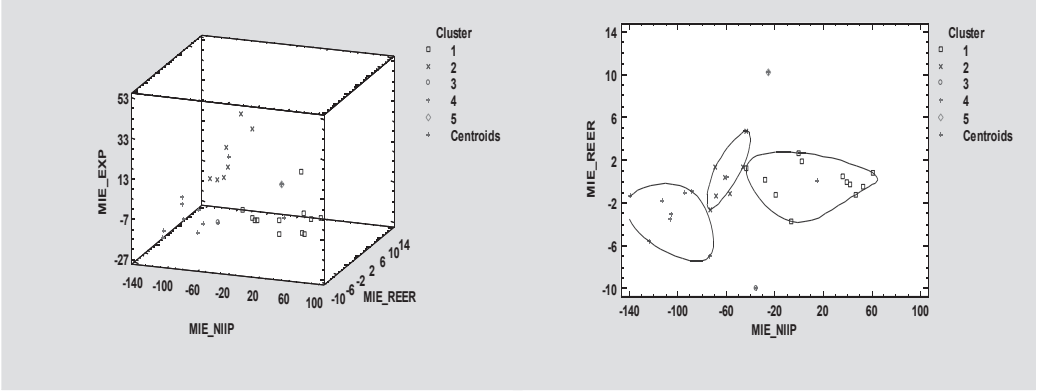
(EC 2013) the growth potential of the EU has significantly decreased in the last seven years, i.e. since the crisis broke out. According to the EC's estimations, the annual growth of the potential EU product decreased by a little more than 2% in 2005 and less than 1% in 2014. According to Eurostat Data (2016) the total performance of the economy of the EU member countries in the period of 2004–2013 showed the average speed of growth of 1.1% a year and of the Eurozone 0.8%, and in both the cases there is a significant difference in the development in the years 2004–2008 and 2009–2013. In 2014, the EU GDP was 13,075,000 million EUR, in this total amount the share of the Eurozone was 73.4% and the share of the five biggest economies of the EU member countries together (Germany, France, the UK, Italy and Spain) was 71.0%. Apart from a long-term negative demographic development the medium-term slowdown in the economic activity can be accounted to small growth of productivity and slow accumulation of capital (Havik, K. et al., 2014). The post-crisis development in the European countries worsened external imbalances mainly in the indicators of Net International Investment Position and their Shares in Export Markets. On the other hand, a decreasing number of countries struggled with imbalances in the Three-Year Backward Moving Average of the Current Account Balance, a sharp decrease occurred in a number of countries with an imbalance in the Changes in the Unit Labour Costs. A change in the trend of development since 2013 which will directly reflect the effects of economic revival in the EU countries represents an interesting finding.

V. External macroeconomic imbalances in the EU countries in 2014

In 2014 slight economic recovery occurred in the EU countries. Economic performance in the EU countries increased by 1.4% in 2014; in the Eurozone the real GDP increased by 0.9%. Although consumption has recently strengthened, domestic demand remains subdued partly in light of significant deleveraging pressures in several Member States. The given development was reflected in the growth of current account surplus in the Eurozone, which was also supported by the decrease in oil prices from the year 2014 and the lower exchange rate of Euro. Since the middle of the year also external demand had been considerably decelerating as a result of negative geopolitical factors as well as rather significant economic deceleration in China and other developing countries. If follows from the Alert Mechanism Report 2016 (AMR, 2016, p. 7) that macroeconomic imbalances in European countries in 2014 continued to be rectified, the economies continued in the elimination of their external and internal imbalances, but their increased levels of indebtedness represented a big drawback. High and unsustainable current account deficits were reduced and in the majority of the countries in all sectors the process of "balance recovery" was in progress. Also the development of cost competitiveness corresponded to the needs of external rectification. Negative situation still remained in the amount of liabilities and the quality of their rectification. In a number of member countries private and public, external and internal liabilities reached historically the highest values and they represented considerable obstacles to economic recovery, employment growth and financial stability in the EU. In the countries where high current account surpluses remained, big imbalance of savings and investments occurred which reflected bad distribution of sources.

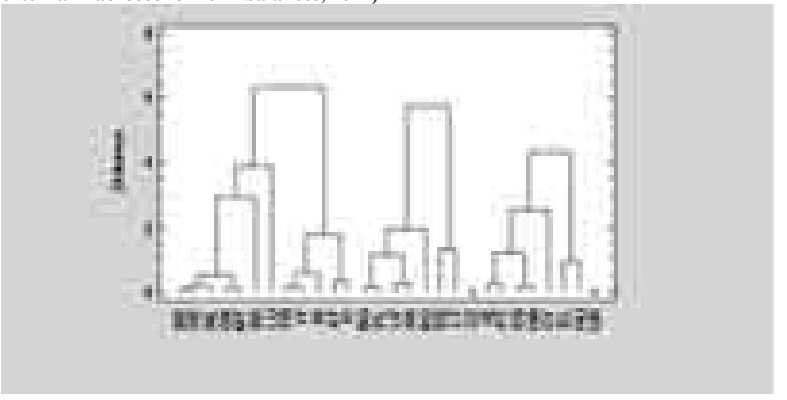
For the purpose of the Cluster Analysis, three mutually uncorrelated indicators of external imbalances were used, namely: Net International Investment Position as a percent of GDP (MIE_NIIP), Percentage Change over Three Years of the Real Effective Exchange Rate deflated by HISC relative to a set of 41 industrial countries (MIE_REER), Percentage Change of Export Market Shares over five years (MIE_EXP). Due to the suspicion that the UK ($F = 2.958$, P-Value = 0.052) and the Czech Republic ($F = 2.235$, P-Value = 0.109) were outlier variable, these two countries were tested, when in the case of both the countries on the significance level of 5% the hypothesis was not rejected that the countries are not outlier variable and therefore both entered the analysis. The individual clusters formed by putting together countries based on close similarity of external macroeconomic imbalances are illustrated in the following Figure 2, the resulting dendrogram in Figure 3.

Figure 2 3D cluster scatterplot and cluster scatterplot (External macroeconomic imbalances, 2014)



Source: authors' own data gained by means of the programme STATGRAPHICS Centurion XVI

Figure 3 Resulting dendrogram (the Furthest Neighbour Method, the Standardized Squared Euclidian distance, external macroeconomic imbalances, 2014)



Source: authors' own data gained by means of the programme STATGRAPHICS Centurion XVI

The figures show relatively high similarity of the indicator values for the studied countries. By means of the analysis, only three clusters of countries and independent countries (United Kingdom and the Czech Republic) were detected where the values of the Percentage Change over Three Years of the Real Effective Exchange Rate deflated by HISC relative to a set of 42 industrial countries (MIE_REER) were significantly different from the values found in other European economies. In the case of the Czech Republic, the value of the indicator reflected 10% devaluation of the Czech Crown rate into which the introduction of the exchange rate setting to Euro by the Czech National Bank was reflected. The current account balance significantly improved and in 2014 it was in surplus. The Net International Investment Position (MIE_NIIP) had been gradually decreasing and remained just slightly below the threshold. The risks connected with the external position were either limited because many international liabilities were direct foreign investments and the net foreign debt thus remained very low. The competitiveness was, with regards to the moderate growth of the Unit Labour Costs, stable (AMR, 2016). To the contrary, for the UK the value of 10.2% was the result of the real appreciation of British Pound towards Euro. In 2014 the current account deficit continued to increase, which was caused by the extension of the deficit of the main income, the Net International Investment Position (MIE_NIIP) was negative and the

Accumulated Losses of Export Market Shares in Per Cent (MIE_EXP) decreased in 2014 as a result of the annual increase in shares.

The most numerous cluster was formed by Belgium, Germany, Netherlands, Denmark, Malta, Sweden and Luxembourg, the more distantly in connection with France, Italy, Slovenia, Austria and Finland, which are European countries which in 2014, also due to lower prices of oil and more favourable development of exchange rates, had current account surpluses. Their Net International Investment Position (MIE_NIIP) was very high and it continued to grow fast. In 2014 the indicator of Losses of Export Market Shares in % (MIE_EXP) improved again and it was gradually approaching the threshold and the countries had stable development of the Percentage Change of Unit Labour Nominal Costs (MIE_ULC). The values of macroeconomic imbalances indicators and their development confirmed stable or even growing external performance. In another cluster Bulgaria, Poland, Latvia, Slovakia, Romania and more distant Estonia and Lithuania were put together. These economies remained vulnerable because of the high volume of external liabilities although their Net External Position (MIE_CA) continued to improve because of the positive balance of their current and capital accounts and because of the growing volume of international activities. The cost competitiveness of the countries was influenced by the increase in the Nominal Unit Labour Costs (MIE_ULC) which reflected limited offer of labour force, economic growth driven by demand, but also the effect of catching up with other economies. The indicator of the Percentage Change over Three years of Unit Labour Nominal Costs (MIE_ULC) exceeded the threshold in Estonia, Latvia and Bulgaria. After the decrease in the unit labour cost in the countries where there is higher need of rectification, slight, but still noticeable, relative decrease in Real Effective Exchange Rate (MIE_REER) followed, which demonstrated certain sensitivity of margins to unfavourable economic conditions (AMR, 2016). In the last cluster Ireland, Portugal, Spain, Croatia, Cyprus, Greece and Hungary were joined together. In these countries external balance recovery by means of vigorous rectification of current accounts continued which lead to their slight surpluses, also in connection with better conditions of economic growth which are further counted with in the medium-term. In 2014 the Net International Investment Position (MIE_NIIP) was strongly negative in all the countries ranging between –75% GDP (Hungary) up to –140% GDP (Cyprus). The Accumulated Losses of Export Market Shares (MIE_EXP) decreased in these countries and the improved export performance was partly caused by recovered cost competitiveness which was apparent from the data on the negative growth of nominal unit labour costs (MIE_ULC) and real exchange rate weakening (MIE_REER).

VI. Conclusion

The main aim of the article was to evaluate the development of external macroeconomic imbalances in the EU countries to formulate conclusions in relation to the Endogeneity of the Optimum Currency Area Criteria Hypothesis. In the EU countries, external macroeconomic imbalances are identified within the Macroeconomic Imbalances Procedure (MIP). The specific indicators are delimited in the so called Scoreboard, which defines five indicators of external macroeconomic imbalances and their thresholds. For the illustration of the spatial concept of macroeconomic imbalances detection and for the evaluation of their development synchronisation the Cluster Analysis Method has been used. It is based on sorting entities of a statistical sample into groups (clusters) in such a way so that the entities belonging to one cluster were very similar from the viewpoint of the studied features. The variables were selected according to the calculation of the degree of similarity, it means of the standardized squared Euclidian distance. Out of the possible hierarchical agglomerating clustering algorithms, the Method of the Furthest Neighbour used.

By means of the cluster analysis based on the values of external macroeconomic imbalances, three clusters of countries and two independent countries (the United Kingdom and the Czech Republic) were identified in 2014. The distance of the mutual connection with the values of six, indicate relatively high similarity of the indicators values in the studied countries. In the case of the Czech

Republic, the value of the indicator reflected 10% devaluation of the Czech Crown rate into which the introduction of the exchange rate setting to Euro by the Czech National Bank was reflected. The current account balance significantly improved and in 2014 it was in surplus. The Net International Investment Position (MIE_NIIP) had been gradually decreasing and remained just slightly below the threshold. The risks connected with the external position were either limited because many international liabilities were direct foreign investments and the net foreign debt thus remained very low. The competitiveness was, with regards to the moderate growth of the Unit Labour Costs, stable

It follows from the analysis performed that in the course of the studied eleven years that there was not clearly positive development in the area of synchronization from the viewpoint of external macroeconomic imbalances. The gained results thus do not support the Endogeneity of the Optimum Currency Area Criteria Hypothesis and it can be recommended for a country joining a monetary union to put bigger emphasis on meeting the criteria ex-ante (not ex-post). The presented conclusions can also be used to support the scenario of the so called Multiple Speed Europe as a part of the search for a well-functioning arrangement of the European Union.

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