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Real convergence vs. macroeconomic imbalances in the EU

Summary

The nominal convergence criteria established in the Maastricht Treaty were assumed to increase also the real convergence degree in the euro area (EA). The first decade of the EA functioning showed that real and nominal divergence between members of the common currency area persisted. This paper provides an extended analysis of the convergence degree of euro candidates and the EA member states with the common currency area. In addition, it aims to verify whether lack of macroeconomic implies higher rate of real convergence. The analysis indicates that the hypothesis of the common currency area endogeneity, assuming that countries which faced challenges with fulfilling the nominal convergence criteria even before euro adoption would converge in real terms much faster after the currency union accession, did not come true. On one hand, most EA member states, in case of hypothetical reassessment, might have problems with meeting the Maastricht criteria after euro adoption and are still not highly converged in terms of economic structure. On the other hand, the business cycles synchronization has been observed and the correlation of cyclical components is still increasing which is undoubtedly advantageous from the perspective of common monetary policy and its adequacy for the EA member states. However, in the time of crisis we could observe that even highly converged countries reported alarming macroeconomic imbalances. Euro candidates should draw conclusions from the EA members' experience and take into account, while their preparations for the common currency adoption, that a high degree of the nominal and real convergence is not sufficient to fully benefit from the EA membership.

Keywords: real convergence, business cycle synchronization, endogeneity, macroeconomic imbalances

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1. Introduction

The common currency adoption was perceived as a chance to bring the European Union (EU) member states closer in terms of economic structure and business cycles synchronization. Sustainable nominal and real convergence are crucial in the process of monetary integration, especially from the perspective of effective monetary policy for all euro area (EA) members. Due to fixed nominal exchange rate within the currency area and resignation from the sovereign monetary policy, adjustments to asymmetric shocks take place in the real sector if the alternative adjustment mechanisms are not effective enough. The crisis has shown that high and sustainable degree of real convergence with euro area plays crucial role in monetary integration. The real convergence of the EA member states was also assumed to be important from the perspective of prevention from the country-specific macroeconomic imbalances. However, the countries' experiences from the crisis time clearly indicate that even significant degree of GDP structure similarity and business cycles synchronization with the euro area do not guarantee the proper functioning in the common currency area. The first decade of the EA functioning showed that the hypothesis of the common currency area endogeneity, assuming that countries which faced problems with meeting the reference values of the nominal convergence criteria before euro adoption would be able to converge in real terms much faster after full integration with the currency area, was not justified. In case of hypothetical reassessment, most EA member states would have not fulfilled the Maastricht criteria after euro adoption. Moreover, they are also not highly converged with each other in real terms. The nominal and real divergence within the EA reflects presence of macroeconomic imbalances of its member states. To decrease the risk of macroeconomic imbalances occurrence it is necessary to maintain high level of competitiveness, especially in terms of labour and product market elasticity as well as adequate fiscal and macroprudential policy. This paper provides an extended analysis of the convergence degree of euro candidates and the EA member states with the common currency area and lets indicate that euro adoption does not always contribute to higher real convergence as it used to be assumed. In addition, it aims to verify whether lack of macroeconomic implies higher rate of real convergence.

This paper is structured as follows: Section 2 reviews the theory of optimum currency areas and its development; Section 3 describes the methodology, Section 4 presents the results of empirical study as well as their implications and Section 5 concludes.

2. Different approaches to the theory of optimum currency areas

The theory of optimum currency areas[2] assumes that benefits from currency union membership are greater in case of open economies with intensive trade exchange and synchronized business cycles. According to this theory, labour mobility, wage elasticity, financial and fiscal integration play crucial role for the decision of the commom currency area creation. According to the classic theory of optimum currency areas, countries, which the currency area consists of, should have diverse but similar structure of production, demand and exports[3] as well as intense trade exchange with each other[4]. Fulfillment of those criteria decreases the risk of assymetric shocks and increases the benefits from limited transaction costs and the exchange rate risk.

However, the traditional approach has been criticised. Krugman[5] pointed out that an increase in trade exchange between countries might lead to the country's specialization in particular branches of industry which in turn might result in gaining the comparative advantage (the specialization hypothesis). In case of assymetric shock that may appear in a given branch, its consequences may be more noticeable for the particular economy and not for the currency area as a whole. The business cycles of the common currency area members would have become then asynchronous.

In response to Krugman's view Frankel and Rose[6] formulated, based on empirical analysis (panel of 20 industrialized countries covering 30 years), a hypothesis indicating that an increase in intensity of trade exchange between countries might lead to synchronization of business cycles (the endogeneity hypothesis). The EMU entry per se may accelerate trade expansion and an increased integration may result in lower risk of assymetric demand shocks which, in turn, should imply higher degree of business cycles correlation. As a result, this led to the formulation of the hypothesis that the criteria of optimal common currency areas (OCA) were endogeneous and countries which did not fulfill them before the common currency (euro) adoption, should have experienced an acceleration of real convergence process after the common currency area (euro area) accession.

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2 R. Mundell, *A theory of optimum currency areas*, "American Economic Review" 1961, vol. 51(4).

3 P. Kenen, *The theory of optimum currency areas: An eclectic view*, in: *Monetary Problems in the International Economy*, eds R.A. Mundell, A.K. Swoboda, University of Chicago Press, Chicago 1969.

4 R. McKinnon, *Optimum currency areas*, "American Economic Review" 1963, vol. 53(4).

5 P. Krugman, *Geography and trade*, MIT Press, Cambridge 1991.

6 J.A. Frankel, A.K. Rose, *Is EMU more justifiable ex-post than ex-ante?*, "European Economic Review" 1997, vol. 41(3); J.A. Frankel, A.K. Rose, *Estimating the effect of currency unions on trade and output*, NBER Working Papers no. 857, 2000.

The hypothesis of endogeneity of the common currency areas played crucial role in the Economic and Monetary Union (EMU) creation in Europe. It strengthened the political argumentation towards the next phase of integration in the European Union (EU) and might have also influenced the decision process concerning the EA accession by South European countries, as faster pace of these countries' convergence process after euro adoption that was assumed.

The experience from the first decade of the EA functioning is not sufficient to unambiguously confirm the hypothesis of endogeneity of the common currency areas. Paetzold[7] points out, based on the empirical analysis, that the strong convergence process of the EU member states (EU-15) in 1980–2005 in terms of the welfare level was mainly caused by the increase in social spendings (the catch-up policy) in Southern Europe. Tatomir and Aleje[8] indicate that an increase in the level of real convergence of Central and Eastern Europe (CEE) countries towards the EA has been observed. Only in case of Estonia, Hungary and Slovenia a significant increase in similarity to GIIPS countries was reported in 2010. However, the large scale of trade exchange and improvement of macroeconomic outlook took place not only in the EA member states[9]. The faster economic growth should thus not be attributed to the common currency adoption. The more the correlation of growth indicators increased, the more the correlation between the EA members and euro candidates raised. European countries became more homogenous in terms of the economic structure[10]. Nevertheless, the more detailed analysis let divide the countries into groups which differed in terms of the factor stimulating the economic growth after the crisis. On the other hand, in the case of periphery countries stronger convegence process was observed in the decade before euro adoption than afterwards. The so much expected acceleration of convergence process did not appear probably due to dire economic and social conditions or the expected improvement was not sufficient to allow smooth adjustment after the crisis[11].

According to the convergence hypothesis[12] there is a tendency to equalize the level of economic development and living standard between countries. The lower developed

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7 J. Paetzold, *The convergence of welfare state indicators in Europe: evidence from panel data*, University of Salzburg, Working Papers no. 201204.

8 C.F. Tatomir, Aleje I., *Laggards or performers? CEE vs PIIGS countries' catch up with the euro area in the last ten years*, MPRA, Working Papers no. 35715, 2011.

9 T.D. Willett, O. Permpoon, C. Wihlborg, *Endogenous OCA Analysis and the Early Euro Experience*, "World Economy" 2010, vol. 33, no. 7.

10 A. Melihovs, I. Kasjanos, *The convergence processes in Europe and Latvia*, Latvijas Banka, 2011.

11 C. Vieira, I. Vieira, A*ssessing the endogeneity of OCA conditions in the EMU*, University of Manchester, 2012, vol. 80.

12 A. Gerschenkron, *Economic Backwardness in Historical Perspective*, Harvard University Press, Cambridge 1962.

countries reach higher rates of return which enables to narrow the distance to the high developed countries – catch-up effect[13]. European Commission[14] classified Bulgaria, the Czech Republic, Estonia, Latvia, Lithuania, Hungary, Poland, Romania, and Slovakia as catching-up countries (Croatia was not included in the cluster analysis due to data incompletness. However, for analytical purposes it is dealt within the group of 'catching-up countries').

The differences in the structure of GDP between the developed and catching-up countries are absolutely natural and do not have to neccessarily imply negative consequences. The catching-up countries are characterised by the higher share of agriculture and industry as well as lower share of services in GDP than the developed countries. Those two groups differ also in the structure of private consumption – the structure of catching-up countries' private consumption is dominated by expenses on inferior goods. The structure of investment is not too similar either[15]. In catching-up countries there are lower shares of capital expeditures on dwellings but simultaneously higher investment outlays on other buildings and infrastructure which will most probably result in greater competitiveness of those economies in the future. Due to the state of development of catching-up countries, they differ from the developed countries but it should lead in long term to higher level of real convergence between those two groups of countries.

3. The methodological issues

In this paper we analyse real convergence in terms of business cycles synchronization, similarity of economic structure and income (β -) convergence.

The income convergence is measured as a net national income level (per capita) relative to the EA average.

In this analysis we used an approach of analyzing business cycles in terms of deviations from trend. The deviations of current economic activity from potential one were separated from the initial time series by using Christiano-Fitzgerald band pass filter[16]. The approximation of the band pass filter can be formulated as follows:

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13 B. Czarny, *Wzrost gospodarczy*, "Bank i Kredyt" 2000, nr 32(11).

14 *Industrial Performance Scoreboard*, European Commission, 2013.

15 *Monitor konwergencji realnej*, Ministerstwo Finansów, 2013.

16 L.J. Christiano, T.J. Fitzgerald, *The Band Pass Filter*, "International Economic Review" 2003, vol. 44(2); see also P. Skrzypczyński, *Wahania aktywności gospodarczej w Polsce i strefie euro*, "Materiały i Studia NBP" 2008, nr 227.

$$\hat{y}_t^c = \sum_{j=-(T-t)}^{t-1} \hat{B}_{j,t}^{CF} y_{t-j} \tag{1}$$

where t = 1,2,...,T and with a frequency response function of:

$$\hat{B}^{CF}\left(e^{-i\omega}\right) = \sum_{j=-(T-t)}^{t-1} \hat{B}_{j,t}^{CF} e^{i\omega j} \tag{2}$$

The filter weights $\hat{B}_{j,t}^{CF}$ are the results of the following loss function minimization:

$$Q = \int_{-\pi}^{\pi} |B\left(e^{-i\omega}\right) - \hat{B}^{CF}\left(e^{-i\omega}\right)|^2 f_y\left(\omega\right) d\omega \tag{3}$$

where $B\left(e^{-i\omega}\right)$ represents a response function of the band pass filter and $f_y\left(\omega\right)$ is a spectral density of y_t at frequency ω.

Changes of the convergence rate over time were analysed with the use of recursive correlation coefficients of separated cyclical components. In result, a monotonous increase in the correlation coefficient over time may signal an increase in the business cycle convergence of a given country to the euro area. The recursive correlation coefficients were calculated for the periods of 9 years (the first period covered 1998–2005) which let have included the whole business cycle in each period (assuming, according to Burns and Mitchell, that business cycle consists of fluctuations from 1.5 to 8 years). For the reason of intuitive plotting of the results, the value of correlation coefficient in a given period is assigned to the last period in the subsample[17].

In the analysis of economic structure similarity to the reference economy (benchmark), i.e. euro area, we took into acount structure of GDP, private consumption and investment. The basic analysis concerns GDP structure where we use Eurostat data presenting national accounts divided into 10 branches. To measure the similarity we used Krugman Index:

$$SDI_{1,EA} = \sum_{k=1}^{K} \left| \left(S_{k,i} - S_{k,EA} \right) \right| \tag{4}$$

[17] K. Konopczak, *Analiza zbieżności cyklu koniunkturalnego gospodarki polskiej ze strefą euro na tle krajów Europy Środkowo-Wschodniej oraz państw członkowskich strefy euro. Raport na temat pełnego uczestnictwa Rzeczypospolitej Polskiej w trzecim etapie UGW*, NBP, 2009; K. Konopczak, K. Marczewski, *Why so different from other CEECs – Poland's cyclical divergence from the euro area during the recent financial crisis*, "Bank i Kredyt" 2011, nr 42 (2).

where $S_{k,i}$ is the share of sector I in GDP structure of country k. $S_{k,EA}$ analogically describes the share of sector i in the structure of GDP of the euro area. The values of Krugman Index are from the interval [0,1] – the closer value to zero, the greater similarity of a country to the EA GDP structure.

In cluster analysis we used k-means algorithm to partition the input data set into 2 or 3 clusters. We aimed at identifying the groups of countries with high or low convergence degree as well as potential outliers. k-means clustering aims at partitioning n observations into k clusters (S), with each observation classified to the cluster with the nearest mean – using an iterative refinement technique, so to minimize the within-cluster sum of squares (WCSS):

$$argmin_s \sum_{i=1}^{K} \sum_{x_j \epsilon S_i} \| x_j - \mu_i \|^2 \tag{5}$$

where μ_i is the mean of points in S_i.

In the panel analysis we used generalized estimating equations (GEE) to estimate parameters of generalized linear model with a possible unknown correlation between the outcomes[18], using the following formula:

$$logit\left\{E\left(y_{it}\right)\right\} = x_{it}\beta, \;\; y \sim binomial \tag{6}$$

We decided to use this methodology as it provides consistent parameter estimates even if the covariance structure is misspecified. Besides, GEE focus on estimating average response over the population which is advantageous from the perspective of analyzing the EA-average effects.

4. The analysis results

In this paper we present the results of the analysis of real convergence in terms of business cycles synchronization, similarity of economic structure and income (β -) convergence. The analysis covers both the EA member states and euro candidates[19].

[18] K.-Y. Liang, S.L. Zeger, *Longitudinal data analysis using generalized linear models*, "Biometrika" 1986, vol. 73.

[19] Due to implementation of new statistical methodology by Eurostat (ESA 2010), data for Ireland and Slovakia are not available yet. Luxembourg was excluded from the analysis due to widely developed financial sector.

4.1. Business cycles synchronization

The analysis of the business cycles synchronization indicates continuous increase in the convergence rate in this aspect for most countries (see figure 1). The fact of well-synchronized GDP cyclical component in case of most EA member states is undoubtedly advantageous from the perspective of common monetary policy and its adequacy for particular EA member states.

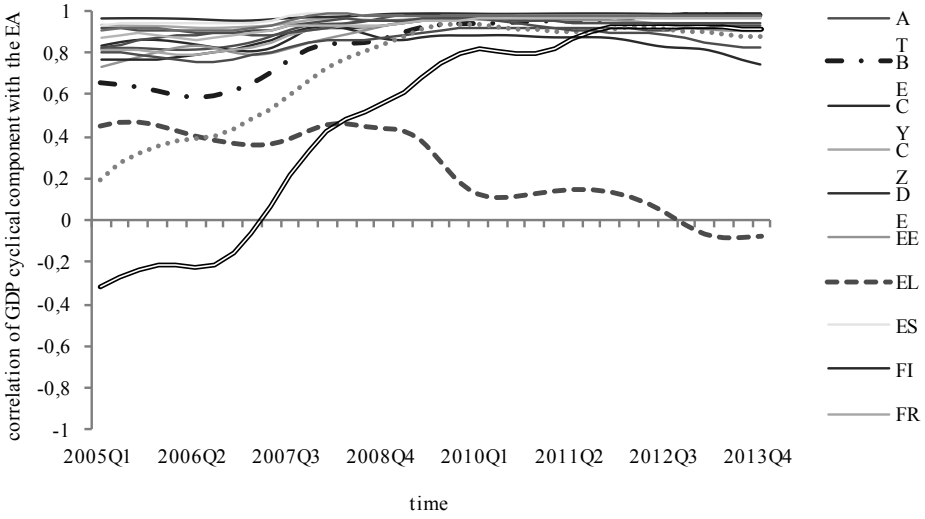

Figure 1. Business cycles synchronization with the EA

Source: Author's calculations/Eurostat.

It is worth mentioning that Poland, right after the EU accession, significantly differed from other countries the analysis covered but a high convergence rate with the euro area was reached before adoption of the common currency. Since euro adoption Poland has managed to join the group of countries reporting the highest convergence rate with the euro area. While convergence of Greece with the EA is still worsening in terms of cyclical component of GDP.

4.2. GDP structure

The comparison of GDP structures of the EA members, expressed by Krugman Index (see figure 2), indicates that a decrease in economic similarity to the euro area was observed in case of most countries. The convergence level of Italy, Finland, Slovenia, Portugal, Estonia and Latvia to the EA remained approximately unchanged.

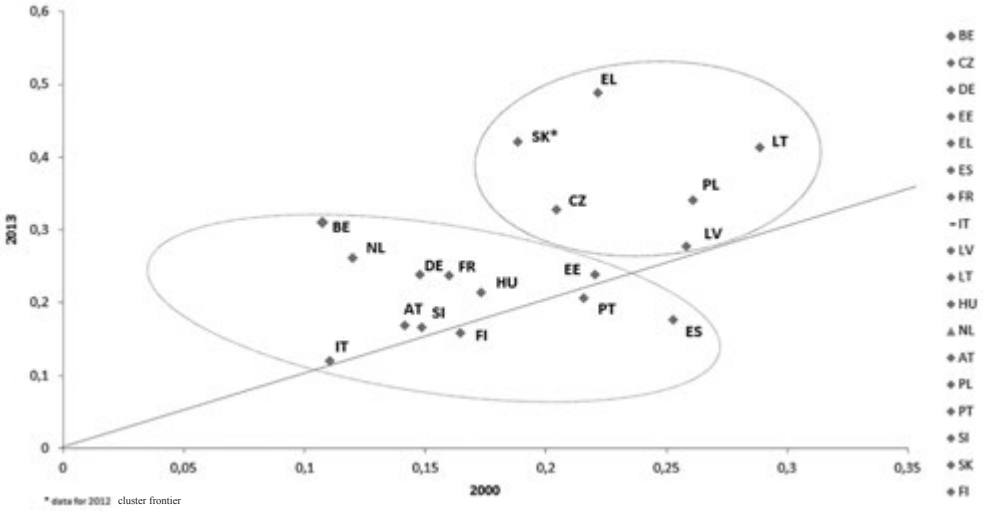

Figure 2. GDP structure similarity (Krugman Index)

Source: Author's calculations/Eurostat.

The results of cluster analysis (see figure 2) suggest that in 2000–2013 differences in GDP structure in case of most countries have accelerated. In both clusters we can find both countries with and without euro which may suggest that euro introduction did not directly lead to significant convergence of the EA member states in terms of economic structure.

Large economies of the EA are quite similar to each other in terms of GDP, investment and private consumption structure however its convergence rate to the EA has declined[20]. In case of Poland, the Czech Republic and Slovakia we can observe a rising divergence from the EA in terms of economic structure. Slovakia reported no significant increase in the degree of GDP similarity after euro adoption. The indicated differences in GDP, investment and private consumption structure of Poland, the Czech Republic, Hungary and Slovakia are characteristic for the catching-up process. In the long term it should lead to greater scale of economies similarity to the EA member states.

4.3. Macroeconomic imbalances

However, the high rate of convergence, the catching-up countries aim at, is not sufficient to ensure the macroeconomic stability. During the crisis even highly converged

[20] *Monitor konwergencji realnej*…, op.cit.

countries reported alarming macroeconomic imbalances which are subject of Macroeconomic Imbalance Procedure (MIP).

The European Commission identifies macroeconomic imbalances based on a scoreboard of 11 indicators which summarize economic performace of the analysed countries. The indicators are divided into two groups describing external imbalances and competitiveness or internal imbalances. The European Commission[21] identified presence of macroeconomic imbalances in 12 member states of the EU (In-depth Review – IDR). To this group belonged both developed and highly converged countries (e.g. France, Italy) as well as catching-up countries characterised by lower degree of convergence, like Bulgaria or Hungary (see figure 3). The EU countries experience macroeconomic imbalances mainly due to competitiveness loss caused by high levels of indebtedness, deterioration in the trade balance or current account position. Weak economic activity and the dire economic outlook in some countries may have aggregated the cross-country spillovers arising from the macroeconomic imbalances.

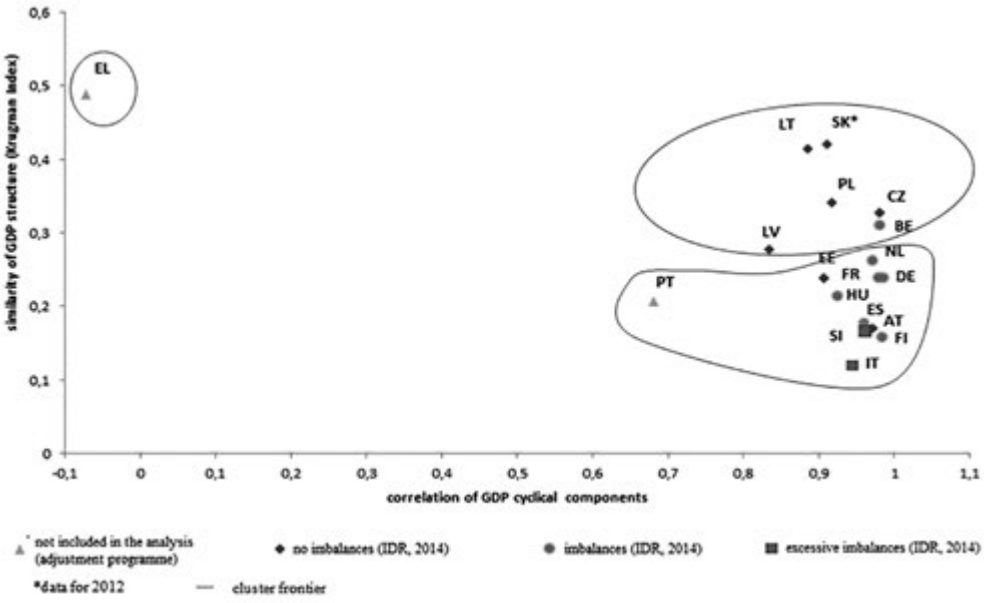

Figure 3. Real convergence vs. macroeconomic imbalances

Source: Author's calculations/European Commission.

We divided the euro area member states and countries with derogation into three clusters based on the measure of GDP structure similarity and business cycles convergence

[21] *In-depth Review*, European Commission, 2014.

using the cluster analysis (k-means algorithm). Greece, as an outlier, constituted one group. To the remaining two clusters belong countries characterised by different rate of convergence to the euro area but in both of them there are countries with as well as without identified macroeconomic imbalances (see figure 3). It is also worth noticing that in both groups we can observe again countries which introduced euro already as well as euro candidates.

These results confirm that high degree of nominal and real convergence to the euro area does not guarantee smooth functioning in the common currency area, especially from the perspective of adequacy of common monetary policy for each and every member state. Similarity to the euro area does not always imply higher rate of economic flexibility. The improvement in effectiveness of alternative shock absorption mechanisms is then neccessary. Competitiveness, especially in terms of product and labour market elasticities, plays crucial role in fostering growth[22] and preventing from macroeconomic imbalances.

In this analysis we used only MIP indicators to define macroeconomic imbalances. Based on the scoreboard, we decided to estimate two panel models covering EA countries in 2005–2013 (at quarterly frequency) and identify interdependencies between the real convergence rate and economic performance summarised in MIP. The measure of convergence rate is a mean of Krugman Index for GDP structure, correlation of GDP cyclical component and income per capita (Purchasing Power Standard) expressed as a share of the EA average income. The independent variables were respectively expressed as:

- External imbalances and competitiveness:
  - 3-year average of current account balance as a % of GDP (CA),
  - Net international investment position as a % of GDP (NIIP),
  - 3-year % change of real effective exchange rate (REER),
  - 5-year % change in export market shares (EXPORT),
  - 3-year % change of nominal unit labour cost (ULC);
- Internal imbalances:
  - Y-o-y % change in deflated house prices (HOUSE),
  - Private sector credit flow as a % of GDP (PR_CREDIT),
  - 3-year average unemployment rate (UNEMP),
  - Private sector debt as a % of GDP (PR_DEBT),
  - General government sector debt as a % of GDP (PUB_DEBT),
  - Y-o-y % change in total financial sector liabilities (FIN).

[22] B. Barkbu, J. Rahman, R. Valdes, *Fostering growth in Europe now*, International Monetary Fund, 2012, SDN/12/07.

From the perspective of the EU countries it is important to pay attention not to excess the thresholds of indicators used in the MIP. Real convergence rate is correlated with sound economic performance and, in turn, lack of macroeconomic imbalances. Most of the used measures turned out to be statistically significant in identifying determinants of the real convergence rate (Tables 1–2). These results strengthen the importance of prevention from macroeconomic imbalances. Euro candidates should learn this lesson and focus on the areas indicated in the analysis to keep the high level of real convergence, especially after euro adoption when some threshold will be decreased. Countries might then face difficulties with fulfillment the MIP criteria because the catching up process may still not be over. All of that confirms the importance of real convergence both before and after euro adoption.

Table 1. Panel estimation results (external imbalances and competitiveness)

Index	Coef.	Std. Err.	Z	P>|z|	95% Conf. Interval	
CA	–1.799193	0.5378508	–3.35	0.001	–2.853361	–0.745025
NIIP	0.8977592	0.3390026	2.65	0.008	0.2333264	1.562192
REER	–2.023992	0.6748331	–3.00	0.003	–3.346641	–0.7013434
EXPORT	–	–	–	–	–	–
ULC	2.300826	0.3870766	5.94	0.000	1.54217	3.059482
Cons	1.998912	0.2821833	7.08	0.000	1.445843	2.551981

Source: Author's estimations.

Table 2. Panel estimation results (internal imbalances)

Index	Coef.	Std. Err.	Z	P>|z|	95% Conf. Interval	
HOUSE	–	–	–	–	–	–
PR_CREDIT	–1.571177	0.4302392	–3.65	0.000	2.41443	–0.727923
PR_DEBT	–	–	–	–	–	–
PUB_DEBT	–0.9387428	0.4110675	–2.28	0.022	–1.74442	–0.133066
UNEMP	–6.419038	1.823778	–3.52	0.000	–9.993577	–2.844498
FIN	–1.470954	0.7285835	–2.02	0.043	–2.898951	–0.042956
Cons	2.275475	1.215847	1.87	0.061	–0.107541	4.658491

Source: Author's estimations.

5. Conclusions

The nominal convergence criteria established in the Maastricht Treaty were assumed to lead to real convergence in the euro area. Sustainable nominal and real convergence play crucial role in the process of monetary integration, especially from the perspective of effective monetary policy for particular EA members. On one hand, the business cycles synchronization has been observed and the correlation of cyclical components is continuously increasing which is undoubtedly advantageous in terms of adequacy of the common monetary policy. On the other hand, the first decade of the EA functioning and the financial crisis showed that there is a real (in terms of economic structure) and nominal divergence between members of the common currency area. The EA countries have not been monitored in terms of the Maastricht criteria fulfillment since they adopted euro and are still diversed in terms of economic structure. The hypothesis of the common currency area endogeneity, assuming that countries which faced challenges with fulfilling the nominal convergence criteria even before euro adoption would converge in real terms much faster after the currency union accession, did not come true.

The analysis indicates that the high rate of convergence, the catching-up countries aim at, is not sufficient to fully benefit from the euro area membership and ensure the macroeconomic stability. During the crisis even highly converged countries reported alarming macroeconomic imbalances. Taking advantage of the opportunities, the EA members face, depends also on proper functioning of the domestic economy, especially in terms of labour and product market, competitiveness and macroprudential policy. The implementation of structural reforms and their results were noticeable especially in times of financial turbulences in Europe. Thus, euro candidates should draw conclusions from the EA members' experience and take into account, while their preparations for the common currency adoption, that not only sustainable nominal and real convergence is sufficient to fully benefit from the EA membership. The real divergence of euro candidates with the EA is a natural phenomenon and should lead to the greater convergence in the long term. The analysis results show that more attention should be also paid to structural reforms, greater effectiveness of alternative shock absorption mechanisms and competitiveness improvement, not only in case of euro candidates but all EU member states.

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Konwergencja realna a nierównowagi makroekonomiczne w UE

Streszczenie

Formułowaniu kryteriów konwergencji nominalnej w Maastricht towarzyszyła idea wzrostu poziomu konwergencji realnej w strefie euro. Doświadczenia z pierwszej dekady funkcjonowania strefy euro potwierdziły jedynie trwałą dywergencję nominalną i realną wśród państw członkowskich wspólnego obszaru walutowego. W niniejszym artykule przedstawiono obszerną analizę poziomu konwergencji krajów kandydujących do strefy euro oraz państw członkowskich ze wspólnym obszarem walutowym. Dodatkowym celem jest weryfikacja wpływu braku nierównowag makroekonomicznych na wyższy poziom konwergencji realnej. Wyniki analizy wskazują, że hipoteza ednogeniczności optymalnych obszarów walutowych, zakładająca, że kraje mające problemy z wypełnieniem kryteriów konwergencji nominalnej przed przyjęciem euro osiągną szybciej wyższy poziom konwergencji realnej po wstąpieniu do strefy euro, nie znalazła potwierdzenia. Z jednej strony, hipotetyczna ponowna weryfikacja wypełniania kryteriów konwergencji nominalnej wskazałaby, że większość państw członkowskich strefy euro nie spełniała ich po przyjęciu euro oraz że wciąż nie charakteryzuje się wysokim stopniem podobieństwa do strefy euro pod względem strukturalnym. Z drugiej zaś strony, obserwuje się wciąż rosnący poziom synchronizacji cykli koniunkturalnych oraz wysoką korelację komponentów cyklicznych, co jest niewątpliwie korzystne w kontekście wspólnie prowadzonej polityki monetarnej oraz jej adekwatności do poszczególnych państw członkowskich strefy euro. Jednakże w czasie kryzysu można było zauważyć, że nawet w krajach charakteryzujących się wysokim stopniem konwergencji realnej odnotowano występowanie nierównowag makroekonomicznych. Kraje z derogacją powinny zatem wyciągnąć wnioski z doświadczeń państw członkowskich strefy euro i w trakcie przygotowań do przyjęcia euro wziąć pod uwagę to, że wysoki stopień konwergencji nominalnej i realnej ze strefą euro nie gwarantuje odnoszenia pełnych korzyści z członkostwa w Unii Gospodarczej i Walutowej.

Słowa kluczowe: konwergencja realna, synchronizacja cykli koniunkturalnych, endogeniczność, nierównowagi makroekonomiczne

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