

# NOMINALNA I REALNA KONVERGENCIJA KAO DETERMINANTE PRIDRUŽIVANJA EVROPSKOJ MONETARNOJ UNIJI

## NOMINAL AND REAL CONVERGENCE AS A DETERMINANT FOR JOINING THE EU- ROPEAN MONETARY UNION

**Merim Kasumović**

Ekonomski fakultet Univerziteta u Tuzli, **Bosna i Hercegovina**  
Faculty of Economics, University of Tuzla, **Bosnia and Herzegovina**

**Erna Heric**

Ekonomski fakultet Univerziteta u Tuzli, **Bosna i Hercegovina**  
Faculty of Economics, University of Tuzla, **Bosnia and Herzegovina**

Pregledni članak

DOI 10.1515/eoik-2017-0011, UDK 338.23:336.74(4-672EU)

Review paper

### REZIME

Tematski okvir ovog rada je nominalna i realna konvergencija kao determinante pridruživanja Evropskoj monetarnoj uniji. Težište rada je dokazati da ispunjavanje kriterija konvergencije utiče na stabilnost Evropske monetarne unije, odnosno da je uzrok destabilizacije upravo to što pojedine zemlje članice nisu ispunile zadate kriterije konvergencije. Finansijska integracija je važno pitanje jer doprinosi ekonomskom rastu utičući na slobodnu razmjenu sa ciljem efikasnije alokacije kapitala, rezultat je ekonomske teorije i empirijskog istraživanja. Uvođenje eura kao jedinstvenog sredstva plaćanja, te gubitak monetarnog suvereniteta država koje su ga prihvatile, glavni su razlozi formiranja Evropske centralne banke. Zadatak Evropske centralne banke je da definiše i sprovodi jedinstvenu monetarnu politiku u Evrozoni. Upravo zbog navedenog, analizirani su izazovi sprovođenja fiskalne politike unutar Evrozone kao i ključni aspekti monetarnog ujedinjenja Evrope. Rezultati ove analize treba da pokaže stabilnost EMU stepenom konvergencije zemalja članica jedinstvenog monetarnog područja.

### UVOD

Razlog formiranja Evropske unije (EU) jeste mogućnost kompariranja svjetskim silama, a cilj joj je integracija svih zemalja okruženja. Svako proširenje EU sa sobom nosi brojne izazove, dinamiku politika i donošenja odluka, vođenja zajedničke monetarne politike. Neophodno je na adekvatan način

### SUMMARY

The thematic framework of this work is the nominal and real convergence as a determinant for joining the European monetary union. The focus of the work is to prove that realising the criteria of the convergence affects the stability of the European monetary union, that is, that the cause of destabilisation is exactly the fact that certain member nations have not realised the assigned convergence criteria. The financial integration is an important question because it contributes to the economic growth affecting free exchange with the goal of a more efficient allocation of capital; it is the result of the economic theory and the empirical research. Introducing the Euro as a single payment method while losing the monetary sovereignty of the countries which have accepted it is the main reason for forming the European Central Bank. The mission of the European Central Bank is to define and conduct a single monetary policy within the Eurozone. Because of the already mentioned facts, the challenges of conducting the fiscal policy within the Eurozone as well as the key aspects of the monetary unification of Europe have been analysed. The results of this analysis should point out the stability of the EMU by the convergence degree of the member nations from a single monetary area.

### INTRODUCTION

The reason for forming the European Union (EU) is the possibility of comparing to the world powers with the aim to integrate all the surrounding countries. Every expansion of the EU carries many challenges, policy dynamics and reaching decisions of governing the common monetary policy. It is necessary to achieve real, structural and nominal

ostvariti realne, strukturne i nominalne kriterije konvergencije za ulazak u EU. Od zemalja kandidatkinja očekuje se usvajanje institucionalnog okvira EU u području finansiranja usluga tj. konkurentan i efikasan bankarski sistem, te funkcionisanje tržišta kapitala. Nakon priključenja Evropskoj uniji počinje druga faza a to je ulazak u Evropsku monetarnu uniju (EMU). Naime, stvaranje Eurozone je jedan od najvećih uspjeha u historiji Unije ali isto tako i najveći preuzeti rizik. U skladu sa prethodno istaknutim specifičnostima istraživačkog problema, predmet istraživanja u ovom radu je analiza nominalne i realne konvergencije u procesu pristupanja EMU, odnosno kako će prijem država koje nisu ispunile sve kriterije konvergencije uticati na stabilnost EMU. U radu nastojimo ispitati da li uspješnost adaptiranja optimalnom valutnom području EU mjerena nominalnom i realnom konvergencijom zemalja članica EU direktno utiče na stabilnost i funkcionalnost EMU. Shodno navedenom, opšti cilj istraživanja rada je da na osnovu teorijskih i empirijskih naučnih spoznaja utvrditi stabilnost EMU stepenom konvergencije zemalja članica jedinstvenog monetarnog područja. Zavisna varijabla u ovom radu je EMU, a nezavisna varijabla nominalna i realna konvergencija. Indikatori kojima će biti prezentirane su kriteriji konvergencije (inflacija, GDP, javni dug, kamatne stope). Temeljna pretpostavka je da će se nove članice bitno razlikovati od postojećih u pogledu dohodaka per capita i ekonomske strukture.

## 1. UTEMELJENJE, BENEFICIJE I TROŠKOVI MONETARNE INTEGRACIJE

Razlog formiranja EU jeste mogućnost kompariranja svijetkim silama, a cilj joj je integracija svih zemalja okruženja. Snažan poticaj ujedinjenja stizao je i od strane Sjedinjenih Američkih Država. U periodu od 1948 - 1952. Godine SAD je potrošila 15 milijardi dolara. [Jovanović (2006) str. 4-5]. Također, zadatak je bio pronaći način kako će nekada velike protivnice Njemačka i Francuska živjeti u miru. U roku od 80-tak godina ratovale su tri puta. Od

convergence criteria in an adequate way in order to enter the EU. It is expected from the candidate countries to adopt the institutionalised framework of the EU in the area of financing services, that is, comparing and efficient bank system, as well as the functioning of the capital market. After joining the European Union starts the second phase and that is the entrance in the European monetary union (EMU). Namely, the creation of the Eurozone was one of the biggest successes in the history of the Union but also the biggest taken risk. In accordance with the previously mentioned specifics of the research problem, the subject of the research in this work is the analysis of the nominal and real convergence in the process of accessing the EMU, more specifically, how will the acceptance of countries which have not fulfilled all the convergence criteria influence the stability of the EMU. In this work we are trying to question whether the success of adapting to the optimal currency area of the EU measured by the nominal and real convergence of the EU member nations directly affects the stability and functionality of the EMU. In accordance with the above mentioned, the general goal of this research is to establish the stability of the EMU through the convergence degree of the member nations of the single monetary area based on the theoretical and empirical scientific comprehensions. Dependant variable on this work is the EMU, and the independent variables are the nominal and real convergence. The indicators through which it will be presented are the convergence criteria (inflation, GDP, public debt, interest rates). The basic assumption is that all the new members will significantly differ from the present ones in terms of income per capita and economic structure.

## 1. FOUNDATION, BENEFITS AND EXPENSES OF MONETARY INTEGRATION

The reason for forming the European Union (EU) is the possibility of comparing to the world powers with the aim to integrate all the surrounding countries. A strong stimulus for unification came from the USA. In the period between 1948 and 1952 the USA spent \$15 billion [Jovanović (2006) pg. 4-5]. Also, the aim was to find a way for two previous opponents Germany and France to live in peace. In the span of about 80 years they were at war three times. From the mere beginning of the integration it was enabled

samog početka integracije omogućeno je svim državama na evropskom kontinentu da zatraže članstvo za ulazak u EU. Prema definiciji F. Manna "Evropsku monetarnu uniju, možemo definisati kao zajednicu više država koje su se saglasile o osnivanju nadnacionalne centralne banke sa diskrecionim pravom vođenja monetarne politike i emisije jedinstven valut eura, kao jednog zakonitog sredstva plaćanja u svim zemljama članicama". Zahtjev za članstvom može podnijeti svaka evropska država čije se uređenje zasniva na načelima slobode, demokratije, poštivanja ljudskih prava i temeljnih sloboda te vladavine prava.

### 1.1. BENEFICIJE I TROŠKOVI FORMIRANJA MONETARNE UNIJE

Dakle, udruživanje u ekonomsku a posebno monetarnu uniju dolazi do proširivanja tržišta, a time i obima razmjene proizvoda i usluga. Shodno tome, formira se takva struktura trgovine gdje potrošači kupuju proizvode i koriste usluge nezavisno od nacionalnih granica. To znači da ako posmatramo dvije države koje proizvode istu vrstu proizvoda, potrošači će kupovati proizvode nezavisno od zemlje u kojoj su proizvedeni. U ovom slučaju šok tražnje će imati karakteristike simetričnog šoka, što znači da će na isti način pogađati obje zemlje. Odnos između obima ekonomskih integracija i pojave asimetričnih šokova predstavljen je na grafikonu 1.

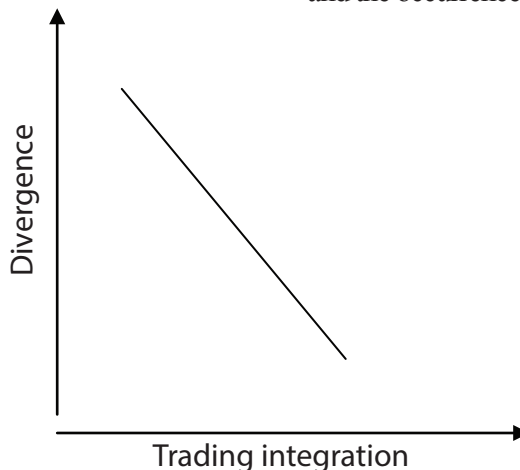
Na apcisi je predstavljen stepen integracije trgovine između država, a na ordinati različit stepen kretanja output-a i zaposlenosti između država koje su kandidati za ulazak u monetarnu uniju. Sa povećanjem stepena ekonomske integracije između država mogućnost pojave asimetričnih šokova tražnje se smanjuje što pokazuje kriva nagnuta na dole. Evropska komisija je dala dva zaključka o ovom pitanju [Furtula, Marković (2010) str. 44].

for all the countries of the European continent to ask to join the EU. According to the definition of F. Mann "European monetary union can be defined as a community of more than one country which have agreed to form a supranational central bank with a discretionary right to govern monetary policies and issuing a single value of the Euro as the only legal means of payment in all member nations". An application to join the union can be submitted by any European country whose arrangement is based on the principles of freedom, democracy, respect of human rights and basic freedoms as well as the rule of the law.

### 1.1.THE BENEFITS AND EXPENSES OF FORMING THE MONETARY UNION

Therefore, joining the economic and especially the monetary union creates a widening of the market as well as the widening of the exchange volume of products and services. In accordance with that, such a trading structure was formed where the consumers buy products and use the services regardless of the national border. That means that if we observe two countries which produce the same product, the consumers will buy the products regardless of the country in which the products were produced. In this case the shock of demand will have the same characteristic of a symmetrical shock which means that it will affect both countries in the same way. The relation between the volumes of economic integrations and occurrence of the asymmetric shock is presented in graph 1.

The X-axis shows the degree of trading integration between the countries, and the Y-axis shows the different degrees of the output movement and employment between the countries which are candidates for joining the monetary union. With the increase of the degree of economic integration between the countries the possibility of the occurrence of asymmetric shocks of demand decreases which is shown by the axis inclined downward. The European commission has given two conclusions on this matter [Furtula, Marković (2010) pg. 44].

**Grafikon 1:** Odnos obima ekonomskih integracija i pojave asimetričnih šokova

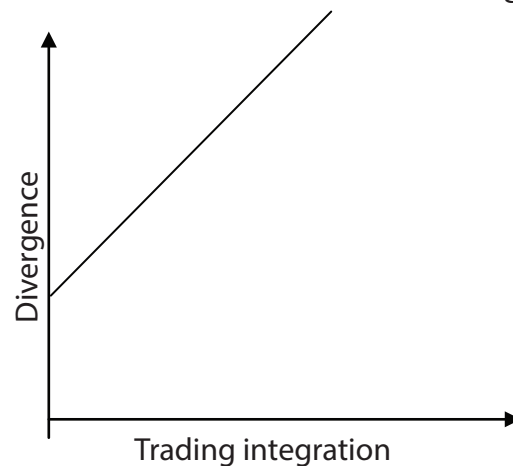
*Izvor: De Grauwe, P. (2004), Ekonomija monetarne unije, prev. Ljiljana Lučić, Izdavačka knjižarnica Zorana Stojanovića, Sremski Karlovci, str:61.*

Prvi zaključak je da monetarno ujedinjenje utiče na proširivanje obima trgovinske razmjene i korelaciju ekonomskih aktivnosti. Isto istraživanje dalje navodi da proširivanjem ekonomskih integracija dolazi do smanjivanja pojave asimetričnih šokova. Drugi zaključak je da će snaga ekonomskih integracija uticati na nemogućnost korištenja deviznih kurseva nacionalnih valuta u apsorbovanju šokova tražnje. S druge strane, Paul Krugman je izložio suprotan stav u odnosu na zaključke Evropske komisije. Njegov zaključak je da trgovačke integracije vode ka većem koncentrisanju regionalnih aktivnosti. U ovom slučaju kriva koja pokazuje mogućnost nastanka asimetričnih šokova predstavljena je kao uzlazna linija. Izloženost asimetričnim šokovima se povećava upravo zbog porasta ekonomske integracije koja vodi do veće specijalizacije output-a. Bitno je da postoje mehanizmi koji će ublažiti negativane efekte asimetričnog šoka i koji će sniziti troškove ulaska u monetarnu uniju. Zaključak Krugmana predstavljen je grafikonom 2.

**Graph 1:** Volume relation of economic integration and the occurrence of asymmetric shocks

*Source: De Grauwe, P. (2004), Ekonomija monetarne unije, prev. Ljiljana Lučić, Izdavačka knjižarnica Zorana Stojanovića, Sremski Karlovci, pg.61.*

The first conclusion is that the monetary unification affects the widening volume of the trading exchange and the correlation of economic activities. The same research further states that by widening economic integrations we experience a decrease in the occurrence of asymmetric shocks. The second conclusion is that the strength of economic integrations will affect the inability of using the exchange rates of national currencies in absorbing the shocks of demand. On the other hand, Paul Krugman has presented an opposite view in relation to the conclusions of the European comity. His conclusion is that the trading integrations lead to a bigger concentration of regional activities. In this case the axis that shows the possible occurrence of asymmetric shocks was presented as a rising line. Exposure to asymmetric shocks increases because of the growth of economic integration which leads to a bigger output specialisation. It is important that there are existing mechanisms which soften the negative effects of the asymmetric shock and which will lower the entrance expenses to the monetary union. Krugman's conclusion is presented in graph 2.

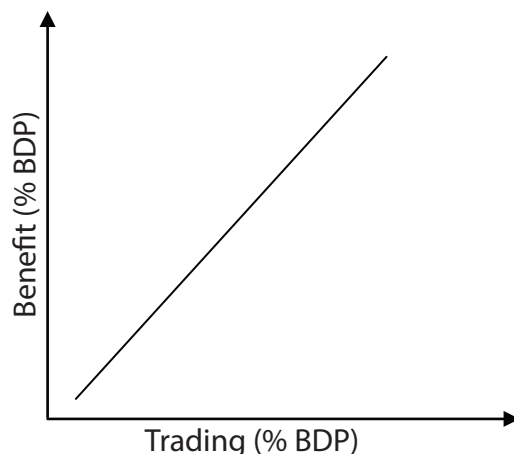
**Grafikon 2:** Krugmanov zaključak odnosa ekonomskih integracija i asimetričnih šokova**Graph 2:** Krugman's conclusion of the relation of economic integration and asymmetric shocks

Izvor: De Grauwe, P. (2004), *Ekonomija monetarne unije*, prev. Ljiljana Lučić, Izdavačka knjižarnica Zorana Stojanovića, Sremski Karlovci, str. 62.

Source: De Grauwe, P. (2004), *Ekonomija monetarne unije*, prev. Ljiljana Lučić, Izdavačka knjižarnica Zorana Stojanovića, Sremski Karlovci, pg. 62.

Troškovi ulaska u EMU su [Furtula, Marković (2010) str. 49]: razlike u ciljevima u pogledu inflacije i zaposlenosti, razlike u institucionalnom organizovanju tržišta rada, razlike u stopama privrednog rasta, razlike u fiskalnim sistemima i gubitak emisione dobiti. Osim troškova ulaska u monetarnu uniju tu su i brojne koristi koje se teško mogu izmjeriti i teško se može shvatiti njihov karakter i značaj. Koristi od jedinstvene valute ispoljavaju se na mikro nivou u smislu povećanja efikasnosti privređivanja preduzeća a to su: koristi od eliminisanja transakcionih troškova, korist od eliminisanja neizvjesnosti deviznog kursa, koristi od međunarodne valute. Odnos koristi od monetarne unije i otvorenosti država predstavljeno je narednim grafikonom 3. Na apcisi je predstavljena otvorenost države prema njenim potencijalnim partnerima iz monetarne unije, a na ordinate su date koristi. Dobici od monetarne unije se povećavaju sa rastućom otvorenošću prema ostalim partnerima u uniji. Kriva koja pokazuje ovaj odnos predstavljena je kao uzlazna linija.

The expenses of entering the EMU are [Furtula, Marković (2010) pg. 49]: goal differences in terms of inflation and employment, differences in institutionalised organising of the labour market, differences in rates of economic growth, differences in fiscal systems and the loss of seigniorage. Besides the entrance expenses to the monetary union there are many other benefits which can hardly be measured and their character and importance cannot easily be understood. The benefits of a single currency are manifested on a micro level in the sense of increasing the effective economy of companies and they are: benefits of eliminating transaction expenses, benefits of eliminating the suspense of the exchange rate, benefits of the international currency. The ration between the monetary union and the openness of the countries is presented in the following graph 3. The X-axis represents the openness of the countries towards their potential partners in the monetary union, while the Y-axis represents the given benefits. The gains from the monetary union increase with the growing openness towards other partners in the union. The curve which shows this relation is presented as a rising line.

**Grafikon 3:** Odnos koristi monetarne unije i otvorenosti država**Graph 3:** Benefit relation of monetary union and openness of the countries

*Izvor: De Grauwe, P. (2004), Ekonomija monetarne unije, prev. Ljiljana Lučić, Izdavačka knjižarnica Zorana Stojanovića, Sremski Karlovci, str. 62.*

Prema Prokopijeviću koristi monetarne integracije su: “sigurnije i povoljnije okruženje, širenje teritorije bez bitnije promjene pravila, firme EU dobijaju nova tržišta, povećava se konkurencija, povećavanje zone eura, jeftinije dobijanje nekih resursa, pregovaračka snaga Unije na spoljašnjem planu je veća, povećavaju se budžeti fondovi Unije.” S druge strane, kao troškove navodi: “neto – izdatak za javne finansije zemalja EU, proširenjem EU rastu rizici starih članica po pitanju političke, ekonomske i drugih sigurnosti, manje konkurentne grane izgubiće svoje tržište, veći transakcioni troškovi, odložiće se ili će biti oslabljene potrebne reforme vezane za liberalizaciju privrede zemalja EU, povećanje kriminala, sive ekonomije, nezakonitog zapošljavanja, korupcije itd.” Ekonomske efekte proširenja EU je obradila u posebnom tekstu “The economic impact of enlargement”.

## 1.2. EVROPSKA MONETARNA UNIJA KAO OPTIMALNO VALUTNO PODRUČJE

Optimalno valutno područje (OVP) definira se kao optimalno geografsko područje jedinstvene valute ili grupe valuta čiji su kursevi fiksirani. Dakle, ta valuta ili grupa valuta može fluktuirati samo prema ostatku svijeta. Stvaranje slobodne trgovine,

*Source: De Grauwe, P. (2004), Economics of monetary union, prev. Ljiljana Lucic, Zorana Stojanovic Publishing House, Sremski Karlovci, p. 62.*

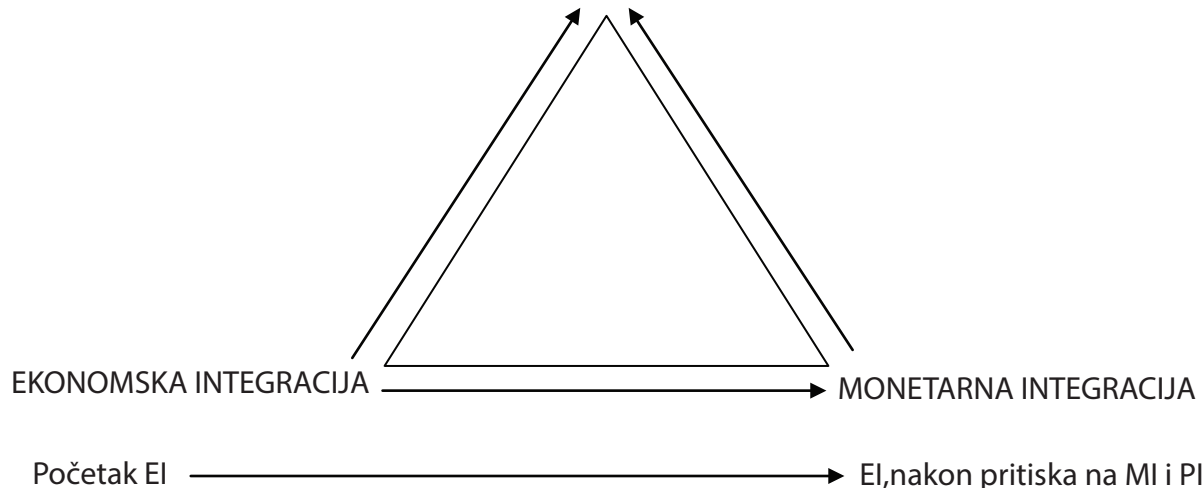
According to Prokopijević the benefits of the monetary integration are: “safer and favourable surrounding, spreading of the theory without a significant change of rules, companies of the EU get new markets, the competition increases, increase of the Euro zone, cheaper availability of certain resources, the negotiating power of the Union on the outer plan becomes bigger, the budget funds of the Union increase.” On the other hand, as expenses he mentions the following: “net – outlay for the public finances of the EU countries, with the expansion of the EU the risks of the old members regarding the political, economic and other safeties increase, smaller competitive branches will lose their market, larger transactional expenses, needed reforms connected to the economic liberalisation of the EU countries will be delayed or weakened, increase in the crime rate, grey economy, illegal employment, corruption, etc.” The EU has defined the economic effect of enlargement in a separate text “The economic impact of enlargement”.

## 1.2. EUROPEAN MONETARY UNION AS AN OPTIMAL CURRENCY AREA

An optimal currency area (OVP) is defined as an optimal geographical area of a single currency or group of currencies whose rates are fixed. Therefore, that currency or group of currencies may fluctuate only towards the rest of the world. Creating free trading, common market, as well as creating

zajedničkog tržišta, ali i stvaranje evropske unije ima svoje početke u Ugovoru iz Rima (1957). Odnos ekonomske, monetarne i političke integracije prikazan je shemom 1. Nekoliko autora je detaljno analiziralo prednosti i nedostatke OVP. Upravo taj balans između troškova i koristi je najveći razlog formiranja monetarne integracije između dvije ili više zemalja.

**Šema 1:** Odnos ekonomske, monetarne i političke integracije



*Izvor: Mongelli F., "New" views on the optimum currency area theory: What is EMU telling us? ECB2002., str. 10.*

Kao prednost OVP autori navode: "veća korist valute, cijene koje će više poticati konkurenciju, manja stopa nesigurnosti koja će ojačati unutrašnje tržište, podstiče trgovinu, niži investicijski rizik, veći podsticaj stranih direktnih investicija (SDI), efikasnija raspodijela resursa". Ostale prednosti proizilaze iz transparentnog i dubljeg finansijskog tržišta, uštede na transakcijskim troškovima, te šire međunarodne cirkulacija jedinstvene valute. S druge strane, tu su troškovi prelaska na novu valutu: "veći administrativni troškovi zbog formiranja nacionalnih institucija, te sprečavanje nacionalnih vlada da izjednačavaju granične troškove oporezivanja i poreza". Formiranje monetarne unije, odnosno OVP pitanje je odnosa troškova i koristi. Teorija OVP uzima koristi kao zadate i predlaže kriterije na osnovu kojih treba da se ocijene troškovi korištenja iste valute. Koristi od

a European union have their beginning in the Contract from Rome (1957). The relation between the economical, monetary and political integration is presented in diagram 1. Several authors have analysed in detail the advantages and disadvantages of the OVP. It is precisely that balance between the expenses and benefits which is the biggest reason for forming the monetary integration between two or more countries.

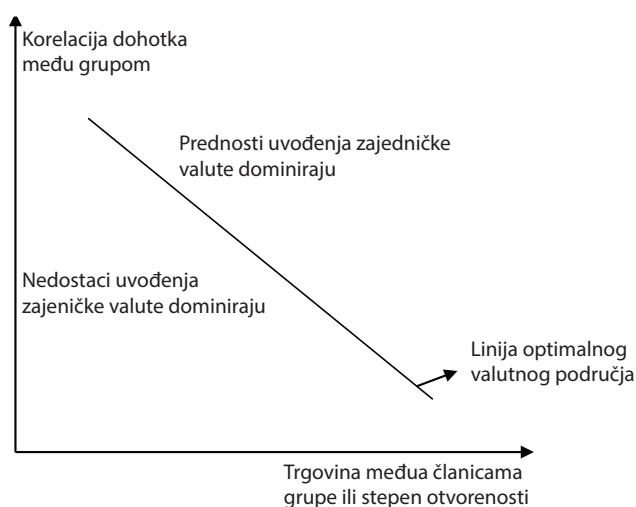
**Shema 1:** Relation of economic, monetary and political integration

*Source: Mongelli F., "New" views on the optimum currency area theory: What is EMU telling us? ECB2002., pg. 10.*

As the advantage of the OVP the authors mention: "higher currency value, prices that will encourage more competition, lower rate of uncertainty which will strengthen the inner market, market encouragement, lower investment risk, higher encouragement of direct foreign investments (SDI), a more efficient distribution of resources". Other advantages come from the transparent and deeper financial market, savings on the transactional expenses, and wider international circulation of the single currency. On the other hand, there the expenses of transferring to a new currency: "higher administrative expenses due to forming national institutions, as well as preventing national governments to equalise the border expenses of taxation and taxes". The forming of the monetary union, that is the OVP, is a question of relations between the expenses and benefits. The OVP theory takes the benefits as set and suggests the criteria according to which the expenses of using the same currency should be determined. The

prihvatanja zajedničke valute su povećana korisnost novca, veća transparentnost cijena, nepostojanje nesigurnosti nominalnog deviznog kursa unutar područja što jača interno tržište, smanjuje rizike investiranja te strane direktne investicije na zajedničkom valutnom području. Sa aspekta povećane makroekonomske stabilnosti prednosti se vide kao rezultat opšte stabilnosti cijena, pristupa širem finansijskom tržištu i mogućnostima eksternog finansiranja. Jedan od najvećih troškova monetarnog integriranja je gubitak kontrole nad monetarnom politikom.

**Grafikon 4:** Korist od formiranja valutne unije



*Izvor: Bilas V., Teorija optimalnog valutnog područja; Euro i Europska monetarna unija, Zagreb, 2005., str. 47.*

Dva se kriterija navode ključnima u ostvarivanju neto koristi od formiranja valutne unije: međusobna trgovina zemalja članica i korelacija među njihovim dohocima predstavljeni grafikonom br.4. Dakle, što je veća korelacija dohotka među potencijalnim članicama unije i što je njihova međunarodna trgovina intenzivnija odnosno što je stepen otvorenosti veći, prednosti uvođenja zajedničke valute dominiraju, odnosno uvođenje zajedničke valute je optimalno za navedenu grupu zemalja. Što je manji stepen međusobne trgovine među članicama i što su razlike u dohocima veće, to nedostaci uvođenja zajedničke valute dominiraju. Važno pitanje za sve zemlje koje žele da se priključe EMU ili bilo kojoj drugoj monetarnoj integraciji jeste utvrđivanje da li će od gubitka monetarnog suvereniteta imati veće koristi nego troškove. Sve to je neophod-

benefits of accepting the same currency are the increased availability of money, higher transparency of prices, non-existent insecurity of the nominal exchange rate within the area which strengthens the internal market, lowers the risks of investment and encourages direct foreign investments on a collective currency area. From the aspect of an increased macroeconomic stability the advantages can be seen as a result of a general stability in prices, approach to a wider financial market and the possibilities of external financing. One of the largest expenses of the monetary integration is the loss of control over the monetary policy.

**Graph 4:** Benefits of forming the currency union

*Source: Bilas V., Teorija optimalnog valutnog područja; Euro i Europska monetarna unija, Zagreb, 2005., pg. 47.*

Two criteria are mentioned as key in achieving the net benefit from forming the currency union: mutual trading of member nations and correlation between their incomes presented in graph 4. Therefore, the larger the correlation of income is between the potential members of the union and the more intense their mutual trading is, that is the bigger the degree of openness is, the more the advantages of implementing a mutual currency will dominate, that is introducing a mutual currency is optimal for the mentioned group of countries. The lower the degree of mutual trading amongst the members is and the bigger the differences in incomes are, the more the shortcomings of implementing a mutual currency will dominate. The important question for all the countries who want to join the EMU or any other monetary integration is determining whether they will have more benefits or expenses by losing their monetary sovereignty. It



no posmatrati kako sa kratkog tako i sa dugog aspekta ali i sa direktnog i indirektnog uticaja. Velike su razlike među državama koje utiču na karakter monetarne politike kao i na razlike u instrumentima monetarne politike. Naravno, sve to podrazumijeva i uvođenje jedinstvene valute - euro. Utisak o euru je u vrijeme njegova nastanka bio uopšten ali i pored toga euro dobro funkcioniše, gdje je pokazao da može preživjeti i da je prilično stabilan. Takođe, jedna od prednosti uvođenja eura jeste i to što je stvorio veliko javno i korporativno tržište denominirano u euru. Bezvizni režim, renome koje države dobijaju prilikom ulaska u EU, niz subvencija koje zemlje dobijaju kao članice su samo neke od koristi ulaska u EU. Gruba klasifikacija koristi ulaska u EU je na: političku, privrednu i finansijsku [Obrovčić (2004) str. 40-41]. *Politička beneficija* se ogleda u političkim institucijama koje omogućavaju političku sigurnost i zaštitu nacionalnih interesa. Zemlje članice imaju mogućnost da učestvovanjem u donošenju odluka unutar institucija EU utiču na kreiranje važnih odluka koje se tiču i same zemlje, za razliku od zemalja koje tu privilegiju nemaju pa su primorane da prihvate već donijete odluke. Slobodan protok robe, kapitala, radnika unutar Unije podstiče nastanak ekonomskih efekata. *Privredna beneficija* se ogleda kroz intenzivniju i liberalizovanu trgovinu, efikasniju alokaciju resursa u Uniji, efekat akumulacija, sniženje kamatnih stopa i višestruko vrijedi priliv stranih investicija. *Finansijski aspekti*, odnosno novčani transferi iz budžeta su pored političke stabilnosti i modernog privrednog okvira glavna motivacija za ulazak u EU. Za sprovođenje monetarne politike u EMU odgovorna je ECB-a. Ona je jedina koja emitira gotov novac. Najbolji efekat se ostvaruje kada monetarna politika djeluje sa finansijskom politikom.

S druge strane, tu su i troškovi monetarne integracije koji proizilaze iz činjenice da kada država napusti svoju nacionalnu valutu, gubi mogućnost da upravlja nacionalnom monetarnom politikom. Troškovi su analizirani preko izdataka koje će država, buduća članica, imati u eliminisanju negativnih efekata u slučaju *asimetričnih šokova*.<sup>1</sup> Promjene u tražnji su uzrok

is necessary to observe all these details from both the short and long aspect but also from direct and indirect influences. There are great differences between countries which influence the character of the monetary policy as well as the differences in the instruments of the monetary policy. Naturally, all of this implies the implementation of a single currency – the Euro. The impression of the Euro at the time of its creation was general but even besides that the Euro functions well, where it has shown that it can survive and that it is pretty stable. Also, one of the advantages of implementing the Euro was that it had created a great public and corporative market denominated into the Euro. The visa-free regime, the renowned etiquette the countries receive when they enter the EU, a number of subventions which the countries receive as members are just some of the benefits of joining the EU. A rough classification of the benefits of joining the EU can be defined as: political, economic and financial [Obrovčić (2004) pg. 40-41]. The political benefit can be seen in the political institutions which enable political security and protection of national interests. Member countries have the possibility of participating in reaching decisions within the institutions of the EU which affect the creation of important decisions regarding themselves, in difference to other countries who do not have that privilege and who are obligated to accept the already reached decisions. A free flow of merchandise, capital and workers within the Union supports the creation of economic effects. The economic benefit can be seen through a more intense and liberalised trading, more efficient allocation of resources in the Union, the effect of accumulation, deduction in interest rates and a very valuable flow of foreign investments. The financial aspects, that is money transfers from the budget, are besides the political stability and the modern economic frame the main motivation for joining the EU. The ECB is responsible for carrying out the monetary policy in the EMU. It is the only one which places the completed money. The best effect is achieved when the monetary policy acts together with the financial policy.

On the other hand, there are the expenses of the monetary integration which come from the fact that when a country leaves its national currency it also loses the possibility to govern the national monetary policy. The expenses have been analysed through the costs which the country, the future member, will have in eliminating the negative effects in case of asymmetric shocks.

<sup>1</sup> Šokove koji utiču na različite ekonomije na slične načine nazivaju se simetrični, oni koji imaju različite implikacije ili reflektiraju implikacije samo na jednu zemlju na specifičan način nazivaju se asimetrični.

<sup>1</sup> Shocks that affect different economies in similar ways are called cimetrical, those which have different implications or reflect implications only to one country in a specific way are called asymmetric.

asimetričnih šokova. Mundell je analizirao uslov za rješavanje asimetričnih šokova u postojanju dva mehanizma: *fleksibilnost nadnica i mobilnost rada*. Prema Kandžiji troškovi monetarne integracije su: “*gubljenje monetarne politike, egzogene kamatne stope, fiksni devizni kurs, gubljenje inflacijskog poreza i mogućnosti devalvacije, tranzicijska nestabilnost, te gašenje emisijske dobiti*”. Dalje navodi da omjer između koristi i troškova zavisi od nekoliko parametara: sposobnost kursa za “upijanje” asimetričnih šokova i poremećaja koji pogađaju devizna tržišta. U budućnosti će troškovi i koristi zavisiti o nastavku procesa političke i ekonomske integracije.

## 2. ANALIZA NOMINALNE I REALNE KONVERGENCIJE U OKVIRU EVROPSKE UNIJE

### 2.1 NOMINALNA I REALNA KONVERGENCIJA ZEMALJA ČLANICA EVROPSKE UNIJE

Pod konvergenzijom se podrazumjeva proces približavanja vrijednosti ekonomskih varijabli među zemljama i to tako da slabije razvijene zemlje bržim razvitkom sustignu razvijenije. Konvergenција se može posmatrati sa dva aspekta i to sa aspekta sadašnjih zemalja članica i tranzicijskih zemalja, odnosno zemalja kandidatkinja. Postavlja se pitanje: trebaju li nove zemlje članice uvesti euro što je prije moguće ili primijeniti oprezniju strategiju i pridružiti se monetarnoj uniji nakon napretka u postizanju višeg stepena realne konvergencije? Zemlje se bitno razlikuju po stepenu ekonomske razvijenosti i funkcionisanju tržišnih struktura, te se s razlogom postavlja pitanje opravdanosti ulaska u EMU kao i implikacije na unutrašnju ekonomsku aktivnost. Prema teoriji OVP definisani su kriteriji koje je neophodno ispuniti prilikom pristupanja monetarnoj uniji sa drugom zemljom a to su: mobilnost proizvodnih faktora, fleksibilnost cijena i nadnica, visok stepen trgovinske otvorenosti, visok stepen integriranosti finansijskih tržišta, diverzificiranost proizvodnje i potrošnje, usklađenost poslovnih ciklusa [Kersan-

The changes in searching are the cause of asymmetric shocks. Mundell has analysed the condition for solving the asymmetric shocks within the existence of two mechanisms: wage flexibility and work mobility. According to Kandžija the expenses of the monetary integration are: “losing the monetary policy, exogenous interest rate, fixed exchange rate, losing the inflation tax and the possibility of devaluation, transaction instability, and closing of the emission profit”. He further states that the ratio between the benefit and the expenses depends on a few parameters: the ability of the course to “absorb” asymmetric shocks and disorders which affect the exchange market. In the future the expenses and costs will depend on the continuing process of the political and economic integration.

## 2. ANALYSIS OF NOMINAL AND REAL CONVERGENCE WITHIN THE EUROPEAN UNION

### 2.1 NOMINAL AND REAL CONVERGENCE OF THE EUROPEAN UNION MEMBER COUNTRIES

The term convergence implies the process of bringing the values of economic variables closer together between the countries and in such a way that the weaker countries can through fast development catch up to the more developed countries quicker. Convergence can be observed from two aspects and those are the aspect of the present member nations and countries in transition that is the candidate countries. One question arises: should the new member nations introduce the Euro as soon as possible or should they apply a more cautious strategy and join the monetary union after improving in achieving a higher degree of real convergence? Countries differ significantly according to the degree of economic development and the functioning of trading structures and it is with a reason that we ask the question of justifiability of entering the EMU as well as the implication to the inner economic activity. According to the OVP theory the necessary criteria that need to be fulfilled in order to join the monetary union with another country have been defined and they are: the mobility of the production factor, the flexibility of prices and wages, a high degree of trading openness, a high degree of the financial market integration, diversification of production and consumption,

Škabić, Mihaljević (2010) str. 13]. Nominalna konvergencija podrazumijeva ispunjavanje Maastritskih kriterija konvergencije. U narednoj tabeli su navedeni podaci prvobitnih članica EMU. Navedeni podaci bili su glavni faktor razmatranja prilikom ulaska zemalja u monetarnu uniju. Velika Britanija i Danska kako je već navedeno u radu odlučile su zadržati vlastitu monetu i ne pridružiti se euro zoni. S druge strane, Švedska je odbila da prihvati mehanizam deviznog kursa EMS-a prije početka treće faze, čime je svjesno izbjegla da zadovolji jedan od uslova pristupanja eurozoni. Iz navedene tabele se vidi da omjer javnog duga i BDP ispunjavaju: Finska, Francuska i Luksemburg, ostale zemlje imaju prekoračen odnos. Mnogi ekonomisti, upravo zbog navedenog, smatraju da je EMU formirana prerano. Postizanje realne konvergencije koja proizilazi iz teorije OVP-a glavna je okupacija novih zemalja članica nakon ispunjavanja Maastritskih kriterija. Cilj realne konvergencije je povećanje životnog standarda praćen smanjenjem razlika u BDP-u per capita. Jedan od ciljeva je i približavanje produktivnosti i konvergencije razine cijena među zemljama sa ciljem jačanja ekonomske integracije između siromašnih i bogatih zemalja.

**Tabela 1:** Maastritski kriterij ikonvergencije za 11 prvobitnih članica-podaci za 1997. godinu

Kriterij	Deficit / BDP u %	Javni dug/ BDP u %	Inflacija u %	Kamatne stope
<b>Referentna vrijednost</b>	-3,0	60	2,7	7,8
<b>Austrija</b>	-2,5	66,1	1,1	5,6
<b>Belgija</b>	-2,1	122,2	1,4	5,7
<b>Finska</b>	-0,9	55,8	1,3	5,9
<b>Francuska</b>	-3	58	1,2	5,5
<b>Njemačka</b>	-2,7	61,3	1,4	5,6
<b>Irska</b>	0,9	66,3	1,2	6,2
<b>Italija</b>	2,7	121,6	1,8	6,7
<b>Luksemburg</b>	1,7	6,7	1,4	5,6
<b>Holandija</b>	-1,4	72,1	1,8	5,5
<b>Portugal</b>	-2,5	62	1,8	6,2
<b>Španija</b>	-2,6	68,8	1,8	6,3

Izvor: S. Memošević, *Monetarno okrupnjavanje na evropskom tlu- ekonomska i monetarna unija*, Direkcija za evropske integracije, str. 16

compatibility of business cycles [Kersan-Škabić, Mihaljević (2010) pg. 13]. The nominal convergence entails the satisfaction of the Maastricht criteria of convergence. In the following table we can see the data of the original EMU members. The given data were the main factors taken into consideration for the countries while joining the monetary union. Great Britain and Denmark, as is mentioned in the work, have decided to keep their own currency and not join the Eurozone. On the other hand, Sweden denied accepting the mechanism of the EMS exchange rate before the beginning of the third phase, with which it has avoided to satisfy one of the main conditions for joining the Eurozone. In this table we can see that Finland, France and Luxemburg satisfy the ratio of public debt and the BDP while other countries have an overdrawn relation. Many economists, because of the mentioned facts, consider that the EMU was formed too early. Achieving the real convergence which comes out form the OVP theory is the main occupation of the new member nations after satisfying the Maastricht criteria. The aim of the real convergence is to increase the life standard followed by the decrease of risk in the BDP per capita. One of the aims is also to approach a higher level of productivity and convergence price level between the countries with the goal to strengthen the economic integration between the poor and rich countries.

**Table 1:** Maastricht convergence criteria for the first 11 members –sub excise 1997

Source: S. Memošević, *Monetarnookrupnjavanje na evropskom tlu- ekonomska i monetarna unija*, Direkcija za evropske integracije, pg. 16

Peto proširenje EU je bio veliki izazov jer se radilo o tranzicijskim zemljama, zemljama različitih ekonomskih struktura koje su trebale provesti niz reformi kako bi planska uređenja zamijenila tržišnim. Za ulazak u EMU bitna je trgovinska otvorenost i povezanost sa EU jer se upravo u trgovinskim tokovima mogu očekivati najveće uštede povezane uz uvođenje zajedničkog novca i nestanak konverzijskih troškova.

## 2.2. NOMINALNA I REALNA KONVERGENCIJA NOVIH ZEMALJA ČLANICE EVROPSKE UNIJE

Od 2004. godine ide peto proširenje EU, a kriteriji iz Maastrichta koje su ispunjavale zemlje prezentirane su u narednoj tabeli. Zemlje koje su se pridružile EU bile su Češka, Estonija, Poljska, Slovenija, Mađarska, Litva, Latvija i Slovačka a nešto kasnije Bugarska i Rumunija. Pored navedenih kriterija usvaja se i Pakt o stabilnosti i rastu 1997. godine sa ciljem održavanja fiskalne discipline koja je nužna za postizanje i održavanje stabilnosti cijena te održivoga ekonomskog rasta. Paktom je definisana nužnost poštivanja granica budžetskog deficita i javnoga duga te su propisane novčane kazne za zemlje koje ih se ne pridržavaju ili ukoliko se nastalo prekoračenje ne koriguje u roku od dvije godine.

**Tabela 2:** Pokazatelji (kriteriji konvergencije) za 2004. godinu

Criteria	Inflation	Long-term interest rate	Budget deficit	Public debt
<b>New EU members</b>				
<b>Czech Republic</b>	2,9	5,7	5,9	40,7
<b>Estonia</b>	2,8	8,3	0,6	6,2
<b>Poland</b>	2,4	6,5	6,2	48,1
<b>Slovenia</b>	4,6	8,5	1,6	24,7
<b>Hungary</b>	6,8	7,6	4,6	57,6
<b>Lithuania</b>	0,2	8,5	2,6	21,1
<b>Latvia</b>	3,1	9,0	2,0	14,0
<b>Slovakia</b>	7,6	5,5	3,0	42,9
<b>Candidates</b>				
<b>Bulgaria</b>	4,8	6,3	0,7	43,2
<b>Romania</b>	12,7	18,0	3,0	26,4
<b>Croatia</b>	2,3	9,5	3,9	66,0

Izvor: Bilas V: Konvergencija tranzicijskih zemalja prema Europskoj uniji, str. 229

The fifth expansion of the EU was a great challenge because it was a matter of transitional countries, countries of different economic structures which needed to perform many different reforms in order to exchange the planned administration with the economic. What is important when entering the EMU is trading openness and connectivity with the EU because it is exactly the trading course where the biggest savings can be expected that are connected to the integration of mutual funds and the disappearance of conversion expenses.

## 2.2. NOMINAL AND REAL CONVERGENCE OF THE NEW EUROPEAN UNION MEMBER COUNTRIES

The fifth EU expansion started in 2004. The Maastricht criteria satisfied by the countries are presented in the following table. The countries that have joined the EU were Czech Republic, Estonia, Poland, Slovenia, Hungary, Lithuania, Latvia and Slovakia and sometime later Bulgaria and Romania. Besides the mentioned criteria The Pact of Stability and Growth 1997 was accepted with the aim of maintaining the fiscal discipline which is necessary in order to achieve and maintain the stability of prices and a sustainable economic growth. The pact defined the necessity of respecting the limits of the budget deficit and public debt where fines were enacted for the countries which were not respecting it or if the occurred overstepping was not corrected within two years.

**Table 2:** Indicators (convergence criteria) for the year 2004

Izvor: Bilas V: Konvergencija tranzicijskih zemalja prema Europskoj uniji, str. 229

Paktom je definisana nužnost poštivanja granica budžetskog deficita i javnoga duga te su propisane novčane kazne za zemlje koje ih se ne pridržavaju ili ukoliko se nastalo prekoračenje ne koriguje u roku od dvije godine. Pakt je reformiran 2005. godine zbog slabe provedbe, naime Vijeće EU nije primijenilo sankcije na Francusku i Njemačku, zemlje koje su ostvarivale prekomjerne budžetske deficite od 2001. godine. Ispunjavanjem datih kriterija postiže se nominalna konvergencije koja je ujedno i preduslov za ostvarenje realne konvergencije. Dakle, nominalna konvergencija je sredstvo za postizanje

The pact was reformed in 2005 due to poor enforcement. However the EU Council did not apply the sanctions on France and Germany, the countries which have achieved excessive budget deficits since 2001. By fulfilling the given criteria the nominal convergence is achieved which is also the precondition for achieving real convergence. Therefore, nominal convergence is a tool for achieving a higher degree of real convergence

**Tabela 3:** Ukupna inflacija po zemljama za juli 2012

**Table 3:** Overall inflation according to the countries for July, 2012

Country	Inflation amount (in %)	Country	Inflation amount (in %)
<b>Sweden</b>	0,7	<b>Luxemburg</b>	2,7
<b>Greece</b>	0,9	<b>Portugal</b>	2,8
<b>Germany</b>	1,9	<b>Lithuania</b>	2,9
<b>Latvia</b>	1,9	<b>Finland</b>	3,1
<b>Belgium</b>	2,0	<b>Romania</b>	3,1
<b>Ireland</b>	2,0	<b>Czech Republic</b>	3,3
<b>Denmark</b>	2,1	<b>Italy</b>	3,6
<b>Spain</b>	2,2	<b>Cyprus</b>	3,8
<b>France</b>	2,2	<b>Slovakia</b>	3,8
<b>Bulgaria</b>	2,4	<b>Poland</b>	4,0
<b>Great Britain</b>	2,6	<b>Estonia</b>	4,1
<b>Slovenia</b>	2,6	<b>Malta</b>	4,2
<b>The Netherlands</b>	2,6	<b>Hungary</b>	5,7
<b>Euro system</b>			2,4
<b>EU</b>			2,5
<b>USA</b>			1,4

Izvor: <http://www.ecb.int/stats/prices/hicp/html/inflation.en.html> (5. 9. 2012)

Source: <http://www.ecb.int/stats/prices/hicp/html/inflation.en.html> (9/5/2012)

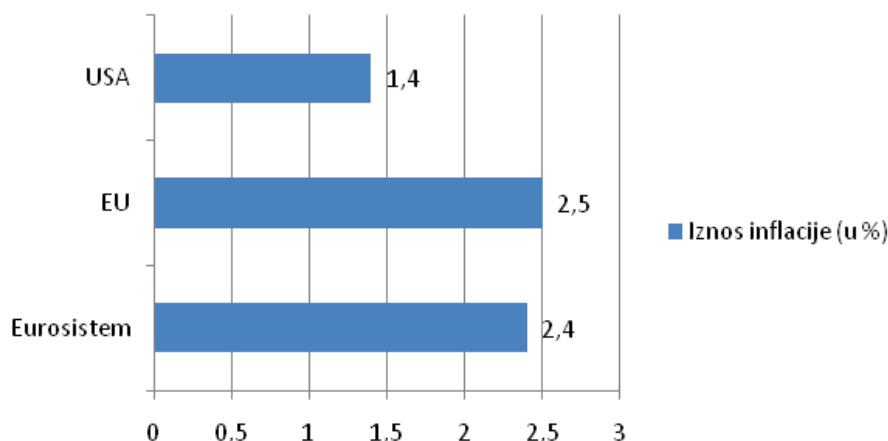
većeg stepena realnekonvergencije u dugom roku. Iz navedene tabele se vidi da najnižu stopu inflacije imaju Švedska koja iznosi 0,7% i Grčka sa 0,9%, a najviću ima Holandija 5,7%. Što se tiče Eurosistema prosječna stopa inflacije je 2,4% a EU je 2,5%. U poređenju sa USA čija je stopa inflacije 1,4%, EU je u znatnog goroj poziciji.

in a long term. From the indicated tables we can see that Sweden (0,7%) and Greece (0,9%) have the lowest inflation rate while the Netherlands have the highest inflation rate of 5,7%. As far as the Euro system is concerned the average inflation rate is 2,4% while for the EU it is 2,5%. Compared to the USA whose rate is 1,4% the EU is in a significantly worse position.

**Grafikon 5:** Komparacije inflacije u USA, EU i Eurosistemu

**Graph 5:** Inflation comparison in the USA, EU and Euro system

**Inflation amount (in %)**



**Tabela 4 : HICP**

**Table4: HICP**

Country	Average 2001-00	2010	2011	May 2012	June 2012	July 2012	Average for 2012
<b>Belgium</b>	2.1	2.3	3.5	2.6	2.2		<b>3.5</b>
<b>Denmark</b>	1.6	1.2	2.5	2.2	2.0	2.0	<b>26.5</b>
<b>Estonia</b>	4.2	2.7	5.1	4.1	4.4		<b>0.1</b>
<b>Ireland</b>	2.2	-1.6	1.2	1.9	1.9		<b>1.4</b>
<b>Greece</b>	3.4	4.7	3.1	0.9	1.0		<b>3.3</b>
<b>Spain</b>	2.8	2.0	3.1	1.9	1.8	2.2	<b>12.4</b>
<b>France</b>	1.9	1.7	2.3	2.3	2.3		<b>20.6</b>
<b>Italy</b>	2.2	1.6	2.9	2.9	3.6	3.7	<b>18.2</b>
<b>Cyprus</b>	2.4	2.6	3.5	3.5	2.9		<b>0.3</b>
<b>Luxemburg</b>	2.6	2.8	3.7	3.7	2.6	2.7	<b>0.3</b>
<b>Malta</b>	2.4	2.0	2.5	2.5	4.4		<b>0.1</b>
<b>The Netherlands</b>	2.1	0.9	2.5	2.5	2.5		<b>4.9</b>
<b>Austria</b>	1.9	1.7	3.6	3.6	2.2		<b>3.1</b>
<b>Portugal</b>	2.4	1.4	3.6	3.6	2.7		<b>2.4</b>
<b>Slovenia</b>	4.2	2.1	2.1	2.1	2.4	2.6	<b>0.4</b>
<b>Slovakia</b>	4.1	0.7	4.1	4.1	3.4		<b>0.7</b>
<b>Finland</b>	1.7	1.7	3.3	3.3	3.1		<b>1.8</b>
<b>EUROZONE</b>	2.0	1.6	2.7	2.4	2.4	2.4	<b>100.0</b>
<b>Bulgaria</b>	6.0	3.0	3.4	1.8	1.6	-	<b>0.7</b>
<b>Czech Republic</b>	2.3	1.2	2.1	3.5	3.8		<b>1.4</b>
<b>Denmark</b>	2.0	2.2	2.7	2.1	2.2		<b>1.1</b>
<b>Latvia</b>	5.4	-1.2	4.2	2.3	2.1		<b>0.7</b>
<b>Lithuania</b>	3.0	1.2	4.1	2.6	2.6		<b>0.4</b>
<b>Hungary</b>	5.6	4.7	3.9	5.4	5.6		<b>1.1</b>
<b>Poland</b>	2.8	2.7	3.9	3.6	4.2		<b>5.4</b>
<b>Romania</b>	12.1	6.1	5.8	2.0	2.2		<b>1.6</b>
<b>Sweden</b>	1.9	1.9	1.4	0.9	0.9		<b>1.9</b>
<b>UK</b>	2.1	3.3	4.5	2.8	2.4		<b>15.5</b>
<b>EU</b>	<b>2.2</b>	<b>2.1</b>	<b>3.1</b>	<b>2.5</b>	<b>2.6</b>		<b>100.0</b>

Izvor: Statistics Pocket Book, ECB, August 2012, str. 30.

Source: Statistics Pocket Book, ECB, August 2012, pg. 30.

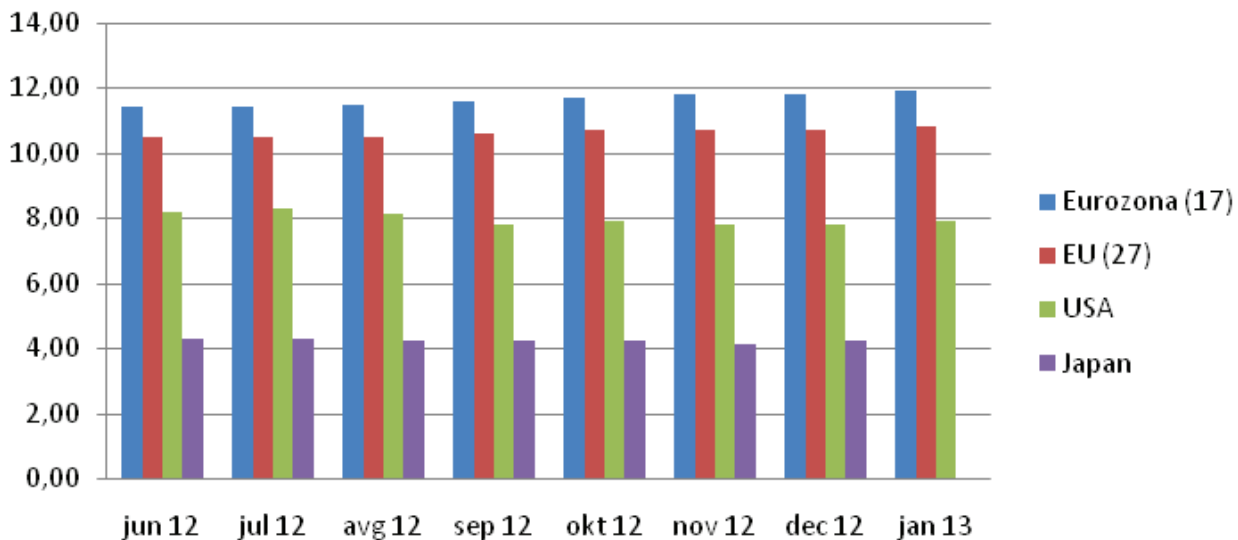
Iz navedene tabele se vidi da je stopa inflacije u nekim zemljama poput Estonije, Italije, Malte rasla takom perioda. S druge strane u Grčkoj, Bugarskoj, Rumuniji stopa inflacije opada. Najveći raspon rasta stope inflacije je u Slovačkoj gdje je 2010. godine iznosila 0,7 a u maju 2012. godine stopa inflacije iznosi 4,1. Najveći pad stope inflacije je u Rumuniji gdje je u 2010. godini iznosila 6,1 a u maju 2012. godine iznosi 2,0. Što se tiče Eurozone stopa inflacije u julu 2012. godine iznosila je 2,4, u junu stopa inflacije EU iznosila je 2,6. Stopa nezaposlenosti u januaru 2013. godine bila veća u Eurozoni i iznosila je 11,9%, nego u EU koja je iznosila 10,8%. Najveću stopu nezaposlenosti ima Grčka sa 26,4% i Španija 26,1%. Najnižu stopu ima Njemačka i Luksemburg sa 5,3%.

From the indicated table we can see that the inflation rate in some countries like Estonia, Italy and Malta has risen with time. On the other hand in Greece, Bulgaria and Romania the inflation rate is decreasing. The highest range of inflation rate growth is in Slovakia where in 2010 it was 0,7 and in May of 2012 the inflation rate was 4,1. The largest inflation drop is in Romania where in 2010 it was 6,1 and in May of 2012 it was 2,0. As far as the Eurozone is concerned the inflation rate measured in July of 2012 was 2,4 while in June the EU inflation rate was 2,6. The unemployment rate in January of 2013 was higher in the Eurozone and it was 11,9% while in the EU it was 10,8%. The highest unemployment rate is in Greece (26,4%) and Spain (26,1%). The lowest rate is in Germany and Luxemburg (5,3%).

**Grafikon 7:** Komparacija stope nezaposlenosti po mjesecima za Eurozonu, EU, SAD i Japan

**Graph 7:** Comparison of the unemployment rate per months in the Eurozone, EU, SAD and Japan

### Stopa nezaposlenosti



Estonija 2004. godine postaje punopravna članica EU. Centralna banka Estonije, vodeći se primarnim zadatkom održavanje stabilnosti cijena, oslonila se na fiksni devizni kurs unutar currency board aranžmana. Deset godina prije ulaska u EU liberalizovana je trgovina Estonije. Zahvaljujući navedenom ekonomski kriza je nije ni dotakla, a BDP je na visokih 8%.<sup>2</sup>

In 2004 Estonia became a full member of the EU. The Central bank of Estonia, following the primary aim of maintaining the stability of prices, relied on the fixed exchange rate within the currency board arrangement. Trading in Estonia was liberalised 10 years before joining the EU. Thanks to the mentioned economic crises never came to Estonia and its BDP is at a high 8%.<sup>2</sup>

<sup>2</sup>Međutim, ni u ovoj zemlji članici EMU, nešto nije u redu. Naime, dolazi do pada plata i penzija. Ekonomski rast od 8% predstavlja uzlet profitiranja uglavnom bolje obrazovanih u većim gradovima poput metropole Tallinna. S druge strane, stanovnici van urbanih naselja jedva sastavljaju kraj sa krajem.

However, even in this member country of the EMU something is not right. Namely, there is a significant drop in salaries and pensions. The economic growth of 8% represents an ascent of profiting mainly of the better educated in bigger cities resembling the metropolis Tallinna. On the other hand, the citizens outside the urban areas are barely making ends meet.

Sa aspekta ispunjenja navedenih kriterija ključni period za Sloveniju je kraj 2005. godine. Slovenija je od 2003 - 2007. godine ispunjavala uslove po pitanju kamatne stope, budžetskog deficita i javnog duga. Stabilnost deviznog kursa postiže 2004. godine, a kriterij koji se odnosi na inflaciju od 2005. godine. Zajednički Program Vlade Slovenije i CB Slovenije analizira korelaciju šokova Slovenije i EMU, te nudi određene zaključke. Diverzifikacija proizvoda namjenjena međunarodnoj trgovini pokazuje da je Slovenija manje izložena šokovima koji utiču na pojedine sektore. Slovenija je relativno mala zemlja, rizik da će ugroziti efikasnost EU je relativno mali, rezultati su ECB.

Kriteriji konvergencije vrlo su naglašeni jer je ocijenjeno da evropska valuta, euro, može biti dovoljno jaka samo ako u monetarnu uniju uđu samo zemlje koje ostvare niske stope inflacije i povoljne parametre u fiskalnoj sferi. Na tim kriterijima posebno je insistirala Njemačka, čija je valuta bila prestižna i služila je u evropskim ekonomskim integracijama kao nominalno sidro. Dekonvergence evropski konvergenijski indikator (engl. Dekonvergence European Indicator, DCEI) je jedinstven način iskazivanja postignutog stepena konvergencije zemalja. DCEI uzima u obzir četiri vrste konvergencije: monetarnu, fiskalnu, ekonomsku i institucionalnu. Maksimalna je vrijednost DCEI 100 i ona predstavlja prosječnu vrijednost određenoga indikatora za EU [Bilas (2005) str. 229]. Bitno je napomenuti da se u sklopu monetarne konvergencije promatraju stopa inflacije, kamatna stopa, devizni kurs stopa rasta kredita. Sa aspekta fiskalne konvergencije, dio budžetskog salda u BDP, u dio privatne potrošnje u BDP, udio javnog duga u BDP i udio vanjskoga duga u BDP. U sklopu realne konvergencije promatra se BDP po stanovniku, udio poljoprivrede u BDP, stopa nezaposlenosti i udio trgovine se EU u ukupnoj trgovini. Sa aspekta institucionalne konvergencije posmatraju se uspješnost politike, institucije bankarskog sektora, te stepen

From the aspect of fulfilling the mentioned criteria the key period for Slovenia was the end of 2005 and the beginning of 2006. Slovenia was in the period between 2003 and 2007 trying to satisfy the conditions concerning the interest rate, budget deficit and public debt. The stability of the exchange rate was achieved in 2004 and the criteria referring to the inflation since 2005. The joint program of the Government of Slovenia and CB of Slovenia analyses the correlation of shocks of Slovenia and EMU and offers certain conclusions. The diversification of products intended for the international market shows that Slovenia is less exposed to shocks which affect certain sectors. Slovenia is a relatively small country and the risk of it jeopardizing the efficiency of the EU is relatively small; these are the ECB results.

The convergence criteria are severely emphasised because it has been deemed that the European currency, the Euro, can only be strong enough if the monetary union is only joined by the countries which achieve low inflation rate and favourable parameters in the fiscal sphere. Germany specifically insisted on these criteria whose currency was prestigious and served the European economic integration as the nominal anchor. DCEI (Dekonvergence European Indicator) is a unique way for countries to express the achieved level of convergence. DCEI takes into consideration four types of convergence: monetary, fiscal, economic and institutional. The maximum value of the DCEI is 100 and it represents the average value of a specific indicator for the EU [Bilas (2005) pg. 229]. It is important to mention that within the monetary convergence the inflation rate, interest rate, exchange rate and loan increase rate are observed. From the aspect of the fiscal convergence, a part of the budget balance in the BDP, consumption private share in the BDP, public debt share in the BDP and external debt share in the BDP are observed. Within the real convergence the following are observed: the BDP per citizen, agricultural share in the BDP, unemployment rate and the trading share with the EU in the overall trading. From the aspect of institutional convergence the observed parts are the success of politics, institutions of the banking sector and the degree of the



političke i konstitutivne nezavisnosti nivoa pregovora sa EU do koje je neka zemlja došla.

political and constitutive independence of the negotiation levels with the EU which a certain country has reached.

**Tabela 5:** Mاستrihtski kriteriji za 2012. godinu

**Table 5:** Maastricht criteria for 2012

EU Members	GDP (% EU)	Public debt (% of GDP)	Deficit (-)/ Surplus (+) of GDP	Inflation rate	Unemployment rate
<b>EU</b>	100,00	82,5	-4,5	3,1	10,5
<b>Germany</b>	20,2%	81,2	-1,0	2,5	5,4
<b>France</b>	15,8%	85,8	-5,2	2,3	10,8
<b>United Kingdom</b>	13,9%	85,7	-8,3	3,3	7,9
<b>Italy</b>	12,7%	120,1	-3,9	2,9	10,8
<b>Spain</b>	8,7%	68,5	-8,5	3,1	25,8
<b>The Netherlands</b>	4,8%	65,2	-4,7	2,5	5,4
<b>Poland</b>	2,9%	56,3	-5,1	3,9	10,1
<b>Belgium</b>	2,9%	98,0	-3,7	3,5	7,4
<b>Sweden</b>	2,8%	38,4	0,3	1,4	7,8
<b>Austria</b>	2,3%	72,2	-2,6	3,6	4,4
<b>Denmark</b>	1,9%	46,5	-1,8	2,7	8,1
<b>Greece</b>	1,9%	165,3	-9,8	3,1	25,1
<b>Finland</b>	1,5%	48,6	-0,5	3,3	7,9
<b>Portugal</b>	1,4%	107,8	-4,2	3,6	15,7
<b>Ireland</b>	1,3%	108,2	-13,1	-1,6	15,1
<b>Czech Republic</b>	1,2%	41,2	-3,1	2,1	6,8
<b>Romania</b>	1,0%	33,3	-5,2	5,8	7,1
<b>Hungary</b>	0,8%	80,6	4,3	3,9	10,6
<b>Slovakia</b>	0,5%	43,3	-4,8	4,1	13,9
<b>Luxemburg</b>	0,3%	18,2	-0,6	3,7	5,2
<b>Bulgaria</b>	0,3%	16,3	-2,1	3,4	12,4
<b>Slovenia</b>	0,3%	47,6	-6,4	2,1	8,4
<b>Lithuania</b>	0,2%	38,5	-5,5	4,1	12,9
<b>Latvia</b>	0,1%	42,6	-3,5	4,2	15,9
<b>Cyprus</b>	0,1%	71,6	-6,3	3,5	12,2
<b>Estonia</b>	0,1%	6,0	1,0	5,1	10,0
<b>Malta</b>	0,1%	72,0	-2,7	2,4	6,4

Izvor: MMF (31.10.2012.)

Source: MMF (10/31/2012)

Iz tabele 5 se vidi da u 2012. godini u ukupnom BDP-a najveće učešće ima Njemačka sa 20,2%. Iza Njemačke su Francuska sa 15,8%, UK sa 13,9%. Najniže učešće imaju Latvija, Kipar, Malta, Estonija sa učešćem od 0,1% u BDP-u. Kriterij koji se odnosi na javni dug ispunjavaju Poljska čiji javni dug iznosi 56,3%, Švedska sa javnim dugom od 38,4%, Danska 46,5%, najniži iznos javnog duga od 6% ima Estonija.

In table 5 we can see that in 2012 in the overall BDP the largest participation is taken by Germany with 20,2%. Behind Germany is France with 15,8%, the UK 13,9%. The lowest participation in the BDP is taken by Latvia, Cyprus, Malta and Estonia (0,1%). The criteria which relates to the public debt is satisfied by Poland which has a public debt of 56,3%, Sweden 38,4%, Denmark 46,5% and Estonia which has the lowest public debt of 6%.

## ZAKLJUČAK

Činjenica je da se EMU suočava sa teškim izazovima, jer je uvođenjem eura, otpočelo vođenje zajedničke ekonomske monetarne politike u cjelini. Nezavisno odlučivanje ECB o monetarnoj politici predstavlja još jedan preduslov za stabilnost eura. Ispunjavanjem kriterija iz Maastrichta ostvaruje se nominalna konvergencija. Kako bi se postigla realna konvergencija neophodno je ispunjavanje nominalne konvergencije. Može se desiti da su nominalna i realna konvergencija u sukobu a najviše polemike izaziva inflacija kao jedan od uslova pristupanja EU. Nelogično je zahtijevati od zemalja sa različitim stepenom razvijenosti da imaju iste stope inflacije. Dakle, zemlje kandidatkinje za članstvo u EU pored navedenog moraju pokazati održivi nivo zadovoljenja makroekonomskih pokazatelja koji su stavljeni pred njih.

Najveći izazov za EMU dogodio se 2008. Godine kada se kriza koja je pogodila SAD odrazila i na zemlje članice EU. Najvažniju ulogu imala je ECB koja je ubrizgala velike količine likvidnosti na tržištu. Mnoge zemlje članice Eurozone imaju teške posljedice kao što su smanjenje potražnje, pad proizvodnje i izvoza, povećanje nezaposlenosti, povećanje javnog duga te pritiska na vrijednost domaće valute. Veliki problem u Eurozoni će se pojaviti ako neka od zemalja zapadne u ozbiljne finansijske probleme. Njen najveći problem je politička konstrukcija od čije strukture zavisi puno stvari. Ispunjenje kriterija konvergencije ne bi trebalo da inicira makroekonomske probleme Eurozone. Trenutno stanje ukazuje na optimističnu budućnost, iako je budućnost teško predvidjeti i u slučaju mnogo izvjesnijih stvari.

## CONCLUSION

The fact is that the EMU is facing difficult challenges, because with the implementation of the Euro, began a joint conduction of the economic monetary policy as a whole. Independent decision making by the ECB concerning the monetary policy represents another precondition for the stability of the Euro. By fulfilling the criteria from the Maastricht the nominal convergence is accomplished. In order to achieve real convergence it is necessary to satisfy the nominal convergence. It may happen that the nominal and real convergence are at a conflict and most controversy derives from the inflation as one of the conditions for joining the EU. It is illogical to demand from the countries with different degrees of development to have the same inflation rates. Therefore, candidate countries, apart from the stated, must show a maintainable level of satisfied macroeconomic indicators presented before them to join the EU.

The biggest challenge for the EMU happened in 2008 when the crisis which hit the USA also reflected on the members of the EU. The ECB had the most important role in which it injected large quantities of liquidity into the market. Many member nations of the Eurozone have difficult consequences such as the decrease of demand, drop in production and export, higher unemployment rate, increase of the public debt as well as pressure on the domestic currency. A big problem in the Eurozone will occur if one of the countries falls into serious financial problems. Its largest problem is the political construction, the structure of which affects many things. Satisfying the convergence criteria should not initiate macroeconomic problems in the Eurozone. The current state points to an optimistic future although the future is difficult to predict even when it comes to more certain things.

## Literatura

1. Ahmetašević N, *Strategija integriranja BiH u Evropsku uniju*, Europlus, Garamond Sarajevo, 2005, str: 16-17.
2. Bilas V, *Proširenje Europske unije i sudjelovanje novih članica u tečajnom mehanizmu 2*, Zbornika radova Sveučilište u Rijeci, Ekonomski fakultet, 2005, str: 167-180.
3. Bilas V, *Konvergencija tranzicijskih zemalja prema Evropskoj uniji*, Ekonomski pregled, 2005, str: 221-237.
4. Baldwin, R, Bertola G, Seabright P, *EMU: Assessing the Impact of the Euro*, Blackwell Publishing, 2003.
5. Carlberg M, *Dynamic Policy Interactions in a Monetary Union*, Helmut Schmidt University, Hamburg, 2011.
6. Đonlagić Dž, *Evropska monetarna unija i Bosna i Hercegovina*, Ekonomski fakultet u Sarajevu, Sarajevo, 2006.
7. Grauwe P, Schnabl G, *Nominal Versus Real Convergence - EMU Entry Scenarios for the New Member States*, KYKLOS, 2005, str: 537-555.
8. Grgić M, Bilas V, Šimović H, *Finansijska liberalizacija, monetarna i fiskalna politika Europske unije*, Ekonomski fakultet Zagreb, Serija članka u nastajanju, 2006, str: 6-22.
9. Kersan-Šabić I, Mihaljević A, *Nove zemlje članice EU i EMU-konvergencija i finasijska kriza*, Ekonomski vijesnik, IBL Osijek, 2010, str: 12-29.
10. Marelli E, Signorelli M, *Institutional, nominal and real convergence in Europe, Banks and bank system*, Sumy, 2010, str: 140-155.
11. Mongelli F. P, *New views on the optimum currency area theory: what EMU telling us?*, Working paper br: 138, 2002, str: 5-33.
12. Ribnikar I, *Keynes' monetary theory and transition economies*, Zbornik radova, Ekonomski fakultet Rijeka, 2007, str: 35-53.

## Literature

1. Ahmetašević N., *Strategija integriranja BiH u Evropsku uniju*, Europlus, Garamond Sarajevo, 2005, pg. 16-17.
2. Bilas V., *Proširenje Europske unije i sudjelovanje novih članica u tečajnom mehanizmu 2*, Zbornik radova Sveučilište u Rijeci, Ekonomski fakultet, 2005, pg. 167-180.
3. Bilas V, *Konvergencija tranzicijskih zemalja prema Evropskoj uniji*, Ekonomski pregled, 2005, str: 221-237.
4. Baldwin, R, Bertola G, Seabright P, *EMU: Assessing the Impact of the Euro*, Blackwell Publishing, 2003.
5. Carlberg M, *Dynamic Policy Interactions in a Monetary Union*, Helmut Schmidt University, Hamburg, 2011.
6. Đonlagić Dž, *Evropska monetarna unija i Bosna i Hercegovina*, Ekonomski fakultet u Sarajevu, Sarajevo, 2006.
7. Grauwe P, Schnabl G, *Nominal Versus Real Convergence - EMU Entry Scenarios for the New Member States*, KYKLOS, 2005, str: 537-555.
8. Grgić M, Bilas V, Šimović H, *Finansijska liberalizacija, monetarna i fiskalna politika Europske unije*, Ekonomski fakultet Zagreb, Serija članka u nastajanju, 2006, str: 6-22.
9. Kersan-Šabić I, Mihaljević A, *Nove zemlje članice EU i EMU-konvergencija i finasijska kriza*, Ekonomski vijesnik, IBL Osijek, 2010, str: 12-29.
10. Marelli E, Signorelli M, *Institutional, nominal and real convergence in Europe, Banks and bank system*, Sumy, 2010, str: 140-155.
11. Mongelli F. P, *New views on the optimum currency area theory: what EMU telling us?*, Working paper br: 138, 2002, str: 5-33.
12. Ribnikar I, *Keynes' monetary theory and transition economies*, Zbornik radova, Ekonomski fakultet Rijeka, 2007, str: 35-53.

Vujučić B, *Evro, evropska monetarna politika i Hrvatska, Masmeolia, Zagreb, 2003.*

<http://www.ecb.int/>

<http://europa.eu/>

<http://www.cbbh.ba/>

Vujučić B, *Evro, evropska monetarna politika i Hrvatska, Masmeolia, Zagreb, 2003.*

<http://www.ecb.int/>

<http://europa.eu/>

<http://www.cbbh.ba/>