THE NOMINAL AND REAL CONVERGENCE:
A REAL PROBLEM FOR A SINGLE CURRENCY AREA

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Abstract:

The introduction of the Euro currency, which replaced a number of local European currencies, is one of the most interesting monetary experiments. This project was presented to have a lot of advantages for the participants to this single currency area, such as comparable prices, lower trading costs, lower risks, etc. The specific requirements which have been arbitrarily established in order to adopt the Euro were called "nominal convergence criteria". Additionally, an undefined "real convergence" was claimed as an argument for postponing the replacement of the local currency with a regional one. This paper discusses this specific problem of economic convergence (real and nominal) as a prerequisite for being accepted as a member of a single currency area. We explain the (in)significance of such condition for the stability or optimality of this kind of monetary arrangement.

INTRODUCTION

The European Union is the most complex integration project that integrated until now an important number of countries with different degrees of development. Initially, this project began as a

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liberal one, with the declared purpose of promoting peace among European countries, increasing their prosperity, and—based on members' solidarity—"… the setting up of this powerful productive unit, open to all countries willing to take part and bound ultimately to provide all the member countries with the basic elements of industrial production on the same terms, will lay a true foundation for their economic unification. This production will be offered to the world as a whole without distinction or exception, with the aim of contributing to raising living standards and to promoting peaceful achievements" (The Schuman Declaration, 1950). The project was started in 1952 as a free trade area for specific heavy industries (coal and steel in 1952, energy in 1958) and evolved toward a single market (1987) using a single currency (since 1999). New features have been continuously added: new members (today EU has a total area of 4.3 mil. km^2, a population of 508 mil. inhabitants and a GDP per capita of 25,700 Euro), new common public policies (such as competition policy (Stamate 2011), monetary policy, security policy, agriculture policy, etc.), new financing instruments (such as JEREMIE for financing the SME sector, JASPER for providing financial support to help newcomers in this group of countries, or JESSICA for financing the development of urban infrastructure, the improvement of cultural sites, promoting the development of commercial infrastructure for SMEs, IT or R&D sector, and financing the universities' development) (Jora, Topan and Musetescu 2008). The current crisis was a good reason to introduce new financial mechanisms, such as European Financial Stability Facility [EFSF FAQ 2014]—created in 2010 with total capital of 701.9 billion Euro and a paid-in capital of 80.2 billion Euro—to ensure the necessary liquidity to lend money to EU governments, to recapitalize banks that faced specific liquidity problems, and to directly purchase debt from primary or secondary EU debt markets (Cini and Solorzano-Borragan 2010). The economic freedom (freedom of goods, services, capital, and people) is backed by a continuous growth of taxation levels in all member countries (Joumard 2002).

The current crisis significantly challenged European Union's structures and common policies, especially its monetary policy. The countries that have adopted the Euro have limited possibilities to issue fresh local currency to 'save' their economy, or to bail out the financial system. The weaknesses of countries like Greece or Cyprus affected the credibility and stability of the Euro Area. Euro became an inflationary vehicle used to save governments in deficits, and to recapitalize banks much too exposed to sensitive countries from the southern part of the Eurozone (including Portugal, Spain, and Italy). Public debt rapidly increased, adding new pressures for healthy economic growth. Adopting the Euro by other countries seems to not be a good idea for both parties, i.e. countries outside and inside the Eurozone. New schedules and possible adjusted convergence criteria are expected by newcomers. The introduction of the Euro became compulsory, and no special status members are being accepted anymore (such as United Kingdom or Denmark).

The adoption of the Euro was presented to be a key element in the development of the single market. The free movement of goods and services in a market without using a single currency was seen to be imperfect due to at least the following reasons: [i] the existence of exchange rate represents an additional cost for operators from different countries, [ii] exchange rates among several currencies are a source of currency risk for internal commercial and financial operations, and [iii] a single currency ensures a better comparative analysis of prices among countries and regions, and a better arbitrage of goods and services. European citizens were attracted on the side of Euro with these chief 'economic' arguments. In fact, all of them are partially true. Exchange rate will remain as a cost for the goods imported from abroad, and this cost should be compared with the cost of the production of money, that is inflation (for a country less inflationary this cost could be lower than inflation produced by European Central Bank). Exchange rate risk is still present because Euro is always compared with other existing strong currencies (USD,

British Pound, and Japanese Yen). The volatility of Euro replaced the volatility of local currencies, and it is not necessary for the former to be lower than before introduction of the Euro. The comparability of prices expressed in the same currency all over Europe is futile, because when somebody buys fruits from a supermarket, they will compare prices from that location for similar goods. This comparative analysis is relevant for closed locations and will not provide useful information for places located far away each other. That is, nobody will compare the price of apples or plums from a town in southern part of the EU with the price of the same products in the northern part of EU in deciding to arbitrage it (in this case, to go buy apples in the north). The same reasoning is true for wages expressed in the same currency. A worker in the south will compare the income of a worker from north, but while expressing wages in the same currency will help the calculus, the analysis will remain limited in terms of economic effects.

In fact, by participating to the Eurozone, countries transferred their monetary policy from the local level to supra-national level. Similar institutions have been created—e.g. the European Central Bank—without significantly reducing the importance of local institutions. For this reason, the Eurozone is administrated by an extended Higher Authority, including as well the national central banks. A local fiat currency was replaced by a common fiat currency (Euro) with the same characteristics: the possibility to produce it in large volumes without significant costs, the political control exercised on this currency, the redistributive function of such a medium of exchange, and its intensive use for financing the public sector and providing cheap liquidity for commercial banks operating with low fractional reserves. Moral hazard (seen as tragedy of the commons) was significantly increased due to the fact that a single currency totally eliminated competition among European countries in the production of money (Bagus 2011). Before the introduction of the Euro, local monetary authorities (national central banks) were subject to penalties when they became too inflationist: if the French Central Bank produces more

French Francs, this generated a depreciation of the French currency compared with others, while the credibility of the currency significantly decreased—a hard and more stable currency being preferred in such cases. The removal of this 'competition' in the production of money increased and stimulated the latter at a higher level than before, since the European Central Bank is endowed with a higher capacity to inflate the money supply than all national central banks taken together (Wallace, Pollack and Young 2010).

The case of Eastern European countries is interesting too. The adoption of the Euro in this area has had different approaches: small countries like Slovenia or the Baltic countries rapidly decided for Euro, while big countries like Poland, Czech Republic, or Romania postponed this decision as long as possible, invoking different reasons. The most invoked reason was the lack of real and nominal economic convergence. The EU Treatise defined only the nominal convergence, while the real convergence remained unclear. Moreover, economic theory identifies a conflict between nominal and real convergence, so-called Balassa-Samuelson effect, which states that if a country participating in a currency area wants more real convergence (measured through real GDP per capita), this will generate less nominal convergence, due to inflationary pressures (de Grauwe and Schnabl 2004). These countries are considered unprepared to face the challenges and restrictions of the Euro Area.

This paper discusses the legitimacy of such an argument (the lack of convergence) for introducing Euro in these countries in Eastern Europe. The paper is structured as follows: first, we present a critical view of the compulsory conditions for being accepted in the Euro Zone as a country member. We continue with a discussion of the concept of 'real' and 'nominal' convergence, and with an analysis of the (in)consistency of 'nominal' convergence criteria. Finally, we conclude with a discussion of the arguments concerning the importance of these criteria for adhering to a single currency area such as the Euro.

PREREQUISITES AND CONDITIONS FOR INTRODUCING
THE EURO IN EU COUNTRIES

The introduction of the Euro is considered to be a milestone for the European integration process. Having now a President, a flag, a European anthem and a single currency, European Union has a more defined identity for European citizens. The project of introducing the Euro began in the early 1990s, when European countries struggled to defend a weak economic development. The European project needed a new boost, and the introduction of a single currency—together with the acceptance of new Eastern members—significantly animated and revitalized the integration process.

Preliminary discussions have crystalized the 'economic' prerequisites for EU members if they wished to be part of this Euro project. These prerequisites were later called "nominal convergence criteria", and have been included in the Treaties preparing the monetary integration. The Maastricht Treaty signed in 1992 divided the calendar into three different stages (free movement of capital started in 1990, the convergence of economic policies for EU members started in 1994, and the integration of single currency and the creation of European Central Bank established for 1999), as well as defined the nominal convergence criteria regarding inflation, public deficit, public debt, exchange rate volatility and long-term interest rates. According to this Treaty, the nominal convergence criterion regarding inflation is a limit of 1.5 percentage points above that of the three lowest inflation rates in EMU members. The criterion regarding long-term interest rates supposes a limit of 2 percentage points above the average of those three EMU members with the lowest inflation. The criterion concerning public deficit limits it to a maximum value of 3% of a country's GDP, while the criterion of public debt to a value of 60% of country's GDP. The last criterion, of exchange rate stability, was defined as the obligation to keep exchange rate fluctuations within a band for at least two years prior to the introduction of the Euro. This margin was established

to be +/-15% against the Euro. During these two years, the exchange rate should not be influenced by open market operations of the central banks.

Later on, the European Central Bank was officially recognized to be an EU institution, by the Treaty of Lisbon (2007). A Cohesion Fund was proposed to help less developed countries with their economic convergence, and cohesion policy became one of the most important common policy in European Union. The Treaty of Lisbon introduced a Stability and Growth Pact among EU members, with the main objective of limiting public indebtedness and public deficits. Necessitated by the European sovereign debt crisis, a new intergovernmental treaty was signed in 2012, called The Treaty on Stability, Coordination and Governance in the Economic and Monetary Union—or more simply The Fiscal Stability Treaty—, in order to reinforce the provisions of the previous Stability and Growth Pact introduced by The Lisbon Treaty. The main provisions of this agreement refer to the possibilities for ECB or other EU institutions to issue long-term debt securities on behalf of the European Union, to the new limitations imposed to public deficits (the Treaty introduced a concept of structural deficit limited to 1% of GDP for countries with a public debt less than 60% of GDP, and 0.5% for countries with the same ratio higher than that limit), and to a debt brake rule with the final purpose of reducing the indebtedness of EU countries. This last Treaty increased the number of indicators monitored by EU authorities to estimate financial stability.

Any EU country is now obliged to adopt the Euro, as the Treaties explicitly mention this aspect to be an obligation assumed by all countries. The initial introduction of the Euro created a host of problems that determined a special status for the United Kingdom and Denmark. The most difficult criterion to reach seemed to be that of net public lending to GDP, which significantly increased during the 90s in almost all EU countries (only few EU countries met the condition of 60% public debt to GDP ratio prior to the introduction of the Euro). Greece failed to meet the conditions in

1999 and waited until 2000 to be accepted into Eurozone. After the adoption of the Euro, more and more countries failed to keep public deficit and public debt under control. At the same time, there were no penalties for those countries that failed to fulfil the convergence criteria, no possibility to force a country to quit Eurozone, and no mechanism to decide for a voluntary exit from the Eurozone, all of which significantly increased the moral hazard in the governance of European Monetary Union (EMU) countries. Based solely on taxation and less on locally produced inflation, national governments significantly increased their debts to finance their deficits.

The EU Treaties mention only those five convergence criteria used to appreciate the efforts of EU countries to converge towards other members' economic performance. All these criteria are considered arbitrarily to be an expression of 'nominal' convergence. Any other aspect or indicator (such as GDP per capita) is classified, also arbitrarily, into 'real' convergence. The line between 'nominal' and 'real' classes is very thin, and thus difficult to be argued for scientifically. Additionally, it is not clear why EU Treaties are referring only to these five macro-indicators: inflation, long-term interest rate, public debt, public deficit, and exchange rate volatility. More, or perhaps different, indicators could have similar importance for the economic convergence of a country. The proof for this imperfection of the list of indicators is provided by the Treaty of Lisbon and later by the Fiscal Stability Treaty that divided public deficits into 'structural' and 'cyclical' components, with new critical values for them.

It is easy to notice that these indicators are not independent one from the other: inflation is included in the interest rate (as a premium), long-term interest rate is associated to the treasury bond rate that is influenced by the indebtedness level of each country, inflation influences the level of the exchange rate (in accordance to the purchasing power parity), interest rate affects the level of the exchange rate (in accordance to the interest power parity) and public deficit influences the public debt that is

financing such deficits. Additionally, it is not clear how EU experts established the critical values for the nominal convergence criteria: 1.5% percentage points for inflation, +/-15% margin for exchange rate volatility, 60% for public debt, 3% for deficit and 2% percentage points for long-term interest rates. All these values are not scientifically argued or backed by empirical studies showing that they are 'optimal' for a single currency area (in fact, it is impossible to obtain such result from theory or practice).

Another interesting aspect is related to the nature of these indicators, and to which institution or authority have the possibility to influence them. Three of them (inflation, interest rate, exchange rate volatility) are directly influenced by central banks: inflation is generated by the expansion of money and credit, interest rate is influenced by manipulating the interest rate applied to the borrowings from central banks (so-called official interest rate or monetary interest rate), and the exchange rate is influenced by operations based on international reserves (the central bank can sell and buy foreign exchange directly or indirectly) or by issuing / sterilizing local currency that can make local currency less or more expensive against any foreign exchange. Another criterion—public debt—is indirectly influenced by central banks: by offering low cost liquidity to commercial banks, central banks encourage them to be more interested in buying treasury securities issued by public authorities; moreover, commercial banks have limited possibilities to buy money market instruments other than treasury bonds or bills. As a result, any relaxation of monetary policy in terms of interest rate applied to money lent by central banks is subject to increases in the public debt. The only criterion that is outside of central banks' responsibility is that of public deficit. However, even in this case, we can observe that easier lending conditions promoted by central banks can and will be transformed in additional interest from commercial banks to lend money to the state, which will increase the operating cost of the state (expenditures with paid interest rate, reimbursements) and finally will increase public deficit.

Thus, we can state that almost all 'nominal' convergence criteria are highly dependent on central bank intervention. This is very important, especially for those countries not interested in adopting the Euro. Central banks have then a significant influence on the entire process of adhering to the Eurozone. Taking into consideration that this decision means, in fact, the transfer of monetary policy abroad to the ECB, and a significant diminution of the role played by local central banks, it is clear why in almost Eastern European countries the adoption of Euro is continuously postponed without a definite assumed deadline. For instance, Romania changed several times the deadline for this decision, recently having set a new one for 2018, but without many reserves that it will be postponed again soon.

Additionally, the success of the introduction of the Euro in non-Euro countries is highly dependent on the intervention of European Central Bank. If this central bank increases the quantity of Euro for a short time, the non-Euro country will register an abnormal appreciation induced by commercial and financial transactions with Eurozone. This external disequilibrium will be translated in that non-Euro country, and could influence almost all nominal convergence criteria. Because this external contagion is always present, candidate countries should have a well-diversified economy (internal vs. external dependence, export vs. import and inflows vs. outflows of capital). Furthermore, moral hazard and inefficiency are significantly enhanced by the lack of powerful sanctions applied to those Eurozone members that are ignoring economic cohesion and convergence. The existing sanctions are formal and never applied to big countries that accumulate more and more debt and deficits (e.g. Italy, France, or Germany). Moreover, a country that entered the Eurozone has no possibility to exit this monetary area (as is the case of Greece or Cyprus).

The first conclusion is that 'nominal' convergence is arbitrarily defined in EU Treaties, and includes a number of indicators that are highly dependent on central bank intervention (such as inflation or long-term interest rate). These indicators are strongly

influenced by each other and their critical values are impossible to be argued for scientifically. Acceptance into monetary union based on such indicators is subject to create the same problems as their absence.

THE (IN)CONSISTENCY OF DIFFERENT TYPES OF CONVERGENCE

The need for convergence among countries is derived from the optimal currency areas theory, which concerns trade integration, synchronization of business cycles, factor mobility (especially labour) and fiscal integration. The significance of the concept of convergence increased along with recent developments in economic growth theory. According to Frankel (2004), convergence is defined as "the synchronization of business cycles, i.e., correlation of unanticipated shocks that would reduce the need for individual countries to retain their own monetary policy". There is a distinction between a long-run and short-run view on real convergence (Marelli and Signorelli 2010): "a long-run view of real convergence implies the narrowing of differences in the structural conditions of different countries (or regions), thus allowing the achievement of similar performances of real variables; or, more precisely, a catching-up—in the transition period—of backward countries, in terms of standard of living, productivity, etc." and "a short-run view of real convergence stresses, on the contrary, the business cycle features of (comparative) economic growth of different countries". Nominal convergence is strongly related to the convergence of prices, being defined by law and assumed by all countries that want to join a single currency area: "nominal convergence in a broader concept represents converging of nominal variables, such as prices, inflation rates, interest rates, nominal wages, rents, etc." (Drastichová 2012). Price stability was recently considered to be insufficient to explain the financial stability and to ensure durable economic growth, so the number of indicators used to express nominal convergence in case of EMU has changed.

Galor (1996) defined convergence by identifying three different types of convergence: (i) absolute (unconditional) convergence, (ii) conditional convergence and (iii) "club" convergence. The absolute convergence type is defined by Galor as follows: "per capita incomes of countries converge to one another in the long run independently of their initial conditions". The conditional convergence is defined as follows: "per capita incomes of countries that are identical in their fundamental structural characteristics converge to one another in the long run independently of their initial conditions". The "club" convergence is defined as: "per capita incomes of countries that are identical in their fundamental structural characteristics converge to one another in the long run, provided their initial conditions are similar as well" (Galor 1996, p. 1056). Thus, the difference between these three types of convergence consists mainly in the significance of initial conditions and structural characteristics (such as preferences, population growth rate, or technological development). All three types of convergence are referring to per capita income growth rate between different countries that need to converge one to another.

Based on Solow growth model assumption (Solow 1956), in convergence theory we can find other two additional types of convergence: *'beta' (*β) *convergence*—defined as a process in which less developed regions or countries are catching up to most developed ones (the catching up process is explained by the diminishing returns associated to capital stock that is bound to be higher in developed countries than in less developed ones)—and *'sigma' (*σ) *convergence*—the process of reducing of the dispersion of real per capita income between different economies. According to Young, Higgins and Levy (2008), "β-convergence is a necessary but not sufficient condition for σ-convergence" explained by the random shocks that can push countries or regions away.

Beta convergence is measured using a linear regression model, with the growth rate of real per capita income of a country "i" as dependent variable Y_{it} / Y_{i0} explained by initial real per capita income Y_{i0} and a set of structural exogenous variables

impacting the real income per capita such as capital, technology, or labour force. If this set of structural exogenous variables is excluded, absolute convergence is presumed. Sigma convergence is measured by using the coefficient of variation in relation to a mean value, the Gini coefficient used as a measure of inequality in the distribution of incomes (a value closer to 0 indicating more equal distribution and a value closer to 1 indicating less equal distribution of incomes), the Atkinson index used to estimate a level of inequality aversion (any increasing value for this index means that less developed countries became richer rather than the developed countries became poorer), the Theil index (measurement of entropic distance or disparities between countries or regions) and Mean Logarithmic Deviation (when this indicator is equal with 0 the countries or regions have the same income) (Monfort 2008).

Whole convergence theory (including optimal currency areas theory) fails to explain why a single currency is better than more currencies, especially when we are talking about fiat money with the same problematic characteristics: political control on the production of money, inflationary effect, credit expansion, alteration of the structure of prices and production by inflating the supply of money or manipulating the level of interest rate. Monetary competition existed since the discovery of money as medium of exchange that facilitates the exchange of goods and services. This monetary competition (between different metals, for instance) solved the problem of inflation generated by an excessive production of money for a limited period of time. The cost of producing (mining and minting) money (e.g. gold money), together with the freedom of choosing other metals (silver, copper) represented a good money market regulator, a better one than current central banks and their inflationary monetary policy. Removing this monetary competition and the freedom of use any type of money that could facilitate exchanges, monetary stability and economic stability were significantly affected.

Moreover, it is not clear why regions or countries using the same fiat currency should converge and should have the same

level of income or the same level of economic development. In fact, divergence is natural and it is based on different levels of capital stock, labour, or natural resources available in each country. This egalitarian way of seeing monetary integration cannot be argued for on economic grounds. The stability of a single currency and the optimality of such a monetary area cannot be claimed as a basis for any 'cohesion' or 'convergence' political program. The distinction between different types of convergence is unclear and theoretically inconsistent. Optimal currency areas (OCA) theory refers to market integration facilitating trade between members (understood as removal of trade barriers and tariffs), to increased factors mobility (labour, capital, natural resources) and to fiscal reduction (Mundell 1961). OCA theory refers to the openness of economies participating in such monetary arrangements, and to possible asymmetric shocks if this openness is missing (McKinnon 1963). Real convergence refers to income per capita convergence as a necessary condition for OCA and nominal convergence concerns monetary (prices, interest rate, exchange rate) and budgetary convergences (public debt, public deficit). In fact, convergence was introduced as an issue derived from OCA as a justification for social policies and interventionism in EU (Glavan 2004). Cohesion policy introduced a host of redistributive tools considered to be necessary for economic development (real convergence) and financial stability (nominal convergence). All these redistributions are based on taxation and inflation, and are in complete opposition to real convergence (since income per capita is transferred from a region or country to another), to nominal convergence (since the production of money and credit expansion is used to finance the cohesion) and, finally, to OCA prerequisites (such as more economic freedom and more market integration).

The last argument for the inconsistency of the concept of "convergence" and its relevance for the economic stability of a group of countries using a common currency is the use of different methodologies to estimate or measure the existence of convergence

(real / nominal / beta / sigma / conditional / absolute, etc.). All these methods are unstable and provide unclear results. If a public policy is applied to support a higher convergence, it will be difficult (or impossible) to estimate the final results of such common action. The theoretical inconsistency of such concepts is reflected in the inconsistency of methodologies used to estimate such phenomena. It is futile to measure the distance between countries, as long as economic convergence is based on individual efforts, and income per capita and inflation are very problematic to be used in this respect.

The second conclusion is that 'nominal' convergence and 'real' convergence are arbitrary concepts without theoretical consistency. The distinction between these two types of economic convergence is difficult to be argued for. In fact, the idea of convergence is merely linked to the idea of equal results redistributed over the whole society, between 'rich' and 'poor' classes, 'rich' and 'poor' regions, 'rich' and 'poor' economic sectors, and 'rich' and 'poor' countries. This convergence is seen to be the basis for the entire redistributive mechanism, and not a condition for structural reforms that improve the market mechanism. Economic convergence became another sophisticated tool of intervention manipulated by politicians, to their benefit.

THE IRRELEVANCE OF CONVERGENCE FOR SINGLE CURRENCY AREAS

Money is medium of exchange facilitating the exchange of goods and services in society. There is no optimum quantity of money that could be considered as the best facilitator of these exchanges. Without this fundamental discovery, a barter-based human society would be impossible to be as developed as it is today. Without money, economic calculation is impossible, the allocation of resources is difficult and not efficient, and we cannot select among different production or consumption alternatives. Savings, investment, and capital borrowing are difficult and very costly for entire economic system.

Unfortunately, today money has a different use, as natural money was replaced by politically controlled money. Money is thus used as a credit vehicle for the public sector, being controlled and issued by a public institution, i.e. the central bank, and expanded by commercial banks that operate with fractional reserves. The production of money out of thin air became an 'economic' activity with clear beneficiaries, i.e. those who have direct access to it: central bankers, commercial bankers, financial intermediaries, public entities, private entities working with the state that are financed by this money production.

One of the 'efficient' responses to the current crisis generated by monetary interventionism (money creation and credit expansion) is considered to be the introduction of a single currency that replaces the multiple currencies existing in the global system. Regional monetary integration has been introduced with a similar justification not only in Europe. And in fact, the idea is not a new one: the same proposal existed at the Bretton Woods Conference, when Keynes proposed a global issuing bank called International Clearing Union and a global currency called Bancor, but was rejected at the time. A single currency means more political power for those who control the money production: they will have more power to inflate and transfer this hidden tax onto the users of such money. The entities or countries who will find themselves closest to this money producer will be saved from a potential crisis by transferring such problems on those who will find themselves further away from it. Such initiative will create more inequalities and more social unrest, rather than be a solution to the crisis.

Preliminary convergence rules are motivated by the fact that participation to a single currency area reduces the response capacity of countries to potential crisis. From the perspective of countries participating in such monetary arrangements, the problem consists in the loss of state-controlled policy, i.e. monetary policy. The production of money will be out of the control of local governments, which in turn will control only taxes

as a source for financing public expenditures. The loss of this public policy is seen as a source of instability, especially for countries with large deficits and public debt. In fact, this monetary policy is not lost, but only transferred to a superior level. The supra-national central bank will keep the same role and characteristics. The single currency will have the same fiat money features. If we assume that central banks (national or supra-national ones) are independent from political influences, this transfer of money production should not be problematic. The potential disequilibrium of local economies participating to a single currency area generated by the transfer of money production is a non-problem. The producer of money (local or regional) could not be claimed to be the source of the economic problems in this case, because a country with high public deficits or public debts would still have these problems even with a local or regional currency. The only difference is that the country could make use of an additional financing source (production of money / inflation) in the case of a local currency. But it is not correct to consider that a regional fiat currency—in the case of which the production of money remains under the political control--excludes the bailout of national governments. The experience of the European Monetary Union (for the case of Greece, Cyprus, Italy, Portugal, and Ireland) has showed that local governments can continue the accumulation of public debt with strong financial support from the new issuer of money.

Another argument in favour of introducing preliminary convergence rules for acceding a single currency area is the stability of the single currency, if in that monetary union unprepared countries are accepted. The stability of a currency consists in the monetary policy. If the central banks promote a restrictive monetary policy, the stability will be higher. Money is not neutral to economic system; money production affects the structure of prices production, influences the level of interest rates and exchange rates, and generated a host of errors as well as uncertainty in entrepreneurial decisions. If a country is not sufficiently developed and is accepted

in a single currency area, this should not be a problem for the single currency stability, nor for the accepted country. Differences in terms of economic development and income inequalities exist at local level and regional level too. The (in)stability of a single currency depends on these inequalities in the same manner as local currencies. Less developed regions from a country will have no impact on the stability of a currency, local or regional. For this reason, the convergence problem is a non-problem for monetary integration based on a fiat currency. Legal enforcements are the same in this case too: the users of money (local or regional) have the same monetary restrictions, and producers of money (including commercial banks) have the same privileges. Differences in terms of productivity, income level, or competitiveness will always exist among individuals, regions, countries, but the currency (medium of exchange) will not be ever affected by such differences, and no convergence is required in this case. Especially since this medium of exchange is enforced by law and public institutions (central banks) and not by market powers.

In this respect, we can consider that preliminary convergence criteria (real or nominal) are futile and unnecessary. The introduction of a single currency by a group of countries will maintain the same problems, and will increase the moral hazard due to increased political power and control over the money production. The 'tragedy of the commons' will function in both cases (local vs regional currency), although it is likely to be higher in the case of a single currency due to the lack of competition in the production of money, and due to the larger number of users. The cartel around this production of money will push for more intensive monetary expansion, which will finally suffocate the real productive economy. It is easier for people to obtain money from a printing machine or from credit expansion than to obtain it from being connected to markets and to sale goods and services to consumers. More independence of money producers will increase this expanding capacity, while more cartelized (monetary integrated) countries will enforce the monopolistic position on

this money creation. The convergence criteria (nominal and real) are purely arbitrary in this case, and will not guarantee any stability after the acceptance of a new country in the monetary area.

CONCLUSION

The introduction of the Euro was an experiment that significantly influenced economic theory. Optimal currency areas (OCA) theory was developed to explain the importance of a single currency for participating countries and to provide a theoretical background for the effects (benefits and limitations) of such an experiment. Derived from this theory, convergence and cohesion became very important public policies in the European Union, and were backed by important financial support. The introduction of the Euro and later the inclusion in the Euro Area was conditioned by the fulfilment of specific nominal convergence criteria (most of them of a monetary nature). These prerequisites are seen to be very important not only for the participating countries to such monetary arrangement, but for the financial stability of single currency as well. In fact, monetary integration means a replacement of local currencies with a single one, all of them having the same fiat money characteristics. However, there is no improvement or change in terms of money features, as a legal (politically controlled) money is replaced by another one. Control over money production is transferred from a local level to a supra-national level, and no prerequisites are necessary in this case. The bailout of a local government and banks provided by a supra-national central bank is similar to the bailout of a local authority (a city or a region) and banks made by existing national central banks through money production. The stability of prices, the stability of interest rate and the stability of exchange rate are attributed to central banks only, the interest of such local institutions to transfer their powers being significantly reduced.

Pressed by politicians, central banks will promptly provide financial support for governments or any public authority in trouble. The instability is thus generated not by the place where the money is produced (local or regional), but by the fact that this money is produced out of thin air to cover public expenditures, public deficits, and public debts that have significantly increased over the last decades. The existence of such convergence criteria is not providing any security for users of money, or for the stability of the system. The terms of convergence are unclear and difficult to be measured, while the distinctions between different types of convergence are also unclear and difficult to be argued for theoretically.

Convergence, as defined by EU Treaties, is completely different from the condition proposed for a currency area to be optimal one (free trade, less barriers, more openness, more economic freedom for production factors etc.). Convergence is a concept closer to monetary and fiscal aspects referring to financial stability, rather than the openness of economies participating to monetary arrangements. Convergence, as it is understood by EU economists, is closer to the idea of cohesion and redistribution of resources inside of a monetary area that should ensure equal productivity, less income inequality, and similar economic development (including correlation of economic cycles). Convergence is used as an arbitrary argument against the access of specific countries in a monetary club, in order to postpone for an indefinite period of time a country from joining a monetary union, and keep the production of fiat money under local control.

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