LUISS SCHOOL OF EUROPEAN POLITICAL ECONOMY

RISKS OF DEFLATION IN THE EMU. Why is this time so deceitful?

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1. *Introduction*

The deep recessions characterizing the European Economic and Monetary Union (EMU) between the second semester of 2008 and the end of 2009, and from the last quarter of 2011 to the first quarter of 2013, were particularly severe for the euro area peripheral member states. These countries have been subjected to a longer recessionary phase compared to the EMU's average. A large part of them has experienced a compression of the monetary wages and price levels during both the two crisis periods in order to curb their macroeconomic imbalances. Italy has flown into a triple dip since the first half of 2014. Given this picture, it is not surprising that three episodes of decreasing monetary prices for the euro area as a whole can be identified. As shown later, these episodes coincide – respectively – with the peak of the international financial crisis during the last two quarters of 2008, the possible collapse of the American and European economic systems in the first term of 2009, and the main re-adjustment of macroeconomic imbalances implemented by EMU's countries in the last year (2014).

This paper aims at showing that the last episode is peculiar with respect to the previous two, due to the fact that the decrease in monetary prices since mid-2014 implies that the euro area has to face for the first time the deceitful problem of deflation. In order to justify this thesis, we will start by analyzing the EMU inflation dynamics starting from the creation of the euro area at the end of the Nineties, and the related evolution of inflation rate expectations (section 2). Then, we will show the 2014 structural deflationary process can be explained by the price compression in the EMU peripheral countries (section 3). Section 4 explains why the reality of the deflation in the euro area as a whole and in its weakest member states is not overrated. This will lead us to stress that the impact of this condition on the functioning of the European economy can be so negative to represent the most dangerous threat, impending on our difficult conditions (section 5). As shown by the Japanese 'lost decade' and by the ambiguous effects of the consequent credit and quantitative easing measures implemented by the

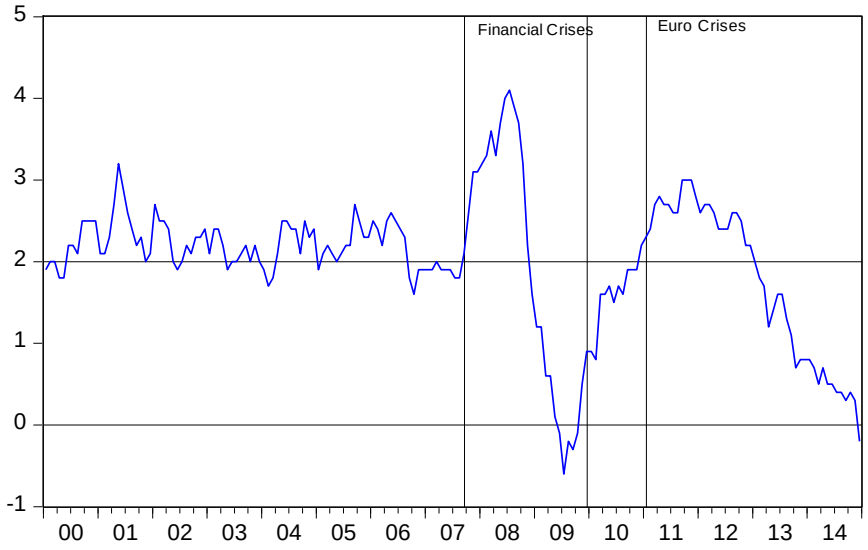
Japanese central bank, changing a deflationary trend is not easy. However, the EMU has the possibility to implement monetary and fiscal policies apt to face this challenge (section 6). The open question is whether the political and institutional constraints at the European level and the lack of trust between member states at the inter-governmental level could compromise the implementation of the effective policies.

2. *EMU inflation rate*

We start by analyzing the dynamics of the EMU's monetary prices at the aggregate level during the 1999-2014 period, i.e. since the beginning of the European monetary union. Figure 1 shows that the annual inflation rate of the euro area has remained close to the target level declared by the European Central Bank (ECB), that is around 2%,[1] over the time span between 1999 and mid-2006. As the EMU's quarterly inflation rate shows (see Figure 2) , prices dynamics in this same area became highly unstable through the international boom (June 2006 – April 2007) and the following phases of the international financial and 'real' crises (May 2007 – December 2009). The translation of quarterly data on an annual basis indicates that there were peaks in the EMU's inflation rate mid-2006 (4%) as well as in the first months of 2007 (around 4,5%). Then, at the height of the financial and 'real' crises (second half of 2008 and first quarter of 2009, respectively), the quarterly data show that two episodes of negative changes in the EMU's monetary prices can be identified. General reduction in prices appeared again during the second half of 2014.

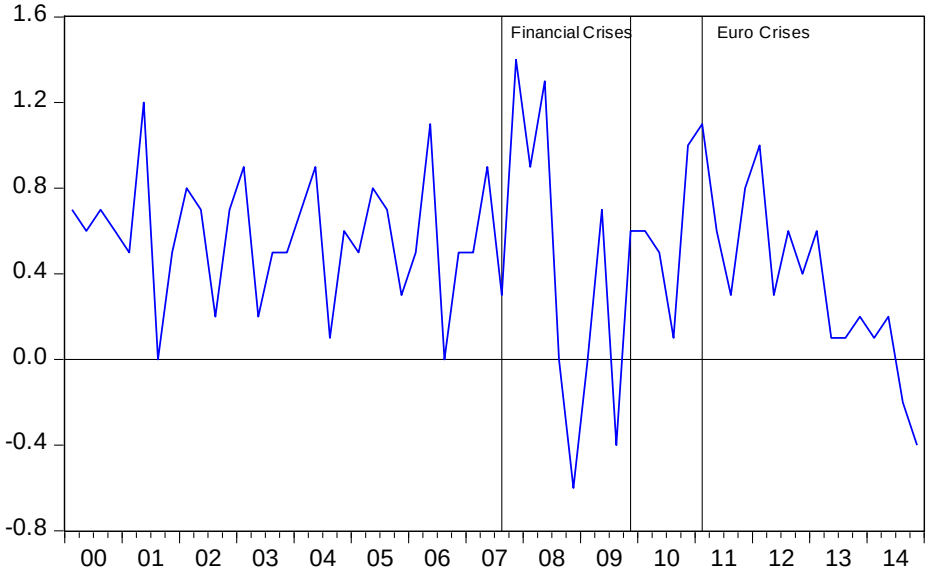
[1] Article 2 of the Statute of the ECB states that the primary objective of this central bank is to guarantee price stability in the euro area. The ECB's Governing Council decided that the appropriate definition of price stability is "a year-on-year increase in the Harmonised Index of Consumer Prices (HICP) for the euro area of below 2%." Then it added that this definition implies that inflation rates must be kept "below, but close to, 2% over the medium term." Hence, the ECB's Governing Council explicitly acknowledges that price stability is inconsistent not only with inflation rates above 2% but also with deflation rates (determined by price level declines). In the following part we will assimilate HICP to the general price index, and - if not differently stated - we will use it as a measure of the inflation rates (determined by changes in monetary prices). Moreover, for sake of simplicity, we will indicate a 2% inflation rate as the ECB's target level.

Figure 1
EMU annual inflation rate
Euro Area 18: Annual Percentage Changes



Source Eurostat

Figure 2
EMU quarterly inflation rate
Euro Area 18: quarterly percentage changes



Source: Eurostat

Thus, the key question is whether it is possible to find structural differences between the first two episodes of declining monetary prices and the last one. Our answer is positive, since we maintain that only the last episode of decreasing monetary prices can be labeled as deflation.

Let refer to Figure 3, that displays a measure of expected inflation rate for the euro area as a whole, based on data provided by Thomson Reuters and applying a standard computational methodology to these data. This is the same as asserting that that our measure is close to the indicator of EMU's expected inflation rate elaborated by the ECB and quoted by Draghi (2014) in his speech at Jackson Hole. In some details, for each year we refer to the inflation swap rates to determine a five-years forward inflation swap rate over a five to ten year period . The consequent measure is a weighted average of the swap rates s_{10} and s_5 for the maturities of ten- and five-years, respectively.

Formally:

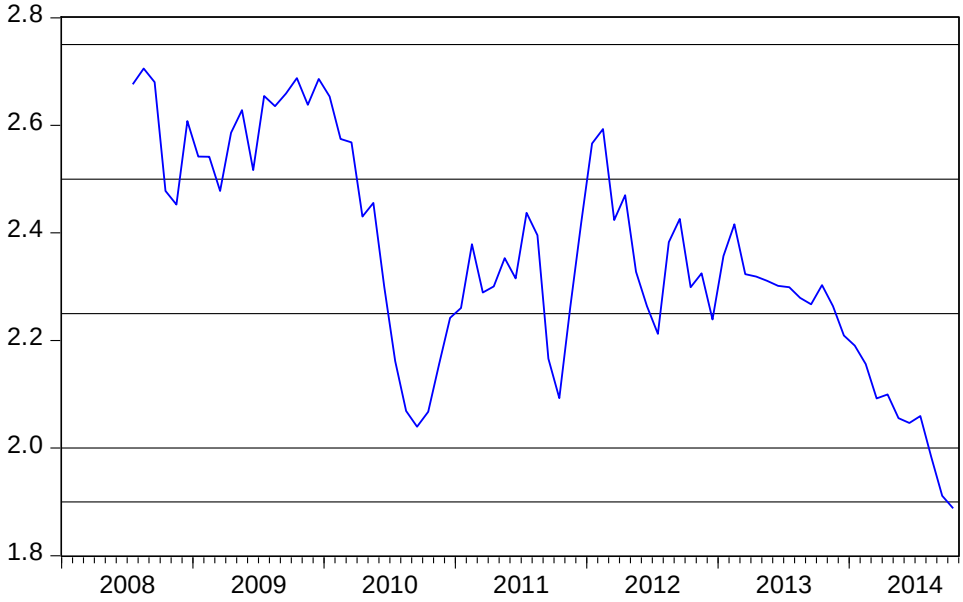
$$f_{10-5} = \frac{(10 * s_{10} - 5 * s_5)}{(10 - 5)}$$

where f_{10-5} denotes the forward inflation swap rate.

As stated by Draghi (2014), Figure 3 shows that the EMU's expected inflation rate remained above the 2% threshold level that is above the ECB's target level, through all the different phases of the international crises. In particular, the two first episodes of actual reductions in the EMU's monetary prices (second half of 2008 and first quarter of 2009) slightly affected the expectations on the EMU's inflation rate, which did not fall below 2,4%. On the other hand, during the euro area crisis, the EMU's expected inflation rate approached the ECB's target level in the second half of 2010, and at the end of 2011. Then it fell below the 2% for the first time at mid-2014. This rate further decreased in the third quarter of 2014.

Figure 3
EMU expected inflation rate
Eurozone 5-year/5-year forward swap implied inflation

Source: Datastream data elaborated by the authors



This is the main reason why we can properly relate to an EMU's deflationary process just referring to the price decreases in 2014. As a further proof, the long-term interest rates on the government bonds of the large majority of EMU member states (peripheral countries included) reached historical minima in this same year. This time the structure of interest rates denotes very low expected inflation rates (and growth rates) in the euro area for the next future. As a consequence the current deflation episodes risk to be a long lasting process as the policy corrections are absent.

3. *EMU structural deflation*

The previous analysis was confined to the dynamics of the inflation rate in the EMU as a whole. This aggregate analysis allowed us to point out the differences between the 2014 deflationary process and the two previous episodes of declining monetary prices; however, it did not clarify if these differences have specific economic explanations. The distinction between 'central' and 'peripheral' member states in the euro area leads to a more disaggregated analysis and offers a possible answer to the last question.[2]

[2] We include in the peripheral countries: Cyprus, Greece, Ireland, Italy, Malta, Portugal, Slovakia, Slovenia and Spain. According to this definition central countries are: Austria, Belgium, Germany, Finland, France, Luxembourg, and the Netherlands.

In a recent work Canofari et al. (2014) show that the creation of the euro area worsened the negative current account imbalances of a large number of peripheral member states and allowed the reproduction of these growing imbalances in the first six/seven years of the new century thanks to the compensation exercised by financial inflows coming from the 'central' member states. However, the international financial crisis and the European crisis determined a significant increase in the investors' risk aversion and a consequent "flight to quality". Hence, the financial transfers from the 'central' to the peripheral countries had a dramatic retrenchment, and the latter countries were suddenly forced to adjust their negative current account imbalances. Table 1 highlights the size and the high speed of these adjustments. It would be possible to visualize these two opposite dynamics at a more disaggregated level. However this paper just emphasizes that, according to Canofari et al. (2014), the main drivers of the adjustments in the European periphery were the economic recession and the related compression of monetary wages and prices.

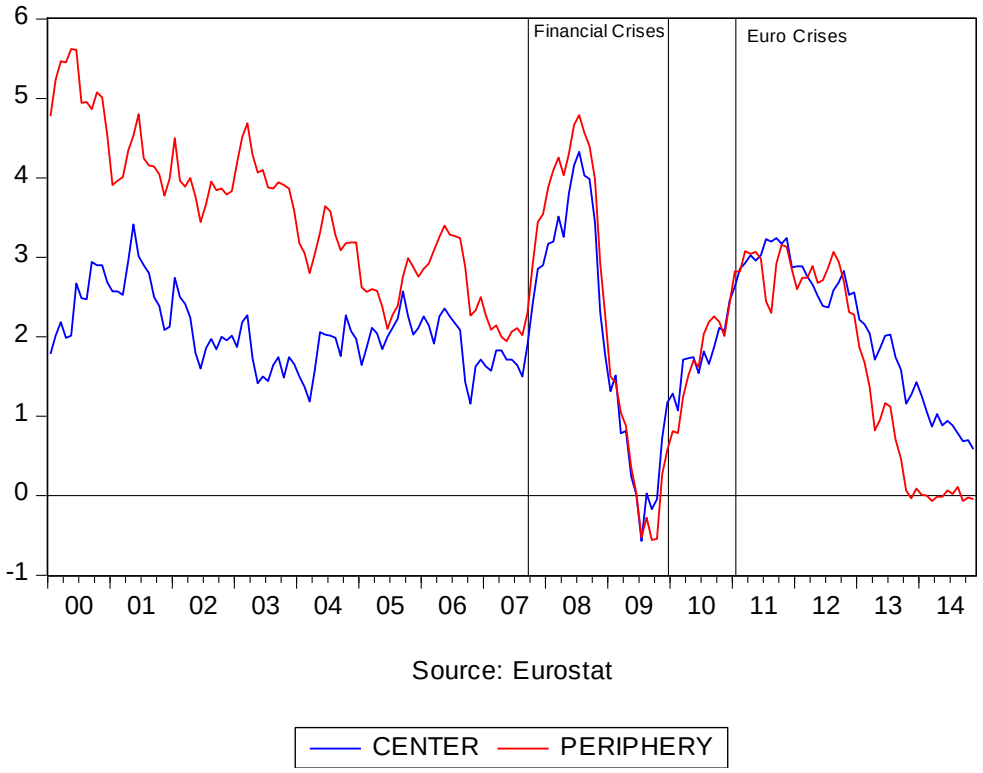
Table 1
Current Account Imbalances in EMU (as % of GDP)

	1999	2001	2003	2005	2007	2008	2009	2010	2011	2012	2013
Euro area 17	-0,5	-0,4	0,3	0,1	0,4	-0,7	0,3	0,6	0,8	2,1	3
Austria	-1,7	-0,8	1,7	2,2	3,5	4,9	2,7	3,4	1,6	2,4	2,7
Belgium	5,1	3,4	3,4	2	1,9	-1,3	-0,6	1,9	-1,1	-1,9	-1,6
Germany	-1,3	0	1,9	5,1	7,4	6,2	5,9	6,4	6,8	7,4	7,5
Finland	5,3	8,4	4,8	3,4	4,3	2,6	1,8	1,5	-1,5	-1,4	-1,1
France	2,6	1,7	0,4	-0,5	-1	-1,7	-1,3	-1,3	-1,8	-2,2	-1,3
Luxembourg	8,4	8,8	8,1	11,5	10,1	5,4	7,3	7,7	6,6	5,8	5,2
Netherlands	3,9	2,6	5,5	7,4	6,7	4,3	5,2	7,4	9,1	9,5	10,4
Center	**3,19**	**3,44**	**3,69**	**4,44**	**4,70**	**2,91**	**3,00**	**3,86**	**2,81**	**2,80**	**3,11**
Spain	-2,9	-3,9	-3,5	-7,4	-10	-9,6	-4,8	-4,5	-3,7	-1,2	0,8
Ireland	0,2	-0,6	0	-3,5	-5,3	-5,6	-2,3	1,1	1,2	4,4	6,6
Italy	1	0,3	-0,8	-0,9	-1,3	-2,9	-1,9	-3,4	-3	-0,3	1
Portugal	-8,7	-10,3	-6,4	-10,3	-10,1	-12,6	-10,9	-10,6	-7	-2	0,5
Greece	-4,1	-7,2	-6,5	-7,6	-14,6	-14,9	-11,2	-10,1	-9,9	-2,4	0,7
Slovenia	-3,2	0,2	-0,8	-1,7	-4,2	-5,4	-0,5	-0,1	0,4	3,3	6,3
Slovakia	-5,6	-8,3	-5,9	-8,5	-5,3	-6,2	-2,6	-3,7	-3,8	2,2	2,1
Cyprus	-1,7	-3,3	-2,3	-5,9	-11,7	-15,6	-10,7	-9,8	-3,4	-6,9	-1,9
Malta	-4,3	-5,2	-11,3	-10	-15,9	-9,2	2,7	2,8	1,8	-1,8	-1
Periphery	**-3,26**	**-4,26**	**-4,17**	**-6,20**	**-8,71**	**-9,11**	**-4,69**	**-4,26**	**-3,04**	**-0,52**	**1,68**

In this respect, the relative changes in the inflation rates of EMU central and peripheral countries are self-explaining (see Figures 4 and 5). The average inflation rate in the peripheral countries remained systematically higher than that of EMU's central countries until the peak of the international financial

crisis. At the opposite, since 2013 the annual average inflation rate in the central countries became higher than that in the peripheral countries. This divergent trend in the inflation dynamics of these two subsets of the EMU's countries has been playing a key role in the rebalancing of the current accounts within the euro area.

Figure 4
Annual Inflation Rates – Peripheral and Central MSs
Central and Peripheral Countries - Annual Percentage Changes

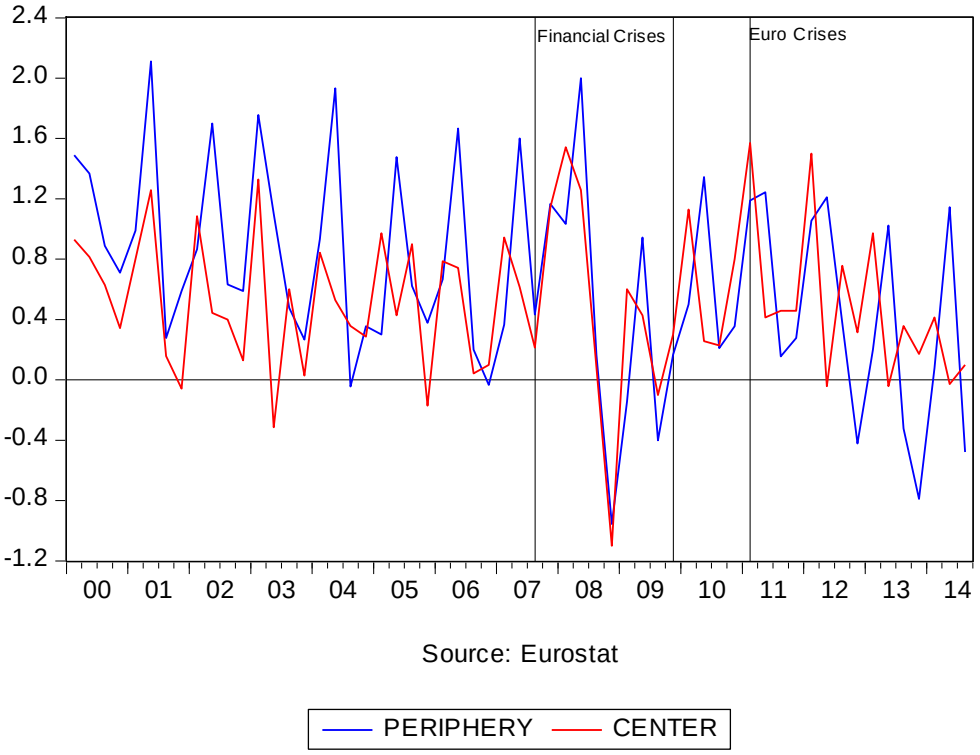


Source: Eurostat

Figure 5

Quarterly inflation rates – Peripheral and central MSs

Peripheral and central countries: quarterly percentage changes



Source: Eurostat

4. *The size of deflation*

In order to analyze the possible impact of the deflationary process on the European economies, we first show that our measure of the negative inflation rate does not overvalue the phenomenon. Hence, we offer some evidence that the European statistics on price changes tend to underestimate and not to overrate this process. The task is not easy to tackle. We acknowledge that there is an important factor which often distorts price changes, and which specifically under-assessed (over-assessed) the recent positive (negative) inflation rates in the EMU countries; however, we maintain that the impact of this factor is weaker than that of two opposite factors which over-assessed (under-assessed) those same inflation (deflation) rates.

The main argument supporting the perception that there is an under-assessment of the European positive price changes or an over-assessment of the European negative price changes in the last years, is based on the fact that the official statistics record the variations in the general price indices instead of considering the so-called core inflation, that refers to the changes in the average price of the

manufacturing goods and services produced within the euro area or inside its member states.[3] This argument is well-founded since it is true that the prices of largely imported items like energy and food represent the most volatile components of the general price indices. Moreover, the empirical evidence shows that the negative changes in the European price indices during some quarters of 2014 (see above, figure 2) are largely due to these volatile components. Considering the case of Italy, in August 2014 the general price index of the Italian economy recorded an annual reduction of 0.1%; nevertheless, during the same period the Italian core inflation was positive and equal to 0.4%. Finally, the inclusion of the most volatile components in the computation of EMU's monetary price changes could explain why the inflation expectations fell under the ECB's target level in 2014 (see above, Figure 3). Normally the perception of economic agents is largely influenced by core inflation. However the recent dramatic decrease in the energy and food prices has been largely emphasized in the current debate, and thus it could have distorted firms' and consumers' expectations on the future trends in prices.

The insufficient reference to the core inflation does not imply that the recent prices' reductions in the euro area were overrated. In fact there are at least two other factors driving to the opposite direction and over-compensating the former factor: the impact of the European market structure on price formation and the improvements in products quality.

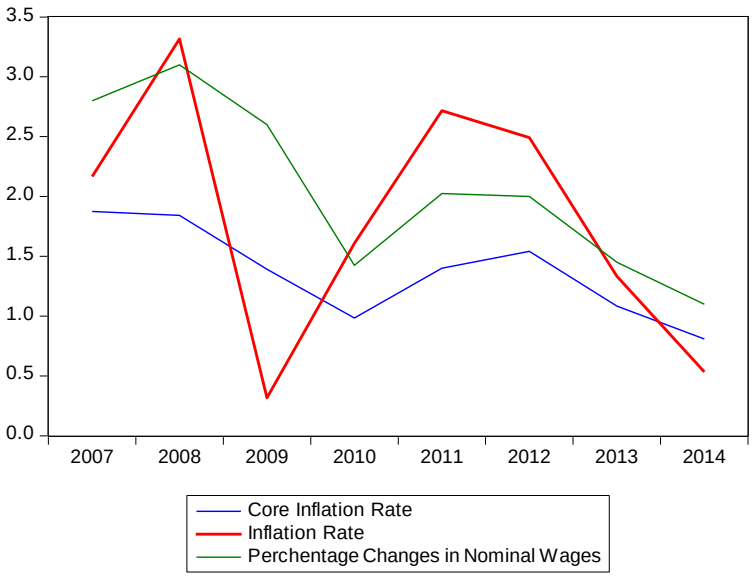
Perfect competition does not characterize the market structure of the euro area. Like other advanced economic systems, a part of the European economy is dominated by large firms exploiting their monopolistic power to determine their output prices by adding a positive mark-up to their unit production costs. On the other hand, a number of the European small and medium firms that mainly produce for their domestic markets or for niches of the international market, can exploit rent-seeking positions; hence, also in these cases the goods and services prices incorporate a positive mark-up. It follows that, in normal times, the actual markets of the euro area reach equilibria which are not based on the equality between the price of the goods produced and their unit nominal wages, but are characterized by monetary prices higher than their unit costs. These differences are set by the mark-ups exogenously determined by firms' market power. Usually, economic recessions and depressions imply a severe selection of firms and a consequent process of market concentration (the Schumpeterian 'creative destruction' and the related processes of 'merger and acquisitions") that increases the market power of the surviving firms. Hence, economic crises would have to lead either to a reduction of the positive variations or to negative changes in the average production costs (first of all, unit nominal wages) exceeding the corresponding dynamics in internal monetary prices (that is, an approximation of the core inflation rate).

The evidence offered by Figure 6 does not fit with this conclusion. During the international financial and 'real' crises, as well as during the different phases of the European crisis, the opposite held true:

[3] We measure the general price index by means of the Harmonized Index of Consumer Prices (HICP), used by the ECB in its official statistics (see above, footnote 1). Hence, referring to core inflation, in the following part we will recourse to a different index which is provided by Eurostat and which excludes four sectors - energy, food, alcohol, and tobacco - from the basket.

the positive percentage changes in nominal wages systematically exceeded the positive EMU's core inflation rate. This also applies to the period when the positive EMU's inflation rate exceeded the positive percentage changes in nominal wages (from mid-2010 to mid-2013: see Figure 6 again). As a consequence, on the average, the European firms reduced their mark-up in the domestic markets during the last seven years.[4] However, it is worth noting that the positive gaps between the percentage variations in unit nominal wages and the core inflation rates decreased during the peaks of the crises or in the following terms. Hence, this partial convergence applies to the sole phase of deflation in the euro area (that is, since mid-2014: see section 3 above). The reduction of EMU's core inflation which has started since the second half of 2012, was initially coupled by a decrease in the positive changes of nominal wages; the latter dynamics became more stressed than the former since mid-2013, so that EMU's core inflation rate went along with a stronger compression in the dynamics of monetary wages immediately before and during the deflationary phase. Thus we can argue that, if the EMU's market structure had been more competitive, the decrease in EMU core inflation rate would have been more severe and would have probably caused a further decrease in monetary prices. It follows that the potential size of EMU's deflationary process is underweighted.

Figure 6
Annual core and overall inflation rate and % changes in nominal wages – EMU
Euro Area 18: Annual percentage changes



[4]The data are available till the third quarter of 2014. Let us emphasize that we are not interested in analyzing the determinants of the possible initial stickiness in monetary wages'. Hence we can neglect the unbounded literature devoted to this problem (as an example, see Weiss 1990). Our aim is to examine the reaction of monetary prices as regards to changes in wage units taken as an exogenous variable.

The factor analyzed above is sufficient to show that the reference to EMU's core inflation would not weaken the risk of deflation in the euro area. However there is another factor which explains why EMU's statistics can even lead to overrate (underrate) the positive (negative) inflation trends: the continuous improvement over time in the quality of goods and services supplied to consumers. According to the hedonic approach (see for instance: Rosen 1974; Gordon and Griliches 1997), calculating the quality-adjusted price indices would be necessary in order to discriminate the price increases corresponding to improvements in the exchanged items, even if labeled with the same words, and the price increases which are the consequence of the actual inflation rate. The Eurostat (2001) and the ECB (cf. Ahnert and Kenny 2004) addressed this problem since the beginning of the euro life. Nevertheless, it is a common knowledge that the European statistics on inflation do not fully account for this phenomenon. Hence, it seems reasonable to interpret the 2% threshold which represents the ECB target level (see above, footnote 1), as the neighborhood of equilibrium of EMU's inflation rate: if the latter does not approach this threshold, there will be a risk of deflation. It follows that the EMU's deflation process is under-assessed when the official statistics record price changes which approach 0 or even become negative.

5. *The negative effects of deflation*

The conclusions reached in the previous section urge us to analyze the possible impact of the deflationary process on the European economies. The euro area as a whole and specifically the EMU peripheral countries did not achieve unexpected and significant improvements in labor or total factor productivity during the most recent years. Hence, we can exclude that the current European deflation is the virtuous and temporary consequence of an extraordinary flow of technical innovations which reduced the unit production costs and strengthened market competition. At the opposite, the European deflation appears to be one of the most problematic consequences of the long crisis affecting the euro area.

We begin by addressing this problem from a theoretical point of view. If it is not the temporary result of technical innovations, deflation will have at least two negative and well-known consequences on the working of the economic system (see for instance, DeLong 1999).

First, deflation processes stimulate hoarding in the sense that the expectations of decreases in monetary prices (or of slight and falling increases in monetary prices more than compensated by expected improvements in the quality of goods) make it convenient for the agents to postpone their expenditure. This implies a fall in the current amount of private consumption and investment which can be hardly offset by an increase in public spending and net exports. The consequent decrease in the aggregate demand primes or strengthens the recessionary dynamics of the economy. In its turn, economic recession strengthens the deflationary trend, and thus it rewards agents' previous choice of increasing their stock of liquidity. This vicious circle leads the economy into a structural recessionary deflation, and then generates further vicious circles. The deflationary spiral is followed by a fall (or, at

least, by a compression) in nominal wages which, in its turn, tends to have a negative impact on aggregate demand and the general price level.

Secondly, deflation deteriorates the position of net debtors. The nominal interest rates set in the debt contracts, increase in real terms; the same applies to the repayment of the borrowed amount (the 'principal'). Hence, to remain solvent, debtors need to transfer a larger amount of purchasing power to lenders. This is equivalent to say that the expected 'real' returns of the lenders in case of solvency are not limited to the contractual nominal interests but also involve the increased 'real' values of these same interests and the principal. It follows that private agents have a further incentive to postpone their expenditure and to expand their rent seeking positions in a deflationary process. Lending, investing in the financial markets, and hoarding appear to be the most promising allocative choices. However, these three choices are not equivalent for wealth owners. The recessionary deflation increases the number of former safe borrowers who become characterized by high default risks. In this situation it is often more convenient to hoard or to speculate instead of financing productive initiatives. This explains why the monetary side of the economy strengthens the recession and – hence - the deflation in the 'real' side of the economy. The economy tends to fall into the 'liquidity trap'; on the other hand, wealth owners can feed bubbles in the financial markets.

These two negative and interrelated consequences of the deflationary process cannot be reduced to theoretical outcomes. They also fit with the current economic situation of the euro area. A large number of the EMU member states suffering an economic stagnation or recession, are also characterized by a declining inflation rate or by a deflation. In the short term, this worrisome economic situation can be ascribed to a lack of aggregate demand which coexists with an abundance of liquidity unwilling to finance productive initiatives. This wide stock of liquidity feeds either hoarding, or booms in the stock markets and a growing demand for public bonds issued by governments which are characterized by equilibrated balance sheets or which pursue restrictive fiscal policies. In the medium term the EMU member states which are trapped in a recessionary deflation, cannot easily overcome this negative condition. Following one of the easiest but less effective ways to reduce structural competitiveness gaps towards EMU's central countries, these member states pursued the compression of their domestic prices and wages; and, as showed above, the consequent deflationary trend has a recessionary impact on the 'real' economy and leads to a vicious circle between deflation and recession. The result is that deflation represents a dangerous phenomenon since it can flow into a deep and long-term economic recession.

This sketchy reference to some of the EMU's problems emphasizes that the current risk of deflation is carrying the risk of an EMU's 'lost decade' or even worse treading in Japanese footsteps. In fact, the situation of a number of the European peripheral countries (particularly, Greece and Italy) is further exacerbated by their huge public debt which can feed another vicious circle: the negative interactions between deflation, financial charges and sustainable fiscal policies. This vicious circle remained manageable until now due to the very low nominal interest rates fixed by the ECB, but it can become crucial in the next future. Analogously to a private debtor, even a government with a positive stock of public debt has to face more binding constraints to meet its obligations during a deflationary process:

ceteris paribus, the 'real' burden of the public debt and its financial charges become heavier than in a condition with a 'normal' inflation trend. Moreover, this heavier burden becomes more and more difficult to manage with the increase of the ratio between public debt and GDP (PDeb/GDP). Hence, a government with a high PDeb/GDP is tempted to adopt a more restrictive fiscal policy in order to overcome the short-term difficulties to meet its obligations in a deflationary period. In the EMU this move is almost compulsory due to the constraints imposed by the new Stability and Growth Pact, and by the Six Pack and its rules on public debt adjustments.[5] However, at least during a recessionary deflation process, a more restrictive fiscal policy worsens the vicious circles between recession and deflation and increases the PDeb/GDP due to a further negative trend in nominal GDP.

This conclusion is strengthened by two additional elements. A comparison between a deflationary process and a situation of a moderate, but positive inflation rate shows that: (i) the same fiscal policy has a more restrictive impact in the former than in the latter case; (ii) a fiscal policy, which would be sufficient to meet the EMU's fiscal rules in the latter situation, can become inadequate in the former situation. Element (i) is self-evident since it directly derives from the fall in monetary prices and from our previous analysis: a given fiscal restriction in nominal terms has a stronger impact on the value of all the unchanged monetary variables, and hence on the economy as a whole, during a deflationary process. As regards to the element (ii), let apply the Six Pack's rules on public debt adjustments to a specific case, i.e. to the Italian case.

It is well known that, leaving aside Greece, Italy has the highest PDeb/GDP between the EMU's countries.[6] This ratio overcomes the threshold stated by the Stability and Growth Pact (60%) for more than 70 percentage points. Hence, in order to meet the Six Pack's adjustment rule, Italy would have to decrease its ratio for more than 56 billion of euros in the first year, for around 55 billion in the second year, for more than 53 billion in the third year, and so on for further seventeen years.[7] According to various econometric exercises based on a reasonable set of assumptions, this result would be achieved by fulfilling the structural equilibrium in the public balance sheet if the annual nominal rate of growth

[5] We are referring to the 5% annual reduction of the difference between the actual PDeb/GDP of each Member State of the euro area and the threshold of 60% already included in the original Stability and Growth Pact and strengthened in the new one. Moreover, the Six Pact introduces the rule of a structural equilibrium in the balance sheet of EMU's countries. The Fiscal Compact suggests to the adherent countries to transform this rule in a constitutional law, and it allows a structural deficit of 0.5%. This deficit must be temporary and can be extended to 1% for Member States meeting all the other EMU's rules.

[6] Greece entered into a European aid program in the first half of 2010, and then it restructured its public debt for at least three times. At the beginning of 2015, a rational forecast is that Greece will contract a fourth restructuring of its public debt after the imminent general election. On the other hand, Italy never entered into a European aid program (and, obviously, did not restructure its public debt) during the European crisis.

[7] It is worth noting that the Six Pack's rules leave room for a number of other factors which can significantly weaken the 5% annual reduction of (PDeb/GDP – 60%). Here we are interested in stressing the possible impact of the basic rule; hence we neglect these other factors. Moreover, let us recall that Italy as well as the large majority of EMU's member states did not have to start their adjustment processes at the approval of the Six Pack, since there was a transition period for countries under European procedure in November 2011.

of the Italian GDP was in between 3.1% and 3.2% at least in the first years of the adjustment period.[8] A similar rate of growth is attainable in presence of a positive inflation rate around 2% per year, since it would require a 'real' growth rate of the Italian economy around 1.1% - 1.2% per year. This same rate becomes instead unattainable with a negative inflation rate around -0.1% , since it would require a 'real' rate of growth around 3.2% - 3.3% per year.

6. *European and domestic policies*

The previous analysis shows that the deflationary process is today the most dangerous threat for the already difficult economic condition of the euro area. The reproduction over time of negative price changes would condemn a large part of the EMU countries to a decade of stagnation or recession; and this 'lost decade' would follow up seven and more years characterized by the international and European crises. Moreover, deflation would force the EMU countries with a high PDeb/GDP (such as Italy) to implement restrictive fiscal policies in the long term and, thus, to strengthen their recessionary trends. On the other hand, despite their current fiscal discipline, these same countries would be unable to manage their past heritage and – at the same time – to meet the new EMU's rules on public debt. Hence they will be entrapped between Scylla, that is the need of continuously re-contracting a flexible implementation of the European rules, and Charybdis, that is the inability to face their public debt. A similar situation would not be sustainable in the long term, since it would undermine the fragile social equilibria of the peripheral countries, as well as the institutional architecture of the euro area.

It follows that the perspectives of the euro area are largely based on its ability to implement policy initiatives conducive to a keeping up of prices and to economic growth. As we stated above (see section 5), there are strong links between deflationary and recessionary phenomena. Also the policies which can be effective in defeating these two negative outcomes, are strictly linked. Nevertheless, in the remaining part of this paper we focus on policies mainly devoted to overcome the current deflationary context of EMU. In this respect, we concentrate on monetary policies and we just hint to fiscal policies at the European and domestic level.

In the last seven months the ECB launched a new program to refinance the European banking sector at very low interest rates (the so-called TLTRO) in order to enhance the transmission of monetary policy to the 'real' sector, and thus to increase the amount of loans provided by banks to firms and households.[9] Then, in October 2014 the ECB started two new programs (the purchase of covered bonds

[8] The structural equilibrium in the public balance sheet of a given member state does not necessarily require that its actual public deficit is set to zero. In fact this equilibrium is adjusted to the economic cycle by calculating the output gap of this same member state. In its turn, the output gap of each country is determined by the difference between its potential and its actual rate of growth. The calculation of the potential rate of growth of a given country is quite complex and based on a number of arbitrary assumptions. This latter and crucial aspect is analyzed in another SEP's *Policy Brief* (see Esposito and Messori 2015).

[9] The Targeted Longer-Term Refinancing Operations (TLTRO) launched by the ECB at the beginning of June 2014 and detailed at the end of the following July, is a program based on eight operations. In the first two operations (September and December 2014) taken as a whole, each European bank (or group of banks) was allowed to borrow from the ECB up to the 7% of the net amount of loans in force at the end of April 2014, which this bank allocated to firms and households

and asset-backed securities – ABS, issued in the euro area),[10] and it committed itself to consider the purchase of corporate bonds and government bonds on the secondary markets. According to repeated statements by Mario Draghi, the objective of these initiatives is to restore the size that the ECB's balance sheet reached mid-2012. This is equivalent to assert that the ECB's aim is to channel around 1,000 billion of additional euro to the European economic system. Despite the huge amount of new liquidity thus involved, we maintain that all the ECB's initiatives but the possible unlimited purchase of government bonds have a high probability to be ineffective to fight deflation.

As it is proved by the two initial rounds, this negative forecast applies to the TLTRO.[11] The banking sector of a large number of EMU countries has an excessive amount of liquidity and is unwilling to increase its lending to firms and households since the demand of safe borrowers is very low whereas the default risk of the other potential borrowers is too high. As a result, the moderate applications for the first two rounds of TLTRO tend to create a new gross amount of liquidity which just circulates in the financial markets and is not transmitted to the 'real' activities.[12] On the other hand, the ECB's purchase of ABS could 'clean' the asset-side of banks' balance sheets from bad loans and impaired securities, and could thus reduce banks' risk aversion and increase their propensity to lend.

(exclusive of house mortgages). In the six following operations (since March 2015 to June 2016 with a lag of three months), each European bank (or group of banks) can borrow up to three times the net amount of loans that it allocated in the year preceding the reference month of the specific TLTRO (exclusive of house mortgages). However, this maximum amount of borrowing from the ECB is cut down – according to predefined rules - for banks which decreased their net loans in the period May 2013-April 2014. Each TLTRO debt contract is based on an interest rate equal to the ECB's policy rate (0.05% since September 2014) plus 10 basis points, and it will last September 2018. This means that the first TLTRO is based on four-year contracts with an interest rate equal to 0.15%, whereas the last TLTRO will be based on twenty-seven-month contracts with an unknown interest rate (the today unknown ECB's policy rate of June 2016 plus ten basis points). However, to meet the TLTRO debt contracts, the borrowing banks cannot limit themselves to be solvent at the maturity or by (gradually) paying back the amount due after twenty-four months. During the period May 2014-April 2016, they have also to allocate an amount of net loans (exclusive of house mortgages) at least equal to a given benchmark set by the ECB. This benchmark will coincide with the amount of net loans allocated by the given bank during the period May 2013-April 2014, if this same amount was not decreasing. On the other hand, if the latter was decreasing, the ECB benchmark will require not to worsen the previous negative trend until April 2015 and then to stabilize the amount allocated. The banks (or groups of banks) unable to be compliant with their own benchmark will be constrained to refund the ECB within September 2016.

[10] These two programs were approved by the ECB at the beginning of October 2014, actually started during the four quarter of 2014, and will last for at least two years. As in the case of TLTRO, the declared main aim is to enhance the transmission of monetary policy. However, the ECB explicitly acknowledged that the initiative has also the objective of bringing the EMU's inflation rate closer to 2%. The purchase of ABS is limited to the simplest and transparent assets, which meet the requirements applied to collaterals in the ECB's credit operations.

[11] The content of footnote 9 stresses that the TLTRO's first two operations allowed a maximum amount of 400 billion euro. In September 2014 the European banks borrowed slightly more than 82.5 billion, and in the following December less than 130 billion. Hence the total amount actually lent by the ECB was 212 billion, that is around half of the potential.

[12] It is worth noting that the first two operations of TLTRO generated an amount of borrowing lower than the annual amount reimbursed before maturity by banks involved in the 2011-'12 LTRO (around 270 billion since the beginning of 2014). Moreover, this repayment accelerated since September 2014. Hence, a large part of EMU's banks probably utilized the TLTRO to conclude the previous program. In any case, during the last quarter of 2014, the total amount of liquidity transmitted by the banking channel to the EMU's real economy decreased.

Nevertheless, to attain these results it would be necessary to expand the tiny European market of ABS, to avoid the re-construction of derivative chains (that is: CDO, CDO^2, CDO^3, ect.) by means of an adequate regulation, and to enable the ECB to purchase not only the ABS's safest *tranches* but also the riskier mezzanine *tranches*. Unfortunately, the first condition is not implementable in the short term, and the third comes up against institutional constraints. It follows that the ABS program of the ECB tends to become quantitatively insignificant as regards to the target of 1,000 billion of additional euro. The same applies to the ECB's purchase of European corporate bonds. Moreover the latter are concentrated in the markets of central rather than of peripheral Member States.

ECB has an effective tool to fight deflation: an unlimited purchase of government bonds in the secondary markets. This European quantitative easing would allow a gradual construction of a thick government bond market in the euro area, thus overcoming the current national segmentation. Moreover, it would channel a part of the ECB's additional liquidity to the households who hold public bonds without getting through the distortionary mediation of a banking sector locked in its "liquidity trap". Finally, the same ECB's purchase of public bonds held in banks' balance sheets could stimulate the circulation of additional liquidity due to the negative interest rates on banks' deposits at the ECB. These factors could have a positive impact on internal consumption and/or could increase the imports of goods and the purchase of foreign financial assets (for instance, US assets). In the former case they would directly increase aggregate demand, thus stimulating a recovery and keeping up price dynamics in the short term. In the latter case they would depreciate the euro towards foreign currencies (for instance, the US dollar), and this depreciation would keep up a positive rate of inflation or reduce a deflationary pressure.

However, the purchase of EMU's government bonds in the secondary markets raises difficult technical problems for the ECB. The recent debate showed that a number of these problems can find a positive solution which furthermore generates positive side-effects. Bastasin et al. (2014) suggest that some of the main European financial intermediaries (that is, the government bonds' market makers) create a synthetic asset (that is, an asset-backed security - ABS), composed by the bonds issued by all the EMU's Member States in a proportion pre-determined by the ECB according to a specific key (for instance, the national shares in the capital of the ECB itself). The latter could engage to include this ABS in its quantitative easing program. As a result, this ABS would solve at least three problems: it would ease the ECB's purchase of European government bonds in the secondary markets without involving any direct financial transfer between EMU's countries, it would build a large and liquid financial market in the euro area, and it would offer an investment opportunity with low risk and positive real returns to European and non-European wealth owners.

These promising opportunities will be probably inadequate to overcome the mistrust between central and peripheral Member States. The German policy makers remain convinced that an unlimited quantitative easing would transfer risk from the peripheral countries to the ECB, and thus it would unevenly redistribute this same risk between the shareholders of the central bank. Hence, according to the rumors, German policy makers suggest either to determine a maximum threshold in the ECB's total purchase of government bonds, or to compel each of the national central banks belonging to the "Euro-

system of the central banks" to cover the full risk involved in the ECB's purchase of the corresponding national public bonds. In few days (January 22d, 2015), the Governing Council of the ECB will take a decision on the matter. Let us just emphasize that an effective quantitative easing cannot meet none of the constraints attributed to German policy makers. The first constraint denies the main features of the quantitative easing; the second constraint denies the basic principles of a unified monetary policy and strengthen the segmentation of the European financial market.

7. *Conclusions*

The previous analysis showed that deflation is a serious threat to the peripheral countries of the euro area. Deflation is the easiest way to improve the short term competitiveness of these countries towards the EMU central countries. However, a too low positive rate of inflation or a decrease in nominal prices in a given economic system tend to go along with its stagnation or recession, if it is not the consequence of a strand of innovations. In the case of EMU, deflation is not due to innovations but to repeated economic crises. Hence. this recessionary deflation appears to be economically and socially unmanageable after more than seven years characterized by the international financial and 'real' crises and by the European crisis. The future of the euro area is connected to the possibility to implement policies which can re-launch the economic growth and make it negligible the risk of deflation. The ECB's quantitative easing centered on the purchase of EMU's government bonds in the secondary markets, is an effective tool to approach these results. However, as repeatedly stated by Draghi (for instance, 2014), the monetary policy alone is not enough. It is also necessary to implement an expansionary fiscal policy mainly at an European level, and the required reforms at the national level. The problem is that the lack of trust between member states at the inter-governmental level severely hinders not only the implementation of a unconstrained quantitative easing program but mainly an adequate European plan of public investments.

Let us briefly refer to this last aspect. A European program of public investments can indirectly fight deflation by stimulating economic growth through the increase in aggregate demand, in the short term, and the increase in potential output, in the medium term. Moreover, European public investments can have positive spillover effects on national private investments. However, the usual fear of indirect financial transfers strongly applies also to a similar program. This fear largely explains the limits of the recent Juncker's plan (see for instance: Gross 2014). It seems over-ambitious to maintain that an initial endowment of 13 billion euro and of 8 more not prefunded billion which feed a new fund (the so-called European Fund for Strategic Investments, EFSI) at the European Investment Bank (EIB), will be sufficient to finance a new amount of European investment equal to 315 billion (see Canofari et al. 2014, chapter 5). Generally speaking, it would be a rash assumption to trust to a total financial leverage of 15. In this specific case, it must be added that 11 billion out of the 13 actual billion of the EFSI are just a re-allocation of funds either to be used by the EIB (5 billion) or already booked for other obligations in the European Union budget (6 billion).

An alternative solution can be hardly found at the national levels. EMU peripheral countries have a high willingness to launch public investments programs, but they are prevented by the European fiscal

constraints.[13] On the other hand, the EMU central countries are not ready to bend their internal policies to the needs of peripheral countries. Hence, the domestic levers are limited. In some member states (such as in Italy), it would be possible to introduce selective increases in VAT and to use the consequent additional resources to decrease taxes on low-and medium-income households. These moves would have a one-shot increasing effect on monetary prices, and a gradual positive effect on consumption. Moreover, in a number of peripheral countries (such as Italy), it would be possible to implement a decentralized contractual system in the labor market, aimed at stimulating each firm to plan and to coordinate the dynamics of its labor productivity and nominal wages. This arrangement should increase wages and prices accordingly to the improvements in labor productivity.

Our conclusion cannot be optimistic. The launch of a too constrained quantitative easing by the ECB, the limited implementation of the Juncker's plan, and the first step in the flexible application of the European fiscal rules cannot be considered effective tools to re-launch a robust rate of growth and to minimize the risk of deflation in the euro area. The future of EMU is based on trust. We need institutional innovations at the European and national levels that overcome the reciprocal suspicion, and allow for the implementation of the determinant policies.

[13] When this paper has already been concluded, the European Commission (2015) offered a detailed overview on a flexible application of the European fiscal rules relating to investment financing and the management of public deficit and debt. This important initiative leaves room to national investments. However, it is not decisive for the re-launch of the European economic growth yet.

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