

# Structural Divergences, Institutional Fragilities and Foreign Debt in the Euro Area Crisis

Pompeo Della Posta

## Abstract

The euro area crisis has been commonly interpreted as due to a divergence in economic fundamentals resulting from a *deliberate misbehavior* of some undisciplined (South European) countries. In the present paper I argue instead that the crisis can be explained by referring to a whole series of *structural* problems (that determined a divergence in economic fundamentals in the first place) and by the *institutional* fragility of the Eurozone (that made possible the unraveling of negative self-fulfilling expectations after the occurrence of the exogenous Greek fiscal shock of 2009 which in turn induced fiscal austerity). I also stress that the public debt issued by a euro area government and held by the residents of a different Eurozone country is *foreign debt* under all respects, in spite of the fact that those foreign investors use the same currency and belong to the same monetary area. This means that foreign residents encourage and make possible the current account deficits of their debtors, and also that they are ready to sell the (foreign) bonds they own at the least sign of weakness and uncertainty.

**Keywords:** Euro area crisis, economic fundamentals, self-fulfilling expectations, public debt, foreign debt, speculative attacks

**JEL Classification:** E65, F34, F36

October 20, 2016

Dipartimento di Economia e Management  
Via Ridolfi, 10  
56124 Pisa (Italy)  
E-Mail: pompeo.della.posta@unipi.it

# 1. Introduction\*

---

A common narrative of the euro area crisis suggests that it has been determined by a divergence in economic fundamentals resulting from a *deliberate misbehavior* of some undisciplined (South European) countries.<sup>1</sup> In the present paper I argue instead that the crisis can be explained by referring to a whole series of *structural* problems and *institutional* weaknesses that made possible the development of negative self-fulfilling expectations<sup>2</sup> ignited by the exogenous Greek fiscal shock of 2009.

If that is the case, then, it would not be possible to blame one single country or group of countries for the crisis, but the *responsibility should be shared by all euro area members*. As a matter of fact, one of the neglected but relevant problems of the European Economic and Monetary Union (EMU) is (among others) that the public debt issued by a euro area government and held by the residents of a different Eurozone country is *foreign debt* under all respects, in spite of the fact that those foreign investors use the same currency and belong to the same monetary area. This means that foreign residents encourage and make possible the current account deficits of their debtors, and also that they are ready to sell the (foreign) bonds they own at the least sign of weakness and uncertainty.

This is precisely the situation that materialized with the uncovering of the Greek cheating on public accounts, that questioned the survival of the euro due to the possibility of a Greek debt default. In turn, such a shock ignited a process of negative self-fulfilling expectations (determining the “sudden stop” and in fact “reversal” of capital inflows). This was made possible by both the euro area *structural* problems (that determined a divergence in economic fundamentals in the first place) and by its *institutional* fragility (that made possible the unraveling of negative self-fulfilling expectations).

The lack of confidence and the risk of contagion resulting from the Greek public finance shock seemed to offer no alternative to abandoning the expansionary fiscal policies that European countries had been following until then. As a result, contrary to what happened in the US and the UK, the process of recovery

---

\* Revised version of the paper “Some Further Reflections on the Euro Area Crisis”, presented at the XXVI Annual Conference of the International Trade and Finance Association, Occidental College, Los Angeles (USA), May 22-25 2016. I would like to thank conference participants and Roberto Tamborini for their comments and suggestions. None of them can be held responsible for any remaining mistakes.

<sup>1</sup> The accounts that usually come out of a stereotypical Northern European view identify in particular fiscal divergences and, as a variant, current account divergences, as the main responsible for the euro area crisis.

<sup>2</sup> The literature on speculative attacks has clarified that the fact that they may be justified by the divergence of some economic fundamental variables does not rule out the role played by self-fulfilling expectations (Goldstein, 2012).

from the negative consequences of the global financial and economic crisis came to a sudden halt and a second more severe crisis emerged, this time specific to the euro area countries.

The solution to avoid future problems, then, should focus more on the fixing of the *structural and institutional weaknesses* than on the imposition of punishing rules on some supposedly diverging euro area countries.

This article is structured as follows: In par. 2 a non-standard interpretation of the crisis (not being based on the role played by the deliberate fiscal and current account divergences of Southern euro area countries) is provided in four steps. Par. 2.1 underlines the role played by structural (therefore non-deliberate) divergences, in particular relative to the inflation rate and to the fact that the accumulation of current account deficit is only possible if foreign credit is available. In par. 2.2 the Greek shock is described, as a factor capable on one hand to worsen the state of expectations, and on the other hand to determine a change of fiscal policies (namely the adoption of fiscal austerity) that stopped the recovery and worsened the crisis. Par. 2.3 describes the institutional fragilities that have contributed to the crisis by causing the development of negative self-fulfilling expectations. Par. 2.4 stresses the fact that public debt which is in the hands of foreign citizens and institutions, although resident in the euro area, is by all means *foreign debt*, and as such it is less stable than the domestic one and more prone to induce a crisis. Par. 3 presents a stylized model of the euro area crisis that focuses mainly on the role played by foreign debt. Par. 4 contains some policy observations and proposes some concluding remarks.

## **2. Four steps towards an interpretation of the euro area crisis**

---

### *2.1 Structural divergences in the euro area: OCA theory and beyond*

The explanations of the euro area crisis are usually centered around the idea of a deliberate misbehavior by Southern euro area countries, and focus mainly on the role played by fiscal divergences (Sinn, 2011, Lane, 2012, Giordano *et al.*, 2012, Sgherri and Zoli, 2009), and current account divergences (Alessandrini *et al.*, 2012, Trichet, 2012, Giavazzi and Spaventa, 2010, Gros, 2013).<sup>3</sup>

As for the former, however, De Grauwe (2012) clearly showed the inconsistency of such an hypothesis by observing first that just before the crisis public finances of Southern euro area countries were improving (in some countries, Ireland being the most significant example, they increased because of

---

<sup>3</sup> Morroni (2016) provides a deliberately non-technical but still quite rich and enlightening overview of the euro area crisis.

the need for the government to intervene in order to avoid the collapse of the banking sector),<sup>4</sup> and second that, just to take an example, the public debt/GDP ratio of Spain, subject to a speculative attack and to a crisis, was smaller than the one of the UK, not subject to a crisis.

For the current account deficits the previous observation also applies, when considering the US and the UK. Moreover, until the crisis, the existence of current account deficits in Southern euro area countries seemed to show only that capital market integration in the euro area was working very well, thereby leading to remove the Feldstein-Orioka puzzle and to detach domestic savings from investments (Blanchard and Giavazzi, 2002 and Aeharne *et al.*, 2007). Only with the crisis this interpretation changed and it was observed that the capital inflow was mostly directed towards consumption and housing rather than towards productive investment (Giavazzi and Spaventa, 2010). Moreover, Collignon (2012) observed that all monetary unions are characterized by regional current account divergences, without this being a problem. Finally, as I will argue more in detail below, even if current account divergences may be identified as responsible for the crisis, it is far from granted that they are the result of a deliberate misbehavior of Southern Eurozone countries, rather than the result of a structural problem involving both deficit *and* surplus countries.

From what precedes it follows that claiming that the euro area crisis was due to the fiscal or current account indiscipline of some Southern “vicious” countries that had to pay a heavy (and right) price to wash away their fiscal “sins”, while reflecting a North-European moralist view of the crisis, doesn’t seem to correspond to reality.<sup>5</sup>

In this paragraph, let us analyse, then, the role played by structural divergences, namely the divergences resulting from the way the euro area works, rather than from the deliberate misbehaviour of one country or the others.

In order to do this, we have to discuss the implications of the theory of optimum currency areas (OCA), which was initiated by Robert Mundell at the beginning of the Sixties of last century (Mundell, 1961). He wondered under what conditions a country would not find it costly to give up the possibility, in case of need, to act counter-cyclically by using the instruments of monetary policy and of the exchange rate. He found out that giving up monetary autonomy would not be costly in presence of factors’ mobility and

---

<sup>4</sup> Moro (2014) and Moro and Becker (2016), among others, show the connections between public debt and banking debt.

<sup>5</sup> One question would still need to find an answer: did markets fail at the beginning of EMU, when they reduced the risk premium on the public debt of Southern euro area countries, or about a decade later, when they suddenly started considering the risks of public debt default and even of an euro area disintegration? This issue is investigated empirically by Di Cesare *et al.* (2012).

flexibility: if an asymmetric shock hits a region which belongs to a monetary area, the shock would be absorbed by the flows of workers and capital moving in opposite directions, respectively out of and in the region, therefore helping to restore the competitiveness conditions and providing the necessary temporary resources that the region needs in order to have the time to recover. Other important contributions followed in the Sixties and Seventies. Kenen (1969), for example observed that the cost of giving up any counter-cyclical instruments would increase with the probability of asymmetric shocks, which in turn is positively related to the degree of productive specialisation of the regions joining a monetary union. A third classical criterion emerged, when McKinnon (1963) observed that even in the absence of automatic adjustment mechanisms, giving up the availability of the exchange rate as an instrument to respond to the occurrence of an asymmetric shock, is not costly if that region is open to the imports from other areas of the monetary union. As a matter of fact, in that case an exchange rate devaluation would cause internal prices to increase, therefore nullifying the (therefore only temporary) competitiveness gain obtained thanks to the exchange rate devaluation.

But other criteria were identified over time, the most important of which have, in my interpretation, a “political” rather than an “economic” content and are relative to the need for the different regions of the optimum monetary area: a) to share the same preferences over inflation and unemployment; b) to be characterized by interregional solidarity; and c) to benefit of a common fiscal policy allowing for inter-regional fiscal transfers within the area (Baldwin and Wyplosz, 2015).

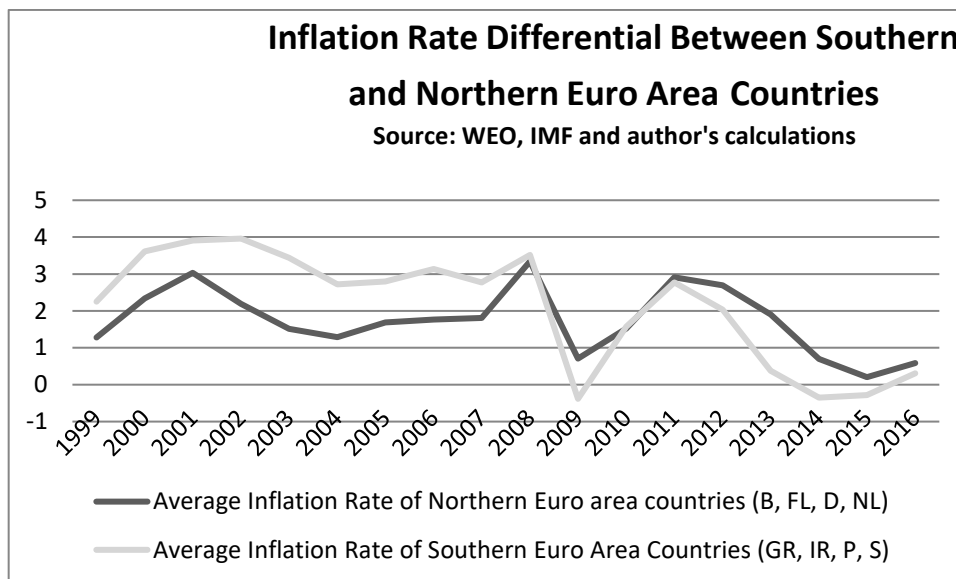
A thorough and objective analysis of all of those criteria (both the “economic” and the “political” ones) should have induced a rather cautious approach towards monetary unification in Europe. But in the 1980s credibility theory emerged as the «New OCA Theory» (Tavlas, 1993): according to this view, adopting a single currency would not be costly, simply because a discretionary monetary policy only causes inflation, with no chances to stabilize the economy! By adopting a single currency issued by an inflation adverse single central bank, then, the countries participating in the monetary union, rather than suffering a cost, would enjoy a benefit, since they would remove the problem of time inconsistency of their monetary policy, would enjoy a low inflation rate and would avoid undertaking useless and ineffective countercyclical monetary policies!

Unfortunately, in spite of the relevant impact they had on the institutional set up of EMU and in particular of the ECB, such conclusions are not necessarily correct. As a matter of fact, the closed economy Barro

and Gordon (1983) model, which synthesizes credibility theory, in line with the theoretical bias of those years, focuses only on the supply side of the economy and assigns a too large role to the two parameters that describe respectively central bank's inflation aversion and the Phillips curve effect of a surprise inflation on unemployment. It is only by considering the open economy that Giavazzi and Pagano (1988) paid some attention to the demand side of the economy by stressing the role played by competitiveness. They observed that the latter would decrease when the exchange rate is fixed and the (surprise) inflation rate is positive. In turn, this would have a negative impact on the net exports component of aggregate demand, would reduce the equilibrium level of the production and would also reduce, then, the incentive for the government to run a surprise inflation.

The demand side of the economy, however, should be considered also by underlining the fact that a surprise inflation would reduce the real income and the purchasing power of workers, thereby reducing private consumption and decreasing, then, aggregate demand. This observation should lead to conclude, then, that the incentive for the government to run a surprise inflation may be rather low in the first place, therefore dramatically reducing the role that the Barro and Gordon model should be playing in determining monetary arrangements and in shaping the design of monetary institutions.

But even the first "economic" criteria of OCA theory, have some problems, since they do not take sufficiently into account the fact that inflation differentials within a monetary union may originate, for example, in the structure, competitiveness and degree of openness of the goods, services and labor markets. The experience of the EMS countries and that of Argentina, pegging their currencies respectively to the D-Mark and to the US dollar, for example, also suggests that, in spite of quite significant monetary convergence, inflationary divergences were still there and, although limited in the short run, over time they turned out to be unsustainable. This may also explain why the other criteria that have been identified later on by OCA theory, that are more "political" in nature and content, refer explicitly to inflation preferences and to the possible adjustment mechanisms, namely inter-regional solidarity and fiscal transfers within the monetary union, to be activated in case of any remaining divergences. In other words, political solidarity would be required in order to compensate for the structural divergences that might remain in spite of the fact that the classical economic OCA criteria are satisfied.



**Figure 1: Inflation rate differential between Southern and Northern euro area countries**

This is what seems to have applied also to EMU where the current account imbalances were due to a structurally divergent inflation rate, rather than to deliberately divergent nominal wages (Bourgeot, 2013).<sup>6</sup> Figure 1 above provides a novel representation of inflation differentials within the euro area.

Capital flows from Northern to Southern Euro area countries are among the reasons for the inflation divergence across Europe, in spite of the common monetary policy. This is a problem that had already been identified during the life of the European Monetary System (EMS) with the so-called “Walters’ critique”, suggesting that capital inflows may exacerbate the differences among regions of the same monetary area by heating up the economy and by causing higher inflation rates in the receiving countries. So, the inflation differential reported above may actually depend - beyond other reasons having to do for example with the different institutional features of labour markets across the euro area - on the capital flows moving from Northern to Southern euro area countries precisely because of what can be defined as the “Walters’ effect”.

---

<sup>6</sup> The case of Germany is often quoted, with the Hartz IV labor market reforms also known as Agenda 2010 (after the name of the Lisbon Strategy launched by the European Union), introduced in 2003 under the Schroeder presidency and having to do mainly with a reform of the social benefits, so as to give the right incentives to unemployed workers, a reduction of the welfare state and the encouragement of part-time jobs with the creation of interim recruitment agencies. The German wage moderation, however, would not explain why the current account surplus was not limited to Germany but was common to several North euro area countries who had not been following any similar policies!

Such capital flows then, if anything, made even worse the competitive gap between Northern and Southern euro area countries and may even lead to revert the causation order that is usually described in the literature to interpret the euro area crisis. According to this view, then, *it would have been the capital inflows from Northern countries' individuals and institutions to have created the conditions for the current account deficit of Southern countries* (this view is even acknowledged by IMF, 2014): the problem was that Northern banks were eager to take advantage of the (relatively) higher interest rates on public and private debt that it would be possible to enjoy by buying the bonds issued by Southern countries, to whom they assigned a credibility bonus by ignoring the risk premium on them. It was the capital inflow, then, to stimulate consumption and investments in those countries and to produce their current account deficits! Needless to say, the situation is made even worse when capital inflows do not finance productive investments, but mainly consumption or a house bubble, as it might have been the case in Spain, Ireland and partly Greece where capital inflows did not direct to the tradable sector, therefore not creating the conditions for the repayment of the debt.

It should be observed also that one of the reasons that had been identified in the literature for having fixed exchange rates in Europe (the European Monetary System – EMS - being the predecessor of EMU) was the need for Germany to protect its exports potential, so that at least the German current account surplus should not come as a surprise. This is what the late Marcello de Cecco has been writing repeatedly, namely the interest for Germany of being surrounded by cushion states whose currencies would move together with the D-Mark, without changing their conversion rates with the latter. This way, Germany would avoid the losses of competitiveness due to its own internationally recognized economic force that would determine a nominal exchange rate appreciation resulting from the automatic adjustment mechanism provided by floating exchange rates.<sup>7</sup>

Moro and Beker (2016) add a further point, by suggesting that the capital inflow may even have a negative impact on the incentives of receiving countries, who don't feel the need to embark in the economic reforms that would help creating the conditions for economic growth.

To sum up, what all this suggests is that “it takes two to tango”<sup>8</sup> (as a fascinating jazz song of the 1950s by Pearl Baileys sang): it is not possible to identify the responsibility of the euro area crisis in the unilateral misbehavior of Southern countries, as the ordo-liberal German view would suggest instead, simply because current account deficits had a *structural* nature and they would not have been possible without the capital outflows and the current account surpluses of the Northern ones! Moreover, the

---

<sup>7</sup> Something similar happened in the Gold Standard, when Great Britain was sterilizing the monetary effects of gold inflows, thereby preventing the rise of domestic prices, blocking any automatic adjustment mechanism and maintaining indefinitely her competitive advantage in international trade.

<sup>8</sup> Salvatore (2015) used this expression during his conference speech on “The Dollar, Euro, Yuan and the International Monetary System”.



system does not admit any effective automatic adjustment mechanism, a feature that, as mentioned above, should have been well known from the very beginning and that was in fact desired, especially by Germany.

## 2.2 *The unexpected shock of Greece and the adoption of fiscal austerity*

A crucial role in the euro area crisis, however, has been played also by the unexpected revelation in October 2009 by the newly elected socialist Greek prime minister Georgios Papandreou, that the previous center-right Greek government had been cheating in declaring the state of public finances.<sup>9</sup> This was a second shock after the one of the global financial crisis and it was responsible for spreading contagion in Southern euro area countries.<sup>10</sup> The crisis, then, also acquired a self-fulfilling nature, made possible especially by the institutional fragility of the euro area, as it will be discussed below.<sup>11</sup> Until then, the euro area had been doing, although at a slower pace and with more hesitation, what also the US or the UK had been doing in order to favor the recovery of their economies, namely running expansionary monetary and fiscal policies.

Those recipes proved successful in the US and UK and were also starting to produce some positive results in the euro area. In the latter, however, due to the risk of contagion from Greece to the other “weak” countries of the Eurozone, it was felt that they had to be stopped and reverted to both fiscal austerity and, at least until the beginning of the Draghi presidency, restrictive monetary policies (under the Trichet presidency, the ECB even increased in 2011 the interest rates in an imaginary fight against a non-existing inflation).

---

<sup>9</sup> In particular, public debt was revealed to amount to 300bn euros, namely 113% of the Greek GDP.

<sup>10</sup> Favero and Missale (2012) prove that contagion played a quite significant role, since it accounted for about 200 bp of the interest rate spread.

<sup>11</sup> Calvo (1988) was the first one to interpret government debt crises as resulting from negative self-fulfilling expectations. The euro area crisis also induced a wide research aimed at clarifying its underlying reasons, and especially its connection with the state of fundamentals as opposed to self-fulfilling elements. Among the theoretical models that refer to the idea of multiple equilibria and self-fulfilling expectations see, for example, Tamborini, 2015, Cooper, 2012, Ghosh *et al.* 2013, De Grauwe, 2012, De Grauwe and Ji, 2013, Gros, 2012, Della Posta, 2016b. Empirical studies have also investigated the presence of self-fulfilling elements in the crisis. Authors have used different expressions, referring for example to “international risk aversion” (Attinasi *et al.*, 2009), “contagion” (Favero and Missale, 2012), De Grauwe and Ji (2012), “panic” (Goldstein, 2013), “negative market sentiment” (De Grauwe and Ji, 2013), “default and liquidity risk” (Manganelli and Wolswijk, 2009), but suggesting in all cases that the crisis could not find a fundamentals-based explanation.

A further element that made the situation even worse was the fact that the euro area was only about ten years old, and many uncertainties were still surrounding it, especially about the possible consequences in terms of the survival of the euro resulting from a Greek bankruptcy.<sup>12</sup>

As it is widely recognized by now, however, fiscal austerity in turn caused a GDP contraction that, if anything, increased rather than decreased the public debt/GDP ratios in most of the countries where it was applied, as shown by De Grauwe and Ji (2013).<sup>13</sup>

Moreover, adopting fiscal austerity in the middle of a crisis can hardly improve the credibility of a country, given the obvious observation that if GDP does not grow, public debt cannot be repaid. This is reminiscent of the old debate, dating back to the years of the EMS, on the trade-off between the credibility of policies and the credibility of policymakers. What that debate led to conclude was that policymakers cannot gain credibility when running non-credible monetary policies so that, for example, resisting an exchange rate devaluation could not increase central bank's reputation if the only solution to solve a country's competitiveness gap was precisely an exchange rate realignment (Drazen and Masson, 1994).

Similarly, in my view, in the case of the euro area crisis, fiscal austerity was meant to reassure the financial markets but it could hardly do so when the recipe to get out of the crisis would have required precisely the opposite, as the case of the US and UK was showing clearly!

### *2.3 The institutional fragility of the euro area*

The crisis soon acquired a self-fulfilling nature, as soon as the state of expectations changed. This was made possible by the fact that EMU lacks a lender of last resort.<sup>14</sup> As it is well known in financial markets, the presence of a lender of last resort is necessary precisely to avoid the occurrence of self-fulfilling crises. In the construction of EMU, however, given the lack of the political elements that would have been necessary to satisfy the OCA requirements, as indicated above, it was decided not to have such an institution, by assigning implicitly a higher weight to the moral hazard cost that it might imply: knowing that there is a lender of last resort might provide the wrong incentives to the governments participating in the EMU, thereby tempting them to pass on to the other members the cost of their fiscal misbehavior.

---

<sup>12</sup> In 2013-2014, when a new crisis focusing mainly on Greece burst, things were already different, being the financial markets more relaxed in front of the perspectives and consequences of a Grexit.

<sup>13</sup> The idea that fiscal austerity might be "self-defeating" was first introduced by Krugman (2010) and spurred a large literature that culminated with the by now famous Blanchard and Leigh (2013) recognition.

<sup>14</sup> See also De Grauwe (2012).

Needless to say, however, in the absence of a lender of last resort, markets are left alone in fighting against speculation. The ex-ante fiscal prescriptions contained in the Maastricht Treaty and in the Stability and Growth Pact should have prevented a speculative attack in the first place, but this ignored that some divergences in the state of economic fundamentals might have also different origins, including the structural divergences or the occurrence of unexpected shocks mentioned in the two paragraphs above.

The crisis, however, exploded not only when it became clear that there was no lender of last resort, but also when the German and French heads of State meeting in Deauville in October 2010, acted as a sort of “scaremonger of first instance” (the exact opposite of the “lender of last resort” that financial markets would need in order to prevent bank runs...). This happened when the German Chancellor Angela Merkel and the French President François Sarkozy affirmed for the first time that private markets would have to bear full responsibility for the losses that they would incur in case of default of any of their debtors: needless to say, anybody holding Greek treasury bonds immediately rushed to sell them and panic further spread across Europe.<sup>15</sup>

No surprise, then, that the crisis came to a halt only after the famous “whatever it takes” speech by Mario Draghi in July 2012, namely when financial markets perceived clearly the *political will to preserve the stability of the euro area*.

## *2.4 The role played by foreign debt in the euro area*

As it has been observed above, when exchange rates are fixed, current account deficits are limited by the external constraint represented by the availability of foreign reserves: a persistent current account deficit causes the outflow of foreign reserves, so it will have to go back to balance when foreign reserves are not available anymore.

In a monetary union, instead, there should be no need to bother about the current account of the different regions composing it, since there is no fixed exchange rate any more to be pegged and therefore no more foreign reserves constraints.

But does the external constraint really and always disappear for the regions belonging to a monetary union? This may be the case for a “standard” monetary union which coincides with a political union. In that case, any current account imbalance is automatically compensated by automatic fiscal transfers or by internal capital flows from one region to the others.

---

<sup>15</sup> This also had a strong impact on the banking accounts, given the strong and close interconnection between banking system and government finance. This point is well developed by Moro (2014) and Moro and Becker (2016).

By creating EMU, however, we started sailing in «unexplored waters» (to use the expression that Mario Draghi used by referring to the possible Grexit). As a matter of fact, in the case of an «anomalous» monetary union, like EMU, where *different sovereign countries share the same currency*, there are neither automatic fiscal transfers nor inter-regional solidarity. Moreover, the fact that the single currency is shared by *different* sovereign countries means that *capital flows are not internal*. Euro area citizens do not belong to the same country and they, consistently with the inter-governmental nature of the European Union, consider different Eurozone countries as foreign countries. In other words, the public or private debt which is in the hands of the residents of a state which is different from the one where the debt has been issued, is under all respects a *foreign debt*, and not a domestic one, as it is the case instead within a “standard” monetary union like, for example, the US.<sup>16</sup> This implies that countries who sell their public or private debt to foreign residents are subject to a high risk of «sudden stops» or capital flows reversals. As a matter of fact, foreign debt is usually considered as more unstable than the private or public debt which is owned domestically.

The economic intuition is easily conveyed: domestic creditors are presumably better informed and/or perceive a much lower degree of asymmetric information on the economic situation of their government compared to foreign creditors (this is the same reason why financial markets are characterized by a “home bias”, and it is also the main explanation which is provided for the Feldstein-Horioka puzzle).<sup>17</sup> This means that the former assign a lower degree of riskiness to domestic debt and are therefore less responsive to any possible stochastic shocks and less exposed to contagion than foreign creditors.<sup>18</sup>

The opposite occurs for foreign debt, which induces a lower degree of market confidence, a higher speed of market’s reaction and, as a result, a larger share of debt holders being ready to sell it for any given debt level (see Gros, 2013, for a similar conclusion and for further theoretical motivations behind it). At the same time, the government issuing it may find it less costly to default when the debt is in the hands of foreign rather than domestic residents. This might be due to the fact that in the first case there

---

<sup>16</sup> In the United States the different states are part of the same federal state, characterized by inter-regional solidarity, homogeneity of preferences, and fiscal transfers from one state to the others.

<sup>17</sup> In the literature it is possible to read that many less developed and developing countries are believed to be characterized by the presence of an “original sin” that reflects a higher risk perceived by the foreign holders of the debt they issue. A similar attitude might be found towards some Southern euro area countries.

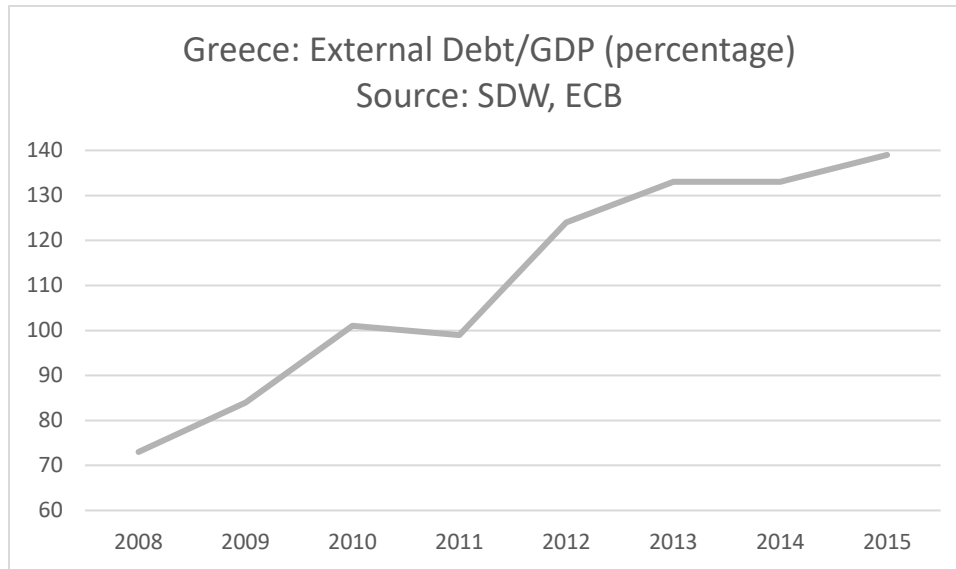
<sup>18</sup> Gros (2013) also distinguishes between public debt owned domestically and the one owned by foreigners. He proposes both political and economic arguments to underline the difference between the two. From my point of view, the most significant one suggests that while servicing public debt owned domestically implies redistributing resources within the country, servicing the one held abroad would imply a welfare loss for the country. It is possible to conclude, then, that foreign residents will demand a higher risk premium on domestic debt and will be faster than domestic residents in selling it in case of doubts about its sustainability. Obstfeld (2012) does not share this view, by arguing that domestic residents are not willing to lose their capital either and are therefore equally fast in selling the domestic bonds they hold if they fear a default. It is a fact, however, that during the recent euro area crisis a sudden stop of capital inflows has occurred, causing a reduction of the percentage of public debt in the hands of foreigners (see for example, Figure 2 in Gros, 2013).

will not be any negative consequences on the domestic aggregate demand, since there will not be any reduction in the domestic financial wealth, so domestic consumption will not be affected by a negative wealth effect, and, as a result, domestic GDP will not fall. A further reason is that foreign residents do not vote, so that imposing a tax on them (namely defaulting fully or partially on the public debt) will not produce negative consequences for the policymakers (Gros, 2013). A problem may result, then, if the capital outflow at some point stops and becomes insufficient to allow for the re-payment of the current account deficit, as it seems to have been the case during the crisis (Figure 2 shows the sudden stop and reduction of external debt in Greece over the years 2010-11 and 2013-14. Foreign debt includes the one against both private and official creditors, and this is why it did not fall after the crisis).<sup>19</sup>

A further, significant difference between the US and the euro area emerges, then. Financial flows in the US are countercyclical, therefore stabilizing (consider for example, the role of private capital flowing to Michigan, to support the automobile district centered around Detroit in the 1980s, during the crisis of the car industry). In the euro area, instead, they have been pro-cyclical, therefore destabilizing (German and French investors withdrawing from Greece exactly like any foreign investor did, for example, during the 1997 South-East Asia or Latin American crises of the 1980s and early 1990s).

---

<sup>19</sup> Even in EMU, however, there is at least one last resort financing channel if a capital flow reversal obliges to balance the current account (see for example IMF, 2014, Moro and Beker, 2016, Moro, 2014 and Collignon, 2012, all of them referring to the role played by the Target 2 system in order to provide automatically the needed liquidity to finance the current account of deficit countries). The sustainability of external debt has also been guaranteed by a switch of financing, from private to official sources, and in the end the reduction of current account imbalances stabilized the situation.



**Figure 2: External debt/GDP (%) for Greece.**

It should also be noticed that the distinction that I am drawing between foreign and domestic debt is fully different from the point made by De Grauwe (2012) that the public debt within the euro area would be *de facto* denominated in a foreign currency and therefore would not be under the control of the central bank of the country issuing it.<sup>20</sup>

In the next paragraph I propose a model (based on Della Posta, 2016a and Della Posta 2016b), which focuses in particular on the role played in the euro area crisis by foreign as opposed to domestic debt.

### 3. The euro area crisis and the role of foreign debt

---

Della Posta (2016b) proposes a model in the spirit of the speculative attacks literature on fixed exchange rates and applies it to the case of the euro area crisis by focusing on speculative attacks against public debt. Della Posta (2016a) considers instead the case of speculative attacks on foreign debt, by referring particularly to the case of less developed and developing countries. As it has been argued in this paper, however, even in the euro area case it is possible to identify foreign debt as a critical fundamental variable being monitored in order to decide a selling attack.

---

<sup>20</sup> De Grauwe's observation, however, would not explain why some governments (Argentina, Mexico, Russia, Brazil, just to name a few) defaulted on their public debt in spite of the presence of a central bank that could monetize the debt. In those cases, apparently, the trade-off between bankruptcy and inflation has been resolved in favor of the former.

In the present Appendix (which builds upon and further qualifies the basic structure of the models proposed in Della Posta 2016a and Della Posta 2016b), I examine first the difference between public debt and foreign debt crises, and then apply the latter to interpret the euro area crisis.

### *3.1 Cost benefit comparison between domestic and foreign public debt*

As it has been already discussed below (see Footnote 10), several authors have formalized the idea of multiple and self-fulfilling equilibria as an explanation for the euro area crisis. By following in particular De Grauwe and Ji (2013) and Della Posta (2016b), it is possible to consider the government's costs and benefits of default on public debt. The government may default on the public debt any time the benefit of doing so exceeds the cost. The cost of default on the debt,  $C$ , is assumed to be the constant price (due, for example, to the loss of reputation) that the government would have to stand in case of default, for any given level of public debt/GDP ratio ( $b$ ). The benefit of debt default,  $B$ , instead, increases with  $b$ , since the higher  $b$ , the more costly its repayment will be. The point at which the benefit function meets the cost function identifies the critical level,  $\bar{b}$ , below or at which the government will not default on the debt and above which it will do it (see Figure 3).

Let us discuss here, however, what happens to the government's optimal critical level separating the region of debt stability from the region of debt instability when such public debt is held by foreign residents, becoming therefore foreign public debt.<sup>21</sup>

As mentioned above, foreign public debt is usually perceived by the holders as riskier than domestic public debt, especially if the issuing country doesn't have a strong reputation to start with. As a result, debt holders will require a higher risk premium, thereby increasing the benefit for the domestic government to default on the debt. The curve  $B$  representing the benefit of debt repudiation, then, moves leftward compared to the case of public debt held domestically.

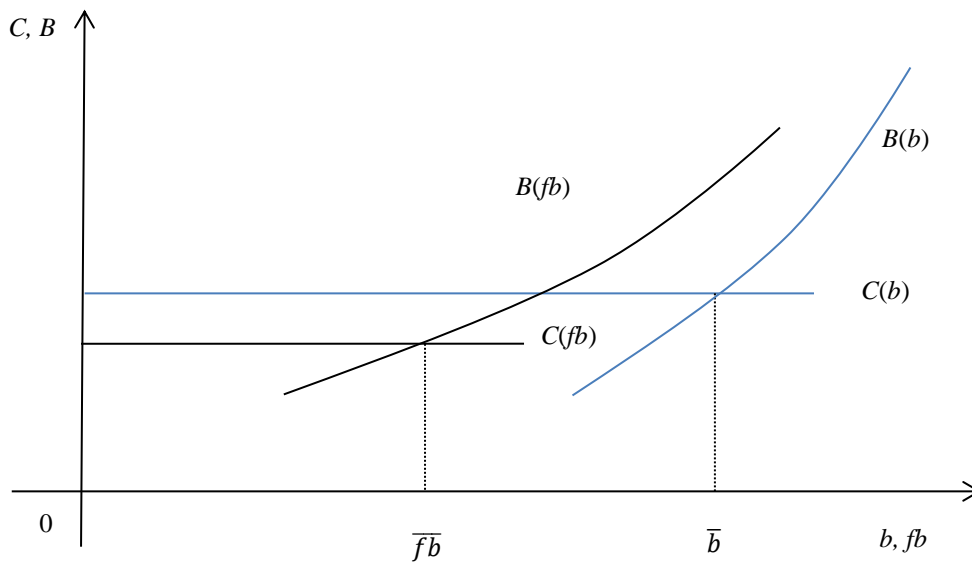
At the same time, it is possible to argue that the constant debt repudiation cost,  $C$ , is lower in the case of foreign debt, compared to the case of domestic debt. In the latter case domestic residents would incur a loss, and this might have negative repercussions on the domestic economy, not to mention the possibility that policymakers would be punished when it is elections' time (Gros, 2013). Both problems would not be there in the case of foreign debt, so as to produce a lower  $C$ .

---

<sup>21</sup> Foreign (or external) debt is both the public and the private debt in the hands of foreign residents. In what follows, however, I will focus only on the former and with the expression foreign public debt I will refer therefore to the public debt owned by foreign residents. Gros (2013) defines foreign debt just as "sovereign debt held by foreign investors" (p. 502).

Both the leftward shift of the  $B$  curve and the lower default cost  $C$  produce the result of a lower critical level ( $\overline{fb}$ ) separating the stable from the unstable region of foreign public debt ( $fb$ ), compared to the critical level  $\overline{b}$  in the case of domestic public debt ( $b$ ), as shown in Figure 3.

It deserves to be underlined the fact that this theoretical finding explains clearly why among the Macroeconomic Scoreboard Indicators adopted by the European Commission in order to monitor the state of the economic fundamentals of euro area countries, we find a lower target value for foreign debt (35%), than for public debt (60%).



**Figure 3: The lower critical level ( $\overline{fb}$ ) separating the stable from the unstable region of foreign public debt, compared to the critical level  $\overline{b}$  in the case of domestic public debt.**

The curve representing the benefit of a debt default is positively related to the foreign debt/GDP ratio, and its position is affected by the market confidence on the stability of  $fb$ , namely on the state of expectations and the market's fear that there may be a default on the debt. In particular, the lower the credibility, the lower the debt demand, the higher the risk premium required by debt holders and therefore the higher the government's benefit of a debt default. It turns out, then, not only that the  $B$  curve in the case of foreign debt is to the left of the same curve when creditors are domestic residents, but also that with a bad state of expectations the benefit curve will shift leftward and it will determine a lower critical



level  $\overline{fb}^d < \overline{fb}^g$ , where superscript  $d$  and  $g$  indicate respectively a “bad” and a “good” state of expectations (see Della Posta, 2016a).<sup>22</sup>

### 3.2 Speculators’ decision to attack based on economic fundamentals

After having considered the choice to be made by the government, based on the comparison between costs and benefits of a debt default, let us consider now the optimization process of speculators, namely their convenience to attack (and/or ask for a higher risk premium), based on the usually “rational” (but sometimes also “emotional”) analysis of the state of the economic fundamentals, namely the sustainability of  $fb$ .

Speculators will try to identify the critical level of the foreign public debt/GDP ratio above which public debt held by foreign residents is not sustainable anymore and at which, then, they should all start selling the bonds that they hold.

This is obtained by considering the foreign debt/GDP stability condition:<sup>23</sup>

$$(1) \quad d(fb) = def + (i - g)fb \leq 0$$

Where  $def$  is the primary deficit that is going to add to the foreign public debt,  $i$  is the nominal interest rate and  $g$  is the rate of GDP growth, that for the time being we are going to take as given, so that  $g = \overline{g}$ . This means that for all values of  $fb$  such that (1) is satisfied, the foreign public debt/GDP ratio will not explode to infinity in the future: speculators, then, have no reasons to attack a stable and sustainable foreign public debt.<sup>24</sup>

The nominal interest rate,  $i$ , however, may contain a risk premium component that increases with  $fb$  and that changes together with the “good” or the “bad” state of expectations. In the former case, the interest

---

<sup>22</sup> The conclusion reached above that  $\overline{fb} < \overline{b}$  is intuitive and has been thoroughly justified. The same arguments support the conclusion that  $\overline{fb}^d < \overline{b}^d$ .

<sup>23</sup> Since we are ignoring private debt here, we can limit our analysis to the primary deficit that will go in the hands of foreign residents, rather than to current account deficit (see Della Posta 2016a for a complete analysis of foreign debt crises).

<sup>24</sup> It is implicitly assumed here that no constraint applies, for example on the size of the budget surplus that needs to be run in order to grant public debt sustainability in the case in which  $i > \overline{g}$ . We will consider below the implications of the existence of such a constraint, by following Tamborini (2015).

rate is assumed to be determined linearly by the value taken by  $fb$ , depending on the sensitivity parameter  $\alpha$ , so that:

$$(2) \quad i^g = \bar{i} + \alpha(fb)$$

The stability condition for public debt with a “good” state of expectations becomes, then:

$$(3) \quad d(fb^g) = def + [\bar{i} + \alpha(fb) - \bar{g}]fb \leq 0$$

If for simplicity we assume a primary deficit ( $def > 0$ ) and we consider the case in which  $\bar{g} - \bar{i} > 0$ , the stability region would be included in the range  $(0, \underline{fb}^s)$ , where  $\underline{fb}^s$  indicates the value of the foreign public debt/GDP ratio below or at which the stability condition is satisfied and no foreign speculators, therefore, will sell the foreign public debt bonds that they hold.<sup>25</sup>

In the case of a “bad” state of expectations, however, the nominal interest rate reacts more than in the “good” state of expectations to any value taken by  $fb$  (De Grauwe and Ji, 2013 find out that in such a situation  $i$  reacts more than proportionally and non-linearly to the public debt). Della Posta (2016a) shows that, in such a case, the critical level of foreign debt separating the stable from the unstable area, becomes smaller, given that the curve  $fb^d$  ( $def > 0$ ) shifts to the left of  $fb^s$  ( $def > 0$ ), as also represented in Figure 4 below.

If the state of expectations worsens, for example because of an exogenous shock or because of some form of contagion (as described above, it’s easy to think of the fiscal shock of Greece spreading a contagious infection on some of the weaker euro area countries), then, there would seem to be an obvious way to restore public debt sustainability, namely reducing the primary deficit or even running a primary surplus. This, at least at first sight, would seem to be shifting the sustainability curve downwards to  $fb^d$  ( $def < 0, \bar{g}$ ), so as to regain the initial critical level of public debt stability. Figure 4 shows how the critical level of public debt characterizing the “good” state of expectations ( $\underline{fb}^s$ ), would seem to be reached again even in the presence of a “bad” state of expectations, with a fiscal correction implying the realization of a primary surplus.

---

<sup>25</sup> The debt region  $(0, \underline{fb}^{g'} = \frac{(\bar{g}-\bar{i})+\sqrt{(\bar{g}-\bar{i})^2-4\alpha(def)}}{2\alpha})$  should be technically unstable since  $d(fb^d) > 0$ . The latter, however, is decreasing and the only reason for being positive is that the level of the external debt/GDP ratio is so low that the economic growth effect (being  $\bar{g} > \bar{i}$ ) on reducing  $fb$  is not yet sufficient to compensate for the initial fiscal deficit. It is only when public debt becomes sufficiently large that, in turn, the risk premium component ( $\alpha(fb)$ ) overtakes the growth effect.

Such a conclusion, however, depends crucially on the assumption that running a fiscal surplus would not produce any negative effects on GDP growth. If that were not the case, and  $g$  fell instead, the  $fb^d(def < 0, \bar{g})$  curve in Figure 4 would become steeper (like the one represented with the label  $fb^d(def < 0, g < \bar{g})$ ), and no enlargement of the stability area would be possible.

This is easily shown by considering, for example, a simple equation of GDP growth as follows:

$$(4) \quad g = \bar{g} + \beta(def),$$

where a primary deficit has a positive effect on GDP growth through a positive multiplier effect (Blanchard and Leigh, 2013).

By considering the interest rate as determined linearly by the value taken by  $fb$  as in Equation (2) above, but depending on the sensitivity parameter  $\alpha' > \alpha$  corresponding to the case of a “bad” state of expectations (see Della Posta, 2016a), we have that:

$$(5) \quad d(fb^d) = def + [\bar{i} + \alpha'(fb) - \bar{g} - \beta(def)]fb.$$

As it is clear,  $def < 0$  makes the foreign debt/GDP ratio grow further and that makes the curve steeper again, as represented by  $fb^d(def < 0, g < \bar{g})$  in Figure 4.

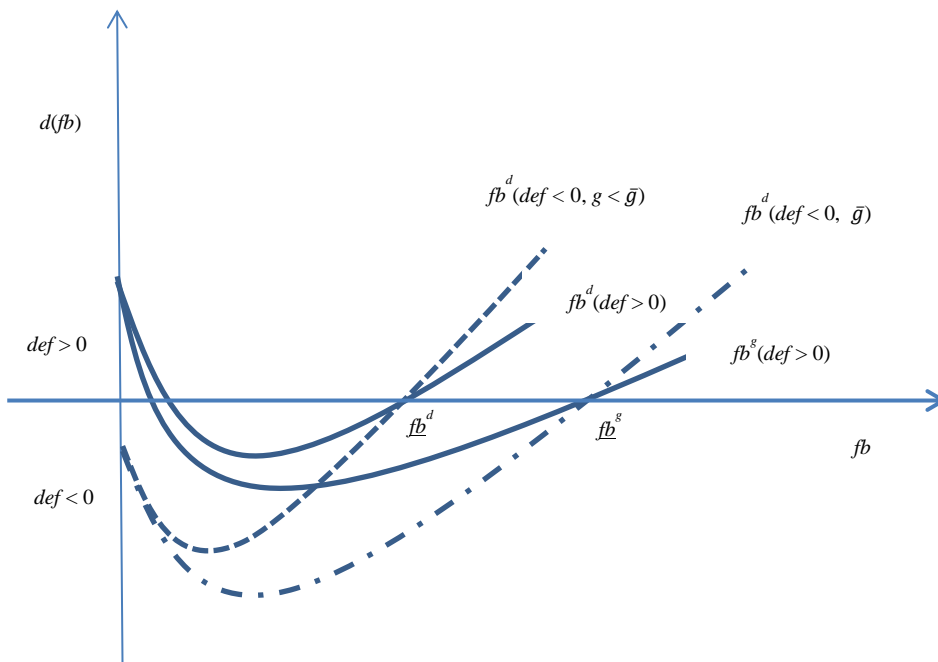


Figure 4: Different possible trajectories for the public debt dynamics determining different stability regions.

This conclusion would not apply in the case in which the state of expectations changed from “bad” to “good” thanks to the fiscal adjustment (see Giavazzi and Pagano, 1996 for one of the first papers discussing the possibility of non-Keynesian effects of fiscal policy). As I have discussed above, however, it is difficult to believe that credibility can be restored by following restrictive fiscal policies during an economic crisis that would require expansionary ones.

As argued by Tamborini (2015), however, a further limitation should be considered, namely the fact that the adoption of fiscal austerity may not be credible not only because of the negative effects it may have on economic growth, but also because the proposed fiscal contraction may exceed its implicit feasible boundary ( $\underline{def} < 0$ ). As a matter of fact, direct or indirect taxation that can be levied on citizens cannot exceed a given maximum limit, while public expenditure cannot be reduced below a given minimum level. This implies that the larger the primary surplus necessary to make the public debt sustainable, the closer it will become to the upper fiscal surplus limit that a country can stand (represented by the horizontal line identified by the label  $\underline{def}$  in Figure 5), and the less credible therefore it will be. As a result, the curve representing the debt dynamics (identified, in Figure 5, by the label  $\underline{fb}^d(\underline{def} = \underline{def})$ ) might follow an even steeper trajectory, reducing, rather than enlarging the stability region. Tamborini (2015) provides a formal analysis of this idea in a setting of agents’ heterogeneous beliefs. As a result, in his model the worsening in the state of expectations is determined endogenously and results from the lack of credibility of the fiscal effort which would be necessary in order to make public debt sustainable.

Within the framework adopted in this paper, the existence of such a lower limit,  $\underline{def}$ , to the fiscal surplus that can be obtained by reducing public expenditure or by raising taxes (such that  $\underline{def} \leq \underline{def}$ ), might be considered as affecting the interest rate on debt, for example, as follows:

$$(6) \quad i = \bar{i} + \gamma \frac{\underline{def}}{\underline{def}}$$

The closer  $\underline{def}$  gets to  $\underline{def}$ , (where  $\underline{def} < 0$ ), the closer it gets to its maximum level, which is assumed to be equal to  $\bar{i} + \gamma$ . This reflects the existence of the “fiscal credibility” problem (as I would define it), identified by Tamborini (2015) and additional to the “growth credibility” one identified, among others, by Blanchard and Leigh (2013) and mentioned above.

The debt dynamics can be represented, then, as:<sup>26</sup>

---

<sup>26</sup> A different, more extreme, hypothesis might be that  $i = \bar{i} + \gamma \frac{1}{\underline{def} - \underline{def}}$ . If this is the equation representing the role played by the maximum feasible level of fiscal contraction, it turns out that the closer  $\underline{def}$  gets to  $\underline{def}$ , (where  $\underline{def} < 0$ ), the larger  $i$  becomes (the value of  $i$  tending to infinity when  $\underline{def}$  tends to  $\underline{def}$ ).

$$(7) \quad d(fb) = def + [\bar{i} - \bar{g} + \alpha(fb) + \gamma \frac{def}{fb}]fb.$$

Once more, if this second source of lack of credibility also affects directly the interest rate risk premium, we have a further element that induces debt to grow at a faster rate.

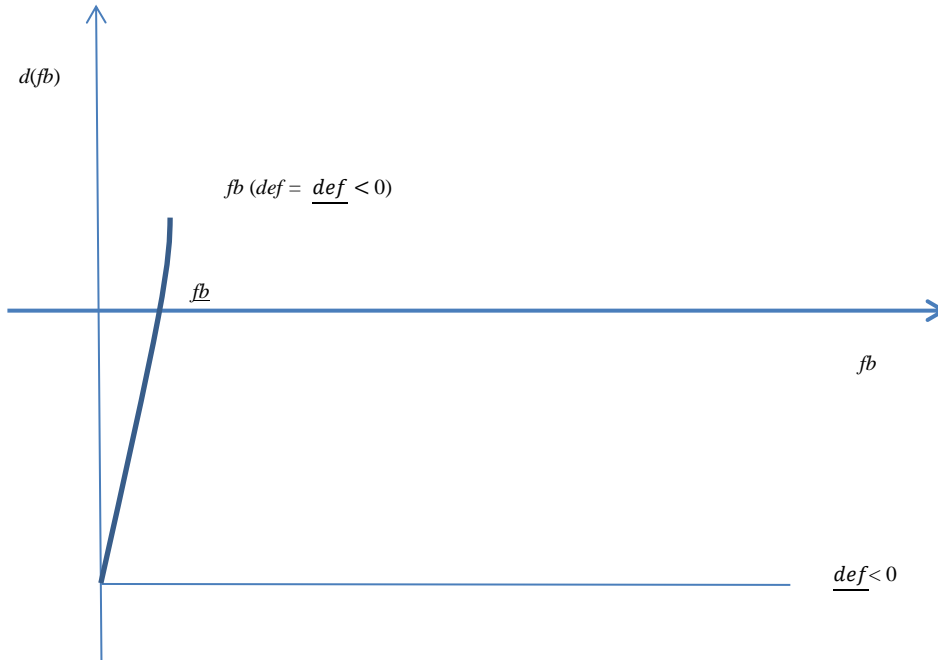


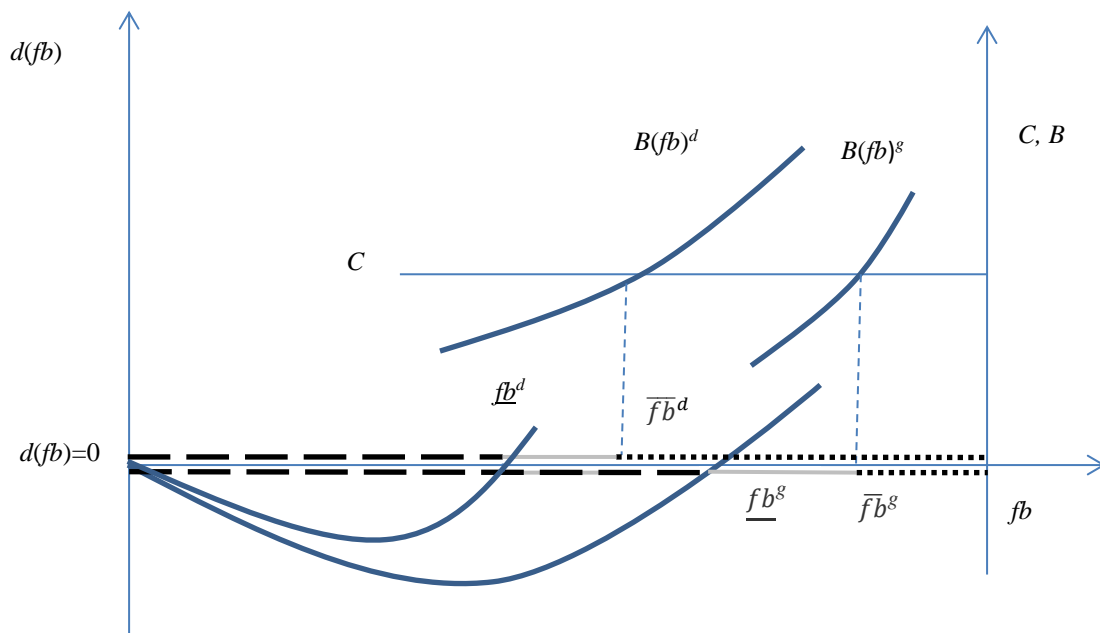
Figure 5: Foreign debt dynamics in the case in which the budget surplus ( $def < 0$ ) which is required to make foreign debt sustainable, reaches the maximum feasible budget surplus ( $\underline{def} < 0$ ).

### 3.3. Government's cost-benefit comparison and speculators' optimal decision considered jointly

By considering jointly the point of view of the government with the point of view of speculators, we obtain a figure that resembles closely the one obtained in the literature on speculative attacks on fixed exchange rates (see Morris and Shin, 1998, Goldstein, 2012, Della Posta, 2016a and Della Posta 2016b). As a result, the range of values that can be taken by  $fb$  is divided in three regions, depending on the “good” or “bad” state of expectations. In the former case, we have a stable region for  $fb < \underline{fb}^s$ , a region of instability for  $fb > \overline{fb}^s$  and an intermediate region of multiple equilibria for  $\underline{fb}^s \leq fb \leq \overline{fb}^s$  (see Figure 6).

A worsening of the state of expectations - implying panic and a larger market participation in the attack - shifts  $B(fb)^s$  leftwards to  $B(fb)^d$ . However, as we have argued above, if the revised level of interest rate is expected to be constant in the future, the shift in expectations (not necessarily justified by a similar shift in the underlying state of the fundamentals) also affects the foreign public debt sustainability equation through its effects on the interest rate, thereby reducing the area of stability.<sup>27</sup> As a result, even a foreign public debt level which would be otherwise stable if not subject to speculative attacks may turn out to be unsustainable when the state of expectations worsens in a self-fulfilling way, independently of the state of the fundamentals. As a result, with a “bad” state of expectations, we have a stable region for  $fb < \underline{fb}^d$ , an unstable region for  $fb > \bar{fb}^d$  and an intermediate “gray” region of multiple equilibria for  $\underline{fb}^d \leq fb \leq \bar{fb}^d$ , as shown in Figure 6.

Figure 6 represents, then, the three regions (stable, unstable and “gray”) in the cases of both a “good” (lower horizontal  $fb$ -axis) and a “bad” (upper horizontal  $fb$ -axis) state of expectations. Stable regions are represented with long dots, unstable regions with short dots, and intermediate regions with a continuous line.



**Figure 6: Stable ( $fb < \underline{fb}^s$ ), unstable ( $fb > \bar{fb}^s$ ) and intermediate ( $\underline{fb}^s \leq fb \leq \bar{fb}^s$ ) regions with a “good” state of expectations (lower  $fb$ -axis) and stable ( $fb < \underline{fb}^d$ ), unstable ( $fb > \bar{fb}^d$ ) and intermediate ( $\underline{fb}^d \leq fb \leq \bar{fb}^d$ ) regions (upper  $fb$ -axis) with a “bad” state of expectations.**

<sup>27</sup> This is the case, of course, if the revised level of interest rate is expected to be constant in the future.

The graphical approach presented above allows to interpret both the first years of EMU and the euro area crisis (assuming in both cases a balanced primary deficit and focusing only on the change in the state of expectations).

It is widely acknowledged that, during the first years of life of EMU, financial markets assigned an overoptimistically low risk premium to the public debt of peripheral countries and that foreign residents (especially German and French banks) bought it confidently (being the interest rate still higher than the one within their countries). By considering as permanent such a low risk premium, then, the stability region of those countries became larger, compared to the pre-EMU period. Things changed, however, first when the global financial crisis induced the intervention of some of the national fiscal authorities belonging to the euro area to save national banks (the most relevant case being Ireland and Spain) or more generally to respond to the difficulties of the crisis (Portugal, Italy and Greece), and then, in 2011 and until the second half of 2012 with the effects of the Greek shock on public finances. When that happened, the “honeymoon” that characterized the first years of EMU came to an end because of a dramatic change in the state of expectations.

As discussed above, things were made worse by the presence of foreign rather than domestic public debt, which is by definition more subject to sudden changes in the state of expectations and which determined a larger area of instability.

Even with a constant foreign public debt/GDP ratio, then, the higher interest rate spread resulting from a worsening of the state of expectations due to the exogenous Greek shock caused some euro area countries to move from the region of stability included in the region  $(0-\underline{fb}^g)$  to the potentially unstable region  $(\underline{fb}^d-\overline{fb}^d)$  of Figure 6 above, characterized by multiple equilibria and by the possibility of self-fulfilling crises.

## 4. Concluding remarks

---

In this paper, I have provided an interpretation of the euro area crisis centered on the view that it was determined mainly by *structural* and *institutional* reasons involving the functioning of the euro area, rather than to the deliberate and individual misbehavior of Southern euro area countries only.

The *structural* divergences implied the accumulation of an inflation differential in spite of the common monetary policy (something that even the original OCA theory did not take into consideration), that induced a current account divergence between Northern and Southern euro area countries. As a matter of fact, capital flows had moved from Northern to Southern euro area countries during the initial “honeymoon” years of EMU, thereby both determining (through the inflationary “Walters’ effect”), and allowing (through its financing) the current account deficits of the latter. Such capital flows, however, represented by all means a *foreign debt* for the receiving countries, being it in the hands of foreign

residents, and as such it was much more prone to instability and sudden stops than the domestically held public debt.

Such a situation of objective fragility, in a context in which the “political” criteria of OCA theory that might have provided some automatic adjustment mechanisms were not satisfied, produced its negative effects as soon as the Greek shock on public finances hit the euro area and induced the adoption of fiscal austerity, which is the opposite of what should have been done and of what the US and the UK actually did.

The crisis came to an end only thanks to the reassurance provided by the “whatever it takes” Draghi speech and the accompanying credible policy measures, thereby confirming that it had also *institutional* origins (the most important of which being the lack of a lender of last resort in the euro area) that determined the unraveling of negative self-fulfilling expectations (especially after the Deauville “scare” by Merkel and Sarkozy mentioned above).

As a result, focusing on the economics-accounting part of the solution (centered on a given numerical condition to be satisfied for the public debt/GDP ratio or the foreign debt/GDP ratio, or for their flow equivalents) while ignoring the relevance of its political-substantial aspects (namely the *political will to preserve the stability of the area*), does not appear to be enough to guarantee an effective and long lasting recipe for the way out of the crisis.

As a matter of fact, if the problems have a *structural* and *institutional* nature the only way to prevent future crisis can only be to go back to the “political” OCA criteria: homogeneous preferences, inter-regional solidarity and fiscal transfers or, in other words, political union.

The hazard of euro-enthusiasts was that neo-functionalism would be the right way to follow, thereby proceeding step by step through a process of a gradual increase of the degree of integration, with the expectation that over time European people would “learn” and appreciate more and more the benefits of European integration. In turn, this would have pushed further the European Union towards a political union that would provide the missing elements of the OCA criteria and that would reinforce and make fully credible the euro. As a matter of fact, a political union would be the only safe way to address and remove both the structural and the institutional weaknesses of the euro area.

Unfortunately, however, this does not seem to have happened yet, nor the future perspectives seem to be going in this direction.

## References

---

1. Ahearne, Alan, Brigit Schmitz, and Jürgen von Hagen (2007), “Current Account Imbalances in the Euro Area (draft Version).” CASE Network Studies and Analyses 0345. CASE-Center for Social and Economic Research. <https://ideas.repec.org/p/sec/cnstan/0345.html>.



2. Alessandrini, P., M. Fratianni, A. Hughes Hallet, and A. Presbitero (2012), “External Imbalances and Financial Fragility in the Eurozone”, *MoFiR working paper*, n. 66.
3. Attinasi, M. G., Checherita, C., and Nickel, C., (2009), “What Explains the Surge in euro Area Sovereign Spreads During the Financial Crisis of 2007-09?”, *ECB Working Paper* n. 1131.
4. Baldwin, R. and C. Wyplosz (2015), *The Economics of European Integration*, Fifth edition, London: McGrawHill.
5. Barro, R. e D. Gordon (1983), “Rules, discretion and reputation in a model of monetary policy”, *Journal of Monetary Economics*, vol. 12, pp. 101-122.
6. Blanchard, O., and F. Giavazzi (2002), “Current Account Deficits in the Euro Area: The End of the Feldstein-Horioka Puzzle?” *Brookings Papers on Economic Activity* 2002:2, 147-186
7. Blanchard, O. and D. Leigh (2013), “Growth Forecast Errors and Fiscal Multipliers.” IMF Working Paper 13/1. International Monetary Fund. <https://ideas.repec.org/cgi-bin/htsearch?q=blanchard+and+leigh>.
8. Bourgeot, R. (2013), “Labour Costs and Crisis Management in the Euro Zone: A Reinterpretation of Divergences in Competitiveness”, Fondation Robert Schumann, Policy Papers, *European issues* n. 289, 24th September.
9. Calvo, G. A. (1988), “Servicing the Public Debt: the Role of Expectations”, *American Economic Review*, Vol. 74, pp. 647-61.
10. Collignon, S. (2012), “Taking European integration seriously: competitiveness, imbalances, and economic stability in the Euro Area”, Chap. 1 in: S. Collignon and P. Esposito (eds.) *Competitiveness in the European economy* ; London: Routledge, 2013.
11. Cooper, R. (2012), “Fragile Debt and the Credible Sharing of Strategic Uncertainty”, *NBER Working Paper* n. 18377.
12. Cottarelli, C. (2012), <http://blog-imfdirect.imf.org/2012/01/29/fiscal-adjustment-too-much-of-a-good-thing/>
13. Giordano, L., N. Linciano e P. Soccorso (2012), “The determinants of government yield spreads in the euro area”, *Consob Quaderni di Finanza* n. 71 (Ottobre).
14. De Grauwe, P. (2012), “The Governance of a Fragile Eurozone.” *Australian Economic Review*, 45 (3):255–68.
15. De Grauwe, P. and Y. Ji (2012), “Mispricing of Sovereign Risk and Multiple Equilibria in the Eurozone”, *Ceps Working Document* n. 361, January.
16. De Grauwe, P. and Y. Ji (2013), “From panic-driven austerity to symmetric macroeconomic policies in the Eurozone”, *Journal of Common Market Studies*, Vol.51, Annual Review, p. 31-41.
17. Della Posta, P. (2016a), “Currency and External Debt Crises: a Unifying Framework”, *Journal of Policy Modeling*, DOI: 10.1016/j.jpolmod.2016.06.003.

18. Della Posta, P. (2016b), “Self-Fulfilling and Fundamentals Based Speculative Attacks: A Theoretical Interpretation of the Euro Area Crisis”, *Global Economy Journal*, DOI 10.1515/gej-2015-0063.
19. Di Cesare, A., Grande, G., Manna, M., and Taboga, M. (2012), “Recent Estimates of sovereign Risk Premia for Euro-Area Countries”, *Banca d’Italia Occasional Paper*, no. 128.
20. Drazen A., Masson P. (1994), “Credibility of Policies versus Credibility of Policymakers”, *Quarterly Journal of Economics*, vol. 109, pp. 735-54.
21. Favero and Missale (2012), “Sovereign Spreads in the Eurozone: which prospects for a Eurobond”?, *Economic Policy*, Vol. 107, pp. 231-273.
22. Giavazzi F., M. Pagano (1988), “The Advantage of Tying One’s Hands: EMS Discipline and Central Bank Credibility”, *European Economic Review*, vol. 32, pp.1055-1075.
23. Giavazzi, F. and M. Pagano (1996), “Non-Keynesian Effects of Fiscal Policy Changes: International Evidence and the Swedish Experience”, *Swedish Economic Policy Review*, n. 3, pp. 67-103.
24. Giavazzi, F. and L. Spaventa (2010), “Why the Current Account Matters in a Monetary Union”, *Cepr Discussion Paper* n. 8008.
25. Goldstein, I. (2012), “Empirical Literature on Financial Crises: Fundamentals vs. Panic”, ch. 36 in *The Evidence and Impact of Financial Globalization*, Gerard Caprio (ed), New York: Academic Press.
26. Ghosh, A.R., J.I. Kim, E.G. Mendoza, J.D. Ostry and M.S. Qureshi (2013), “Fiscal Fatigue, Fiscal Space and Debt Sustainability in Advanced Economies”, *Economic Journal*, Volume 123, pp. F4-F30.
27. Gros, D. (2012), “A Simple Model of Multiple Equilibria and Default”, *CEPS Working Document No. 366*, Centre for European Policy Studies, Brussels; July 16.
28. Gros, D. (2013), “Foreign debt versus domestic debt in the euro area”, *Oxford Review of Economic Policy*, Volume 29, Issue 3, pp. 502-517, DOI: 10.1093/oxrep/grt038.
29. IMF (2014), “Adjustment in Euro Area Deficit Countries: Progress, Challenges, and Policies”, T. Tressel, S. Wang, J. Shik Kang, and J. Shambaugh, directed by J. Decressin and P. Koeva Brooks *IMF Staff Discussion Note*, SDN/14/7, July.
30. Kenen, P.B. (1969), ‘The Theory of Optimum Currency Areas: an Eclectic View’, in *Monetary Problems of the International Economy*, R.A. Mundell e A.K. Swoboda (eds.), University of Chicago Press.
31. Krugman, P., (2010), “Self-defeating Austerity”, *The New York Times*, The Opinion Pages, The Conscience of a Liberal, July 7, available at: [http://krugman.blogs.nytimes.com/2010/07/07/self-defeating-austerity/?\\_r=0](http://krugman.blogs.nytimes.com/2010/07/07/self-defeating-austerity/?_r=0)
32. Lane, P. R. (2012), “The European Sovereign Debt Crisis”, *Journal of Economic Perspectives*, Volume 26, Number 3, Pages 49-68, Summer 2012.
33. Manganelli, S. and G. Wolswijk (2009), “What drives spreads in the euro area government bond market?”, *Economic Policy*, Vol. 24, April 2009, pp. 191-240.

34. McKinnon, R.I. (1963), "Optimum Currency Areas", *American Economic Review*, vol. 53, pp. 717-25.
35. Moro, B. and V. Becker (2016), *Modern Financial Crises: Argentina, United States and Europe*, Heidelberg: Springer Verlag.
36. Moro, B. (2014), "Lessons from the European economic and financial great crisis: A survey", *European Journal of Political Economy*, Volume 34, Supplement, *European Debt Crisis*, June, Pages S9–S24.
37. Morris, S. and H. S. Shin (1998), "Unique Equilibrium in a Model of Self-Fulfilling Currency Attacks", *American Economic Review*, Vol. 88, No. 3, pp. 587-597.
38. Morroni, M. (2016), *Nulla è come appare. Dialoghi sulle verità sommerse della crisi economica*, Reggio Emilia, Imprimatur.
39. Mundell, R.A. (1961), "Theory of Optimum Currency Areas", *American Economic Review*, vol. 51, pp. 657-65.
40. Obstfeld, M. (1986), "Rational and Self-fulfilling Balance-of-Payments Crises", *American Economic Review*, Vol. 76, No.1, pp. 72-81.
41. Obstfeld, M. (2012), "Does the Current Account Matter?", *American Economic Review*, Vol. 102, pp. 1-23.
42. Salvatore, D. (2015), *The Dollar, Euro, Yuan, and the International Monetary System*, Speech delivered at the Plenary Session "The Future of the Global Monetary System", Silver Jubilee Conference of the International Trade and Finance Association, Sarasota, FL (USA), May 19.
43. Sgherri, S., and M. Zoli (2009), "Euro Area Sovereign Risk During the Crisis", *IMF Working Paper WP/09/222*.
44. Sinn, H.W. (2011), [The Trouble with Eurobonds](http://www.project-syndicate.org/commentary/sinn39/English), 2011-08-25, <http://www.project-syndicate.org/commentary/sinn39/English>
45. Tamborini, R. (2015), Heterogeneous Market Beliefs, Fundamentals and the Sovereign Debt Crisis in the Eurozone, *Economica*, Volume 82, Issue s1, December 2015, Pages 1153–1176, DOI: 10.1111/ecca.12155.
46. Tavlas, George S. 1993. "The 'New' Theory of Optimum Currency Areas." *World Economy* 16 (6): 663–85.
47. Trichet, Jean Claude (2012), "European Exceptionalism", September 6, 2012, available at the web address: <http://www.project-syndicate.org/commentary/european-exceptionalism-by-jean-claude-trichet>