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Reconsidering the economic and political reasons of the euro area crisis: Diverging fundamentals or self-fulfilling expectations?

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Several analyses of the euro area crisis are centered around the diverging behavior of fundamental variables, usually identified with public debts and/or current accounts. The observation that divergences in those variables cannot explain the crisis (given that some non-euro area countries, characterized by a similar situation, have not been subject to speculative attacks) leads other authors to interpret it as having been determined instead by negative self-fulfilling expectations, made possible by the political and institutional fragility of the euro area. Some contributions have also explicitly focused on political and institutional weaknesses as the determinants of economic events – including the euro area crisis – but without modeling them explicitly, and without addressing them within the fundamentals vs. self-fulfilling expectations debate. In this paper, I review and integrate those different approaches, raising five main points.

First of all, I underline that explanations of the euro area crisis based on fundamental divergences refer only to a subset of the economic variables. This means that the conclusion that fundamental divergences do not explain the crisis is not necessarily correct.

Second, I bring to attention that while explanations based on divergent fundamentals in the euro area crisis literature refer only to (a limited number of) *economic* variables, explanations based on self-fulfilling expectations refer (implicitly) to *political* and *institutional* variables.

The third point I make is that there is no reason not to include political and institutional factors among the components of the

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fundamental variables of an economy, along with the economic ones. This would bring to light the relevant role political and institutional variables have in determining economic outcomes.

Fourth, by considering political and institutional variables as components of the fundamental variables, the euro area crisis can be defined as determined by diverging fundamentals rather than by negative self-fulfilling expectations.

Finally, an intuitive model – based on the seminal one proposed by Domar (1944) and also used by Arestis and Sawyer (2003, 2013) and Hein and Detzer (2015) – is presented. The model is extended so that it takes the role played by political and institutional variables (respectively federal and monetary solidarity) into account, along with the economic ones.

I also argue that the relevance of political factors in determining the euro area crisis should be far from surprising, given that political aspects have been determining a long series of events in the life of the European Union (EU) and European Economic and Monetary Union (EMU).

1. The role of political factors over the life of the EU and EMU

The role of political factors in influencing economic events has been tackled extensively in the literature. Specifically, a topic that has particularly attracted scholars' attention is the effects that political factors may have on budget deficits and public debt (Roubini and Sachs, 1989), on currency crises (Rother, 2009), on financial liberalization (Campos and Coricelli, 2012), on banking crises (Keefer, 2002), on the responses to banking crises (O'Keeffe and Terzi, 2015), and on macroeconomic adjustment and policy reforms (Walter, 2013).

Political factors, rather than economic ones, have also been systematically affecting the life of both the EU and EMU, as can be easily seen if we take a long-term view of the main phases of the process of Europe's economic and monetary integration.

1.1. The beginning of the process of European integration

A first example of how political reasons have been affecting the process of European integration is provided by the motivations behind the signature of the European Coal and Steel Community (ECSC) and then of the Treaties of Rome. As a matter of fact, the EU (European Economic Community, EEC, at the time), started its life in the aftermath of the Second World War. Historians point to three main reasons for its creation: to avoid a new war in Europe, to face the threat of communism by erecting a communitarian barrier that would shield European countries against the hegemonic temptations of the Soviet Union (made explicit by the invasion of Hungary in 1956), and to grant an international role to Europe in a historical period in which there were two economic and political giants (the USA and the USSR) against which the relatively small European countries alone had no chances of competing with (as the Suez canal crisis had shown in 1956). Of course, there were more direct economic reasons for the creation of the EEC too, but if we weigh them against the political ones it is easy to conclude that the latter are far more relevant than the former (Senior Nello, 2012; Baldwin and Wyplosz, 2015).

The process of European monetary integration started at the beginning of the 1970s with the Werner Plan (Giordano and Persaud, 1998; Scheller, 2006). The reasons for its launch had to do with the difficulties that the Bretton Woods system was experiencing because of the excessive printing of banknotes. This was caused by the need for the USA to pay for the high military expenses of the Vietnam war, and soon conflicted with the USA's commitment to convert US dollars into gold (Eichengreen, 1993). Such turbulences required a stabilization of intra-European exchange rates given the high degree of openness within Europe. The Werner Plan, however, was soon suspended due to the inflationary instability that followed the 1973 oil crisis, resulting from the Arab-Israeli Yom Kippur war. The oil crisis forced European countries to change the economic agenda (Baer and Padoa-Schioppa, 1989). The supranational features of the Plan, of which the French

Gaullists disapproved, also played a role in its (temporary) demise (Maes, 2002).

1.2. The creation and fall of the EMS

The instability of the Seventies ended with the creation of the European Monetary System (EMS) in 1979. The system was instituted to re-establish fixed exchange rates and avoid excessive exchange rate fluctuations and commercial wars in Europe after the fall of the Bretton Woods system. However, the 1973 oil crisis still kept playing a role, along with the second oil shock that occurred in 1979 as a consequence of the Iranian Islamic revolution. Both oil shocks caused a dramatic increase in inflation rates that were curbed thanks to the monetary discipline provided by the EMS (Kruse, 1980; Ludlow, 1982; Verdun, 2002).

Considerations of political prestige are mentioned by the Study Group on Economic and Monetary Union, formed in 1973 by the Commission of the European Communities in order to move towards a European monetary unification.

If we consider the fall of the EMS in 1992-1993 we find that political reasons, namely the fall of the Berlin Wall and German reunification, played quite a prominent role. As a matter of fact, German reunification was accompanied by the imposition by Chancellor Helmut Kohl of a conversion rate between East and West German Mark set at parity. This was a political decision that Kohl took in order to assign a high purchasing power to the former East German citizens, to reduce the risk of excessive migratory inflows into West Germany. Such an excessive creation of liquidity was perceived by the Bundesbank to increase the probability of a higher inflation rate.[1] The German central bank reacted by setting up a more restrictive monetary policy by increasing interest rates, a move that proved

[1] This might not necessarily have been the case, as the recent situation in the euro area, in which a large amount of money was created and the inflation rate remained close to zero, clearly shows.

incompatible with the more expansionary needs of countries like France, Italy or Great Britain (Gros and Thygesen, 1998).

Before doing that, the Bundesbank had proposed an exchange rate realignment that would initiate a reevaluation of the German mark *vis-à-vis* the other currencies participating in the Exchange Rate Mechanism (ERM). However, while Italy would have been happy to have the chance to recover the competitiveness it had lost over the previous years of fixed exchange rate, France, which was following the so called '*franc fort*' policy for reasons of international political prestige, did not accept such a measure. As a result, the only remaining solution for the Bundesbank to avoid the risk of inflation was to increase nominal interest rates (Begg and Wyplosz, 1993; Eichengreen and Wyplosz, 1993).

1.3. The creation of the euro

Obviously there are many economic reasons behind the creation of the euro, but historians and political scientists suggest that German reunification was made possible only thanks to its commitment to abandoning its past hegemonic ambitions. Giving up the D-mark, the symbol of Germany's economic strength, and adopting the euro was the price that Germany had to pay to obtain the approval of its European allies at the time, who were quite skeptical about German reunification.[2] The fall of the Berlin Wall and of the communist regime also implied the need for a quick reaction by European countries (Wyplosz, 2006), especially in order to consolidate Europe *vis à vis* the USA and the US dollar (Bini Smaghi, 2001; Jones, 2002).

The 1973 and 1979 oil shocks and their effects on determining a European convergence towards anti-inflationary preferences also paved the way for the adoption of the euro (Kruse, 1980; Verdun, 2002).

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[2] The phrase pronounced by the late Giulio Andreotti, a prominent Italian politician, is self-explanatory: "I like Germany so much that I would prefer to have two of them" (our translation). It is also known that neither Francois Mitterrand nor Margaret Thatcher were in favor of German reunification (Dyson and Featherstone, 1999).

A final and quite unequivocal observation as to the role played by political factors is that monetary unification is often ascribed to neo-functionalism (Senior Nello, 2012; Baldwin and Wyplosz, 2015). According to this view, the difficulties encountered in moving towards political integration – the final objective to be pursued – would have been the main justification for economic integration, and the accurate evaluation of its economic pros and cons took the backseat in the decisions made from then on. This also helps understand why the 'old' literature on optimum currency areas (OCA), identifying the criteria to be satisfied in order not to be exposed to risks of instability after joining a monetary union, was completely ignored while embracing the more favorable 'new' OCA theory, represented by credibility theory (Tavlas, 1993).

There are a number of political reasons for the participation of Italy and Spain in the initial phase of EMU in 1999. As a matter of fact, after the EMS crisis Italy would have been happy to postpone its participation in EMU, thereby favoring the idea of a two-speed Europe with a leading group of countries starting the process of monetary integration and some followers preparing for a later entrance. Spain, however, decided (again, for reasons of political prestige) to be in the group of the leading countries. Romano Prodi, then Italian Prime Minister, was informed of this decision in 1995, when visiting his Spanish colleague, José Maria Aznar. He concluded, once more for political reasons, that if Spain joined the EMU from the very beginning, then Italy – one of the six founding members of the EEC – could not delay its participation.

The decision by the European Commission and the other euro area countries to admit Belgium and Italy was also due to political reasons.[3] In making that decision, the fact that these countries did not respect the condition on public debt included in the Maastricht Treaty was ignored, although Italy had far from proven that its public debt

[3] If Belgium, with its high public debt-to-GDP ratio, was admitted to EMU (given the relevance of Brussels), then Italy could not be left out either. This is not to deny, of course, the economic argument that a fluctuating lira might have threatened the competitiveness of EMU countries.

was converging to the required 60 per cent level "at a satisfactory pace".

The same can be said for Greece, admitted perhaps too hastily in 2001 – as it is clear now with the benefit of hindsight – again, for political considerations (Katsimi and Moutos, 2010).

In conclusion, politics has consistently affected the different phases of the process of monetary integration in Europe, and has also affected the recent euro area crisis, as I am going to argue below.

2. Fundamentals-based and self-fulfilling-driven reasons of the euro area crisis

The euro area crisis has been interpreted in the literature mainly in two different ways. The first explanation suggests that it was the result of divergences in the state of fundamental variables. Authors who follow this approach usually focus on a very limited subset of its economic components, namely public debt and current account. The second one interprets the crisis as the result of negative self-fulfilling expectations.

As we have seen above, however, political factors shaped the development of both the EU and EMU over time. It would not be surprising to find out that they also affected the events characterizing the euro area crisis. Moreover, euro area's political weaknesses and fragilities had been already addressed well before the beginning of the crisis in both the economics (Feldstein, 1992; 1997; Goodhart, 1998) and political sciences literatures (Crouch, 2000; Boyer, 2000).

Confirming that those warnings were appropriate, Krugman (2011) identified political factors as being responsible for the crisis, suggesting that the implications of the creation of the euro had not been properly evaluated in several euro area countries. Several other authors associate the euro area crisis with political factors (Spolaore, 2013; Orphanides, 2014; Copelovitch *et al.*, 2016). Panico (2010) isolated institutional failures, particularly the insufficient role played by the Eurogroup (composed by the finance ministers of the countries

participating in the euro). Cesaratto (2012) argued – in my view in line with the neo-functionalist interpretation of the EMU mentioned above – that, rather than from the inaccurate prediction of what would happen, as both Krugman (2011) and Panico (2010) seemed to suggest, both political and institutional failures resulted from policymakers deliberate choices, who knew that it was not possible to do better than that.

In what follows I include those political and institutional fragilities within the fundamentals vs. self-fulfilling debate, by arguing that negative self-fulfilling expectations find their roots precisely in the presence of political and institutional weaknesses, while the fundamentals-based explanations provided in the literature so far refer mainly to certain economic variables, a point that had not been made in the literature yet. I analyze both views in the two paragraphs below and argue that, by defining the concept of fundamental variable more widely, so as to encompass the political and institutional variables in it as well, the reference to self-fulfilling speculative attacks becomes redundant and the euro area crisis can more simply be defined as resulting from diverging fundamental variables.

3. Fundamentals-based crisis explanations

One of the interpretations of the euro area crisis suggests that it was the result of divergences in economic fundamental variables. The spread of the interest rate on government bonds in crisis countries *vis-à-vis* German bonds, for example, suggested that the reasons for the crisis could be found in the fiscal indiscipline of the countries in crisis (see for example Sinn, 2011; Giordano *et al.*, 2012; Lane, 2012).

De Grauwe (2012), however, showed the inconsistency of such an hypothesis, by observing that just before the crisis public finances of Southern euro area countries were actually improving (but this might not mean much since in some countries, Ireland and Spain being the most significant examples, public finances worsened suddenly because of the government's intervention to rescue the banking

sector).[4] More importantly, De Grauwe showed that the public debt-to-GDP ratio of Spain, which has been subject to a speculative attack and a crisis, was even smaller than the UK's, which was not subject to a speculative attack. As I will argue below, however, this conclusion ignores the fact that looking at the public debt-to-GDP ratio without also focusing on other relevant economic and non-economic variables, such as the interest rate on public debt, GDP growth, the maximum feasible primary surplus, and the existence of other possible sources of public debt financing like federal or monetary solidarity, does not say anything about public debt sustainability, which is what really matters and defines the state of fundamental variables.

Until the crisis, the existence of current account deficits in Southern euro area countries was interpreted positively, as showing that capital market integration was working well and leading to remove the Feldstein-Orioka puzzle and the detachment of domestic savings from investments (Blanchard and Giavazzi, 2002; Aeharne *et al*., 2007). Moreover, Collignon (2012) observed that all monetary unions (including the USA) are characterized by regional current account divergences, without this being a problem.[5]

After the crisis began, however, it became clear that the capital inflow had mostly been directed towards consumption and housing rather than productive investment (Giavazzi and Spaventa, 2010). Current account deficits were now considered as possible culprits for the crisis, given that on average Northern euro area countries were characterized by a surplus, and Southern countries by a deficit (Giavazzi and Spaventa 2010; Katsimi and Moutos, 2010; Gros, 2013;

[4] Moro (2014) and Moro and Becker (2016), among others, show the connections between public debt and bank debt. They agree with euro area countries' decision to move towards a banking union in order to sever the two-way link between the two types of debt.

[5] He noticed, however, that a divergence in the unit labor cost of Germany (especially due to the 2002-2005 Hartz I-IV labor market reforms) allowed that country to enjoy a competitive advantage. German labor market reforms do not explain, however, why most Northern euro area countries – and not just Germany – had been characterized by a current account surplus, *vis-à-vis* the deficit characterizing the Southern ones. See Bonatti and Fracasso (2013) for a discussion of the German labor market reforms from a historical perspective.

Moro, 2014; Alessandrini *et al.*, 2014; Alessandrini and Fratianni, 2015).

Even in this case, however, explaining the crisis as based exclusively on the divergence of some economic fundamentals cannot account for why countries outside the euro area and characterized by a similar state, such as the UK, were not hit by speculation: this led scholars to conclude that the hypothesis of self-fulfilling speculative attacks was the most convincing.

However, the same objection can be raised against this latter hypothesis. What matters is not the size of the current account, but the sustainability of foreign debt, which is the stock that accumulates over time and that depends on several variables other than the current account.[6] As I will discuss in more detail below, by enlarging the definition of the state of fundamentals so as to also include political and institutional variables, the explanation of the crisis as resulting from negative self-fulfilling expectations would turn out to be inappropriate and the role of fundamental variables, considered in their entirety as they should be, will be affirmed.[7]

4. The political and institutional determinants of the euro area crisis: no federal solidarity and no monetary solidarity

Going along with the objections to the conclusion that the euro area crisis was determined by diverging fundamentals (although this theory has so far been based, as I have argued above, on a partial

[6] Although I am focusing here on what is considered in the literature as the main source of economic divergence, it should be recognized that private debt, along with several other macroeconomic imbalances, may have contributed to the crisis as well. A Macroeconomic Imbalances Procedure has been set up by the European Commission precisely to monitor all the possible reasons for macroeconomic divergences among euro area countries.

[7] My argument finds support in the fact that, by referring to currency crises, Jeanne (2000) defined self-fulfilling expectations as "soft" fundamentals, thereby recognizing, as Dornbusch (2001) did as well, that behind a self-fulfilling currency crisis there is always, one way or another, a divergence in the state of fundamentals.

definition of the latter), several authors concluded that speculation had a self-fulfilling nature (Cooper, 2012: De Grauwe, 2012; De Grauwe and Ji, 2012; 2013a; 2013b; Ghosh *et al.* 2013; Tamborini, 2015; Della Posta, 2016a).

De Grauwe and Ji (2013a) find that, during the years 2010-11, euro area crisis countries' spread shows time dependency, and has produced something similar to a bubble. This is not the case for stand-alone countries (namely countries characterized by a domestic central bank and an independent monetary policy that allows them to honor their debt commitments).

Giordano *et al*. (2012) obtained a similar result; they show that the relationship between fiscal fundamentals and spread was time invariant until a discrete structural break occurred in 2010. The presence of a self-fulfilling element in the crisis is also associated in the literature with the idea of panic (Goldstein, 2012), contagion (Favero and Missale, 2012), or swings in international risk aversion (Attinasi *et al*., 2009).

De Grauwe and Ji (2013a) also show that during the euro area crisis the fit of regressions of the interest rate on the public debt-to-GDP ratio improves dramatically (with the exception of Greece) only when a non-linear quadratic function of public debt-to-GDP is considered as explanatory variable, rather than a linear one; however in the first period of EMU life, characterized by stability, different debt-to-GDP ratios did not imply very different interest rates. A serious miscalculation of risk seems to have been constantly occurring in the euro area, both in stability periods (underestimating it) and during the crisis (overestimating it).

The timing of the crisis also suggests that the Greek shock (that occurred at the end of 2009) must have played a more prominent role than the global financial crisis (2007-2008). The latter certainly had an impact, both in producing a first change in the state of expectations and, in countries like Ireland and Spain, in changing the state of fundamentals by transferring the debt from the banking sector to the public sector, as mentioned above. The Greek shock, namely the acknowledgement that the Greek fiscal deficit and public debt were

much higher than what had been officially declared until then, did not cause any worsening of the state of the fundamentals of the other euro area crisis countries, however it ignited a process that implied the sudden recognition of the political and institutional fragility of the euro area. This determined panic, contagion and a structural break. EMU, like the EU, is characterized by inter-governmentalism, meaning that countries maintain their separate national sovereignty. This explains the different institutional setup between the USA and the euro area for example. The latter is characterized by a lack of fiscal solidarity (namely the absence of a federal budget) and a lack of monetary solidarity (namely the absence of a lender of last resort), which clearly point out that public debt will not be sustainable if it increases beyond a given limit.

These observations lead us to reconsider the fundamentals vs. self-fulfilling debate. The change resulting from the Greek 'wake-up call' shock, was not 'self-fulfilling', with the state of expectations going from good to bad and being validated ex-post, as the literature has claimed so far, but based on a correct, fundamentals-based assessment of the necessary conditions of public debt stability. The latter include political and institutional features of the euro area, characterized by the lack of federal and monetary solidarity.

4.1. No federal solidarity

The main political and institutional inconsistency, therefore a divergence in fundamentals of the euro area, is easily found when considering the traditional OCA literature, that included the presence of a federal budget among the requirements to be satisfied for the optimality of a currency union (Fleming, 1971). As a matter of fact, a federal budget (and the preliminary political agreement that would make it possible) would allow the economy to absorb an idiosyncratic shock that were to hit any of the participating countries, and would also allow it to absorb the current account divergences among the adhering states or countries (Alessandrini and Fratianni, 2015). The presence or absence of a federal budget, then, is under all respects a

fundamental variable that is capable of preventing a crisis or of making it possible. It is due to the absence of a federal budget that the Greek shock determined the structural break identified in the literature by Giordano *et al.* (2012) and mentioned above. It is also because of the absence of a federal budget that the current account imbalances within the euro area could not be accommodated (Alessandrini and Fratianni, 2015).

The problem with Europe has also been that, differently from the USA, the fragility of the newly born euro did not allow for the default of the Greek government not to raise doubts on the survival of EMU, or even the EU. It took at least a couple of years to understand that Greece's bankruptcy would not necessarily mean the breakdown of the euro area, and not even that Greece would leave the euro (Robinson and Bensasson, 2015).

What has been described so far suggests that the countries adhering to EMU have been paying a price for their political weakness, rather than for their public debt fragility. A monetary union as 'incomplete' as the EMU is (given the fact that it is not accompanied by a fiscal and a political union), is intrinsically fragile and subject to the consequences of dramatic changes in market sentiment. However, this is a divergence in the state of fundamentals that integrates and completes the observation relative to the state of public debt – which is only one of the several economic variables that affect public debt sustainability – and there is no reason not to recognize the role of such divergences in determining the crisis by referring to the category of self-fulfilling expectations instead.

4.2. No monetary solidarity

De Grauwe (2012) observes that stand-alone countries (such as the USA or the UK, or any EU country not belonging to the EMU) enjoy the presence of a central bank that has the right to print money, so that markets are confident that public debt will always be repaid. Euro area countries, on the other hand, do not have monetary sovereignty, so it is as if their debt was denominated in a foreign currency, and their

national central banks are not in a position to guarantee repayment. In his opinion, this is the reason why the public debt of euro area countries has been subject to speculative selling.[8]

At the same time, rather than by the lack of confidence on the actual repayment of the debt, the crisis of the euro area might have been produced by the fear that the default of Greece threatened the very existence of the euro, which in itself would cause an *indirect* default through currency depreciation. As a matter of fact, if the euro stopped existing, the debt would have turned out to be denominated into a peripheral and depreciated currency, and would have implied a heavy loss for its holders. It is not by chance that the financial crisis stopped in July 2012, when the ECB President Mario Draghi (most likely after receiving some backup by Angela Merkel), provided the missing political reassurance to keep the euro area together. This result was achieved by making it clear that a lender of last resort was there and that the euro was therefore still politically viable. His famous 'whatever it takes speech', given at the Global Investment Conference in London on the 26th of July 2012, starts precisely with a statement that makes the political nature of the ECB position explicit:

> "[B]ut the third point I want to make is in a sense more *political* […] very often non-euro area member states or leaders underestimate the amount of *political capital* that is being invested in the euro […]. Within our mandate, the ECB is ready to do *whatever it takes* to preserve the euro […]. And believe me, it will be enough"[9] (Draghi, 2012, italics added).

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[8] De Grauwe's point should be taken with caution. The case of Argentina, which defaulted in 2001, among many others, clearly shows that even countries with monetary sovereignty can be subject to speculative attacks and default. The problem there, however, might have been the foreign denomination of public debt: as that was the case, the central bank had no power to print the money that would have been necessary to repay and extinguish the debt. Thanks to an anonymous referee for clarifying this point.

[9] In the interview that Draghi gave to *Le Monde* on July 18 and published on Saturday, the 21st of July 2012 (available at the web address http://www.bis.org/review/r120723a.pdf and conducted by Izraelewicz, Gatinois and Ricard), he had already firmly declared the irrevocability of the euro. This is probably the explanation for why the interest rate spreads started decreasing already *before* the London speech (the

Draghi's statement – that was made credible by the almost simultaneous setting up of the Outright Monetary Transactions mechanism that promised an unlimited intervention in buying government bonds of distressed countries (on condition that the requesting country accepted to undertake the prescribed fiscal adjustments and structural reforms) – was enough to stabilize financial markets and to stop the unraveling of the crisis.

Markets in general, and financial markets especially, may fail and may be subject to runs, panic and liquidity crises. This is precisely why the institution of the lender of last resort was introduced and is still present in monetary and financial markets worldwide. The presence or absence of a lender of last resort can be interpreted as changing the state of the fundamentals of a country. It cannot be claimed that the state of fundamentals is strong and in good conditions if a lender of last resort is missing.[10]

Not only, however, was the euro area missing a lender of last resort. European politics also hastened rather than prevented the euro area crisis. The French President Nicolas Sarkozy and the German Chancellor, Angela Merkel, at the end of the bilateral meeting they had in Deauville before the European Council of the 28-29 of October 2010, declared that everybody holding Treasury bonds of European countries would remain fully responsible for the possible losses in case of debt default. Not surprisingly, the structural breaks signaling the beginning of the euro area crisis can be identified precisely around the end of 2010; it could be argued that with their declarations they acted as 'scaremongers of first instance' rather than 'lenders of last resort'. It is only when that second role was reaffirmed that the crisis

Italian spread with respect to German bonds reached its peak of 5.34 percent on July 24 and it started decreasing, moving down to 5.19 percent already on July 25). The question to ask, then, might be why the markets took a few days to take what Draghi said in a newspaper interview, rather than in a public conference seriously.

[10] Of course, the risk of moral hazard is there (a point often raised by Germany to argue against rescuing Greece or to prevent the ECB from acting as a lender of last resort), but it could be addressed by taking the appropriate ex-ante precautionary measures, and ex-post checks and controls (as all central banks across the world do with the banking system), and not by removing monetary solidarity altogether.

came to a halt. But once again, this is the sign of an institutional inconsistency and divergence rather than the result of negative self-fulfilling expectations.

5. Modeling political and institutional factors in the euro area crisis

5.1. Primary surplus as the only source of public debt stability

The role that fundamental variables including political and institutional factors play in the euro area can be represented explicitly with the help of an intuitive model, whose basic structure can be traced back to Domar (1944), Arestis and Sawyer (2003; 2013) and Hein and Detzer (2015).[11] The standard public debt dynamics, namely the continuous time variation of the public debt-to-GDP ratio when neither debt monetization nor federal solidarity are possible – as it is the case in the euro area – can be represented as follows:[12]

$$\frac{db_t}{dt} = -s_t + (i_t - g_t)b_t \qquad (1)$$

The term s_t is the primary public surplus-to-GDP ratio (namely $r_t - e_t$, where r_t are government revenues-to-GDP and e_t is the

[11] Thanks to an anonymous referee for pointing those references to my attention.

[12] The stability condition reported in equation (1) above can be easily derived by considering the dynamic equation of public debt:

$$\frac{dB_t}{dt} = (E_t - R_t) + i_t B_t$$

where B_t is the level of public debt, E_t is the level of government expenditure, R_t is the level of taxation, so that $(R_t - E_t)$ is the primary surplus S_t, and i_t is the nominal interest payment to service the public debt. From the equation above, by dividing through by the nominal GDP, thereby considering the public debt/GDP ratio, it follows that:

$$\frac{db}{dt} = -s_t + (i_t - g_t)b_t$$

Lower case letters refer to the ratio of the respective capital letter with GDP, and g_t is the rate of growth of nominal GDP.

government's fiscal expenditure-to-GDP ratio). The term $(i_t - g_t)b_t$ is the service on the debt as a ratio of the GDP.

The fiscal authority operates in order to stabilize the steady state value of public debt-to-GDP, b^*. For that to happen, by imposing $\frac{db_t}{dt} = 0$ in equation (1), the result is that the public debt-to-GDP ratio will not increase/decrease in the long run only if the long run primary surplus matches exactly the long term real service on the debt:

$$s^* = (i^* - g^*)b^* \qquad (2)$$

where the symbol * refers to the long term steady state value of the variables on which it is applied.[13]

What the above condition means is that in order to keep the public debt-to-GDP ratio constant in the long run, s^* has to be as large as is the long run net debt service payment (which depends on the difference between the long run value of the interest rate and that of GDP growth, applied to the value taken by b^*).

Any value of b^*, such that (2) is satisfied will be stabilized, therefore the government would be solvent in the long run. Speculators would then have no reason to undertake a selling attack on it, because if they did they would lose money; therefore what matters for public debt stability is not just the size of the public debt-to-GDP ratio (on which the literature on the euro area crisis has focused its attention), but also the interest rate to be paid on it, the GDP growth and the possibility to run a primary surplus in order to repay it.[14]

In the absence of any limit for the government's budget surplus-to-GDP ratio, namely in the absence of what can be defined as a 'feasibility constraint', a government will always be able to choose a value of s^*, so that the stability of the public debt-to-GDP ratio is granted for any value of the remaining variables of equation (2). However, primary surplus may be bounded from above because of

[13] Della Posta (2016a) also analyzes the stability condition of public debt, although in a different framing.

[14] A similar reasoning can be followed when discussing the sustainability of foreign debt (see Della Posta, 2016b).

some social limitations and may be insufficient to grant public debt solvency when the remaining variables take some particular values. In other words, e_t may not be reduced below a given floor and/or r_t may not be increased above a given ceiling, so that there may be an upper limit to s^*, that I call $\bar{s}$.

The government, then, is solvent in the long run only if the following condition is satisfied:

$$s^* \leq \bar{s} \tag{3}$$

The comparison between the s^* that is necessary for public debt-to-GDP stability and the feasible $\bar{s}$ determines the critical level of the public debt-to-GDP ratio, $\bar{b}$, that separates the stable (for $b_t \leq \bar{b}$), from the unstable (for $b_t > \bar{b}$) region: when s^* exceeds $\bar{s}$, b_t will be unsustainable, precisely because the government is not able to meet the public debt solvency requirement.[15]

Once more, we have seen that what matters for public debt sustainability is not just (and not necessarily) the current value of b_t, but also the other variables that determine its steady state value and its solvency condition ($s^*, i^*, g^*, \bar{s}$). In turn this leads to the conclusion that the fact that the public debt-to-GDP ratio of euro area countries was the same as that of non-euro area countries means that the state of fundamentals was the same.

Tamborini (2015) also considers the role of the feasibility constraint on primary surplus, and assumes an environment of agents' heterogeneous beliefs about $\bar{s}$, included between a lower and an upper limit and distributed around its true value. This leads him to prove that the interest rate, (i_t), is not constant, but is negatively correlated with the distance between the expected $\bar{s}$ and s^*: when such a 'sustainability margin' (as this distance can be called) is quite large, i_t will remain very close to i^* and the $(i_t - g^*)b_t$ curve will be relatively flat, because most people will be confident that there is still room to

[15] I am ignoring the contractionary effects of fiscal austerity here. This is not to deny their importance, which is also recognized by the IMF (Blanchard and Leigh, 2013) – but only to focus more specifically on additional elements that may not have received enough attention in the literature so far, as Tamborini (2015) also does.

increase the financing of the service of public debt; in this case there will be almost no risk of public debt default (let us recall that I keep considering g^* as constant, thereby ignoring the short run negative effects of fiscal austerity on it, as identified for example by Blanchard and Leigh, 2013, see footnote 15).

The more s^* approaches or is expected to approach $\bar{s}$ the higher the risk premium on the interest rate will be, because the higher the proportion of agents who believe that the feasibility constraint will be met soon will be. The higher interest rate makes the public debt-to-GDP growth curve gradually steeper; when s^* gets close and eventually reaches $\bar{s}$ its slope takes extremely large values, as shown in figure 1, determining the critical public debt level $\bar{b} < b^*$, separating the stable from the unstable region when $s^* = \bar{s}$.

With no constraint on the feasibility of s^*, public debt would be sustainable in the long run for values of $b_t \leq b^*$. The effect of agent's heterogeneous beliefs on the maximum feasible government's primary surplus, however, reduces the region of stability to values of $b_t \leq \bar{b}$ (see figure 1).

The area of stability can be enlarged again only with a larger 'feasibility constraint', which can be obtained, for example, through some additional sources of financing, as I will discuss below.

5.2. Fiscal and monetary solidarity as additional sources of debt stability

In order to formalize this point, let us amend equation (1) above by including in it the additional resources that may be available thanks to fiscal and monetary solidarity (namely the political and institutional factors mentioned in the previous sections of the paper):

$$(i^* - g^*)b^{**} = s^* + c^* + m^* = s^{**} \qquad (4)$$

In equation (4), $c^* \geq 0$ is the percentage of external transfers as a ratio of the GDP that might be made available through a federal budget and federal solidarity (or through central bank intervention on the secondary bonds market, as also acknowledged by Tamborini, 2015) and m^* is the rate of money creation as a ratio of the GDP that might

be made available through monetary solidarity, and in particular by a central bank that buys exclusively government bonds on the secondary market and operates as a lender of last resort.[16]

Federal and monetary solidarity, however, may also be bounded from above. This may be due to political or institutional limitations. I indicate the expected upper feasible limit of c^* and m^*respectively with $\bar{c}$ and $\bar{m}$.

If such limits exist or are expected to exist, then, the government can be expected to be solvent and liquid, and its public debt will be sustainable, only if the following enlarged stability condition is satisfied:

$$(i^* - g^*)b^{**} = s^* + c^* + m^* = s^{**} \leq \bar{s} + \bar{c} + \bar{m} = \bar{\bar{s}} \qquad (5)$$

This is where the wider definition of fundamental variable introduced in the paragraphs above comes in, that is no restricted to only some of its economic components, but is enlarged to embrace other economic components $(i^*, g^*, s^*, \bar{s})$ and political and institutional aspects as well (represented respectively by c^* and $\bar{c}$, and by m^* and $\bar{m}$).

When federal and/or monetary solidarities are available, the feasibility constraint is enlarged and becomes $\bar{\bar{s}} > \bar{s}$. As a result, the region of stability widens, as shown in figure 1 below; the sustainability of public debt will not be in doubt, if s^{**} is well below $\bar{\bar{s}}$. This also implies that $(i^* - g^*)b^{**}$ will still follow a linear path, so that public debt will be stable for values of $b_t \leq b^{**}$. It should also be noticed that monetary solidarity implies the injection of additional liquidity into the economic system, and would therefore play an additional stabilizing role by lowering the interest rate below i^*.[17] However, as soon as s^{**} approaches $\bar{\bar{s}}$, (possibly because agents realize that $\bar{\bar{s}}$ is lower than expected, in cases in which there is a rise in

[16] A different and interesting case, suggested by an anonymous referee, would be if the central bank finances directly the government, so as to reduce the growth of public debt in the first place. However, in my view this situation would not appear in line with what the ECB has been doing so far.

[17] Thanks to an anonymous referee for bringing this aspect to my attention.

awareness of a lack of federal and monetary solidarity) public debt sustainability will be questioned, the interest rate will increase, reflecting the higher risk premium, and the public debt-to-GDP growth curve will become steeper.

This also explains and formalizes the role of the 'whatever it takes' Draghi statement, with which the ECB acted *de facto* as a lender of last resort and enlarged $\bar{\bar{s}}$.

This supports my argument that $\bar{c}$ and/or $\bar{m}$ are political and institutional factors that should be treated as fundamental variables under all respects, with no need to bring the different category of self-fulfilling expectations into the discussion. That argument is further strengthened by noticing that the variable $\bar{\bar{s}}$, namely the upper bound for the government's primary surplus, plays the same role as the lower bound on the availability of foreign reserves to stabilize the fixed exchange rate in Krugman's model (Krugman, 1979), from which the literature on currency crises justified by diverging fundamentals originated.[18]

The fact that interest rates only react to the width of the 'sustainability margin' explains the non-linear service-driven growth of public debt during the euro area crisis, identified empirically by De Grauwe and Ji, 2013b, as shown by Tamborini (2015). But it also helps explain why two countries characterized by the same public debt-to-GDP ratio, that are included, for example, between $\bar{b}$ and $\bar{\bar{b}}$ (as in the case of Spain and the UK, represented for example by point b' in figure 1), may be either inside or outside the stability region, depending on the $\bar{s}$ (for Spain) or $\bar{\bar{s}}$ (for the UK) feasibility constraint that economic agents expect and that after the Greek shock became apparent to market participants.

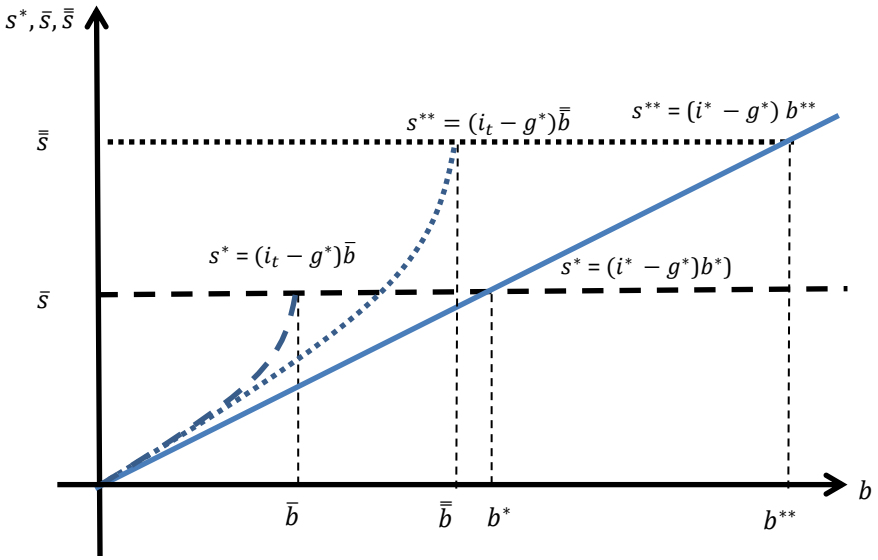
The euro area crisis and its (at least temporary) resolution show then that, contrary to what is usually maintained (and in spite of the prescriptions contained in the Maastricht Treaty, in the Stability and Growth Pact or in the Fiscal Compact!) what determines the risk premium on public debt is not its absolute size but rather its

[18] Della Posta (2017) deals precisely with this point.

sustainability, which depends on other economic variables and on political and institutional variables, as I have argued above.

Once more, this means that we should claim that the euro area crisis was justified by diverging fundamentals rather than by negative self-fulfilling expectations, if we correctly treat not only economic, but also political and institutional factors as fundamentals.

Figure 1 – *Different critical levels for public debt stability depending on the respective feasibility constraint for primary surplus, fiscal and monetary solidarity*



6. Concluding remarks

In this paper, I have compared the explanations for the euro area crisis presented in the literature and based on the divergence of

economic fundamental variables, with those based on the unraveling of negative self-fulfilling expectations that followed the Greek shock. The observation that stand-alone countries, characterized by a state of economic fundamentals that seemed similar to that of euro area crisis countries, were not subject to speculative attacks, along with the empirical evidence showing the non-linearity of the relationship between interest rate and public debt, led the literature on the euro area crisis to conclude in favor of the idea of negative self-fulfilling expectations. On the other hand, I have argued in this paper that the analysis of the state of fundamentals has only been focusing on some economic variables, like the public debt-to-GDP ratio or the current account-to-GDP ratio, and neglected others that would have been equally relevant, like the interest rate on public debt, the GDP growth, or the maximum feasible primary surplus. The existing literature has also shown that the underlying cause of the negative shift in the state of expectations has to be found in the political and institutional weaknesses of the euro area; on the basis of this, the literature concluded that the crisis had a self-fulfilling nature. This observation also explains why the crisis only came to an end thanks to the firm statement of political support of the euro made by the ECB President.

From a theoretical and taxonomical point of view, however, the role played by political and institutional variables suggests that the euro area crisis may still be defined as determined by diverging or fragile fundamentals, if we agree in including all the relevant economic variables in the definition of fundamentals and in including the political and institutional variables in the definition as well.

After all, political factors have determined many of the events characterizing the history of the EU and EMU, so the role that they have played in the euro area crisis should not be surprising.

The simple and intuitive model presented at the end of the chapter allows to formally represent something that was missing in the literature so far – the role of federal and monetary solidarity in the stability of public debt – by showing how the presence of institutions that guarantee stability may make public debt sustainable, whereas their absence may decree its unsustainability.

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