Europe at the Interdependence War

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September 5, 2017

Abstract

The EMU has been founded on the exclusive national responsibility doctrine, except for monetary sovereignty devolved to a single central bank. This foundation had (and still has) complex political motivations, but it is in overt contradiction with the fundamental fact that creating a highly integrated economic system also creates strong interdependent linkages among the partner countries. These impair the notion of national responsibility, and make the "country-by-country" approach of the EMU policies dramatically harmful. In this paper I treat the two main dimensions of interdependence in the EMU, economic (section 2) and financial (section 3), and the first-order policy mistakes that have arisen ignoring them.

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Introduction

In his fine book *Saving Europe* (2015a), Carlo Bastasin, a political economist at LUISS University in Rome, calls the European crisis the "First interdependence war". In a subsequent paper, he writes:

I am not using the word war lightly. […] The size of the economic crisis, the loss of production measured against the trend, is in the ballpark of a war. It actually amounts to a higher economic cost than all the wars fought by the United States after 9/11, Iraq, and Afghanistan included. But the real reason why I do not want to shy away from using the words conflict or war is that I really believe that the root causes at the origin of the crisis and behind its disappointing management lies in a bellicose concept of politics. Throughout the crisis, national governments have acted as if their states were or had to become self-sufficient, live within their own means, and stand on their own two feet. [This goal] became the cornerstone of crisis management and of the European system of economic governance that later emerged (Bastasin 2015b, pp. 5-6)

As the author further notes, the goal of the self-sufficiency of the nation state has ancestral roots in the "bellicose history" of Europe. However, it re-emerged from the remote genetic code of the European nations before the crisis. The doctrine of *exclusive national responsibility* in all economic matters, except monetary policy, is one of the pillars of the Treaties ruling the European Economic and Monetary Union (EMU). In this view, in a context where monetary policy is committed to maintaining price stability, each member country is required to comply with the fiscal rules established by the Treaties, and with the policy recommendations put forward by the Commission. This notwithstanding, it is argued that the room of manoeuvre and choice of sovereign governments remains such that the performance of each country, whether good or bad, is mostly seen as the result of its own responsibility. All the subsequent developments of the EMU regulation framework, from the Stability and Growth Pact (SGP) to the so-called Fiscal Compact, strictly abide by this doctrine. In the end, there is no such a thing as "the" EMU, which is just the statistical average of what the single countries are doing. If the EMU as a whole performs poorly, it is only because too large a number of members fail to manage their economy successfully and to follow rules and prescriptions faithfully. Consequently, the need for reforms is mostly placed at the level of single countries, whereas the general institutional setup is kept out of discussion.

While the line of thought and policy faithful to the national responsibility doctrine is still alive,[1] the idea that the core of the EMU problems lies in its institutional original sin has gained ground. In this alternative approach, more largely advocated by independent scholars worldwide, the "misbehaviour" of some member countries is only part of the story – probably the minor part. The institutional design of the EMU is instead at centre stage. Indeed, it has been matter of lively debate ever since its conception. Criticisms have been revived, and to a large extent vindicated, by the crisis.[2] The fundamental fact is that the EMU is by no means a simple collection of separate economies, plus the single market built up through the *acquis communautaire* and a common currency. Quite the contrary: economic, financial and monetary integration generates reciprocal externalities which heavily condition the macroeconomic performance of each member. Likewise, incentives, or disincentives to national reforms, their choice and success cannot be conceived as being independent of the common institutions. As a consequence, the national responsibility doctrine rests on shaky foundations as both a normative principle and a guide for policy.

The national responsibility doctrine as foundation of the EMU, epitomised by the asymmetry between devolution of monetary sovereignty to a single central bank and retention of fiscal sovereignty at the national level, had (and still has) complex political motivations that cannot be examined here. In this paper I will treat the two main dimensions of interdependence in the EMU, economic (section 2) and financial (section 3), and the first-order policy mistakes that arise when these dimensions are ignored.

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[1] The single exception may be seen in the "European Semester", introduced within the 2011-12 anti-crisis reform package, with the explicit aim of "coordinating" national fiscal policies, which however belongs more to the category of moral suasion than to full-fledged institutional mechanisms.

[2] More recent noteworthy studies are De Grauwe (2013), Wyplosz (2013). See also Baldwin and Giavazzi (eds., 2015)

2. Economic interdependence

2.1. Business cycles and the mean field effect

The first typical issue is business cycle correlations. Research on this characteristic of EMU member economies has been intense since the very beginning of the unification process (e.g. Buti and Sapir 1998, ch. 11). Much effort has been devoted to disentangling the problem of symmetric vs. asymmetric shocks – a key issue for local stabilization in a monetary union – whereas cyclical cross-correlations have attracted less attention, possibly because they result as high as expected to be in an area of highly integrated countries (Buti and Sapir 1998, ch. 11.1).

What is more relevant to the issues under discussion here is not so much country-by-country correlation as between each single country and the remaining countries as a whole (the so-called "mean field effect"). Table 1 reports the correlation between two cyclical indicators for each of the major EMU countries (EMU12) with the average of the remaining countries from 2000 to 2015.

Table 1. Correlation coefficients between each country's variable and the average of the remaining countries, year changes, EMU 12.

	Real GDP			GDP gap		
	2000-15	2000-08	2009-15	2000-15	2000-08	2009-15
Austria	0.83	0.80	0.81	0.99	0.99	0.96
Belgium	0.91	0.78	0.96	0.81	0.94	0.31
Finland	0.91	0.95	0.91	0.96	0.88	0.96
France	0.89	0.93	0.87	0.87	0.84	0.57
Germany	0.72	0.67	0.94	0.94	0.80	0.83
Greece	0.51	0.35	0.01	0.65	0.91	0.42
Ireland	0.77	0.63	0.67	0.74	0.77	-0.37
Italy	0.94	0.91	0.92	0.87	0.90	-0.12
Luxembourg	0.85	0.87	0.93	0.96	0.92	0.92
Netherlands	0.88	0.57	0.91	0.94	0.87	0.51
Portugal	0.83	0.74	0.72	0.88	0.95	0.94
Spain	0.87	0.79	0.87	0.87	0.57	0.55

Source. Eurostat, AMECO database

The first is simply the year change in real GDP, the second is the GDP gap (which is the official cyclical indicator in the EMU). All correlations, a

part a few exceptions, are clearly very high and quite similar across pre-(2000-08) and post-crisis (2009-15) years.[3]

In an area with such a degree of macroeconomic interdependence it is quite difficult to disentangle the extent to which the performance of each economy depends on its own virtues or sins rather than on those of the others. More importantly, policy-making based on the "country-by-country" approach may be seriously misleading.

Let us consider one of the most critical issues in the EMU crisis management: the stabilisation of public debt by means of budgetary consolidation – aka "austerity". According to the well-known dynamic equation of the debt/GDP ratio d_t, the one year change in the ratio, $\Delta d_t \equiv d_t - d_{t-1}$, is given by

(1) $\qquad \Delta d_t = \dfrac{i_t - n_t}{1 + n_t} d_{t-1} - b'_t$

where i_t is the interest rate on outstanding debt, n_t is the nominal growth rate of GDP, and b'_t is the government primary budget. Under the common assumption that n_t is a small fractional number, equation (1) can be safely approximated by

(2) $\qquad \Delta d_t = (i_t - n_t)d_{t-1} - b'_t$

Now, let $\phi = \Delta n_t / \Delta b'_t$ be the fiscal multiplier, i.e. the deviation of nominal growth from trend Δn_t, given a change in the primary budget ratio $\Delta b'_t$ over the previous year (where $\Delta b'_t > 0$ indicates a budget consolidation)[4]. Hence $n_t = n + \phi \Delta b'_t$. This fact entails that the change in the debt ratio becomes

(3) $\qquad \Delta d_t = (i_t - n - \phi \Delta b'_t)d_{t-1} - (b'_{t-1} + \Delta b'_t)$

$\qquad\qquad = [(i_t - n)d_{t-1} - b'_{t-1}] - (1 + \phi d_{t-1})\Delta b'_t$

The term in square brackets yields the debt path with unchanged fiscal policy. The interesting finding is that a budget consolidation ($\Delta b'_t > 0$) generates a negative impulse to the debt ratio only if $\phi d_{t-1} > -1$. This

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[3] For instance, Greece's real GDP presents a low mean field effect because Greece was growing more than the average before the crisis and contracting more than the average after the the crisis. Germany also presents a (relatively) low mean field effect for exactly the reverse pattern of Greece. Mean field effects for the GDP gap in some countries show a marked decline after the crisis: this indicates difference in the persistence of the recession. For instance, Belgium's GDP gaps improved faster than the average, whereas Ireland's gaps did the opposite.

[4] Normally, fiscal multipliers refer to real GDP. In this context we can rely on the usual monetary-union assumption that the inflation rate is not directly affected by local conditions, so that $\Delta n_t \approx \Delta g_t$

condition may hold either because $\phi \geq 0$ – i.e. the so-called "Non-Keynesian" effects" that create "expansionary restrictions" (Giavazzi and Pagano 1986, Alesina and Ardagna 2009) – or because $-1/d_{t-1} < \phi < 0$ – i.e. traditional contractionary "Keynesian effects" but of sufficiently small magnitude. Hence, a combination of high outstanding debt and high negative fiscal multiplier can eventually produce an *increase* in the debt ratio, the Labour of Sisyphus in which several EMU countries seem entrapped.

Figure 1 shows the relationship between year changes in the primary budget/GDP ratio and in the debt/GDP ratio in the EMU12 countries over the austerity years 2010-14. Statistically it is very poor (the correlation coefficient is around zero). Out of 60 observations, 37 (61.7%) are budget restrictions but only 7 (11.7%) are debt reductions. The expected association of budget restriction and debt reduction or stabilisation only occurs 4 times (6.7%).

Figure 1. Year % changes in the primary surplus/GDP ratio and in the debt/GDP ratio, EMU12 countries 2010-14
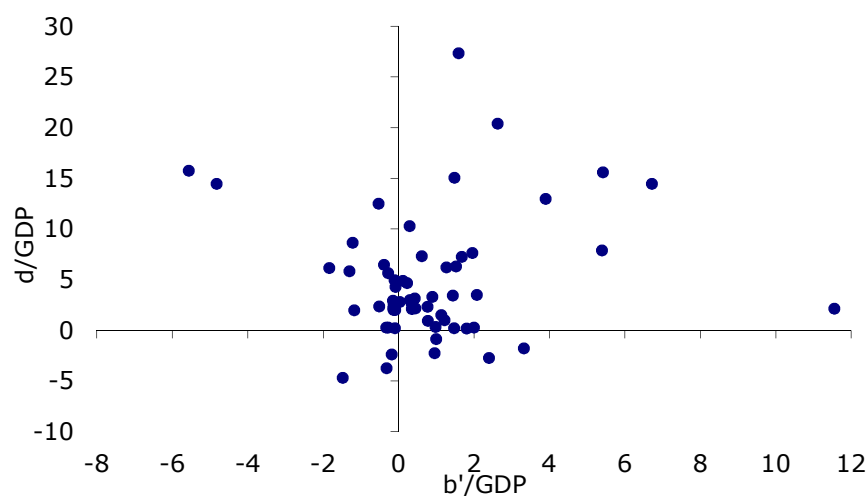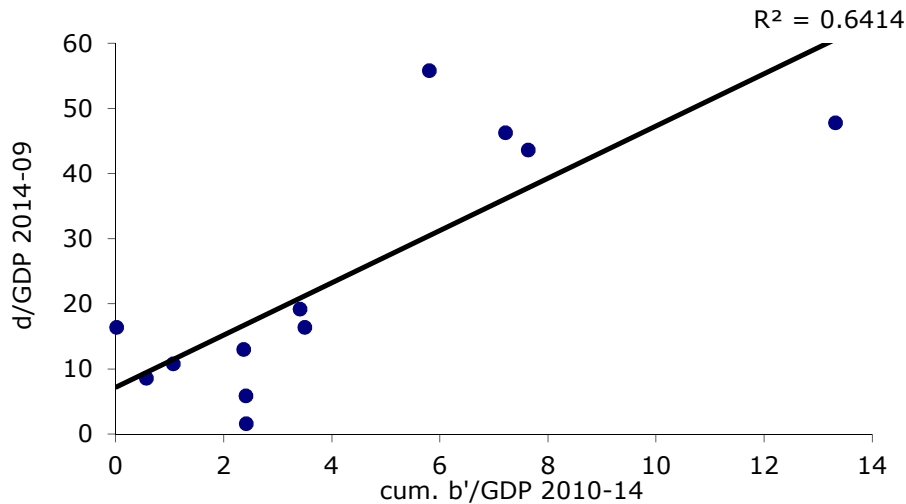

Source: elaborations on Eurostat, AMECO database.

Considering that fiscal consolidation is more properly regarded as a medium-term policy, Figure 2 shows the relationship between the cumulated changes in the primary budget/GDP ratio from 2010 to 2014 and the change in the debt/GDP ratio in 2014 from the initial peak level in 2009. *All* countries consistently pursued fiscal consolidation, but *no* country achieved debt reduction. Furthermore, a striking *positive* correlation

coefficient of 0.8 exists between the extent of fiscal consolidation and debt increase across countries.

Figure 2. Cumulated fiscal consolidation and change in the debt/GD ratio, EMU12 countries

Source: elaborations on Eurostat, AMECO database.

As is well known, this evidence has prompted research on fiscal multipliers up to the "discovery" that they may be, or they have actually been during the crisis, larger in absolute value than expected by the pre-crisis conventional wisdom (Blanchard and Leigh 2013, Gechert et al. 2015), which for the EMU countries was about 0.5 (e.g. Burriel et al. 2011). With ϕ = −0.5, "austerity" is effective on debt reduction for initial debt/GDP ratios up to 200%, but if fiscal multipliers "robustly exceed unity in downturns" (Gechert et al. 2015, p.1), the austerity becomes a risky self-defeating policy for initial debt/GDP ratios below 100%. The vast research on fiscal multipliers has highlighted a variety of reasons why they have turned to be larger than expected in the pre-crisis common wisdom. However, little attention has been paid to the basic fact that, at least as far as the EMU is concerned, interdependence matters a lot when fiscal restrictions are activated simultaneously by all countries (Tamborini 2013, in't Veld 2013).

Let $m = 1, …, N$, be the member countries. Denote with $\underline{m}$ all non-m countries, and with $\underline{N}$ their number. Suppose that all countries adopt uncoordinated fiscal restrictions $\Delta b'_m > 0$, each of which associated with a fiscal multiplier $\phi_m < 0$. Hence, $\Delta b'_m \phi_m < 0$ is the domestic component of

each country's impact on GDP. To this, the "mean field effect" should be added, which is activated by the correlation coefficient in Table 1, say c_m, and amounts to

$$(4) \qquad \mu_m = c_m \frac{1}{\underline{N}} \sum_{\underline{m}} \Delta b'_{\underline{m}} \phi_{\underline{m}}$$

The total impact of EMU-wide fiscal restrictions on each country's debt/GDP ratio is therefore

$$(5) \qquad -((1 + \phi_m d_{mt-1})\Delta b'_{mt} + d_{mt-1}\mu_m)$$

In order to grasp the thrust of this result, let us put heterogeneity aside and assume that $\Delta b'$, ϕ, c are equal in all countries. Then, the total impact on each country is

$$(6) \qquad -(1 + \phi(1 + c)d_{mt-1})\Delta b'.$$

With $c \approx 0.9$, the fiscal multiplier is almost doubled with respect to each country taken in isolation. The mean field effect may well be a critical factor explaining the magnification of ex-post estimation of fiscal multipliers in the EMU.

Note that, concomitantly, the overall impact on the EMU's GDP will be

$$(7) \qquad \frac{1}{N}\left(\sum_m (\Delta b'_m \phi_m + \mu_m)\right)$$

so that the simple aggregation of the country-by-country contractionary effects is magnified by the reciprocal mean field effects. Hence, there is the possibility that an uncoordinated fiscal restriction brings about a massive continental recession at the same time worsening the debt management conditions for all countries.

The Commission in 2013 published an interesting study by Jan in't Veld that provides a quantitative estimate of the cross-country macroeconomic spillovers within the EMU and their impact on consolidation plans when they are undertaken simultaneously.[5] Granted that consolidation plans activated in each single country have robust negative effects on domestic as well as on partners' GDP in the short and medium run (up to seven years),[6] the additional effect due to simultaneous activation is remarkable. The GDP loss cumulated in the peak year ranges from 1.3 (Greece) to 2.2 (Ireland)

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[5] The estimates are obtained by way of simuation of a multi-country structural model of the EMU, where each country realises a permanent fiscal consolidation of 3% of GDP in three years.

[6] "The multipliers range from 0.5 (Ireland) to 0.9 (Greece, Italy) depending mainly on the degree of openness" (in't Veld 2013, p.5).

times the baseline loss. Consequently, the debt/GDP ratio of each country rises instead of falling. Though this effect is "temporary" (about three or four years), the rationale of fast and large consolidation – curbing debt-GDP growth and regaining quick and easy access to financial markets – is lost. Alas, no official policy document (see e.g. the Commission's yearly "Report on Public Finances" in the *European Economy* series) contained any reference, whether conceptual or quantitative, to the cross-country spillovers created by the crisis and *by the therapy itself*.

2.2. The zero-sum game of macroeconomic imbalances

A key battlefield of the European war of interdependence has become that of "macroeconomic imbalances", in the EMU dialect (EU Commission 2010).

In the first decade of the euro's existence, many euro-area countries witnessed a build-up of macroeconomic imbalances. These vulnerabilities proved to be highly damaging once the financial crisis set in. The ongoing unwinding of the accumulated macroeconomic imbalances is a protracted process and the adjustment is proving to be particularly painful in terms of growth and employment (EU Commission 2010, p. 7).

Accordingly, the package of governance reforms undertaken by the EMU countries amid the crisis includes the Macroeconomic Imbalances Procedure (MIP) to be enacted by the Commission on the basis of a "scoreboard" of 11 indicators. Like the SGP, the MIP consists of three components: surveillance (guided by the scoreboard), preventive arm (alert and policy prescriptions in the face of mounting imbalances), and corrective arm (mandatory corrective actions and eventually sanctions).

The recently adopted Macroeconomic Imbalance Procedure (MIP) broadens the EU economic governance framework to include the surveillance of unsustainable macroeconomic trends. The aim of the MIP is to identify potential risks early on, prevent the emergence of harmful imbalances and correct the excessive imbalances that are already in place. It has a broad scope and encompasses both external imbalances (including competitiveness trends) and internal imbalances (EU Commission 2010, p.7).

Although the scoreboard is quite broad, its central focus is specifically on the emergence of *current account imbalances* (CAI) as the key symptom of macro-imbalances, and on *competitiveness divergences* as the most important factor behind CAI (Collignon 2014).

The MIP idea has been prompted by the emerging consensus narrative about the unwinding of the crisis that hit the so-called EMU "Periphery" (actually all shore countries, from North-West to South-East : Ireland,

Portugal, Spain, Italy and Greece) (see e.g. Baldwin and Giavazzi 2015, CEPR 2015)

The core reality behind virtually every crisis is the rapid unwinding of economic imbalances. In the case of the Euro Zone Crisis, the imbalances were extremely unoriginal – too much public and private debt borrowed from abroad. From the euro's launch till the crisis, there were big capital flows from EZ core nations like Germany, France, and the Netherland to EZ periphery nations like Ireland, Portugal, Spain and Greece. A major share of these capital inflows were invested in non-traded sectors – housing and public consumption. This meant assets were not being created to pay off the borrowing – and thus rebalance the balance of payments. Foreign financed domestic spending tended to drive up wages and costs in a way that harmed the competitiveness of the receivers' export earnings and encouraged further worsening of their current accounts (CEPR 2015, p.1).

Although this kind of analysis contains elements of truth, no other idea in the EMU Pantheon is more rooted in the ancestral goal of national self-sufficiency than CAI. Indeed, the MIP implicit goal is that all EMU members aim at a zero or positive CA. The whole approach is misconceived and generates erroneous policy prescriptions as it ignores interdependence and embeds a notorious fallacy of composition (see also Collignon 2014).

In the first place, the MIP has precarious normative foundations. If CAI across members of a monetary union are so dangerous, how is it that nobody cares about them in the US or anywhere else? In the early years of the EMU, Blanchard and Giavazzi (2002) argued that the rise of CAI, far from being a problem, was the right *modus operandi* of highly integrated free markets channelling capitals and goods from lower-return allocations in mature economies to higher-return allocations in emerging economies[7]. CAI would take care of themselves as the emerging economies would catch up with the mature ones. Struggling for market deregulation and integration and then evoking self-sufficiency indeed appeared an oddity.

In the second place, if the Blanchard-Giavazzi prediction did not materialise, analysis of the reasons is wanting. The MIP approach mechanically applies to EMU countries the basic principles of open economy macroeconomics as if the EMU were a system of fixed exchange rates where each country's reserve of foreign currencies is binding. Therefore, the focus falls on the financing of CAI leading to a balance-of-payments crisis. Recall that a balance-of-payments crisis is the inability of a

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[7] In the intertemporal model *à la* Obstfeld and Rogoff one instead has that capitals and goods flow from the net saver ("patient") country to the net consumer ("impatient") one.

country to pay claims in *foreign currency* to another country. A country with a current-account deficit also records net external borrowing and an increase in the amount of liabilities of residents towards non-residents. Over time the latter may well be less and less willing to lend, and they may even stop lending "suddenly" (Calvo 1998) as it apparently happened in the EMU crisis (CEPR 2015). There is evidence of large cross-border disinvestments and "re-nationalisation of capitals" (Abassi et al. 2014, Ehrmann and Fratzscher 2015, Croci Angelini et al. 2016). Yet the rationale for the sudden stop in a monetary union cannot be the anticipation of a balance-of-payments crisis because no such a crisis *strictu senso* is ever possible in a monetary union – which, by the way, is a good reason to join the union especially for small open economies. I will be very sketchy on this point (a detailed treatment is provided by Collignon 2014; see also Tamborini 2001).

A monetary union is first and foremost a payment union. All residents in the union's area are allowed to settle their payments in the single legal tender issued by the union's central bank. National currencies no longer exist. From this point of view, for each and all member countries and the union as a whole, there is no "special status" whatsoever that makes cross-border transactions different from within-border transactions. The international accounts that matter are those of the union as a whole, which result from the extra-union transactions of the single member countries.

What happens if a member country of the EMU, say Greece, runs a deficit with the rest of the Union, say Germany? It certainly does not face a shortage of "foreign currency". What actually happens is a net fall of euro balances in Greece *vis-à-vis* a net increase in Germany (which *may temporarily* be reflected in the clearing accounts of the respective national central banks with union's central bank –the infamous Target 2 system). Intra-EMU (im)balances of payments are the channel through which a given stock of euros offered by the ECB circulate across member countries. Then two adjustment mechanisms are possible:
• euro balances return to Greece via cross-border bank branches or inter-bank lending or
• money supply falls in Greece and rises in Germany

If the former stops working – and one should first explain why – the latter is anything but the time-honoured price-specie flow mechanism in the classical theory of the balance of payments, where the common stock of euros is the equivalent of the world stock of gold. The transfer of money

from Greece to Germany is accompanied by a reduction of expenditure and possibly inflation in the former country *and their parallel increase in the latter.* This will over time improve the trade balance in Greece and worsen it in Germany, so that the initial payment imbalances will tend to take care of themselves by Greece recovering euro balances from Germany through the trade channel.

If these are the in-built adjustment mechanism operating in a monetary union, why should anybody be concerned with (im)balances of payments? An answer may be that "market frictions" and/or misguided policy, at the national level and/or at the level of the union's central bank, may prevent the mechanism from working (e.g. Sinn 2014).[8] However, this is not fully convincing. Suppose the first mechanism gets crippled and the second is impaired by the usual rigidity of nominal wages: then Greece will undergo a contraction of economic activity, which may be costly and painful, but in the end the adjustment of payments will come. For the mechanism to be prevented from working at all it is necessary that somehow additional euro balances are constantly re-injected into the deficit country; this may present several negative side effects (e.g. a constant growth of money supply and excess inflation at the EMU level), but it certainly does not jeopardise the ability of claimants in the surplus country to receive their payments in euros from their counterparties in the deficit country. Quite the opposite, the constant growth of money supply would make those payments possible *ceteris paribus.* Therefore, the rationale for the sudden-stop problem in a monetary union cannot be the non-fact that the borrowers' country as a whole might run out of euros, *but only the insolvency of the borrowers as in any other financial relationship.*

From this point of view, national currencies and exchange-rate risks being suppressed, in a monetary union there remain only two "frictions" that may make lending cross-border different than lending within-border (see also Tamborini 2015). The first is the so-called "home bias" in portfolio selection, with a higher degree of risk aversion for investments in a foreign

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[8] Not by chance, the supply of euros for each country and the system as a whole is neither finite nor inelastic as gold, unless the ECB so wishes. As long as Greece loses euros towards Germany, say because the Greek banks are unable to recover euro reserves from the German banks, the classical price-specie flow mechanism will only be triggered to the extent that the ECB refrains from increasing the total money supply, that is, it does not lend specifically to the Greek banks.

country. The second is the power that the debtor (typically governments) may have to discriminate between domestic and foreign creditors in case of default. These factors may have amplified cross-border disinvestments, but they seem quantitatively small. The key problem with the EMU "Periphery" countries was unsustainable debt of most resident borrowers, with the eventual involvement of governments in bail-outs, not the foreign residence of lenders. As mentioned in the CEPR (2015) quotation above, unsustainable debt was the result of blatant misallocation of capitals from the surplus countries to the deficit ones. Hence cross-border lenders were worried about their specific debtors' ability to pay like any other lender, not about the non-fact that the debtors' country as a whole might run out of euros. The bug in the Blanchard-Giavazzi prediction was the efficient capital markets hypothesis (partly amended in Giavazzi and Spaventa 2011).[9]

Yet there is still one way in which the germs of a true balance-of-payments crisis can be inoculated in the minds of rational cross-border investors in a monetary union: the expectations of an *exit from the union* and the return to the national currency – precisely the threat behind President Draghi's "whatever-it-takes" famous speech. Di Cesare et al. (2012), among others, provide evidence of the resurgence of the exchange-rate risk component of risk premia across the EMU. But these expectations, as the success of Draghi's promise testifies, have a lot do with the way in which the crisis has been managed rather than with EMU membership in itself. Indeed, the shift in the approach to the crisis from a systemic capital market failure to a problem of national balance-of-payment crises has proved to be dramatically harmful.

This is precisely where the third major flaw in-built in the MIP –ignorance of interdependencies– comes into play. The MIP implicit goal that all EMU members aim at a zero *or positive* CA embeds a notorious fallacy of composition. In an almost closed economy like the EMU, the only consistent aim is zero for all members. But to the extent that some members have a structural positive CA, some others *must* have a negative CA, unless the EMU as a whole is able to generate a structural surplus with the rest of the world. The same basic principle applies to CA adjustments: starting from a given distribution of deficits and surpluses, it is not possible that all deficits are corrected unless all surpluses are also corrected or a net surplus with

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[9] We will return to this issue in section 3.2.

the rest of the world is created. This is precisely the outcome of the crisis management under the MIP as testified by a number of studies (e.g. Croci Angelini and Farina 2012, Collignon 2014, Storm and Naastepad 2015). In the above-mentioned simulation paper, in't Veld finds that "the deflationary impact of [fiscal] shocks leads to an improvement in competitiveness, but while this could help boost exports if one country was acting alone, under EA-wide consolidations these benefits are partly lost" (in't Veld 2013, p. 8).

Here I report just a few comprehensive data. For membership continuity, let us consider the early 12 EMU countries (the first 11 plus Greece) – these also account for the largest share of the entire EMU to date. EMU12 as a whole economy can then be split into a "deficit region" (DR) and a "surplus region" (SR). The former is composed by the countries with negative cumulated CA from 2000 to 2011; the latter by those with positive cumulated CA. The DR in fact corresponds to the usual "Periphery" (Greece, Ireland, Italy, Portugal, Spain), the SR to the "Core" (Austria, Belgium, Finland, France[10], Germany, Luxembourg, Netherlands). Figure 3 gives a pictorial view of the cumulative development of the aggregate regional CAI over the regional GDP.

Figure 3. Cumulated CA/GDP ratios in the DR, SR and EMU12, 2000-2015
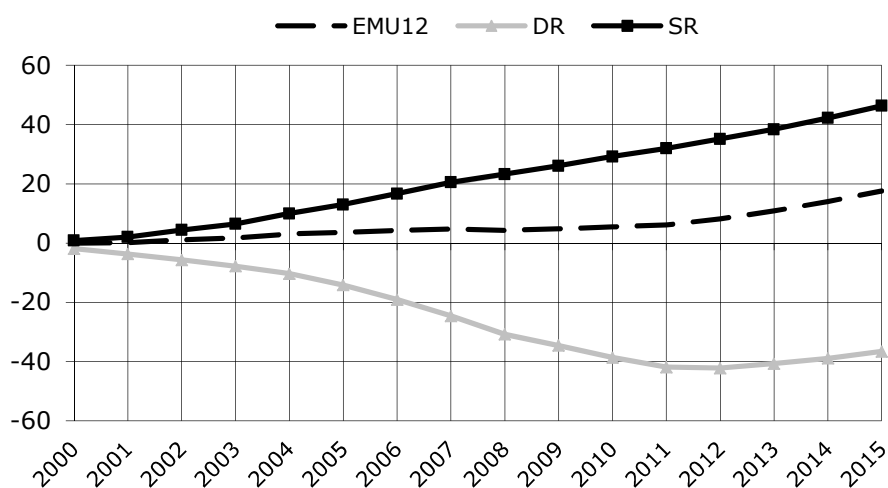
Source: elaborations on Eurostat, AMECO database.

Until 2011, the two regional CAI are largely symmetric. The adjustment of the DR started in 2012 and is still in progress. Its cumulated CA/GDP

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[10] Actually, France is borderline, with a relatively small negative cumulated CA. Since France is usually considered "Core", I abide by this convention.

surpluses from 2012 to 2015 reached 5.3 p.p. As is well known, the adjustment took place in parallel with a relative deflation of the DR. A simple indicator is provided by DR's nominal GDP relative to SR's one. It was 0.48 in 2000, in the run-up of CAI it peaked to 0.56 in 2007, and recoiled to 0.47 in 2015. The joint path of CAI and relative GPD of the DR is presented in Figure 4. Was this path enforced by austerity eventually consistent with the classical adjustment mechanism of the balance of payments recalled above? Not exactly: the data in Figure 3 show the large asymmetry of the adjustment, which fell onto the DR almost entirely with no sign of correction of the SR – as a matter of fact the SR after 2011 went on cumulating CA/GDP surpluses reaching 14.3 p.p. in 2015 (a remarkable 3.6% per year compared with 2.7% of the previous period). This asymmetry was naturally reflected in the CA of the EMU12 as a whole which from 2012 to 2015 cumulated 11.4 p.p. of CA/GDP surpluses compared with 6.2 p.p. of the previous twelve years. As the US government, and at some point the IMF, lamented, the EMU has become a "beggar-thy-neighbour" player in the world.

Figure 4. The adjustment path of the DR's CAI and relative GDP, 2000-15
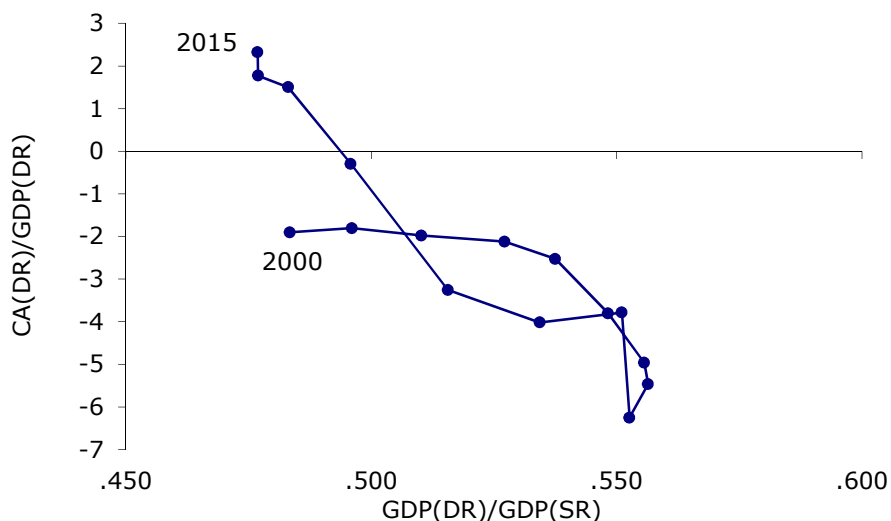
Source: elaborations on Eurostat, AMECO database.

As noted by Micossi (2016), in comparison with the Bretton Woods system – the best performing international monetary system to date – the conceptual and policy framework enshrined in the MIP represents an astonishing regression to the previous misconceptions. Indeed, the MIP carves in stone the asymmetric burden of adjustment on the shoulders of

deficit countries that historically drove the various vintages of the gold standard, and the entire inter-war payment system, to failure (Eichengreen 1992, O'Rourke and Taylor 2013). Not only does the MIP set a stricter limit to CA deficits (–4%) than surpluses (+6%), but "austerity" has been enacted in deficit countries more forcefully – and to some extent successfully – than "profligacy" has been in surplus countries. As a consequence, "the eurozone is afflicted by a strong deflationary bias and, therefore, under current trends, deep economic and social strains will continue to project a dark cloud over its future survival" (Micossi 2016, p. 1).

In conclusion, EMU regulations are conceived as a substitute for a (good) federal government that we do not have (want). Good federal governments do care about growth, income or employment divergences across the federation. But their concern is motivated by the welfare of their citizens-electors, not by the open-economy macroeconomics textbook reasons put forward for the EMU, namely financing CA deficits. Nobody in a federation thinks of it as a collection of independent open economies tied in a fixed exchange rate regime.

Financing members' CAI in federal economies is one of the remotest concern one can ever think of because in a full-fledged federation financial integration is complete and safeguarded by *federal institutions*. As explained above, if loans are misallocated to faltering economic units, the problem is between lenders and borrowers as in any ordinary risky transaction; if the borrowing units are "too big to fail" the problem is upgraded to the federal level (see also next section). With regard to structural differences across the federation that may underlie CAI, these, too, are mostly policy matters for the federal government. As is well known, estimates of the rebalancing of US state imbalances granted by federal mechanisms range from 30% to 50%. Individual states are not directly held responsible for, and in fact have few instruments to correct, their macroeconomic imbalances.

High concern with CAI is only one among a number of oddities that overwhelm the governance of the EMU and its members. Here is a clue: *the EMU is caught by such peculiar problems not because it fails as an Optimal Currency Area, but because it fails as an Optimal Federal Area.* Everyone was aware of this original sin from the very beginning, and with great regret one may say that the hope that the creation of the monetary union would have paved the way to the other federal institutions has so far been

lost. Consequently, EMU members remain entrapped in a tangle of rules whose rationale is not to govern a genuine monetary union but the European Monetary System 2.0, a Dr. Frankenstein's creature with a single monetary authority, irrevocably fixed exchange rates, and no common stabilization and rebalancing mechanisms.

3. Financial interdependence

3.1. Who brought the bottles?

It is clear from the previous discussion of CAI that the contiguous battlefield of the European war of interdependence is the financial one. CAI are mirrored by net capital flows from surplus to deficit countries, and the overall phenomenon could hardly develop if financial markets were not highly integrated. But integration creates interdependence. One cannot advocate financial liberalisation and integration, and then dream of a system of disconnected countries each with full sovereignty over "its own" finance.

For instance, Sinn (2014) dubbed the CAI problem with the colourful image that "a party was going on in the South". But the obvious question is who brought the bottles. The idea, quite common among populist leaders, is that the bottles were stolen in the wineries in the North. Of course, this is nonsense. First because in an integrated system capitals freely flow where investors expect higher return. Second because there cannot be excess spending without borrowing, nor lending without excess saving.

These basic forces that are unleashed by financial liberalisation *create by themselves* the kind of complementarities between surplus and deficit countries that we observe *ex post* in the international accounts, and that in the EMU case have been documented and investigated by a vast literature (e.g. ECB 2011, Chen et al. 2013, Lane 2013, Collignon 2014, Borio and Disyatat 2015, CEPR 2015). As an exemplification, Figure 5 shows the change in the saving-investment balance reflected in the CA as % of GDP from 1999 to 2007 in the major deficit countries *vis-à-vis* Germany.

Figure 5. Change in the saving-investment balance and in the CA as % of GDP from 1999 to 2007, selected EMU countries

■(-) Invest. □Pub. saving ■Priv. saving
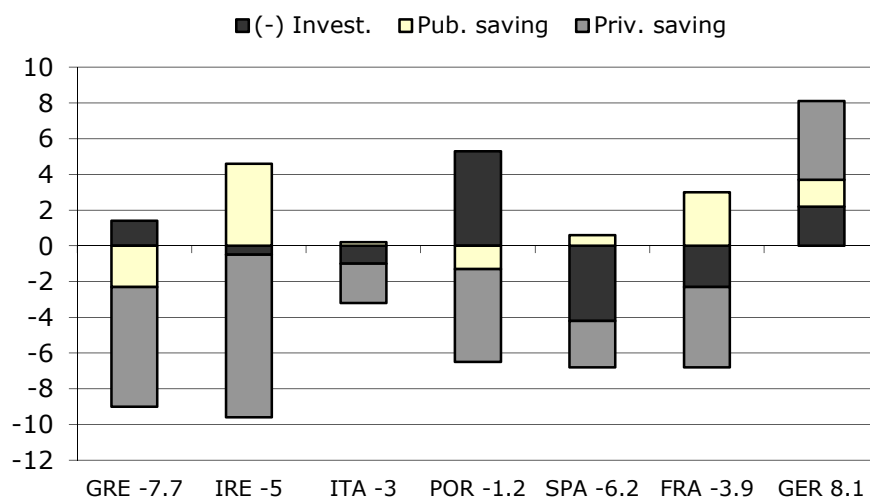
Source: elaboration on Chen et al. (2013), Table 1.

Understanding *how* these forces shape the macroeconomic processes in the way we observe *ex post* is not easy and remains controversial.[11] Engaging in a chicken-or-egg distinction or searching for the alleged culprit in the story is nonsensical and may be good for political propaganda. The MIP, emerged from the post-crisis consensus view, does not seem founded on solid ground. Consider this sentence in the authoritative CEPR paper about the consensus view building:

> When the euro institutions were set up, nothing was put in place to monitor large intra-EZ capital flows. The ECB and national central banks in both the surplus and the deficit countries failed to realise what the huge intra-EZ credit flows were financing (…) The risks of credit imbalances can be diminished by surveillance and avoiding the accumulation of excessive imbalances. But the risks will never disappear. Booms and busts are woven into the fabric of Europe's economic system (CEPR 2015, pp. 12, 13)

Now recast this sentence in any existing large federal economy like the US. What instrument or institution can you find there with the task of monitoring large internal capital flows, whatever this means? Did the Federal Reserve, or any state branch, or any federal institution realise what the huge credit flows that preceded the subprime crisis were financing?

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[11] A long-lived, almost forgotten, literature dating back to the classical theory of the balance of payments addresses this problem, also known as "the transfer problem" (Tamborini 1995, Brakman and Van Marrevijk 1998). For a recent contribution see Blanchard et al. (2015).

Probably, the recommendations addressed to the EMU are valid for the US too. Yet among the lessons drawn from the crisis by the US authorities there is no idea of a MIP to be applied at the state level. Instead, one can find a revision of the Greenspan-Bernanke doctrine of the exclusion of financial variables from the central bank's reaction function, and the need of greater attention to financial cycle indicators and to the systemic level of banking regulation –the so-called macroprudential level (Bernanke 2010, Caruana 2010, Borio 2012, Friedman 2014). Indeed, what instruments and powers can any sub-federal institution have in order to monitor, control *and regulate* cross-border private borrowing and lending? Who was responsible for the huge *bad loans* of Northern private banks to Irish or Spanish or Greek borrowers? Did the borrowers', or lenders', governments have the entitlements and instruments to intervene? Will the EMU national governments have such entitlements and instruments in the future?

The right approach to the problems that may be created by capital movements across a monetary union is the so-called Banking Union, not the MIP. [12] *Ex post*, the key difference between the US and the EMU in the face of the financial crisis is that the Lehman crack was tackled as a federal problem, not of the State of New York. Unfortunately, the national responsibility ideology is hindering progress also on this ground.

Europe looks too slow to decide to take on its own shoulders the burden of adjusting debts and disequilibria that are also the result of the imprudence of British, French and German bankers, creditors and investors, the lack of European financial supervision, the contagion of the Greek mess, the very controversial and, therefore, badly defined responsibility of the ECB for financial stability, the insufficient size and autonomy of the [ESM], and other EU's faults as well. Insisting on an individual-member-state approach to systemic. problems, with a punitive attitude providing help only with much trumpeted "strict conditionality", is a non-solution and a stimulus to international contagion (Bruni 2013, p.148-149).

3.2. Interdependence, contagion and all that

The inconsistency of the national responsibility doctrine in a highly integrated financial system became manifest in the turmoil ignited by the

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[12] One might argue that in the face of large external borrowing of the private sector the MIP may induce the government to borrow less in order to limit the total external borrowing. However this purely macro-accounting approach is off the mark. As is well-known, Spain and Ireland did realize positive public saving (see Figure 5) but this did not prevent the crisis. The fact is that a bad loan is a bad loan regardless of the total borrowing of the economy.

Greek debt crisis. If on the one hand the original sin of the Greek government(s) for fiscal profligacy and book cooking was clear, on the other the subsequent events have shaken the orthodox view that connects national responsibility with the "market discipline" entrusted to allegedly efficient financial markets that correctly reflect the different creditworthiness of borrowers into risk premia or interest-rate spreads.[13] Research on the sovereign debt crisis has rapidly grown discovering phenomena that challenge the orthodox view that each country receives what it deserves:

- there is scant evidence of consistent market discipline, that is, the correct "fundamental" pricing of bonds, *throughout* the life of the euro: typically, (some) country risk spreads were too low until 2008; they have been too high since 2009 (Di Cesare et al. 2012)

- there is evidence that post-2009 spreads not only reflected country-specific fundamentals, but were also highly sensitive to "systemic risk" and other exogenous factors (Manganelli and Wolswijk 2009, Sgherri and Zoli 2009, Attinasi et al. 2009, Caceres et al. 2010, Favero and Missale 2012)

- there is evidence of "self-fulfilling" processes via the positive feedback mechanism among market beliefs of default, higher spread, higher fiscal effort, reinforcement of market beliefs (De Grauwe and Ji 2013, Tamborini 2015, Passamani et al. 2015)

- there is evidence of "contagion", that is, the transmission of high spreads across countries via non-fundamental channels (Caceres et al. 2010, De Grauwe and Ji 2012, Tola and Wäldi 2012)

Contagion is perhaps the most critical factor brought about by interdependence. In the first place, it is necessary to clarify what contagion means. Think of an efficient portfolio allocation driven by the return-risk parameters of assets for a given degree of risk aversion. In principle, any change in the parameters of any asset triggers a portfolio adjustment that involves all the other assets. If we look at the country denomination of

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[13] On passing, one may see a bit of schizophrenia here. Faith in the efficient market hypothesis implies the Blanchard-Giavazzi thesis that CAI are to be left to themselves as part of a self-adjusting process of capital reallocation. In such a system, there is no need for the paraphernalia of rule-based controls and actions created in the EMU.

assets, it may well happen that the asset allocation to one country is increased or decreased as a consequence of changes in return-risk parameters elsewhere. As shown in Tamborini (2014), the optimal portfolio allocation across two countries' sovereign debts A and B implies the following interest-rate spread

(8) $\qquad i_A - i_B = \alpha d_A - \beta d_B$

where d is the debt/GDP ratio, $\alpha = \rho(\sigma^2_A - \sigma_{AB})$, $\beta = \rho(\sigma^2_B - \sigma_{AB})$, ρ is the coefficient of risk aversion, and σ^2_A, σ^2_B, σ_{AB} are the variances and covariance of the returns to the two sovereign bonds. Hence the *sign* and *dimension* of the spread result from the combination of three factors: (i) the *relative* size of stocks d_A, d_B, (ii) the *relative* size of risk σ^2_A, σ^2_B, (iii) the sign and size of the covariance σ_{AB}. Table 2 show these data for the EMU12 countries in two periods before (2000-08) and during (2009-12) the debt crisis.

Favero and Missale (2012) run an econometric estimation of an explicit multi-country model of euro-sovereign spreads where the spread of each country is correlated with (i) the "distance" of the country's fiscal stance with Germany's, (ii) the "global spread", i.e. the weighted average of the spreads of all the other countries according to the reciprocal "distance" of fiscal stances. They find that the global spread is highly significant and explicative; its order of magnitude is of decimal points.

Furthermore, the covariance of returns σ_{AB} is mostly a neglected factor though it plays a crucial role in portfolio allocations. Think of the following configuration: $d_A > d_B$, $\sigma^2_A > \sigma^2_B$. What will be the spread paid by A? Consider first the case that $\sigma_{AB} < 0$, then α and β are positive, and A's spread is the *weighted difference* of the two stocks: it is larger the larger and riskier is A's debt relative to B's debt. The low-debt/low-risk EMU partner exerts a negative externality. If instead $\sigma_{AB} > 0$, the signs of α and β are undefined, and so too is the spread. An interesting case may be one where $\sigma^2_A > \sigma_{AB} > \sigma^2_B$, so that $\alpha > 0$, $\beta < 0$. The spread is now the *weighted sum* of the two stocks. A's spread is magnified by its own relative debt stock, but a low-debt/low-risk union partner exerts a positive externality.

As can be seen in Table 2, the covariances with Germany follow a noticeable pattern. In the pre-crisis period they were positive for all countries and the most frequent pattern was $\alpha_m > 0$, $\beta_m < 0$, indicating the convergence process of interest rates towards Germany, and the positive externality played by its low debt and risk. In the crisis period, the

covariances of the five countries under attack turned into negative, and their common pattern became $\alpha_m > 0$, $\beta_m > 0$, indicating the divergence process of interest rates and the negative externality exerted by Germany.

The important message of standard portfolio theory is that interdependence of interest rates and spreads, each being determined in relation with and in response to the others, is an intrinsic feature of an integrated financial system. This interdependence, which is part of the efficient functioning of capital markets, may in fact blur the notion that each country stands or falls alone in the financial system.

Table 2. Mean-variance determinants of the interest-rate spread with Germany 2000-12. EMU12 member countries

2000-08	σ^2_m	σ_{mGER}	$\alpha_m = \sigma^2_m - \sigma_{mGER}$	$\beta_m = \sigma^2_{GER} - \sigma_{mGER}$	spread (%)
m					
Austria	0.450	0.398	0.052	-0.034	0.162
Belgium	0.455	0.399	0.056	-0.035	0.196
Finland	0.447	0.398	0.049	-0.034	0.133
France	0.383	0.371	0.012	-0.006	0.100
Germany	0.365	-	-	-	-
Greece	0.561	0.421	0.140	-0.057	0.414
Ireland	0.460	0.391	0.069	-0.027	0.155
Italy	0.391	0.361	0.030	0.004	0.312
Luxemb.	0.426	0.360	0.067	0.005	0.165
Netherlands	0.401	0.379	0.022	-0.015	0.096
Portugal	0.446	0.393	0.053	-0.028	0.234
Spain	0.454	0.399	0.055	-0.035	0.156
2009-12	σ^2_m	σ_{mGER}	$\alpha_m = \sigma^2_m - \sigma_{mGER}$	$\beta_m = \sigma^2_{GER} - \sigma_{mGER}$	spread(%)
m					
Austria	0.313	0.334	-0.021	0.113	0.71
Belgium	0.213	0.130	0.082	0.317	1.15
Finland	0.442	0.431	0.011	0.016	0.40
France	0.174	0.244	-0.069	0.204	0.63
Germany	0.447	-	-	-	-
Greece	54.513	-4.328	58.840	4.775	10.13
Ireland	4.088	-0.247	4.335	0.695	4.23
Italy	0.729	-0.403	1.133	0.851	2.19
Luxemb.	0.764	0.558	0.206	-0.111	0.40
Netherlands	0.396	0.410	-0.014	0.037	0.37
Portugal	11.084	-1.692	12.776	2.139	4.86
Spain	0.768	-0.426	1.195	0.874	2.19

Source: Tamborini (2015)

A "pathologic" dimension of contagion may also arise when the mechanisms of portfolio reallocations are triggered by "non-fundamental" evaluations of risk-return of assets. For instance, De Grauwe and Ji (2012) show econometrically the presence of clustering of spreads of the five countries under attack that is disconnected from fundamentals, except Greece. In terms of the previous model, the negative covariances of these five countries with Germany, and their impact on the respective spreads, may be the result of a generalized "flight to quality" as if they were all Greece. Tola and Wäldi (2012) investigate more directly the impact on the country-spreads of "non-fundamental" vs. "fundamental" news finding a significant effect of the former. In the above-mentioned in't Veld (2013) model, the predicted increase in risk premia is much smaller than observed. "Adding higher risk premia to the consolidation simulations increases the GDP losses. It adds between 2 and 3% to the negative GDP effects for the countries most affected. The total output losses over these three years increase to 10% for Portugal and almost 11% for Greece. The negative spillovers also lower GDP in the countries not directly affected(Germany, France and rest of core EA)" (p. 13).

The problems created by contagion, and more generally by non-fundamental market valuation, may be magnified in connection with the phenomena of so-called "self-fulfilling expectations" (SFE). This approach has also obtained an authoritative endorsement in the ECB president's speech where the OMT programme was announced:

(…) we are in a situation now where you have large parts of the euro area in what we call a "bad equilibrium", namely an equilibrium in which you may have self-fulfilling expectations that feed upon themselves and generate very adverse scenarios. So, there is a case for intervening, in a sense, to "break" these expectations (…) But then, we should not forget why countries have found themselves in a bad equilibrium to start with (Draghi 2012, p. 4).

A key feature of SFE models is that multiple equilibria are possible. An equilibrium is a state of the sovereign bond market such that the interest rate demanded by the investors generates a fiscal stance sustainable by the government. Therefore, an equilibrium implies that the investors' beliefs about sustainability are fulfilled. However, the fiscal stance faced by the government is not independent of the investors' beliefs about its sustainability. If say investors attach high probability to sustainability, the interest rate remains low and the solvency costs also remain low. This is

what Draghi refers to as a "good equilibrium". However, if investors attach lower probability to sustainability, the interest rate will rise, and so will the solvency costs. This may become a "bad equilibrium". Further, the positive feedback mechanism between investors' beliefs and solvency costs may be so large to force the government into the default choice, *though the initial conditions are sustainable*. De Grauwe (2012) and De Grauwe and Ji (2013) provide a model and a supportive test of SFE in the EMU debt crisis.

Tamborini (2015) shows how heterogeneous beliefs of investors about the government's threshold of non-sustainable fiscal stance[14], may give rise to a system with the characteristics described above. The mean and variance of beliefs are crucial parameters that determine the characteristics of the good and the bad equilibrium, and hence how easily a government may be driven to default after a shock. Heterogeneous beliefs are also a channel through which non-fundamental news may shape the characteristics of the system. The model shows that a lower mean and/or variance of beliefs about the non-sustainable fiscal stance makes default a stronger attractor.

Ignorance or disregard of these phenomena represent an intrinsic flaw of the orthodox EMU policy prescriptions. A highly relevant case is "austerity" as a response to the debt crisis. The implicit assumption, consistent with the national responsibility doctrine, was a series of national crises to be resolved by each country "doing its homework". The homework consisted of the "shock therapy" of front-loaded, "ambitious" fiscal consolidation plans in order to be "credible". Credibility is rewarded with *lower* interest rate. The serious limits of this approach have been dramatised by the vicious circle between hard austerity plans and *rising* spreads with fears of default experienced by the five involved countries between 2010 and 2012 – until the ECB stepped in. Figure 6 shows the strong (non-linear) correlation between spreads and cumulated austerity (measured as the sum of cuts in the government's primary balance over GDP).

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[14] Namely the primary surplus relative to GDP that is necessary to stabilize the debt/GDP ratio.

Figure 6. Year average of monthly spreads and
cumulated fiscal adjustment in the EMU, 2010-12
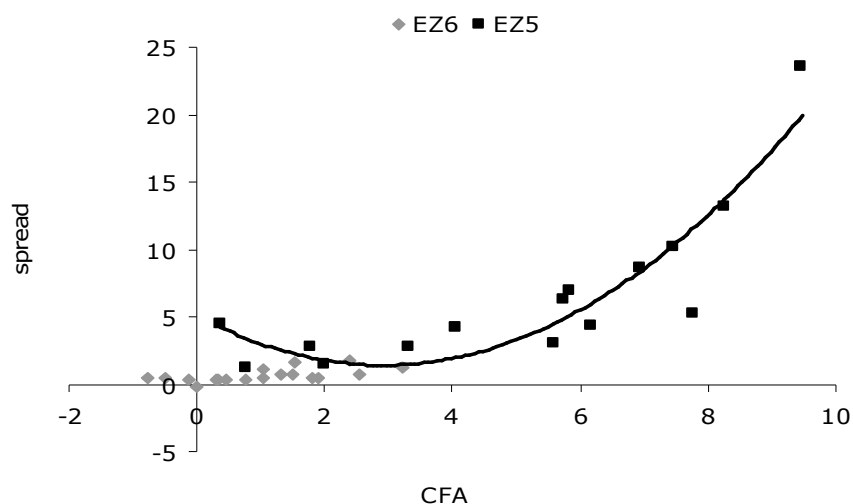
EZ6: Austria, Belgium, Finland, France, Luxembourg Netherlands. EZ5: Greece, Ireland, Italy, Spain. EZ5 countries: correlation coefficient 0.74. OLS interpolation function y = $0.43x^2 - 2.52x + 5.08$, $R^2 = 0.83$.
Source: elaborations on Eurostat, AMECO database; ECB, Interest Rates Statistics.

As shown by Tamborini (2015), this outcome is consistent with investors who care about the sustainability no less than the credibility of fiscal consolidation. This is because, as the fiscal effort increases, a larger share of investors believe that the government will opt for default, and the risk premium increases. As a consequence, one possible equilibrium is typically a "self-fulfilling default prophecy" due to the positive feedback mechanism among market beliefs of default, higher interest rate, higher fiscal effort, reinforcement of market beliefs described above. An additional factor, which has been highlighted in section 2, is that fiscal consolidation may slowdown GDP to the point that the debt/GDP ratio grows, and this possibility is more likely if austerity is enacted union-wide.

Passamani et al. (2015) find econometric support for this feedback mechanism by using various indicators of concern for sustainability of fiscal consolidation. They also show that, in spite of substantial fiscal adjustments under way, a large deterioration of sustainability is identifiably located between 2009 and 2012, and particularly so for the EMU5 group (with Italy and France as borderline cases). This inexorable self-fulfilling process bound to multiple defaults was indeed broken by the 2012 intervention of the ECB with its programmes of active bond purchases in the secondary market.

Whereas success can be due to its being the only *systemic programme in place* (Bruni 2013), it is telling that it was opposed exactly for the reason that it would weaken the national responsibility doctrine and the pressure on each country to take care of itself.

Conclusions

The EMU has been founded on the exclusive national responsibility doctrine, except for monetary sovereignty devolved to a single central bank. This foundation had (and still has) complex political motivations, but it is in overt contradiction with the fundamental fact that creating a highly integrated economic system creates strong interdependent linkages among the partner countries. In this paper I have treated the two main dimensions of interdependence in the EMU, economic (section 2) and financial (section 3), and the first-order policy mistakes that have arisen ignoring them.

In spite of the critical revisions and change in perspective brought about by the crisis, and explicit recommendations to move beyond the original boundaries of the Treaties, progress is still too timid, if any. Europe is still engaged in its interdependence war. This is puzzling, because recognition of interdependence would allow the implementation of more effective and less costly policies for all members. Reasons of resistance may be rooted in the fear that surrendering to the evidence of interdependence would pave the way to unpalatable ideas like coordination and solidarity, and eventually to new supranational institutions. As the Prisoner Dilemma game teaches, however, the status quo is miserable for all.

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