EconPol
WORKING PAPER

14
2018

July
Vol. 2

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EUROPE
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European Network for Economic
and Fiscal Policy Research

headed by

ifo INSTITUTE
Leibniz Institute for Economic Research
at the University of Munich








EconPol Working Paper
A publication of EconPol Europe
European Network of Economic and Fiscal Policy Research

Publisher and distributor: ifo Institute
Poschingerstr. 5, 81679 Munich, Germany
Telephone +49 89 9224-0, Telefax +49 89 9224-1462, Email Dolls@ifo.de
Editors: Mathias Dolls, Clemens Fuest

EconPol Europe: www.econpol.eu

Macroeconomic imbalances and the Euro Zone. Alternative views*

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Abstract

Macroeconomic imbalances (MI) play a prominent role in the "consensus narrative" of the crisis of the Euro Zone (EZ). Accordingly, the package of governance reforms undertaken by the EZ countries amid the crisis includes the Macroeconomic Imbalances Procedure (MIP) to be enacted by the Commission. The whole approach has raised various critical and alternative views. These are examined distinguishing between the "domestic" and "external" dimension of MI, and the controversial issues are identified with reference to the MI relevance, their causes and connections with the crisis, and their policy implications.

* An earlier version of this paper was presented at the EconPol Europe, Foundation Conference, Brussels, 9-10 November 2017.

1. Introduction

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).

The critical role of macroeconomic imbalances (MI) is widely shared in the consensus narratives of the European crisis that followed the Great Recession (e.g. Kuenzel and Ruscher 2013, Sinn 2014, Baldwin and Giavazzi 2015, CEPR 2015). Accordingly, the package of governance reforms undertaken by the Euro Zone (EZ) countries amid the crisis includes the Macroeconomic Imbalances Procedure (MIP) to be enacted by the Commission

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). [1]

Like the Stability and Growth Pact (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 MIP "scoreboard" displays eleven indicators that range from micro to macro, from real to financial variables. In essence, these indicator converge to two critical dimensions of MI, one more "domestic" the other more "external":

- divergences in (the determinants of) growth rates, percapita incomes, unemployment
- large and persistent current account imbalances (CAI)

Although the presence of MI, epitomised by CAI, in the EZ is a matter of fact, and the consensus narrative contains elements of truth, alternative views have been put forward on mainly three issues

- their relevance
- their causes and connection with the crisis

[1] The complete documentation is in EU Commission (2016)

• their policy implications

The aim of this paper is not to discuss the MIP in itself, the specific indicators in the scoreboard or its implementation (see Moschella 2014 for an assessment). It is rather to examine the above-mentioned controversial points about the causes, meaning and consequences of MI in the EZ, and discuss the alternative policy prescriptions that emerge.

2. Relevance. Why are macroeconomic imbalances so important in the Euro Zone?

In the first place, the whole issue of the MI, as it has been encapsulated in the MIP, seem to have questionable normative foundations under both the domestic and the external dimensions.

Most of the time open economies, or regions within the same national boundaries, follow different growth paths, with different rates of growth of prices, wages, population, capital, employment. These differences quite naturally lead to large trade and capital flows. One classic argument in favour of free mobility of persons, goods, and capitals is precisely that it allows open economies to take different economic trajectories while having access to wider pools of resources. Large transfers of resources, mostly market-driven, are vital to the functioning of open economies. Of course, it is also important to be aware that different economic trajectories, and the ensuing transfers of resources, may embed long-term troubles as to their sustainability. Identifying pathological MI is however a difficult task as testified by the ongoing debate on the so-called "global imbalances" at the world level. The MIP scoreboard certainly seeks to come to terms with the complexity of MI diagnostics. However, having a detailed list of indicators is not *per se* a failsafe way to make a good diagnosis, unless the interplay between the indicators is deeply and correctly understood.

Furthermore, countries belonging to the EZ share the peculiar status of members of a monetary union, and the institutional framework is a key factor in determining the nature, cause, consequences and policy options of MI (O'Rurke and Taylor 2013).

In order to address these issues it is natural, in the first instance, to look at long-standing federal systems, in comparison with which the question arises: if MI are so dangerous, how is it that nobody in the US, Germany, or

anywhere else gives them the same prominence as in the EZ? Of course, federal governments do care about growth, income or employment differences across the federation – i.e. the "domestic" MIP indicators. But their concern is motivated by the welfare of their citizens-electors, and perhaps the cohesion of the federation, not by the open-economy macroeconomics reasons put forward for the EZ, namely CAI. Financing members' CAI in federal economies seems a remote concern.

2.1. Imbalances across domestic indicators

Certainly there are important differences among the EZ economies, which account for differences in their relative stage and pace of development and stability. When differences grow large, it is argued, monetary unions, and even complete federal systems, are subject to tensions that undermine cohesion, membership as well as the effectiveness of monetary policy (e.g. Padoan 2105, Cœuré 2017). In this perspective, however, the MI view embedded in the MIP apparatus seems wanting for four reasons.

First, where are MI located? As said in a recent study on regional disparities in Europe, "in all countries more advanced areas co-exist with peripheral regions" (Bonatti and Fracasso 2017, p. 14). Consequently, the geography of disparities does not overlap with that of national borders. Each national country has its own disparities, while it shares forerunning and laggard regions with others. Disparities at the national level are therefore the result of the relative weight of domestic forerunners and laggards, which creates serious problems, foremost for policy purposes, if disparities are simply read at the national level as is usually done.

Second, how large are "large" MI? What just said about co-existence of more and less advanced regions within the same national borders is true not only for Europe but all over the world. Comparisons may provide a first approach. Let us consider some basic data generally regarded as critical for cohesion and global stability of an integrated system across US states and EZ countries. For membership continuity, let us consider the early 12 EZ countries (the first 11 plus Greece) – these also account for the largest share of the entire EZ to date. Disparity in GDP real growth is reported in Table 1. In the 1990-2000 decade the min-max fork was larger in the US than in the EZ, and the standard deviation was the same. Later and up to the Great Recession, growth dispersion *fell* both in the US *and in the EMU*, though to

a lesser extent. Overall, the EMU picture does not seem pathological with respect to the US, and possibly *improving* before the crisis.

Figure 1 shows a convergence index of nominal and real percapita incomes in the EZ12 countries from 1999 to 2017. The index is the ratio between the average percapita income of the countries above and below the EZ12 average in 1999. This shows a sustained convergence between the two groups of countries, both nominal and real, until 2006. This process was abruptly reversed during, and in the aftermath of, the crisis until 2012, when the 1999 forerunners reached the historical peak of 1.7 times the laggards in real terms.

Another critical indicator in this kind of analysis is the unemployment rate, which is shown in Figure 2. For the EZ12 as a whole, the unemployment rate has been declining and converging to the mean until 2008. This trend was reversed dramatically after the crisis in the general run-up of unemployment that still plagues the EZ.

As to nominal convergence, i.e. the long-term trend of price levels, Darvas and Wolff (2014) show that sizeable inflation rate differentials across regions is a phenomenon that the EZ shares with other large monetary unions such as US, Canada, Australia. They also remind us that this phenomenon may be pathological, but not necessarily so, since it may reflect normal adjustment processes in growth catching-up or in the course of the business cycle. Figure 3 shows the year per cent change of the EZ12 average GDP deflator and its cross-country standard deviation. Actually, the pattern is similar to that of percapita incomes. Over time we see tendential reduction of dispersion around the EZ average, with the break concomitant with the post-crisis deflation.

Looking at the above cursory data, one may wonder for what reasons the pre-crisis years ought to be regarded as a period of mounting tensions across the EZ as a whole. Quite the contrary, that period witnesses *a substantial reduction* of those potential sources of tensions. The convergence process was in fact interrupted and reversed by the crisis, and possibly by its policy management. More accurate and in-depth analyses provide nuanced results, with some indicators being improved, others worsened since the advent of the euro (e.g. Campos and Macchiarelli 2016).

Third, as can be seen, sensible macro-data about disparities and their convergence/divergence display long-run trends as well as fluctuations. It has therefore become customary to borrow from macroeconomics the

distinction between "cyclical" and "structural" factors, where the latter, usually encompassed in the catch-all notion of "competitiveness", are regarded as the real critical ones (e.g. Bonatti and Fracasso 2017). It is also common to assign different policy tools to each of the two sets of factors: the cyclical ones may be mitigated by sort-run, demand stabilisation policies, the structural ones need supply-side, structural policies.

However, drawing this line of distinction is not so straightforward. Structural factors and policies concern the microeconomic level of the economy, and hence including them in the overarching notion of MI may be misleading. More importantly, the separability between short and long run is as precarious as it is entrenched in macroeconomic analysis. In the EZ, we now observe larger cross-country differences than prior to the crisis, but it is hard to understand whether these are a legacy of the crisis intended as a long *cyclical downturn* on the way to be reabsorbed, or sudden worsening of *structural factors of divergence*, or perhaps a mixture of the two linked by *hysteresis factors* (DeLong and Summers 2012, De Grauwe 2015).

It may also be argued that the real important factors of convergence/divergence are those at the *micro*-level. In this perspective Bordingon et al. (2018) consider indicators like human capital formation, education, health care, rule of law, market regulation, public administration, and they find that a substantial convergence has taken place in the EZ over time, weakened but not interrupted by the crisis.

Finally, in order to assess how large and dangerous MI are we also need a normative benchmark, which the MIP does not provide. Within some federal systems, or single countries, structural disparities of the same magnitude are more problematic while in others they are less so. It seems therefore necessary that the identification of disparities goes with an assessment of the system's capacity to withstand them. This is the result of historical, cultural and institutional factors (e.g. Alesina and Glaeser 2004). We shall return to this point in section 4.1.

2.2. External imbalances

Data have been shown above according to which under various dimensions a convergence process was in place in the EZ prior to the crisis, which the crisis interrupted and, to some extent, reversed. It may still be the case that the crisis itself, or the disruptive territorial distribution of its effects, were the product of unnoticed tensions mounting under the

convergence surface. The reference here is to the external dimension of MI, i.e. CAI.

Here I report just a few comprehensive data. The EZ12 as a whole can 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[2], Germany, Luxembourg, Netherlands). Figure 4 gives a pictorial view of the cumulative development of the aggregate regional CAI over the regional GDP.

[Figure 4]

These are deemed important for mainly three reasons: 1) they signal divergent real and nominal growth paths, 2) they signal divergent competitiveness (mainly in terms relative unit labour costs), 3) they imply large cross-border borrowing that may give rise to sudden balance-of-payments crises. This signalling capacity attributed to CAI is quite controversial (Acocella 2016), which is not surprising since the question "Does the current account matter?" (Obstfeld 2012) is still under discussion among international scholars, and the analogy between EZ member countries and stand-alone open economies is questionable (Pisani-Ferry and Merler 2012, Collignon 2014).

To begin with, there are two main approaches to CAI analysis, one that may dubbed "real" (focusing on trade flows based on some notion of "competitiveness"), and one "financial" (focusing on sources and effects of capital movements). The two approaches often appear as alternative, though they may well be complementary. Anyway, they are linked in the national accounts by this well-known identity chain:

Current account = Trade balance + Net foreign incomes =
National disposable income – Domestic absorption =
Private saving + Public saving – Total investment = Net foreign lending

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

Real approach

The role of competitiveness as the driver of CAI is very popular and finds a place in several reconstructions of the EZ crisis (e.g. Sinn (ed.) 2012, CEPR 2015). However, it has been subject to criticisms and qualifications.

To begin with, the CA is the algebraic result of the net trade balance and net foreign incomes. Competitiveness factors plausibly impinge on the former component whereas the latter is largely governed by other factors, such as the stocks of foreign assets and liabilities and the relevant (possibly different) rates of interest (see also below).[3]

More to the point, the competitiveness argument is generally based on aggregate indicators such as real effective exchange rates or real unit labour costs. With reference to the same surplus and deficit groups in Figure 4, Figure 5 shows the path of the respective real unit labour costs (RULC) since 1999 = 100. As a matter of fact, the widening of CAI after 2005 coincided with a growing gap between deficit and surplus countries' RULC. It can also be seen that this gap was due to the sharp fall of the surplus countries' RULC (mostly driven by Germany) rather than by a rise in the deficit countries.

However, as pointed out by Krugman many years ago (1996), it may not be necessarily true that the excess absorption relative to domestic resources mirrored in a CA deficit also entails a competitiveness deficit – whatever it means. The classic case in point is, once again, the United States, which has been running CA deficits since 1983 while showing all the characteristics of a globally efficient and "competitive" economy as testified by its top ranking (3rd in the 2017 Global Competitiveness Index of the World Economic Forum). By contrast, China has been running a giant CA surplus for years, but it would hardly qualify as a more competitive economy than the US (15th in the WEF ranking).

Competitiveness is a microeconomic notion that concerns firms' ability to contend market shares; its extension to countries is a semantic degeneration quite harmful to clean economic reasoning (Krugman 1996). To make a simple example, if BMW sells less cars in France and more in Germany, this

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[3] For instance, Ireland, which is one of the major hosts of foreign direct investments in the EU, shows a historical pattern of positive trade balances around 15% of GDP (more than) offset by net payments of foreign incomes. Italy and Spain, in the phase of the EZ CAI, had their trade deficits systematically smaller than their CA deficits by about 1.5% of GDP.

does not mean that BMW is less competitive – let alone Germany − for the simple reason that BMW competitors are basically the same all over Europe (all over the world, actually). As we know after Adam Smith, the key to the wealth of *nations* is the productivity of their labour force, which has a major determinant in the dimension of outlet markets.[4] Thus foreign trade is vital for productivity of small nations, but less so for large nations with vast domestic markets. This was in fact the fundamental reason that led to the creation of the European Single Market, a free market continental area comparable to the US. It is therefore puzzling the persistent concern that EZ institutions and policymakers still attach to intra-EZ net trade figures, which now have little substantial connection with the prosperity of the single nations and of the Union as a whole.[5]

On a similar line, Wyplosz (2013) disagrees with the causal chain competitiveness loss → CAI → debt crisis because "simultaneity does not imply causality" (p. 2). Wyplosz rather draws attention to unsustainable financing of domestic absorption in deficit countries (see below). If real effective appreciations of deficit countries rates played any role, this is more on the *extra*-EZ front, than on the internal front, owing to the appreciation of the euro.

In 2000 intra-EZ exports amounted to 2.2 times extra-EZ ones, in 2015 1.6 times. Figure 6 shows the intra and extra-EZ trade balances of surplus and deficit countries as per cent of GDP from 2000 to 2015. The 2000-08 development of trade imbalances of member countries were quite symmetric within the EZ, but only partially driven by intra-EZ factors. Around 2004, extra-EZ trade of deficit countries contracted, whereas that of surplus countries expanded "in particular *vis-à-vis* China, Central and Eastern

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[4] "We define competitiveness as the set of institutions, policies, and factors that determine the level of productivity of an economy, which in turn sets the level of prosperity that the country can achieve" (World Economic Forum 2017, p. 4). So why not to call it productivity, or efficiency, index?

[5] The increasing irrelevance of conventional trade accounting is testified by the new literature on so-called "global value chains" (e.g. Timmer et al. 2013, Alfaro et al. 2015, di Mauro et al. 2016). Gross trade flows, which are more important than net ones, are increasingly the result of cross-border dis/integration of production processes. "Because of the emergence of global value chains, trade imbalances within the Eurozone are to a large extent an endogenous result of the international organisation of production at the firm level. It is therefore better to disregard intra-EZ imbalances and focus on the total" (di Mauro et al. 2016, p. 1).

Europe and oil exporters" (Chen et al. 2013). The adjustment of deficit countries after the crisis was accomplished mostly outside the EZ, also because the generalised export-oriented policies reduced the size of the "domestic" EZ market. Yet overall Table 2 shows that since 2000 almost all major EZ countries have recorded a greater year average growth rate of total exports than GDP. Since 2015 all EZ countries except France have achieved a total trade surplus; now the EZ as a whole has a CA surplus with the rest of world around 5% of GDP, and the intra-EZ CAI problem seems vanished. Much ado about nothing? As a matter of fact, there is no clear pattern between GDP and export growth (the correlation coefficient has been negative (−0.3) and statistically scarcely significant (R^2 =0.09), and as seen above, all domestic indicators of convergence are worse now than in the years of the alleged CAI problem.

Financial approach

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 (CEPR 2015, p.1).

In the early years of the EZ, 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[6]. 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.

Looking at capital movements, Sinn (2014) used 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. Yet this is nonsense. First because in an integrated system capitals freely flow where investors

[6] 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.

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 EZ case have been documented and investigated by a vast literature (e.g. ECB 2011, Chen et al. 2013, Lane 2013, Borio and Disyatat 2015). As an exemplification, Figure 7 shows the change in the saving-investment balance reflected in the CA as percent of GDP from 1999 to 2007 in the major deficit countries *vis-à-vis* Germany. Investment is split between "housing" (constructions + dwellings) and "other" (non-residential constructions + machinery and equipment).[7]

Country patterns differ markedly. Germany stands out as a country where not only national saving increased (5.9 points of GDP), but total investment, was reduced (–2.2) thus adding to, instead of absorbing, excess national resources. However, reduction was mostly in the housing sector whereas other investments rose moderately. In deficit countries, we observe a mirror image: a *fall* in private saving and a *rise* in total investment mostly driven by the housing sector at the expense of other investments. Contrary to widespread beliefs, the public sector played a negligible role (if not a positive one as in Spain and Ireland).

Understanding *how* these forces shape the macroeconomic processes in the way we observe *ex post* is not easy and remains controversial. Today financial capitals move far more massively and quickly than other factors and goods, the hypothesis that capital movements cause CAI, rather than the other way round, has become more likely.[8] As Borio and Dysiatat (2015) conclude their study,

> Large current account imbalances are useful indicators that can signal elevated macroeconomic risks, but they must be complemented by examination of gross flows and gross positions to fully assess financial stability risks. That said, we go further and argue that inferring the scale and directional flows of capital and financing from current account positions, as typical interpretations of open macro models assert and as has become popular in the policy debates, is misleading. Net

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[7] Eurostat definitions

[8] 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), and the evidence presented by Hobza and Zeugner (2014).

resource flows and financing flows are distinct concepts. This is mirrored in the divergence between gross and net capital flows. The patterns of cross-border capital flows that finance real activity cannot be inferred from current accounts, which simply reflect the expenditure outcomes of such financing (p. 29)

3. Macroeconomic imbalances and the crisis

In the previous section we examined a number of weaknesses that have been pointed out in the conception of the MI problem in the EZ. Accordingly, also different explanations of their relationship with the crisis have been put forward. Here I provide a brief account of them.

3.1. Was the EZ crisis a crisis of balances of payments?

A critical dimension attributed to CAI in the international economics literature is their connection with sudden balance-of-payments crises. A country with a large and persistent CA deficit also needs net external borrowing which may come to a "sudden stop" in anticipation of the country's inability to serve foreign debt (Calvo 1998), as observed in various balance-of-payments crises in emerging economies, and as it apparently happened in some EZ deficit countries (Gros 2013, Sinn 2012). In fact, there is evidence of large cross-border disinvestments and "re-nationalisation of capitals" (Pisani-Ferry and Merler 2012, Lane 2013, Ehrmann and Fratzscher 2015, Croci Angelini et al. 2016). Yet this view has been discussed under various aspects.

One point is that the "sudden stop" analogy mechanically applies to the EZ countries the basic principles of open economy macroeconomics as if the EZ were a system of fixed exchange rates where each country's reserve of foreign currencies is binding. This analogy falls short of a convincing and complete explanation (Pisani-Ferry and Merler 2012, Wyplosz 2013, Collignon 2014). Recall that a balance-of-payments crisis is the inability of a country to pay claims in *foreign currency* to another country. 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.

To be very sketchy on this point[9], 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 balance-of-payments 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. 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

The normal mechanism is the first one, which in a well-functioning monetary union works smoothly most of the time. If this mechanism stops working, one should first explain why. At first sight, the well-known issue of liquidity shortage *vs*. counterparty insolvency is relevant, and the freezing of the EZ inter-bank market after the Lehman shock played a key role in the Europeanization of the US financial meltdown (Abbassi et al. 2014). Once this happens, it is general duty of the union's central bank to step in as lender of last resort, so that somehow additional euro balances are constantly re-injected into the deficit country.[10] Likewise, the deficit country may record increasing liabilities in the clearing accounts *vis-à-vis* the surplus country –the infamous Target 2 system. Thus, it is argued, one

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[9] A detailed treatment is provided by Goodhart (1989); see also Tamborini (2001).

[10] 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. Greece loses euros towards Germany, say because the Greek banks are unable to recover euro reserves from the German banks, to the extent that the ECB refrains from increasing the total money supply, that is, it does not lend specifically to the Greek banks.

cannot complain against these operations and at the same time maintain that deficit countries face balance-of-payments crises. These operations may present negative side effects (e.g. a constant growth of money supply and excess inflation at the union's level), but they certainly grant the ability of claimants in the surplus country to receive their payments in euros from their counterparties in the deficit country.[11]

In the absence of recycling, or alternative money market operations, the second adjustment mechanism 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 unrecycled transfer of money from Greece to Germany is accompanied by a reduction of expenditure and possibly wages and prices 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.

An important friction here may be wage-price rigidity, which may translate itself into a contraction of economic activity and employment in the deficit country. Its extent also depends on the symmetric adjustment in the surplus country. This prospect may worsen the expected return to investments in the deficit country, and boost the capital reversal. Hence, all in all, the rationale for the sudden-stop problem in a monetary union cannot be the non-fact that the deficit country as a whole might run out of euros, *but only the riskiness of investments as in any other financial relationship*.

From this point of view, three are the possibly relevant factors that will be discussed below: a) non-perfoming loans to non-performing countries, b) global risk, c) redenomination risk (euro-exit) (Lane 2013).

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11 "The scale of current account adjustment would surely have been larger in the absence of cross-border ESCB liquidity flows (as reflected in Target 2 balances) and official EU/IMF funding to Greece, Ireland and Portugal […] Large official gross flows also allowed private-sector foreign investors in creditor countries to exit from positions in the high-deficit countries by declining to rollover expiring claims. In the absence of large-scale official flows, foreign investors would plausibly have incurred larger valuation losses through sharper declines in asset values and more extensive debt writedowns" (Lane, 2013, pp. 21-22).

3.2. Capital misallocation and other risks

Factor a) mentioned above (non-perfoming loans to non-performing countries) is key to the financial approach to the EZ crisis. In fact, a possible link between the financial and the real side of the CAI may be provided by way of the allocation of capitals. The different patterns of housing and other investments in Germany and deficit countries seen in Figure 7, epitomises the argument that, contrary to the earlier Blanchard-Giavazzi analysis, external borrowing was misallocated to consumption or non-preforming sectors (Giavazzi and Spaventa 2011, Lane 2013, CEPR 2015). At some point it seemed, or financial markets believed, that previous investments were no longer sustainable. The sudden stop of capital inflows into deficit countries precipitated the painful macroeconomic adjustment in those countries. If the "capital misallocation" view makes a point, then the bug in the Blanchard-Giavazzi prediction was the efficient capital markets hypothesis. More to the point, therefore, is an analysis of the cross-border debt sustainability, which should be more careful, and disaggregate, than it is usually done.

As scholars in international finance teach, net figures may be highly misleading (Obstfeld 2012, Hobza and Zeugner 2014, Borio and Disyatat 2015, Chen et al. 2013, Lane 2013).

The stock of net foreign debt D_t of a country is the result of its gross foreign assets A_t and liabilities L_t,

(1) $D_t = L_t - A_t$

that can also be written

(2) $D_t = (L_{t-1} - A_{t-1}) + (\Delta L_t - \Delta A_t)$

Likewise, the gross financial flows *vis-à-vis* the CA are

(3) $CA_t = \Delta A_t - \Delta L_t$

so that we can consistently write $D_t = (L_{t-1} - A_{t-1}) - CA_t$.

Moreover, the net foreign capital incomes that enter the CA are the difference between interests received on assets and interests paid on liabilities, i.e.

(4) $CA_t = X_t + (i_{At}A_{t-1} - i_{Lt}L_{t-1})$

where X_t is the trade balance. Therefore, we can finally write

(5) $L_t - A_t = (1 + i_{Lt})L_{t-1} - (1 + i_{At})A_{t-1} - X_t$

In the first place, generally, the two relevant interest rates are not equal, and may change differently. For a net debtor country *vis-à-vis* a net creditor, $i_{Lt} > i_{At}$ may be the typical pattern, with net interest payments. However,

assets may also be held with larger debtors that pay higher interest rates, so that foreign interest revenues may occur.[12]

Secondly, any CA imbalance can be matched by any combination of changes in assets and liabilities with the same net sign. In the standard net accounting this information is completely lost. For instance, the same net debt increase in t may be matched by selling assets as well as by issuing new liabilities. The two cases have different repercussions on the future evolution of the non-trade CA. On the other hand, net debt may remain constant while assets and liabilities grow at the same pace. Along this financial balanced growth path, the trade balance may be whatever is consistent with the sum of these two other components of the CA.

We can also reformulate expression (5) in terms of GDP ratios, which we denote with small-case letters. Dividing all terms by the current GDP Y_t, and denoting the nominal growth rate of GDP as $Y_t = (1+n_t)Y_{t-1}$, we obtain

$$d_t \equiv l_t - a_t = \frac{1+i_{Lt}}{1+n_t} l_{t-1} - \frac{1+i_{At}}{1+n_t} a_{t-1} - x_t$$

For n sufficiently smaller than 1, this can be approximated by the following expression

$$\begin{aligned} (6) \qquad \Delta d_t \equiv \Delta l_t - \Delta a_t &= (i_{Lt} - n_t) l_{t-1} - (i_{At} - n_t) a_{t-1} - x_t \\ &= (i_{Lt} l_{t-1} - i_{At} a_{t-1}) - n_t (l_{t-1} - a_{t-1}) - x_t \end{aligned}$$

Therefore, the key drivers of the foreign debt/GDP ratio are

- the composition of assets and liabilities
- interest rates on outstanding assets and liabilities
- the nominal growth rate of GDP
- the trade balance/GDP ratio.

Various scenarios are possible.

A sustainable debt/GDP ratio (e.g. $\Delta d_t \leq 0$) may be the result of the combination of sufficiently high growth relative to net interest payments, *for a given assets and liabilities composition*, and for a given trade imbalance. This formulation provides a link with the "capital misallocation" view, with a caveat. Sustainability requires that previous capital inflows (embedded into l_{t-1}) have been employed to sustain growth (higher n_t) *and/or* competitive exporting sectors (larger x_t), *though not necessarily both*. As said

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[12] This has been the case for foreign holders of the Greek sovereign debt after the initial hair cut.

above, there is no necessary connection between domestic efficiency and net exporting capacity. Hence, the sheer fact that foreign capitals flow into domestic and "non-tradable" sectors, or in any case that there is no boost to *net* exports (e.g. because imports grow faster than exports), does not necessarily imply that foreign debt becomes unsustainable. Think of the US external imbalance "*conundrum*" in these terms: if the economy remains on a sufficiently (domestic driven) high growth path, this may compensate a persistent trade imbalance in such a way that foreign investors satisfy themselves with a low interest rate even in the face of a (moderately) growing foreign debt. This was by and large the situation of the early EZ "tigers" (Ireland, Spain, Portugal, even Greece) which until the crisis were on a praised sustained growth path relative to low interest rates. Hence, the allegation that the pre-crisis capital flows/CAI pattern was misguided and bound to fail ought to be investigated more carefully on the basis of disaggregate data like those in expression (6) (see below).

By contrast, unsustainability of foreign debt is very likely the product of a combination of low growth *and/or* large trade deficit, in the face of which foreign investors call for higher interest rate in a vicious circle. It may be argued that the crisis did depress growth, and *prospective* growth, to such an extent that these countries were shifted by foreign investors from the sustainable to the unsustainable scenario. This also triggered the rise of risk premia, in a typical self-fulfilling doom loop (Della Posta 2017). However, if this is the case, the role of previous CAI cannot be assessed separately from the recession shock and its subsequent management.

More importantly, the interest rate on assets, and to some extent the interest rate on liabilities, too, are affected by factors that are not under full control of the domestic agents. The factors b) (global risk) and c) (redenomination risk) driving capital movements are relevant here.

Empirical researches have found that b) and c) played a prominent role in the EZ sudden-stop episodes, thus limiting the argument that the sudden stop was triggered by the specific problems of borrowing countries.

Reminding that "the euro area was in the vanguard of the financial globalisation boom, with the elimination of intra-area currency risk additionally stimulating international financial integration, over and above the global factors that were at work across the set of advanced economies" (Lane 2013, p. 1), it should be no surprise that capital flows managed by global players display significant common drivers. Among these, aggregate

risk indicators, such as the VIX index measuring the implied volatility of S&P 500 index options, figure prominently (Caceres et al. 2010, Forbes and Warnock 2012, Favero and Missale 2012). Figure 8, reproduced from Lane (2013), shows that the post-Lehman contraction of cross-border assets of EZ banks was common across all world locations.

Finally, there is still one way in which the germs of a true balance-of-payments crisis can be inoculated in the minds of 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 EZ. 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 cross-country balances of payments.

4. Policy implications

In consideration of the previous critical points, some deficiencies are pointed out in the official policy recommendations concerning both the long-run goal of real convergence, and the short-run adjustment of CAI.

4.1. Long-run convergence

Section 2.1 has discussed issues concerning MI in domestic dimensions, and we have seen that the degree of convergence/divergence in the EZ, as well as the convergence/divergence on *what* dimensions, remain controversial. Now we shall consider the normative side of the argument.

Convergence to uniform economic structures, and eventually growth rates and percapita incomes, as a basis for a sound monetary union is a rather peculiar requirement. On the one hand, this might be regarded as an extension of the earlier Optimum Currency Area (OCA) principles which were confined to the capacity of shock absorption in a (Keynesian) short-run perspective. On the other hand, none of the available explanations of growth attaches particular importance or a normative role to uniform growth rates across different countries or regions. The conventional wisdom among growth scholars holds that convergence, if it occurs, is a slow process even among regions in one national economy, and much slower than implied by theoretical models where mobility of labour, capital and technical knowledge

should lead low-income regions to "catch up" with high-income ones (see e.g. Barro and Sala-i-Martin 1991, Sala-i-Martin 1996, Romer 1994).

Traditional growth theory predicts that countries with similar technology and preferences will tend towards uniform *per capita* GDP *levels*, which imply uniform GDP growth rates only if population growth, too, is equal across countries. Implied by this long-run tendency (the so-called "σ-convergence") is the so-called "β-convergence": the fact that, starting with unequal per-capita income distribution across countries, low-income countries grow faster - net of population - than high-income ones (Sala-i-Martin 1996).

The so-called New Growth Theories have shown that if we abandon the assumption that the technical coefficient in the production function is constant, or that its changes are exogenous, and if we try to explain growth as an endogenous process (e.g. as a function of human capital accumulation), we may obtain divergence of per-capita income levels over time (σ-divergence), which entails that rich countries may grow faster than poor ones (β-divergence). Moreover, endogenous growth may differ across countries for reasons other than human capital accumulation, such as different adoption rates of innovations or different R&D investments, and as a consequence countries may differ not only in their growth paths but also in their steady state values (see Bernard and Jones 1996).

In summary, unequal GDP growth rates may well be associated with (i) rich countries identical in all respects other than population growth, or (ii) poorer countries "catching up" with richer ones, or (iii) rich countries getting richer, or (iv) different paths of technical progress. The uniform growth presumption, or prescription, seems tailored to the scenario (i). Since population growth is conditioned by percapita income levels, a small club of almost equally rich countries very similar in human and physical capital endowment and accumulation is more likely to display uniform GDP growth rates. As said above, this feature may be added to those that qualify an OCA, and its absence boils down to the original objection that the EZ in its current extension is bound to fail because it is not an OCA. However, this conclusion is at variance with the historical evidence that the OCA requirements are seldom met in practice, while it is of little help in the search for the right institutional design of the EZ.

How far should convergence go in order to have a viable monetary union? And to what extent can it be accomplished? These questions remain largely

unanswered. From this point of view, the EZ appears particularly ill suited to withstand internal disparities.

The EZ institutions and most policy advisors place great emphasis on convergence through structural reforms – whatever they mean – in order to both improve welfare in each member country and prevent cohesion tensions. This recommendation is notoriously controversial, to say the least. One controversy is about what kind of structural reforms. If on the one hand it ought to be obvious that each country should find its own way to enhance efficiency and welfare, "structural reforms" *par excellence* are those in the neo-liberal package a.k.a. Washington Consensus or, in Europe, Brussels-Frankfurt-Berlin Consensus. Further controversies concern to what extent *these* reforms have been implemented by EZ countries (more or less they have, especially by countries under adjustment programmes: e.g. EU Commission 2014), and with what effects (nuanced: e.g. EU Commission 2014, IMF 2012, 2015). Leaving these open debates aside, other, less common, issues are to be considered.

The first concerns the right government level for structural reforms (e.g. Asatryan et al. 2018). Again, comparison with existing federal systems is instructive. There, institutions are designed in view both of *reduction* and *co-existence* of disparities. Local governments are not directly held responsible for, and in fact have few instruments to correct, their MI. Structural convergence policies are typical duty of central governments, with perhaps local corrections in terms of tax or incentive policies. These policies are often combined with equalisation mechanisms of fiscal transfers. The reason for centralisation are the classic ones (Oates 1977). Structural policies, like all policies among highly integrated economies, create reciprocal externalities; moreover convergence presents some characteristics of a public good[13]. Decentralised policymaking would lead to suboptimal non-cooperative solutions (Andreozzi and Tamborini 2017).

Alas, a multi-level division of competences is not possible in the EZ, where each government is fully sovereign and responsible for its own policies, and fiscal transfers are banned (Cœuré 2017). The picture is

[13] No local government has an incentive to pursue convergence with/from the others (its own welfare-improving policies may increase rather than reduce convergence, and once convergence is achieved, no one will have a competitive advantage anymore), though everyone may be better off with less divergence.

further complicated by the fact, mentioned above, that the geography of disparities does not respect national borders. Hence, the oversimplistic policy message is that each national government should take care of its own laggards.

This state of affairs cannot be changed in the foreseeable future for a number of reasons, one of which is a kind of "catch 22": so long as structural reforms are not accomplished, no supranational fiscal institutions can be created in the fear of moral hazard and fiscal transfers. Yet a country-by-country approach to structural reforms is plagued with the obstacles mentioned above, while the supranational institutions we have in the EZ have neither competences nor legitimacy to go beyond recommendations and moral suasion. Indeed, it would be a violation of fundamental principles that a sovereign government is forced by external agencies, or even by other peers, to follow a specific policy strategy drawn from a particular view of the economy and society instead of another. This is not the kind of sovereignty devolution that can legitimately be asked to, and obtained by, any democratic government for the progress of Europe (Junker 2015).

Eventually, the predominant view is that the normative benchmark for the EZ is tendentially zero disparities; consequently, reform proposals of the institutional design are tilted towards the reduction of disparities with little or no room for the balancing aim of also governing their co-existence. However, this alleged constraint on the set of institutional options, is in itself a source of tensions that disparities create in the EZ.

4.2. Rebalancing imbalances

Admitting that large and persistent CAI in a monetary union may signal problems that call for correction, what are the right indications?

The MIP implicit goal is that all EZ members aim at a zero CA, *and they should actively correct imbalances*. This prescription sounds reasonable as long-run benchmark, but, as pointed out above, it begs two key preliminary issues. First, what are the market forces behind the unwinding and rewinding of CAI. Second, the accurate analysis of whether CAI are sustainable or not in the context of a monetary union. The large MIP scoreboard seeks to capture these underlying factors, but, as the literature discussed in section 3 testifies, they interact in complex, country-specific and time-varying ways that can hardly be encapsulated in once-and-for-all algorithms.

As to the first issue, according to the critical arguments reviewed above, the shift in the approach to the EZ crisis from a systemic capital market failure to a problem of national balance-of-payment crises has proved to be harmful. Remaining within the latter approach, other critical aspects have been pointed out. It was recalled above in section 2.2 that, in the absence of recycling operations, the adjustment of payment imbalances in a monetary union may mimic the classical "price-specie flow" mechanism. The flow of money balances from the deficit to the surplus country, say triggered by the sudden withdrawal of capitals, generates the required *symmetric* adjustment in general cost-price levels. The deficit country deflates while the surplus country reflates. The general principle still holds in the case that some "frictions" also produce real effects on output and employment. Hence two problems emerge.

First, as is well known from the history of fixed exchange-rate systems, *symmetry* of adjustment has always been critical, undermining their long-run stability (Eichengreen 1992, O'Rourke and Taylor 2013). The bulk of the burden of adjustment has typically fallen on deficit countries. Yet, 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 the rest of the world is created. This fallacy of composition is even writ large in the MIP regulations in that the limit to CA surplus (6% of GDP) is higher than the limit to CA deficit (4% of GDP). A number of studies testify that the asymmetric adjustment mechanism with real effects has been the outcome of the EZ crisis management (e.g. Croci Angelini and Farina 2012, Storm and Naastepad 2015, Esposito and Messori 2017).

As can be seen in Figure 4, until 2011 the CAI are largely symmetric. The adjustment of the deficit countries started in 2012 and is still in progress. Their cumulated CA/GDP adjustment from 2012 to 2015 reached 5.3 p.p. The adjustment took place in parallel with internal deflation and real depreciation *vis-à-vis* the surplus countries. A simple indicator is provided by their nominal GDP relative to the one of the surplus countries presented in Figure 9. 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 data in Figure 4 show the large asymmetry of the adjustment, which fell onto the deficit countries almost entirely with no sign of correction of the other side – as a matter of fact the surplus countries after 2011 went on cumulating positive CA reaching 14.3 p.p. of GDP 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 EZ12 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.

The second problem concerns the role of fiscal policy in the process. One prescription of fiscal consolidation in the deficit countries, consistent with the CAI approach, is that it was *necessary* in order to enforce the *inevitable* classical adjustment mechanism of the balance of payments recalled above.[14] However, fiscal consolidation can be thought of as *one* instrument, which should therefore be targeted to *one* objective. As a matter of fact, fiscal consolidation has been invoked both for regaining control on public debt and for fostering the adjustment of CAI. Yet these two objectives are different in nature. The former relates to *future* sustainability of public debt, the latter to the reduction of *current* domestic absorption. Moreover, if the sudden-stop view of the crisis is correct, then policymakers should have anticipated that the capital reversal out of deficit countries would have generated (at least in part) the required adjustment by itself with no need of further fiscal doses. Indeed, during a financial cycle downturn, fiscal policy should move *counter*-cyclically

> Turning to fiscal policy, a macro-prudential framework entails a "leaning against the wind" strategy in relation to the financial cycle as well as the output cycle. That is, during periods in which private-sector financial balances are deteriorating, the government should adopt a countervailing approach by running larger financial surpluses. In this way, the volatility of aggregate financial balances and the risks of financial instability can be reduced. (Lane 2013, p. 33).

The combined effect of asymmetric adjustment, fallacy of composition and fiscal consolidation has probably magnified the adjustment fatigue. In a 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).

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

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[14] "To come out of the crisis, the [deficit countries] now need to depreciate in real terms, i.e. reduce wages and prices relative to their trading partners, a painful process that *requires harsh austerity programs*" (Sinn 2011, my italics)

astonishing regression to the previous misconceptions. 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).

If the origin of the EZ crisis is traced back to where it came from, namely the Europeanization of the global financial meltdown, then the implications are two: 1) tracking CAI *per se* is misleading, whereas we should monitor the underlying financial relationships, the working of financial markets, and the resulting degree of weakness or reliance of the system, 2) in parallel, the assessment should be extended to the institutional environment and the crisis management tools that are available.

If cross-border 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 should be upgraded to the federal level.

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 we 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? Probably, the recommendations addressed to the EZ 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 EZ national governments have such entitlements and instruments in the future?

At the end of the day, what made the 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 one of the State of New York. Unfortunately, the national responsibility straightjacket 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).

5. Conclusions

The focus on intra-EZ MI emerged from the post-crisis consensus view has raised various critical and alternative views. In this paper, the MI have been distinguished between their "domestic" and "external" dimension, and the controversial issues have been identified with reference to the MI relevance, their causes and connections with the crisis, and their policy implications.

The domestic dimension of MI concerns divergences in key economic indicators (growth, percapita income, employment, etc.) and it is motivated by the long-run tensions that they may create across the EZ. However, the degree of convergence/divergence in the EZ, as well as the convergence/divergence on *what* indicators, remain controversial. That convergence along these dimensions should be a policy aim in itself has also been questioned. First, because a normative benchmark in order to assess how large and dangerous MI are, and how small we want them to be, is missing. Second, because, of course, good federal governments do care about growth, income or employment divergences across the federation motivated

by cohesion and welfare of their citizens-electors. But convergence structural policies are typically their own duty rather than being delegated to local governments. This classic division of competences is not possible in the EZ because we do not have (want) supranational fiscal institutions with direct democratic legitimacy. As a consequence, convergence structural policies delegated to members' governments is an oddity with little chance of success, while their execution enforced by technocratic agencies is not a sustainable option in a liberal Europe.

On the external front, high concern with CAI is another controversial issue that overwhelms the governance of the EZ and its members. Again, reference to federations suggests that nobody thinks of a federation as a collection of independent open economies tied in a fixed exchange rate regime, because in a full-fledged federation financial integration is complete and safeguarded by *federal institutions*. CAI mirror capital flows from lending to borrowing territories, 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. The most relevant information conveyed by the CA for a stand-alone country (in a fixed exchange rate regime), i.e. its ability to pay foreign claims in foreign currency, is irrelevant in a well functioning monetary union. As explained above, in general there is no clear and univocal relationship between a country's CA and the underlying pattern of growth, convergence/divergence with other countries, general efficiency of the economy, sustainability of foreign debt, exposure to sudden stops of foreign investment. Each of these factors may be important in itself, but reference to CAI as a catch-all indicator may lead to seriously misplaced policies – as it happened. A common thread across alternative views is that 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.

Overall, a possible common conclusion of the alternative views is that the MIP, together with other EZ regulations, is conceived as a substitute for a (good) federal government that we do not have (want). The EZ is caught in a maze of peculiar regulations not because it fails as an OCA, 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.

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Table 1. Growth statistics. US states and EZ12 member countries, 1990-2008

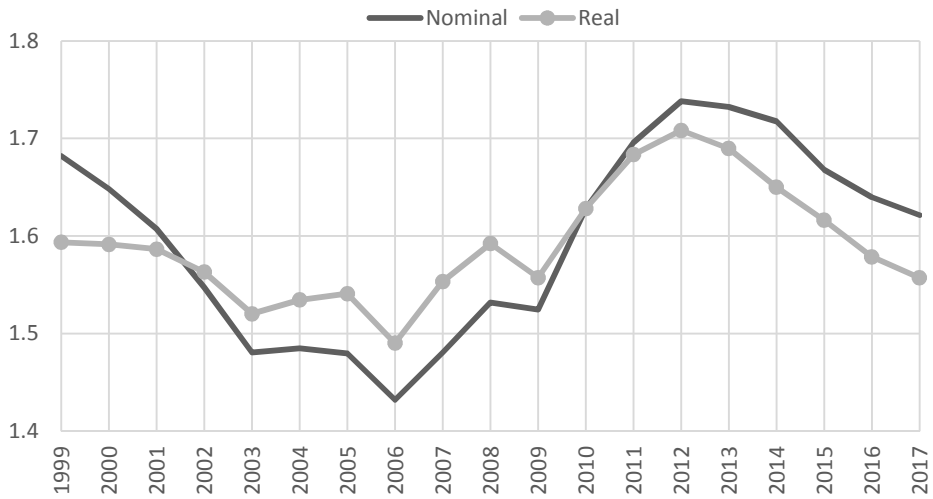
	US states	EMU12 members
1990-2000		
Min-Max	-1.4-6.9	1.6-7.1
Average	3.5	3.0
Standard dev.	1.6	1.6
2000-2008		
Min-Max	-0.4-4.1	1.3-5.0
Average	2.1	2.5
Standard dev.	0.9	1.2

Source: Statistical Abstract of the United States, and AMECO database

Table 2. Average year rate of growth of total exports and GDP at constant 2010 prices of EZ12 countries, 2000-15

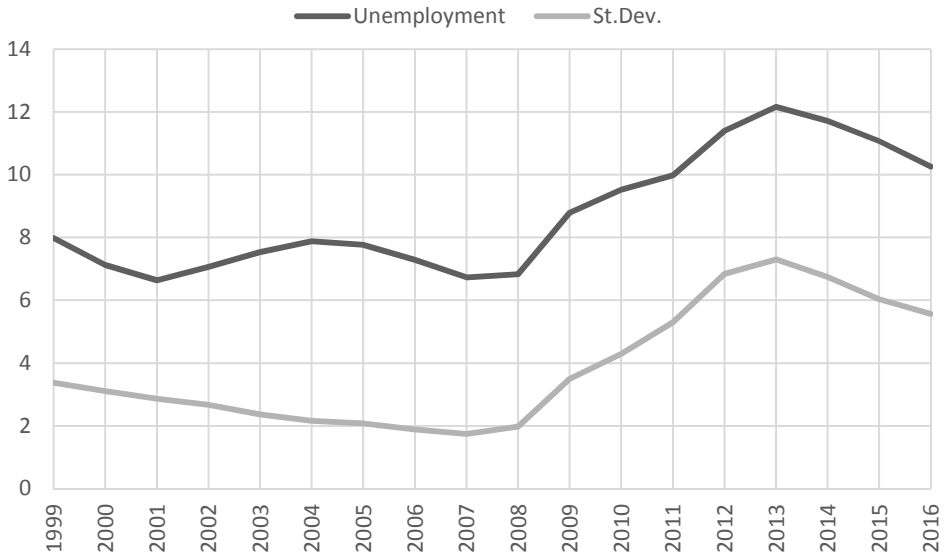
	GDP	Exports
Austria	1.4	3.9
Belgium	1.3	3.3
Finland	1.2	1.6
France	1.1	2.3
Germany	1.1	5.6
Greece	0.0	3.7
Ireland	2.8	2.3
Italy	0.5	2.2
Luxembourg	2.8	2.4
Netherlands	1.1	4.3
Portugal	0.2	4.0
Spain	1.4	4.4

Figure 1. Convergence index of percapita incomes at current and constant prices (2010) in the EZ12 countries 1999-2017



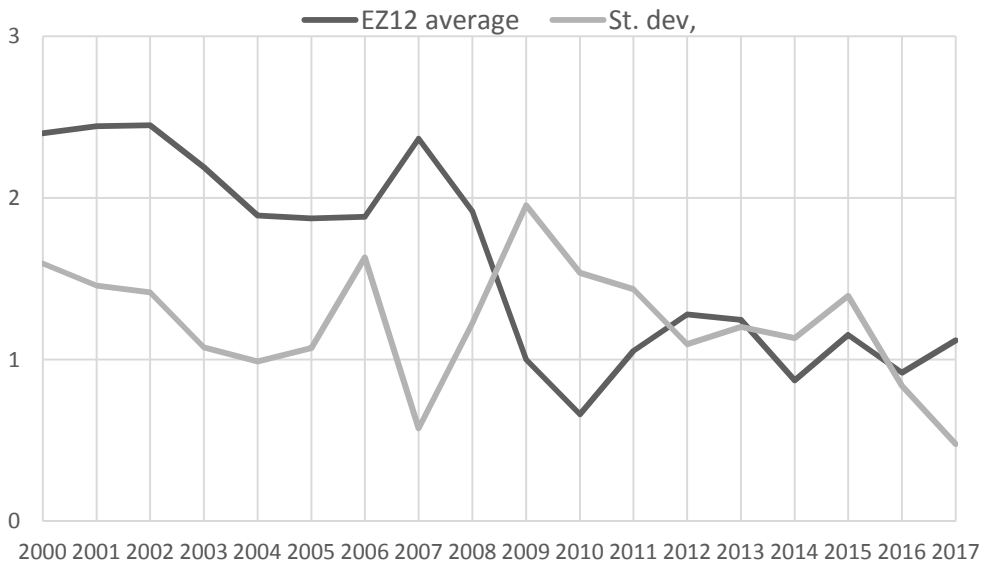
Ratio between the average percapita income of the countries above and below the EZ12 average in 1999. Above: Austria, Belgium, Finland, France, Germany, Luxembourg, Netherlands. Below: Greece, Ireland, Italy, Spain, Portugal.
Source: elaborations on Eurostat database AMECO

Figure 2. Year unemployment rate and standard deviation of the EZ12, 1999-2016



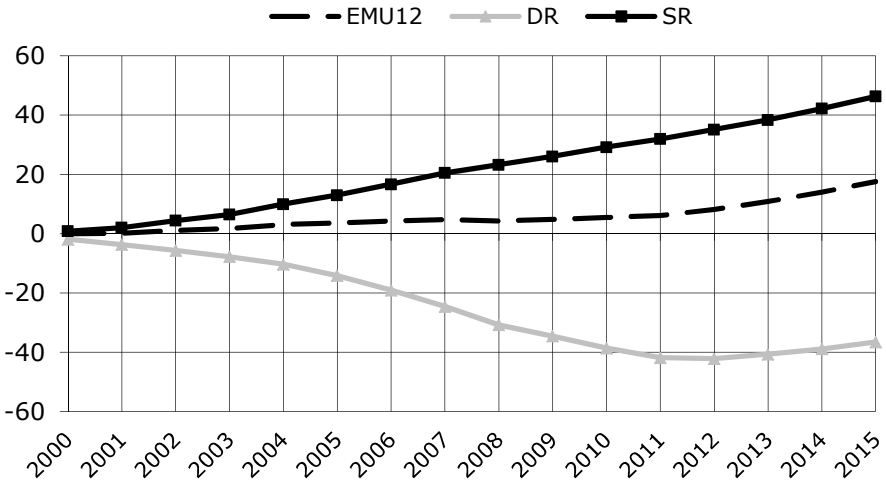
Source: elaborations on Eurostat database AMECO

Figure 3. Year percent change of the EZ12 average GDP deflator and its cross-country standard deviation 2000-17



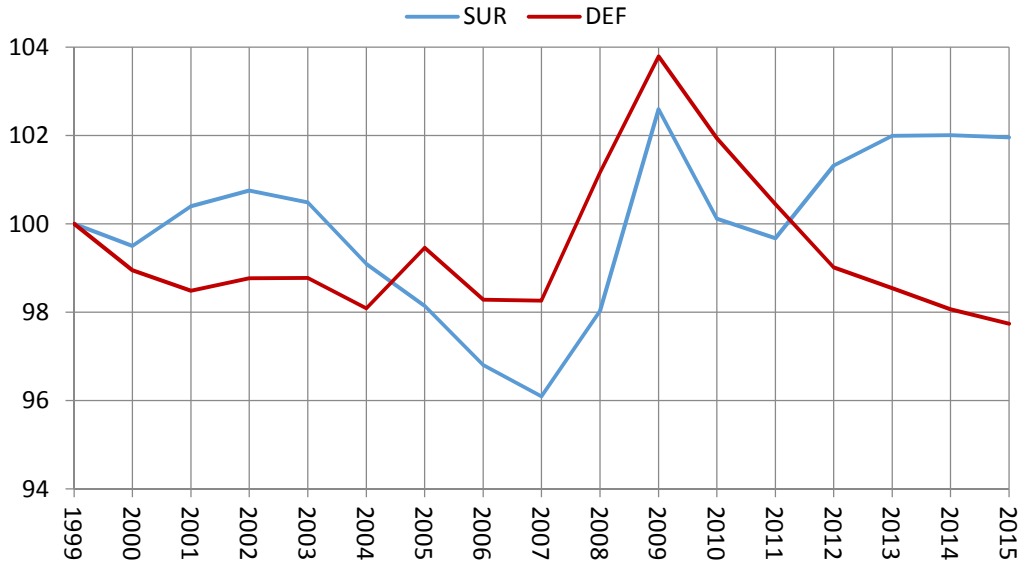
Source: elaborations on Eurostat database AMECO

Figure 4. Cumulated CA/GDP ratios in the DR, SR and EMU12, 2000-2015



Source: elaborations on Eurostat, AMECO database.

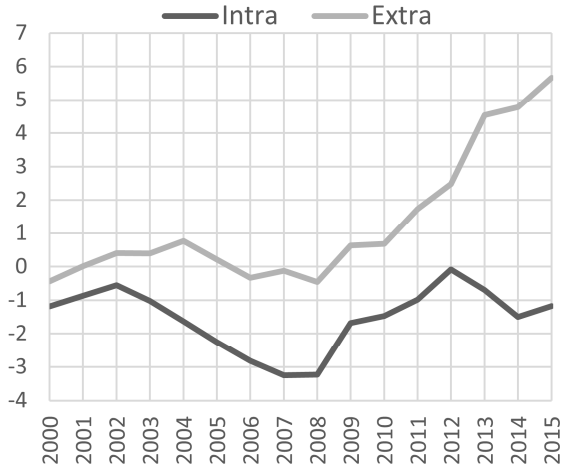
Figure 5. Real unit labour cost (1999=100)



Source: elaborations on Eurostat, AMECO database.

Figure 6. Intra-EZ and extra–EZ trade balance (% of GDP), 2000-15

Deficit countries



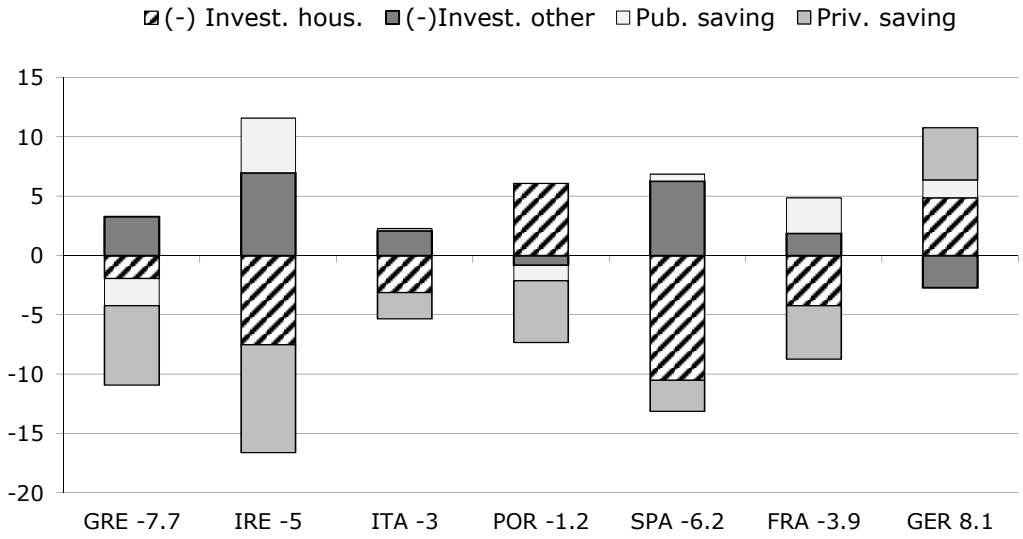
France, Portugal, Italy, Ireland, Greece, Spain

Surplus countries

Austria, Belgium, Finland, Germany, Luxem., Netherlands

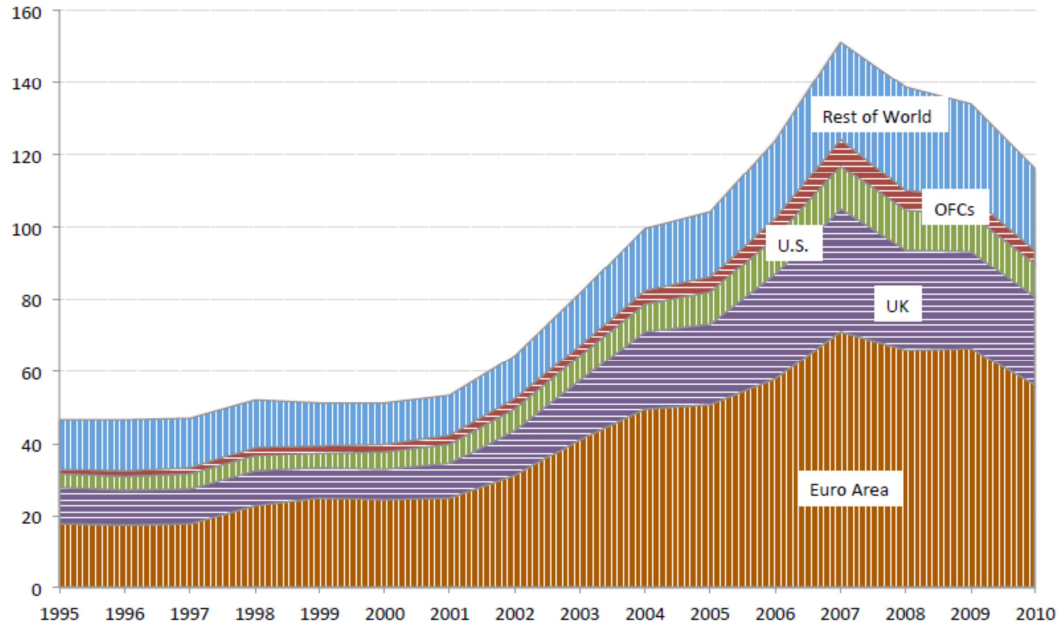
Source: elaborations on Eurostata database AMEC0

Figure 7. Change in the saving-investment balance and in the CA (% GDP) from 1999 to 2007, selected EZ countries



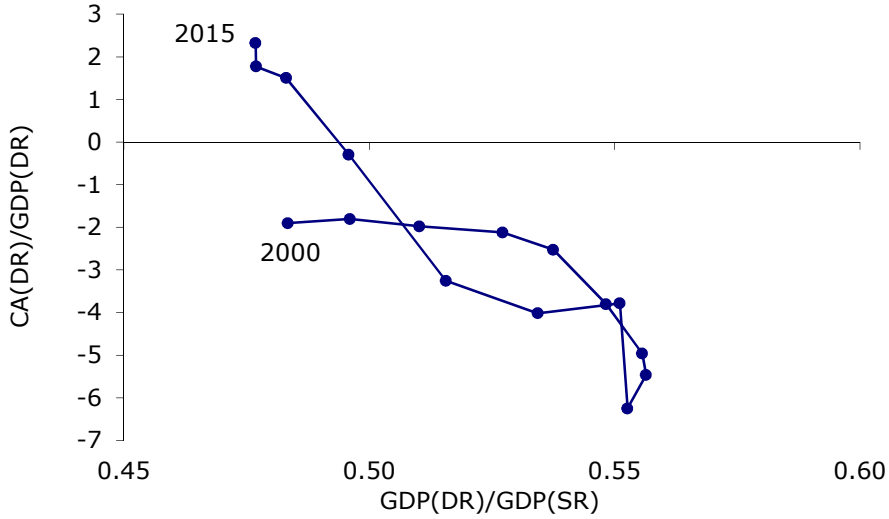
Source: elaboration on Chen et al. (2013), Table 1.

Figure 8. Euro Zone cross-border bank assets (% of GDP)



Source: Lane (2013), p. 52.

Figure 9. The adjustment path of the DR's CAI and relative GDP, 2000-15



Source: elaborations on Eurostat, AMECO database.

EconPol Europe

EconPol Europe - The European Network for Economic and Fiscal Policy Research is a unique collaboration of policy-oriented university and non-university research institutes that will contribute their scientific expertise to the discussion of the future design of the European Union. In spring 2017, the network was founded by the ifo Institute together with eight other renowned European research institutes as a new voice for research in Europe.

The mission of EconPol Europe is to contribute its research findings to help solve the pressing economic and fiscal policy issues facing the European Union, and thus to anchor more deeply the European idea in the member states. Its tasks consist of joint interdisciplinary research in the following areas

1) sustainable growth and 'best practice',

2) reform of EU policies and the EU budget,

3) capital markets and the regulation of the financial sector and

4) governance and macroeconomic policy in the European Monetary Union.

Its task is also to transfer its research results to the relevant target groups in government, business and research as well as to the general public.