1. Introduction

This paper will answer the following research question: to what extent do the recent institutional changes to the Eurozone meet the fiscal federalism criteria of OCA theory? In other words, to what extent do the institutional changes in the Eurozone enhance its long-run sustainability of the Eurozone? The paper will, firstly, critically investigate the evolution of OCA theory and will provide a comprehensive review of the OCA literature – it will attempt to develop a ‘unified’ OCA theory that takes its fiscal federalism criteria into full account. And secondly, it critically evaluates if the current changes in the EMU’s institutional framework and policy-making are bringing the Eurozone closer to the fiscal federalism criteria of OCA theory.

The need to construct a unified OCA theory first comes about from the fact that the current literature explaining OCA criteria does not take OCA’s institutional elements into full account. And when it does, the justifications are given in a divided OCA perspective. For instance, Snaith (2013: 14) points out that ‘ex-post OCA theory has [...] prescriptions for governance’ such as fiscal transfers. However, this prescription is given not by a unified OCA theory, but by a specific branch, ‘ex-post OCA theory’ (which only came about in the early 1990s). Consequently, the division of OCA theory between two camps is clear: As Snaith (2013: 1) concludes, OCA theory should not be seen as a ‘singular approach’. Likewise, Schelkle (2013: 40) argues that OCA theory is divided and even claims that in ‘whatever form’ OCA theory is ‘useless’. However, Schelkle claims that Mundell is a ‘mainstream Keynesian economist’ (Schelkle 2013: 39, 43-4) and recognizes that the OCA theory criterion of fiscal capacity and central taxation (‘Kenen criterion’) can be traced back to the 1960s. The paradox is that from Schelkle’s work one may conclude that OCA theory is, at least in its traditional form, a theory based on Keynesian assumptions, whereas from Snaith’s work one may conclude that demand-side stabilization mechanisms (such as fiscal transfers) only take place in the ex-post OCA tradition. Still, other scholarly work which claims to go beyond OCA theory, such as Jones and Underhill (2014), Schelkle (2015) and McNamara (2015), engage with the demand-side and institutional criteria of OCA theory (Mundell 1961, 1973; Kenen 1969).
As such, the fiscal federalism criteria of OCA theory have been neglected. From this it follows that the current literature exploring the interaction between OCA theory and the Eurozone crisis, such as Mckinsky (2012) and De Grauwe (2013a), do not assess empirically whether the institutional changes occurring in the governance of the Eurozone converge with the (fiscal federalism) criteria of OCA of OCA theory. Contrary to Jones and Underhill (2014) and to Schelkle (2015) and McNamara (2015), Paul De Grauwe (2013b: viii) highlights that ‘the theory of optimal currency areas remains the essential framework to understand the design failures of the Eurozone’. Thus, De Grauwe recommends a lender of last resort role to the European Central Bank and the deepening of fiscal and political integration in the Eurozone. Similarly, Mckinsky (2012) suggests the implementation of insurance-based mechanisms in the EMU to culminate in a full fiscal and political union and stresses that ‘these options are highlighted in Optimum Currency Area theory’ (Mckinsky 2012: 5). However, neither De Grauwe nor McKinsky assess the extent in which the institutional changes in EMU governance converge with the institutional criteria of OCA criteria theory. This paper aims to fill in this gap in the literature. The paper is structured as follows……. The next section highlights the synergies between OCA theory and the Eurozone. Section 3 discusses the literature on OCA theory and section 4 the institutional changes in the Eurozone. The last section concludes and points out further research.

2. OCA theory and Eurozone

The Eurozone crisis has triggered wide debate amongst scholars and diagnosing its origins as well as pointing out solutions to it is a divisive issue not only in academia but also in the arena of political debate. Whereas some take the crisis to be originated in peripheral (southern) European profligacy due to the low interest rates that resulted from joining the Euro (Sinn 2014a), others invoke that if profligacy is the correct diagnosis this should also be extended to the core (northern) European countries (Grauwe 2013). Another major debate is between those who claim that at the origins of the crisis lie current account imbalances between the periphery and the countries in the core. Here the argument is that peripheral states are characterized for systematically developing trade deficits, whereas the countries in the core for constantly running trade surpluses (Whelan 2013). Yet another debate is between those who state that the crisis had its origins in the United States’ sub-prime crisis and that therefore the origins of the Eurozone crisis are to be found in the contagious from the US banking system to the European financial sector, and those who argue that the Eurozone crisis is independent of what happened in the United States and that its origins can be traced back to the fact that the Eurozone was built without a full fiscal union, it was deprived of a lender of last resort and it was also lacking the structure to activate an anti-crisis mechanism. This resulted in systemic banking stress, intense market pressure and the rise of government bond yields to unsustainable levels in the peripheral Eurozone member states forcing governments to seek international financial assistance (Sergio 2013).
As a theory that analyzes the costs and benefits of monetary integration - by providing the criteria necessary to stabilize a currency union - it is expected that the theory of Optimum Currency Areas (OCA) answers the question of ‘how to organize a monetary union’ (De Grauwe 2013a: 5) which the Eurozone is searching for. OCA theory aims to analyze the costs and benefits of monetary integration. On the one hand, OCA theory points out to the potential benefits associated with the monetary union: the removal of the uncertainties in a floating exchange rates system, the reduction in transaction costs and consequently the increase in trade integration also as a result of the free movement of labour, capital, goods, and services. On the other hand, OCA theory recognizes the fact that the loss of national monetary policy independence implies not only the loss to setup interest rates, but also the surrender of a powerful instrument of economic policy: external devaluations and revaluations are no longer possible and as a result by entering monetary union countries lose the power to determine the quantity of money in circulation in the economy what directly affect their ability to finance their economy and consequently their capacity to mitigate economic shocks. In other words, the starting point of OCA theory is that although it points out to the benefits of monetary integration, it also recognizes that there are costs and risks involved with the loss of monetary independence (Dyson 2000: 162; De Grauwe 2012: 7). As a result, OCA theory also aims to inform about what instruments may be needed in order to mitigate the impact that the loss of monetary independence might have when asymmetric shocks occur in a currency union. Put differently, OCA theory studies the criteria required to ‘sustain’ (De Grauwe 1993: 654; Dyson 2000: 162) monetary unions in the long-run.

However, as it will be discussed below, scholars (as well as policy-makers within the Eurozone) have clearly neglected some criteria of OCA theory. These criteria can be classified as economic and institutional criteria. These economic and institutional criteria can also take supply and demand-side elements or a combination of both. While supply-side criteria aims to attain the sustainability of monetary unions in a non-bailout institutional setting that favors internal devaluation and fiscal discipline (such as the criteria agreed at Maastricht), the aim of the demand-side criteria is to sustain monetary unions by creating an institutional structure with fiscal transfers, a lender of last resort, and a political union with central fiscal capacity. While the set-up of the Eurozone agreed at Maastricht takes into account most of the economic supply-side OCA criteria (thus neglecting the demand-side ones), taking into consideration the monetary (ECB interventions), institutional (such as the Fiscal Compact and European Stability Mechanism), and economic (southern adjustment) changes in EMU governance post-2010, the question of whether the Eurozone is becoming an Optimum Currency Area, that is, whether the Eurozone is becoming sustainable in the long-run, arises. More fundamentally, these changes indicate that supply-side OCA criteria are being implemented in the Eurozone alongside the institutional and demand-side OCA criteria.
Although there is considerable academic literature regarding the Eurozone crisis and OCA theory, there is a clear research gap when it comes to analyzing the functional relationship between the two. This functional relationship between OCA theory and the Eurozone captures the gap in the scholarly literature in researching “the main influences of the OCA theory on the debate on [the European economic and monetary] integration process and how the fortune of the European experiment has helped the OCA theory evolve’ (Masini 2012: 2). In other words, the functional relationship between the two grasps the idea that the criteria of OCA theory influences the debate on how to complete the European Economic and Monetary Union Eurozone and in turn the developments in the Eurozone also provides the opportunity to refine OCA theory as a unified theoretical framework. Indeed, the complexities of the Eurozone crisis demonstrate that one cannot get a comprehensive understanding of the root causes of the crisis and how sustainable the Eurozone is unless all factors affecting it are taking to account, and not just by examining specific criteria of OCA theory.

This synergy between the Eurozone and OCA theory had two prior phases. The first phase was during the 1960s when the theory was formulated by Robert Mundell in 1961 and further developed by other authors in the same decade. When the European Commission presented its first report for a single currency in 1970 (Werner Report 1970) it did so after asking Robert Mundell to elaborate a plan for how to achieve this. Mundell’s (1969) “A Plan for a European Currency” is the theoretical framework behind the Werner Report of 1970. This first phases grasps the influence of OCA theory in the Eurozone and can also be seen in other reports of the European Commission on EMU such as the Magnifico Report (1973) the Marjolin Report (1975) the Optica Report (1976) and the MacDougall Report (1977). However, impasses on European integration during the 1970s made it impossible for EMU to be materialized. Nonetheless, this demonstrates the impact OCA theory has had in the initial developments of the Eurozone.

The second phase of the synergy between the Eurozone and OCA theory only came about with the resurgence of European integration in the 1980s. The signing of the Maastricht Treaty and the decision to establish EMU brought about also a resurgence of OCA theory both at the European Commission level but also in the academic circles. The Delors Report of 1989 contains many of the insights from OCA theory. But the Maastricht convergence criteria did not. As only specific OCA criteria were taken into consideration it led many academics working on OCA theory to conclude that ‘the Euro can’t happen, it’s a bad Idea, it won’t last’ (COM 2009; Jonung and Drea 2010). Although the Maastricht convergence criteria only took into account some (supply-side) OCA theory criteria the Euro was launched in 1999, the same year that (symbolically) Robert Mundell was awarded the Nobel prize in economics ‘for his analysis of monetary and fiscal policy under different exchange rate regimes and his analysis of optimum currency areas’ (Nobel Prize 1989). This second phase is also marked by the seminal papers of Frankel and Rose (1996, 1997) which claim OCA theory to be endogenous. That is,
a currency union may become an optimum currency area ex post even though it was not ex ante. The timing of Frankel and Rose’s paper are important – the Eurozone was about to be established and there were doubts whether all member states of the European Union at the time would meet the Maastricht criteria and be allowed to join the Euro. Therefore, the observation that the Eurozone could become an optimum currency area in the medium-term eased tensions over whether it was really necessary to meet the Maastricht criteria ex ante. But above all this demonstrates that developments in the Eurozone also lead to developments in the literature on OCA theory.

The third phase of this synergy is the current one – the Eurozone crisis. As noted already, the Maastricht criteria only applied specific criteria of OCA theory. But the crisis has led to the rediscovery of the demand-side component of the economic criteria and above all the institutional criteria of OCA theory. As it has happened in Maastricht, there has been a resurgence in the literature on OCA theory both in academic circles (Snaith 2013) and European Policy makers (European Parliament 2017). This current phase highlights the functional relationship between OCA theory and the Eurozone in a new way: OCA theory now is used to indicate ways for redesigning EMU (De Grauwe 2013; 2016) ex post rather than ex ante. In other words, whereas the debate during the 1990s at Maastricht was about meeting the criteria of OCA theory before (ex ante) the introduction of the Euro, now the debate is how the criteria of OCA theory can be used to fix the Eurozone crisis, almost twenty years after (ex post) the creation of the Euro. As it will be demonstrated below, the endogeneity (ex post) of the OCA theory can in fact be traced back to the earlier literature on OCA theory in the 1960s, but the fact that the Eurozone was not yet established during the debates of the 1990s meant that Endogenous OCA theory had no practical applicability. But the creation of the Eurozone in 1999 and in particular the beginning of the European sovereign debt crisis in 2010 provides the opportunity to apply the criteria of OCA theory to the Eurozone. But above all, the complexities of the Eurozone crisis also reinforces the need to think about all the criteria of OCA theory, rather than focusing only on some (as most academics and EU policy-makers have done) of its criteria.

3. OCA Theory
The Theory of Optimum Currency Areas emerged in 1961 by a classical paper written by Robert Mundell in 1961 as a result of the fixed versus flexible exchange rates debates in a world economy underpinned by the Bretton Woods System and the Gold Standard. On the one hand, the advocates of flexible exchanges argued that as countries differ so greatly from each other, be it in size, production, or trade, a flexible exchange rate was the most appropriate tool to correct asymmetric shocks arising from external factors as it could adjust prices and thus protect unemployment and inflation (Horvath and Komarek 2002: 7; Ishiyama 1975: 345). On the other hand, the advocates of the Gold Standard and fixed exchange rates argued that because under this system countries fixed their currencies to the dollar,
which in turn could be converted into gold, this system offered a better way to stabilize their economies. The originality of Mundell’s paper was that it challenged both the Gold Standard and a system of flexible exchange rates. He challenged the Gold Standard because as he put it, ‘the optimum currency area is not the world’ (Mundell 1961: 659). He challenged the flexible exchange rates because he argued that under this monetary system internal and external imbalance is only corrected temporarily (Cesarano 2011: 986; Liu 2012: 21). Instead, as Mundell noted, ‘the problem can be posed in a general and more revealing way by defining a currency area as a domain within which exchange rates are fixed and asking: What is the appropriate domain of a currency area?’ (Mundell 1961: 657). Factor mobility (both labour and capital) was to be the key to answer his question, for they form part of the criteria in analyzing the costs and benefits for joining the currency union.

Despite being one of the most frequently mentioned theories when debating the European economic and monetary integration, there is a considerable research gap in OCA theory. It is accepted that OCA is flawed (Glavan 2004) and incomplete (COM 1990; Mongelli 2005; Tavlas 2009: 548; Chey 2009: 1689); that it does not have predictive or explanatory power because it does not incorporate the politics of monetary union (Cohen 1993; Goodhart 1998; Dornbusch 2000; Pomfret 2005 Cesarano 2014; Otero-Iglesias 2015); or even that it is ‘useless for understanding the big issues facing EMU’ (Schelkle 2013: 40). The main explanation for these criticisms is that the academic literature tends to be selective in its interpretation of OCA theory, by describing it as a purely supply-side theory advocating structural reforms (Jones and Underhill 2014; McNamara 2015, Schelkle 2015) This is the case because factor (both labour and capital) mobility (Mundell 1961), economic size and openness (Mckinnon (1963: 725), product specialization (Kenen 1969) and economies of scale (Grubel 1981) are the criteria associated with traditional OCA criteria that are commonly highlighted as being relevant to assess the costs and benefits for regions or countries to adhere to monetary integration.

In addition, with the developments in modern macroeconomic theories, the traditional OCA supply-side elements were incorporated and formed the basis of what has been termed, in the early 1990s, as the “new” theory of Optimum Currency Areas’ (Tavlas 1993: 1). The fundamental difference between traditional OCA theory and this new approach (also described as endogenous or ex post OCA theory) is that the new theory argues that a currency union can become an OCA even though the criteria for its creation were not fully met ex ante (Frankel and Rose 1996; 1997). As a result, the observation that OCA theory is fragmented into more than one branch (Mongelli 2005, 2008; Glavan 2004; Schelkle 2013; Snaith 2013) is a strong one. This is the case for two reasons. Firstly, because endogenous OCA theorists such as Baldwin and Wyplosz (2006) and Wyplosz (2006) claim that they have identified ‘additional OCA criteria [such as] fiscal transfers to deal with asymmetric shocks’ (Wyplosz 2006: 215). To be sure, fiscal transfers and other demand-side stabilization mechanisms can be traced back to the founding fathers of OCA theory (Krugman 2012; De Grauwe 2006). And secondly, influential
authors such as McNamara (2015), Jones and Underhill (2014) and Schelkle (2015) claim to go beyond OCA theory. However, this is the case because of the aforementioned problem of incorporating selective OCA criteria, as opposed to a unified OCA theory. As such, although McNamara’s ‘Embedded Currency Area (ECA)’, Jones and Underhill’s ‘Theory of Optimum Financial Areas (OFA)’, and Schelkle’s ‘The Insurance Potential of a Non-Optimal Currency Area’ represent strong, persuasive and valuable arguments of the causes of the Eurozone crisis, as well as on the mechanisms that the Eurozone needs to secure its sustainability in the long-run, they are, nonetheless, built upon simplistic accounts of OCA theory. To put it bluntly, rather than going beyond OCA theory, these authors have instead contributed to the refinement of OCA theory as a single theoretical framework.

The traditional OCA theorists mentioned above who indicate supply-side elements also point out to the importance of demand-side stabilization mechanisms: McKinnon (1963: 724) added that OCA should also have ‘a device for maintaining full employment and external balance in the absence of factor mobility’; Kenen (1969) argued that for monetary integration to be sustainable in the long-run, it should also include central taxation and a mechanism that involves fiscal transfers in its institutional design. In Kenen’s own words, ‘[t]here should be a treasury, empowered to tax and spend’ (Kenen 1969: 45-46). Along the same lines, Grubel (1970: 318; 2002) indicates the need for a more centralized institutional arrangement and points out the importance of maintaining welfare in a currency union, noting that ultimately an OCA can only be assessed if it ‘improves the welfare of the population resident within these territories above the level enjoyed when each was a separate currency area’.

Furthermore, back in 1970 at the Madrid Conference on Optimum Currency Areas, Robert Mundell outlined his ‘Insurance Principle’ based on ‘policy-coordination’ and ‘joint-management’ of a ‘reserve pool’ in order to create a ‘risk-sharing’ mechanism where countries from a single currency area could ‘cushion the impact of [asymmetric shocks], drawing on the resources of the other country until the cost of adjustment has been efficiently spread over the future’ (Mundell 1973: 115). Yet, Schelkle’s (2015) ‘insurance potential’ does not engage with Mundell’s ‘Insurance Principe’. Neither does McNamara’s (2015: 29) ‘fiscal redistribution’ and ‘sovereign debt pooling’ criteria of her ‘Embedded Currency Area’ theory. Jones and Underhill’s (2014: 15) ‘common risk free asset that serves counterparties as collateral for liquidity access and clearing and as a safe haven in times of distress’, and ‘a central system for sovereign debt management’ criteria of their ‘Optimum Financial Area’ theory do not engage either engage with Mundell’s ‘portfolio insurance’ (Masini 2014: 1023) – Mundell’s ‘new OCA property’ (Geerom and Karbownik 2014: 13)

Indeed, despite advocating demand-side criteria, McKinnon, Kenen, Grubel, and Mundell are often defined as OCA supply-side theorists. In other words, the demand-side OCA criteria of these authors have been neglected. Moreover, underlining Kenen’s central authority capacity and full fiscal union is
the assumption that political union is a possibility (Kenen 1969), or as Mundell (1961: 661) put it, “[t]he concept of an optimum currency area, therefore, has direct practical applicability only in areas where political organization is in a state of flux.” Indeed, since its inception, there has always been a political element attached to OCA theory. Mintz (1970: 33) even argued that ‘the major, and perhaps only, real condition for the institution [of currency union] is the political will to integrate on the part of the prospective members’.

**Hypothesis on OCA theory**

The apparent division in OCA theory has three central and conflicting claims and this leads to the three hypotheses described below. When these three hypotheses are put together, a fourth one emerges – the Unified OCA theory hypothesis.

**EX ante vs Ex post**

As argued, some scholars argue OCA theory is more relevant ex-ante than ex-post. That is, OCA theory loses its appeal as a theoretical framework once a monetary union is established as its criteria are only relevant to determine which countries should and should not join a single currency zone before it’s established. At the same time, other scholars argue OCA theory is much more relevant ex-post than ex-ante. That is, the criteria of OCA theory is in fact much more relevant after the monetary union is established because countries can converge towards an optimum currency area once currency union is established. What is hypothesized here is that this is a false dichotomy because ex ante and ex post criteria are part of OCA theory since its inception. In other words, Traditional OCA theory has wrongly been defined as establishing only ex ante criteria. On the contrary, since its inception, OCA theory has always been about identifying ex ante criteria as it was about ensuring ex post convergence.

*Hypothesis 1: The division between ex post (Endogenous) criteria and ex ante (Traditional) criteria has never existed. The endogeneity of OCA theory can be traced back to Traditional OCA theory.*

**Demand vs supply-side criteria**

The literature on OCA theory is also divided between those who claim its criteria to be supply-side only and those who claim there are also demand-side side criteria. OCA theory supply-side criteria favors internal devaluation, (neoliberal) structural reform and member states’ fiscal discipline in a no-bailout institutional setting. As for the demand-side criteria, it favors a (Keynesian) structure with fiscal transfers, a lender of last resort, and a political union with central fiscal capacity. But another division arises among scholars who recognize demand-side criteria – those who argue demand-side has only been part of ex post (Endogenous) OCA theory and those who argue that demand-side criteria are also part of ex ante (Traditional) OCA theory.
**Hypothesis 2:** The criteria of OCA theory encompasses both supply and demand-side criteria. Demand-side is part of OCA theory since its inception.

**Economic criteria vs Institutional criteria**

Every so often the scholarly literature on OCA theory only highlights what can be termed as the economic criteria of OCA theory. They do not acknowledge or make reference to the importance of having the political (institutional) criteria of OCA theory implemented right from the beginning (ex ante) or even in the near feature (ex post). This is important because what can be termed as the institutional criteria of OCA theory points out the type of policy mechanisms and institutions a currency union must have in order to deal with asymmetric shocks, which is so central in OCA theory. Economic and institutional criteria are therefore indivisible as both are needed to secure the long-term sustainability of the currency union.

**Hypothesis 3:** There are a set of economic and institutional criteria in OCA theory (each composed of supply and demand-side element) which are indivisible in OCA theory. Both sets of criteria are part of OCA theory since its inception.

**The Unified OCA theory**

The central objective of the Unified OCA theory, therefore, is to bring together the ex ante and ex post criteria, the supply, and demand-side criteria, and what can be termed as the economic criteria and the institutional criteria, into one single (unified) OCA theory. The Unified OCA theory hypothesis that the Economic criteria and Institutional criteria are formed of supply and demand-side elements and that they are relevant both ex ante and ex post. The economic criteria are relevant Ex post because countries can converge (or diverge) from the OCA line after the single currency union was established. And its relevant ex ante because economic structure similarity eases the process of adjustment. The Institutional criteria are relevant Ex ante because the necessary stabilization mechanism would be ready to be activated when the asymmetric shock occurs rather than having to go through institutional re-designing, or potential break-up, ex post. (This is of particular relevance for countries deciding to join a currency union since it indicates whether that currency union will have the adequate institutional setting to deal with asymmetric shocks when they occur). But because asymmetric shocks will only occur once the currency union is established, the Institutional criteria has only practical applicability ex post.

**Hypothesis 4:** As since its inception OCA theory has dealt with ex ante and ex post criteria (H1), with supply and demand-side criteria (H2), and with economic and institutional criteria (H3), a single (unified) version of OCA theory can be constructed.
In sum, in addition to its economic criteria, OCA theory also embodies institutional criteria, some of can also be termed as OCA’s Fiscal Federalism criteria. These criteria are described in Table 1.

Table 1: The Fiscal Federalism Criteria of OCA theory

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<thead>
<tr>
<th>FISCAL FEDERALISM CRITERIA OF OCA THEORY</th>
<th>OCA Criteria</th>
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<td><strong>lender of last resort</strong> (Snider 1967; Corden 1972; Kenen 1969, 2002; Mundell 1973)</td>
<td>When asymmetric shocks put into question the sustainability of the currency union as a whole, Optimum Currency Area theory suggests that there should a lender of last resort (LOLR). LOLR can be of two types. One is by the formation of a joint reserve fund akin to a treasury by all members of the currency union. The other is by allowing the supranational central bank to increase the supply of money and/or lend directly to its member states.</td>
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<td><strong>risk-sharing mechanisms (Mundel’s Insurance principle)</strong> (Mundell 1973; Kenen 1969)</td>
<td>An appropriate tool to deal with asymmetric shocks is to have joint risk-sharing mechanisms. Optimum Currency Area theory suggests two types: private and public risk-sharing. The role allocated to financial markets in setting the interest rates on government bonds is a private risk-sharing mechanism (thus, this is defined as a supply-side criterion). A common fund with resources from all member states is a public risk-sharing mechanism (thus, this is defined as a demand-side criterion). Optimum Currency Area theory also suggests a joint system of bond purchases (Eurobonds). This is both a private risk-sharing mechanism (because it’s provided by the financial markets) and a public risk-sharing mechanism (because it’s a shared liability between all members states).</td>
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<td><strong>policy coordination</strong> (Swoboda 1973; Mundell 1973)</td>
<td>In a currency union, supranational institutions should have powers of oversight and enforcement of rules as well as to prevent and act on correcting economic imbalances. As the policy coordination needed to correct economic imbalances can take the side of the deficit and surplus country, this criterion can be classified as both supply and demand-side</td>
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<td><strong>fiscal union</strong> (Kenen 1969, Mintz 1970; Mundell 1961, 1973; Willett 1976)</td>
<td>A full fiscal union has two pillars. One prevents fiscal profligacy and assures debt sustainability via the oversight and enforcement of clear deficit and debt benchmarks (supply-side component). The second deals with fiscal transfers. As Kenen put it, “there should be a Treasury, empowered to tax and spend”. When a member of a currency union is experiencing an economic shock, fiscal transfers towards the affected member state will ease the cost of adjustment. Fiscal transfers can be used simultaneously to protect welfare system and to reduce unemployment (demand-side component). Fiscal transfers can be of two types. Directly from other members of the currency union or by the Treasury (with central fiscal capacity) of the supranational institution.</td>
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<td><strong>political union</strong> (Mundell 1961, 1973 Kenen 1969, Mintz 1970; Snider 1967;)</td>
<td>As Mundell put it “the concept of an optimum currency area, therefore, has direct practical applicability only in areas where the political organization is in a state of flux”. Optimum Currency Area theory acknowledges that political integration is needed to secure the sustainability of the currency union in the long-run.</td>
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4. **Institutional changes as a result of the Eurozone crisis**

Although the criteria of OCA theory have been ‘at the forefront of the integration debate’ (Horvath 2003: 7) ‘and have been fundamental in the design of Europe’s EMU’ (Horvath 2006: 26), the functional relationship between the creation of EMU and OCA theory is underexplored (Masini 2014). On the one hand, the Commission’s (1990: 31, 45, 46) One Market one Money report recognizes that the theory does contain useful (supply-side) insights of how to proceed with monetary union, but on the other, the report also points out that OCA provides a ‘too narrow and somewhat outdated framework’ (COM 1990: 45). However, the recommendations made in the background studies of the report in order to overcome the impact of asymmetric shocks are in tune with OCA theory, in particular with Kenen’s treasury and fiscal transfers. Yet, neither Kenen’s criterion nor OCA theory is credited as the theoretical framework underpinning the report: the paper in the background studies written by Van Rompuy et al calls for ‘Interregional redistribution’ to be implemented in the EMU, however, it does so in a fiscal federalism theory framework (COM 1991: 131). Similarly, Wyplosz recommends an ‘insurance mechanism’ to be constructed in order to mitigate the costs of asymmetric shocks in the union (COM 1991: 180). This insurance mechanism ‘implies a pooling of resources at the union level and a clear redistribution scheme’. Yet, like Van Rompuy et al., Wyplosz does not make reference to Kenen’s criterion or indeed to OCA theory.

There is however one important exception: The paper written by Van de Ploeg in the Commission’s Background Studies not only states that the benefits of OCA are known because of the work of traditional OCA theorists (COM 1991: 158), but also that the stabilization mechanisms to be implemented in order to mitigate asymmetric shocks are in line with the work of Sala-i-Martin and Sachs that concluded that ‘a lesson to be learnt by the proponents of a unified European currency [is that] the creation of a unified currency without a federal insurance scheme, could very well lead the project to an eventual failure’ (COM 1991: 20). In addition, it’s worth noting that unlike Van Rompuy and Wyplosz, Sala-i-Martin and Sachs (1991: 34) recognize Kenen’s criterion and link the theory of fiscal federalism to the theory of Optimum Currency Areas. Thus in line with Sala-i-Martin and Sachs (and with Kenen’s criterion), Van de Ploeg argues that ‘the establishment of EMU must go hand in hand with the establishment of a European Federal Transfer Scheme’ (COM 1991: 144).

However, as Dyson and Featherstone (1999: 796) pointed out, fiscal relations in Europe are a contentious issue, for they involve ‘people being asked to make sacrifices for others with whom there was a weak sense of identity’. Despite empirical evidence from the IMF (2013: 26) has showed that had that mechanism been put in place, ‘all [Eurozone] countries would have benefited from transfers’ more
than once since the inception of the Euro, the Eurozone was built without the necessary instruments to neutralize asymmetric shocks in times of crisis.

Since 2010 the Eurozone has seen deep changes in institutional design. The main changes are as follows: (1) the establishment of the European Financial Stability Facility and its successor the European Stability Mechanism, (2) the Outright Monetary Transactions, (3) the Macroeconomic Imbalances Procedure, and (4) the Treaty on Stability, Coordination, and Governance. After analyzing them in detail, the section will also discuss the ongoing debate on the propositions to establish a debt redemption fund, Eurobonds, and Eurobills.

**European Stability Mechanism**

The European Financial Stability Facility (now European Stability Mechanism) was created in 2010 and was one of the first actions taken to confront the Eurozone crisis at a moment where pressure increased on the sovereign bonds of the peripheral countries of EMU. Importantly, the EFSF was also created in order ‘to address contagion’ (EFSF 2011a: 6) As such, the EFSF had become the first bold measure taken by the Euro Area leaders to tackle the crisis. Its aim was to curb the imminent collapse of the Eurozone by establishing, an anti-crisis mechanism with the necessary funds to help the countries that were facing difficulties in financing themselves in the sovereign bonds market (Kunstein and Wessels 2013: 5). The EFSF has two main functions. The first is to directly intervene in the purchase of sovereign debt bonds in both the primary and secondary markets. The second is to provide financial recapitalization of a member state by mechanisms such as precautionary programs or loans (EFSF 2011a). Importantly, the creation of the EFSF was to have the participation of the International Monetary Fund in the designing of the terms of the bailout programs. The significance of the EFSF was twofold: firstly, with its creation Greece, Ireland, and Portugal were able to use these funds and therefore preventing them from defaulting on their debts, and secondly, although the EFSF was created as an emergency and with a temporary character, in fact, it led to the creation of the European Stability Mechanism (ESM) which based on all the principles of the EFSF was constructed to be a permanent anti-crisis mechanism and which have a capacity to allocate EUR 500 000 million (ESM 2012: 5).

**Outright Monetary Transactions**

The Outright Monetary Transactions are closely linked with Mario Draghi’s announcement in July 2012 that he would do ‘whatever it takes’ to stabilize the Euro Area. In September 2012 the OMT program was announced. Its main aim is to commit the European Central Bank to buy unlimited sovereign debt bonds in the secondary markets in times of crisis (Draghi 2013; Coeure 2013). There are, however, conditionalities attached to the activation of the OMT program. Firstly, in order to apply for OMT, the country in question needs to have applied to the European Stability Mechanism (ESM) first, (Draghi
In other words, the country would have to undergo an intense adjustment program and fulfill the conditionalities attached to it. Secondly, the ECB will only purchase sovereign debt bonds with maturities up to three years. That is, the program excludes the purchase of long-term bonds. This important because credit rating agencies take into consideration the five and ten years bond when they classify the creditworthiness of a country (Moody’s 2013).

The OMT program is seen as the commitment of the ECB to be a de facto lender of last resort (Belke 2013: 237). But it also has a downside: OMT program has the potential in creating moral hazard, as debtor countries will rely on this mechanism and further delay structural reforms (Siekmann and Wieland 2013). A last argument against the OMT is that it puts into question the ECB’s mandate to ensure price stability. However, as Benoit Coeure, a member of the Executive Board of the ECB, noted, the OMT program was created precisely because price stability was at risk (Draghi 2013; Coeure 2013). Indeed, by summer 2012, when the sovereign debt crisis reached Italy and Spain more severely with the financial markets demanding ever higher interest rates to buy their government bonds, the key objective of the ECB, price stability (inflation up to 2%), was being put into question. In fact, the collapse of the Eurozone was a reality. As a result, Coeure highlighted the fact that because the sovereign bond market has important consequences for price stability (for they ‘serve[] as a benchmark for the pricing of loans and other assets’ (Coeure (2013), the pressure on Italian and Spanish bonds resulted in families and businesses being affected and ultimately the entire economy. Although the ECB’s official justification to the OMT as being a response to protect price stability (Draghi 2013; Coeure 2013), there is no doubt that saving the Euro was the ultimate goal, for as Draghi (2013) put it, ‘a currency whose integrity is in doubt cannot be a stable currency’. Whether this was within the ECB’s mandate or not is disputable. But more importantly, there can be no doubt that by allowing the ECB to purchase government bonds in the secondary markets the OMT program embodies the ECB with a last resort capacity (Sinn 2014b).

**Macroeconomic Imbalances Procedure**

The Macroeconomic Imbalances Procedure was created in 2011 and its main aims are to detect, prevent and correct macroeconomic failures in areas such as labour markets, the structure of the tax system, the functioning and regulatory framework of the judicial system, or even in public spending (Micossi 2013). The MIP focus on external and internal imbalances: under the latter are imbalances such as public debt above the sixty per cent Stability and Growth Pact (SGP) limit, and an average unemployment rate above ten per cent registered for three years. Under the former are fluctuations in unit labour costs, and current account imbalances registering in a three year average period either a deficit above 4% or a current account surplus above 6% (COM 2013: 2). Clearly, the MIP aims at correcting the economic imbalances that were at the core of the crisis. By detecting and providing recommendations not only in the cases of permanent current account deficits but also in relation to current account surpluses the
Eurozone is equipping itself with a surveillance mechanism and coordinating capacity that was missing since the Euro was created. Nevertheless, the question of who should bear the weight of the adjustment, the deficit or the surplus country, is something that is divisive (Weidmann 2012), especially because it may sound unreasonable to think that a country that continuously delivers high current account surpluses (Germany) may also be incurring in excessive imbalance (Benczes and Szent-Ivanyi 2017).

**Fiscal Compact**

Whereas the MIP aims are addressing the economic imbalances of EMU, the main objective of the Treaty on Stability, Coordination and Governance (TSCG) (also known as Fiscal Compact) is to coordinate the budgetary policy. Its basis benchmark is to uphold the Stability and Growth Pact limits on the public deficit (up to –3% GDP) and public debt (up to 60% GDP) as laid out in the Maastricht Treaty. In addition, similar to the objective of the MIP, the Fiscal Compact was also designed as a detecting, preventive and anti-crisis mechanism.

Unlike the Stability and Growth Pact, the Fiscal Compact is embodied with automatic sanctions in case a Euro Area country trespasses the established public debt and deficit limits (COM 2012: 4-5). In fact, the Fiscal Compact goes further than the SGP in relation to public debt, for countries which are above the 60 per cent GDP limit are now forced to reduce their debt in one twentieth per annum. As a result, any deviations from such objective will be automatically dealt with via direct sanctions and by the activation of the corrective mechanism arm of the TSCG, the Excessive Deficit Procedure (EDP).

Clearly, the Fiscal Compact provides the Commission with new instruments to uphold the SGP debt and deficit limits. Further, with new demands for the implementation of a 0.5% structural deficit clearly signals the commitment to permanent sound policies. There can be no doubt that sound finances are essential to long-term growth. However, it can also be argued that in times of crisis it may be required a more active role of the government in supporting the economy. Interestingly, the Fiscal Compact also addresses this. Indeed, As Clift and Ryner (2012: 152) argue, ‘in avoiding the nominal 3 per cent deficit target and deploying a structural balance target, [the Fiscal Compact] marks the evolution from Maastricht in terms of understanding the fiscal policy/growth Relationship’ Indeed, there is an ‘intelligent and flexible reading of the fiscal pact’ (Antonio Costa cited in Wise 2015) to be made that ‘tempers anti-Keynesian bias at the heart of the SGP [for the] utilisation of a structural balance framework carves out a role for counter-cyclical fiscal policy’ (Clift and Ryner 2012: 152). In other words, although the Fiscal Compact is normally defined in terms of tight fiscal discipline, in fact, it can also be framed in terms of boosting domestic demand (Clift and Ryner 2012; Enderlein et at 2013: 4).

As such, the Fiscal Compact fulfills both sides of the equation - it promotes sound finances and it provides the member states with the flexibility to pursuit expansionist policies in times of crisis.
Ongoing debates for further institutional reform of the Eurozone

As such, the EU’s *Towards a Genuine and Economic Monetary Union* report (Van Rompuy et al 2012: 9) indicates that the EMU is gradually getting closer towards fiscal and political union, for this report sets out the roadmap to complete a genuine (optimal) EMU by reinforcing the need for ‘fiscal solidarity’, ‘further degree of convergence’, the reinforcement of the role of the European Parliament, and the need for ‘central fiscal capacity’ (Kenen’s criterion) in EMU governance. Furthermore, if the European Commission’s (2011) Green Paper for the implementation of Eurobonds (as proposed by Delpha and Weizsacker; 2011) and of a European Redemption Fund (as proposed by the Commission’s Expert Group On Debt Redemption Fund in 2014) are added up, all these measures indicate that the sovereign debt crisis is dramatically changing EMU governance. Indeed, as this report concluded, the new EMU framework must have a ‘full fiscal and economic union with a central budget and fiscal capacity’ (Tumpel-Gugerell 2014: 15). Put differently, EMU requires the fulfillment of Kenen’s OCA criterion.

To conclude, the Eurozone crisis has fundamentally changed the Governance of the Eurozone. As with the set-up of EMU, there is a clear link between the Theory of Optimum Currency Areas and the institutional changes occurring in EMU as a result of the European sovereign debt crisis. The creation of the European Financial Stability Facility has so prevented the dismantlement of the Eurozone. In addition, the monetary interventions of the ECB are equipping it with the appropriate monetary instruments to act as a de facto lender of last resort. Furthermore, the adoption of both the Fiscal Compact and the Macroeconomic Imbalances Procedure surveillance framework are equipping EMU with important tools for preventing moral hazard that could arise as a result of financial assistance. In addition, both seem to reinforce the commitments of the member states to fiscal discipline after the failure of both the original and revised version of the Stability and Growth Pact. If the current debate on a developing a European Monetary Fund, a debt redemption fund, Eurobonds and Eurobills are added up (COM 2012, COM 2017), all these measures indicate that the sovereign debt crisis is dramatically changing EMU governance.

5. CONCLUSION (Preliminary assessment)

To conclude, this paper finds that the Eurozone crisis is triggering fundamental changes in the Governance of the Eurozone and that as a result of these measures EMU is equipping itself with the instruments that the Theory of Optimum Currency Areas identifies that can sustain monetary unions in the long run. At first sight, the conclusion would be that the OCA line of the Eurozone has shifted upwards. In other words, the institutional changes of the Eurozone have made it more optimal (that is, sustainable) in the long-run. It’s worth noting, however, that although the European Stability Mechanism equips the Eurozone with resources that can
be used by any member state who finds itself with financial difficulties the funds are still short mainly because EMU does not have a central budget or full fiscal capacity. In addition, although the Outright Monetary Transactions transforms the ECB in a de facto lender of last resort, it can also be said that by limiting itself to the purchase of short-term government bonds it still fails short from being a complete lender of last resort. Insufficiencies can also be found in the Macroeconomic Imbalances Procedure and the Treaty on Stability Coordination and Governance where despite their commitment to monitor the implementation of structural reforms, in the case of the former, and fiscal discipline, for the latter, with automatic sanctions, its effective enforcement is still to be seen. The central challenge in all is that despite economic and monetary integration are in a well advanced stage the dimension of political union is not as much. Nonetheless, the changes are significant and they are changing the institutional design and fixing the flaws in the set-up of monetary union.

But do these institutional changes mean that the Eurozone is becoming closer to an optimum currency area when all the criteria of OCA theory (economic and institutional) are taken into account? Not necessarily. For although the institutional changes may suggest that the Eurozone is equipping itself with the mechanisms to become (ex post) an optimum currency area, economic divergence between north and southern Europe has potentially widened, not narrowed. Indeed, as De Grauwe (2016) notes, the Eurozone crisis has increased economic divergence between the Eurozone member states. As such, there is a paradox here: on the one hand, the institutional changes put (at least on paper) the Eurozone closer to an OCA. But on the other hand, this may not be accompanied by economic convergence on the ground. This underlines the need for taking into consideration all the criteria of OCA theory, not just some. This can only be done if OCA theory is thought as a single, unified, theoretical framework, which is the goal of the first objective. Further research is needed here.
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