UNIVERSITA' DEGLI STUDI DI PADOVA

DIPARTIMENTO DI SCIENZE ECONOMICHE ED AZIENDALI "M.FANNO"

CORSO DI LAUREA IN ECONOMIA TREC

PROVA FINALE

"THE EUROPEAN MONETARY UNION: AN OPTIMAL CURRENCY AREA?"

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MATRICOLA N. 1114849

ANNO ACCADEMICO 2017 – 2018

Abstract:

L’elaborato prende in esame l’Unione Economica e Monetaria Europea con lo scopo di capire se può essere considerata un’area valutaria ottimale. Esaminando il pensiero degli esponenti della letteratura, si è dedotto che per definire un’area valutaria ottimale sia necessario considerare sei requisiti essenziali: la presenza di trasferimenti fiscali tra stati, un alto grado di integrazione economica e finanziaria, la sincronizzazione dei cicli economici, flessibilità dei salari e mobilità della forza lavoro. Applicando la teoria a dati empirici, si evince che quattro dei sei criteri presi in considerazione non vengono adeguatamente soddisfatti. Tale risultato porterebbe a dedurre che l’UEM non sia un’area valutaria ottimale, sottolineando la necessità di implementare le riforme sostanziali che modifichino l’attuale struttura dell’Unione. D’altro canto, questo processo di riforma si è mostrato nel corso degli anni di difficile realizzazione, in quanto ostacolato da importanti problemi, come il rischio di azzardo morale e la mancanza di un sentimento di comune appartenenza a un’unica nazione. Ne consegue una difficile situazione di stallo che apre però le porte a soluzioni alternative, come ad esempio la creazione di un’Europa a due velocità, che consentirebbe l’istituzione di due regioni monetarie più omogenee rispetto alla macroregione attuale, ma che a sua volta comporterebbe importanti rischi.

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Introduction:

In recent years, the possibility to leave the European Economic and Monetary Union (EMU) has been at the centre of the Old Continent's political debate. Undoubtedly, the introduction of the common currency has brought important benefits, especially in terms of trade, lower transaction costs, and exchange rate stability. On the other hand, the recent economic and sovereign debt crises have also evidenced the social costs of joining the monetary union, thus raising questions on the sustainability of the European project. In the light of these contrasting views, we aim to examine the large literature on the topic and reach a conclusion on whether the benefits of the euro offset its costs, or in other words, to assess if EMU is an optimal currency area.

This subject is a very topical issue, especially considering the imminence of the next European Parliament election. Sovranist movements across Europe are openly supporting a return to national currencies to gain back monetary independence and avoid painful austerity measures. Oppositely, traditional parties see further integration as the major way to increase the wealth of European citizens. Given that the winning side is going to shape Europe for years, bringing more clarity to the issue becomes of crucial importance in order to take well-informed political decisions. Politics aside, the topic is also extremely instructive, as it paves the way to important considerations on the common currency's future prospects. Indeed, building on the theory of optimal currency areas (OCA), it is possible to evaluate the fulfilment of theoretical requirements and in turn stress the fields in which urgent reforms are needed.

To address all these issues, the work has been divided into three comprehensive chapters. Chapter one outlines the main findings of the OCA literature, placing particular stress on which criteria should be considered to assess whether a currency union is optimal or not. In addition, it examines the costs and benefits associated with the institution of a common currency, therefore giving a sound theoretical base to this research. Turning to the second chapter, it provides an application of the OCA criteria to the context of EMU by reviewing the most recent empirical research on the topic. Notably, substantial emphasis will be given to the analysis of important variables such as the level of economic integration, the frequency of asymmetric shocks, but also the availability of adequate fiscal transfers and the intensity of labour mobility among member states.

Finally, chapter three considers numerous proposals of reform, conducive to increase convergence towards the OCA criteria as well as to make of EMU a more functional monetary union. Indeed, the lack of basic adjustment tools – namely a federal budget, a lender of last resort facility and a solid banking union – is usually addressed as the reason behind the euro's lacklustre performance. Alternatively, the chapter will consider the prospect of the so-called 'two-speed Europe'. The latter is a recently on vogue concept, whose advantages and limitations will be discussed extensively.

In sum, this work applies a solid theoretical framework to the empirical evidence, thus reaching conclusions on whether EMU is an optimal currency area, but also suggesting future prospects for the Union. According to Juselius (2011), such evidence-based approach is an effective way to develop quality research in the economic field.

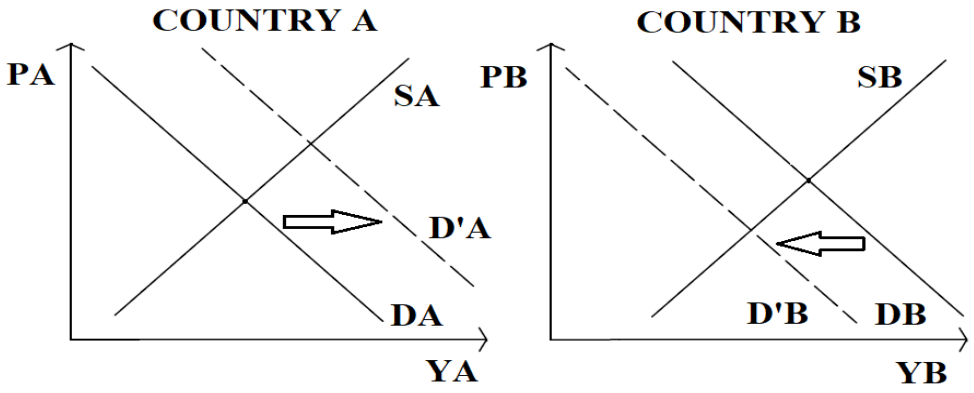
Chapter 1: The theory of optimum currency areas

1.1 The criteria for a successful currency union

The theory of optimum currency areas (OCA) was originally developed by Mundell (1961), McKinnon (1963) and Kenen (1969). Their articles outline the criteria necessary for a region to qualify as an optimal currency area, namely an area in which the benefits of a common currency offset the costs of relinquishing national monetary policy. Building on this seminar literature, other authors such as Fleming (1971) and Rogoff (1985) extended the original theory and helped to further complete the OCA framework. Overall, six criteria can be identified: wage flexibility, labour mobility, fiscal transfers, coordinated business cycles, economic and financial integration. This section will provide a detailed analysis of the abovementioned requirements.

Starting with the first two OCA criteria, Mundell (1961) argues that countries taking part to a currency union shall possess a flexible wage system as well as some degree of cross-country labour mobility in order to restore the equilibrium in the event of asymmetric shocks. The author commences his analysis by examining the case of a demand shift in a simple model of two countries, initially in full employment and balance-of-payments equilibrium, that have abandoned their national currencies and are part of a currency union. In particular, consumers are assumed to unexpectedly shift their preferences away from country B-made to country A-made products, giving rise to an adjustment problem in both countries. Indeed, the shift of demand from B to A causes unemployment and output reduction in region B, while region A experiences a boom which also leads to inflationary pressures (see fig 1.1).

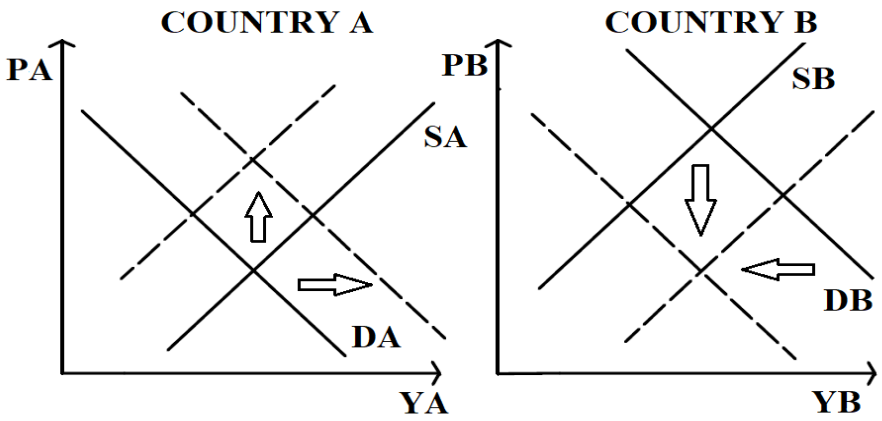
Figure 1.1 Aggregate Demand and Supply in Country A and Country B.



Source: De Grauwe (2018)

This is where the two aforementioned criteria – labour mobility and wage flexibility – come in to re-establish the equilibrium in the two countries. Indeed, if wages in country A and B are flexible, unemployed workers in B will reduce their wage claim while the excess of demand in A will push up the wage rate of country A. This determines a real appreciation in A and a real depreciation in B respectively. As a consequence, aggregate supply curve in B shifts downwards, making price more competitive and stimulating demand. The opposite occurs in country A instead (see figure 1.2). Similarly, labour market integration allows unemployed workers in country B to migrate where there is excess demand for labour (namely country A), therefore fixing divergences in unemployment. Also, this process eliminates the need to deflate wages, which is usually considered to be painful.

Figure 1.2 The automatic adjustment process.

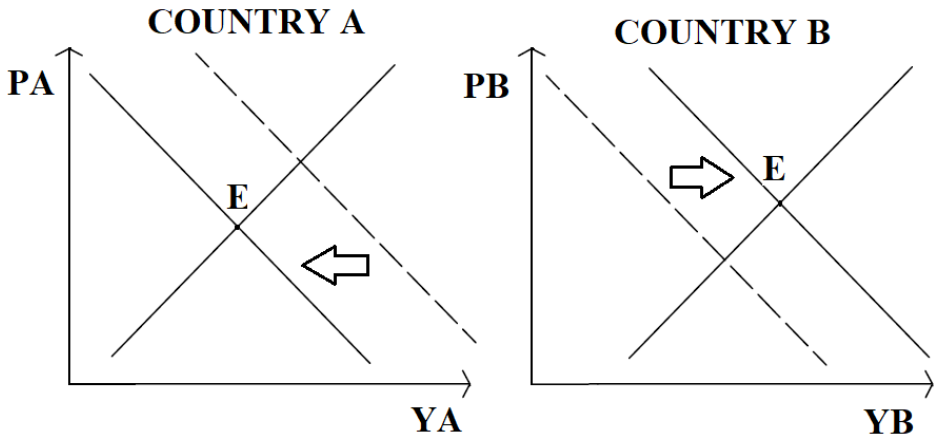


Source: De Grauwe (2018)

Nevertheless, if wages are rigid and labour mobility is limited, countries that form a monetary union will find it more difficult to adjust to asymmetric shocks than countries that have maintained their national currencies. Indeed, these countries retain the possibility to use their national monetary policy to adjust to the shock. Specifically, country B could have lowered its interest rate, consequently stimulating aggregate demand, while country A could have raised its interest rate thus reducing aggregate demand and controlling inflation. In a floating exchange rate regime, divergent monetary policies would have determined a depreciation of currency B, which in turn increases the

competitiveness of country B and takes back unemployment and output to the initial level (See figure 1.3).

Figure 1.3 Effects of monetary expansion in Country B and monetary restriction in Country A



Source: De Grauwe (2018)

In sum, the higher the level of labour mobility and wage flexibility, the lower the costs of relinquishing national monetary policy and adopt a common currency. Importantly, the degree of labour mobility is determined by a number of factors including the implementation of a simplified visas system and the existence of cultural barriers that inhibit free movement of people such as linguistic diversity. Instead, the degree of wage flexibility depends on labour market institutions. Bruno and Sachs (1985) claim that with a centralized wage bargaining system, labour unions are more likely to consent wage moderation after a supply shock. Conversely, when the system is decentralised each union is incentivised in increasing the nominal wage of its members, therefore making it more difficult to adjust to shocks in real terms.

Turning to the third criterion, Mundell (1973) addresses the implementation of interregional fiscal transfers as a necessary step to create an OCA, as it is argued to be the most effective way to contrast market shocks. More specifically, when a member of the union suffers a negative shock, the effects of the shock can be cushioned by fiscal transfers from the other members, allowing more expansionary fiscal policy than might otherwise be the case (e.g. the country could face constraints in government borrowing). The author argues that this system of international risk sharing is crucial to the success of an OCA, as placing the burden of recession and devaluation in one country or region

alone is unsustainable. Not to mention that the overall economy of the region – usually highly integrated - would benefit from absorbing economic shocks. Nevertheless, this criterion is controversial as it is politically difficult to sell in individual countries. Indeed, countries with surpluses are generally unwilling to give up their revenue.

As it has been stressed in the previous paragraphs, asymmetric shocks can critically call into question the success of a monetary union. For this reason, the literature came to postulate the synchronisation of business cycles as a necessary OCA criterion (Rogoff, 1985; Bayoumi and Eichengreen, 1997). Indeed, if currency union partners are more economically similar (namely they face more symmetric shocks and fewer asymmetric shocks), then it is less costly for them to form a currency union (Clarida et al. 1999). The rationale behind this criterion is based on the fact that the monetary authorities who have control of the common currencies need to set a common interest rate which fits all members' economies. However, when shocks are asymmetric regions belonging to the same currency area have conflicting needs in term of monetary policy, resulting in a loss of effectiveness of the Central Bank's actions.

Building again on Mundell's 'shift in demand' case, a monetary expansion exercised by the central bank authorities would alleviate recession in B, but it would also exacerbate inflationary pressures in region A. Similarly, a restrictive monetary policy would reduce inflation in country A while aggravating unemployment in B. In this case the central bank would not be able to use monetary policy as an effective economic tool to stabilize output. Therefore, a coordinated exposure to economic booms and busts is essential in order for the OCA's central bank to operate effectively (Clarida et al. 1999).

Another branch of the literature has placed emphasis on a fifth OCA criterion, that is to say the subsistence of economic integration among member states as an essential prerequisite to form a monetary union. In essence, national economies must be deeply embedded with each other in term of trade flows (i.e. by sharing a deep network of transnational supply chains and markets), diversification of production, and aligned economic policies in order to become an OCA. Different authors gave complementary perspectives on this topic, and the main findings from the literature will be examined on a chronological order in the following paragraphs.

To begin with, McKinnon (1963) suggests that the higher the degree of openness to trade between two or more countries, the more arguments there are for having a

monetary union between them as economic integration increases. The logic behind this assertion is that a stronger trade integration among countries enhances the likelihood that foreign prices of tradables will be transmitted to the domestic cost of living. This effect would in turn cause the reduction of 'money illusion', namely the belief that money has a fixed value in terms of its purchasing power, implying that economic agents will automatically adjust wages and prices in accordance to exchange rate fluctuations. As a result, changes in exchange rate becomes less efficient in changing the terms of trade and less effective as an adjustment mechanism. Hence, very open economies would find it advantageous to fix the exchange rate and join a larger common currency area. Indeed, McKinnon (1963) argues that economies with a high ratio of tradables to non-tradables should rely more on alternative instruments, for example on fiscal policy, to resolve balance of payments problems.

A second aspect is underlined by Kenen (1969), who measures economic integration by the degree of diversification in member countries' economies and asserts that only countries that share a vastly diversified export sector in term of product mix would benefit from monetary unification. His argument proceeds as follows. If a country is not diversified and produces only few products which it also exports, its economy will be more exposed to negative demand shocks affecting its exports, therefore making a fall in revenues more likely. In this context the existence of a flexible exchange rate is essential, as falls in revenues can be attenuated by currency depreciation. Conversely, in a currency union or a fixed exchange rate regime, adjustments can be achieved just through a reduction of wages and through increased unemployment. It follows that if these shocks are recurrent, a currency union becomes unsustainable in the long term.

Instead, a well-diversified economy benefits of diversification in the export sector, which entails that uncorrelated intra-industry shocks becomes more likely. In simple terms, diversification increases the probability that a positive shock in one industry offsets a negative shock in another industry, resulting in a zero impact on the total export. Therefore, a highly-diversified national economy will not have to undergo changes in its terms of trade as often as a single-product national economy. So, economies that are sufficiently diversified could better tolerate the costs of abandoning their national currency.

Turning to Fleming (1971), the author argues that integrating economic policies, and establishing a common preference on the inflation rate in particular, is an essential precondition to form an optimal currency union as it fosters more equilibrated current account transactions and reduces the need for nominal exchange rate adjustments. Indeed, two countries with a different rate of inflation can only co-exist provided that the country with the higher inflation devaluates its currency against the currency of the country with lower inflation. Within a monetary union, this is obviously not possible and both countries have to accept the centrally preferred rate of inflation. Therefore, having a common preference on the targeted inflation rate, and coordinating fiscal and monetary policies in accordance, should be mandatory for a solid union.

In addition, Frankel and Rose (1998) believe that economic integration is an endogenous variable. Indeed, according to the authors even if members states are not highly integrated with each other at the start of the union, they will end up fulfilling this requirement ex post as a result of the expected increase in trade among member countries associated with the mere fact of joining a currency union. An opposite view is expressed by Krugman (1993), who believes that monetary unions generates specialisation of industrial activity therefore reducing economic integration in the region.

Finally, the last OCA criterion asserts that financial markets should be integrated in order to reduce the need for exchange rate adjustments (Ingram, 1962). Indeed, high level of financial integration allows to mitigate the effects of asymmetric shocks through increased capital flows between surplus and depressed countries. For instance, the latter may borrow from surplus areas or reduce their holding in foreign assets until the shock is over. Also, with a deep level of financial integration equilibrating capital movements across member states makes possible to reduce differences in long-term interest rates, therefore facilitating the financing of budget deficits but also improving allocational efficiency. Nevertheless, the author underlines that financial integration is not a substitute for a real adjustment, as it can only smooth this process.

McKinnon (2004) analyses in depth the role of financial integration in the form of cross-country asset holding for international risk-sharing. Countries sharing a single currency can mitigate the effects of asymmetric shocks by diversifying their income sources. Specifically, claiming dividends, interests and rental revenue from other countries operates as an income insurance. Such ex ante insurance allows the smoothing

of both temporary and permanent shocks as long as output is non perfectly correlated. However, there is an important drawback. The poor unemployed citizens that are more in need for this insurance are unlikely to hold a consistent amount of foreign assets, therefore they will obtain little compensation from this mechanism. Instead, well-to-do citizens with large portfolio of assets are likely to obtain most of the transfers.

To conclude, six criteria have been identified. However, as stressed by Ishiyama (1975), the evaluation of an OCA is a complex matter and therefore it should not be based only on few static parameters. Indeed, it is in the interest of each country to evaluate in detail the specific costs and benefits associated with entering a common currency area. The following sections give a more analytical perspective on this trade-off.

1.2 The benefits of a common currency

Entering a monetary union entails a series of benefits, of different entity and consistency. In this section, emphasis will be given to the elimination of transaction costs, the increase in price transparency and trade, the reduction in exchange rate volatility, but also the benefits of having an international currency and the possibility to import macroeconomic stabilisation from low inflation countries.

Among the many, eliminating the transaction costs of changing one currency into another is certainly the most visible gain. These transaction costs represent a considerable deadweight loss which is comparable to a tax paid by the consumers to the banking sector. For instance, the EC Commission (1990) estimated that the gains from the elimination of transaction costs range between 13 billion and 20 billion euros per year, an amount that represent the 0.5% of the community GDP. Greater efficiency is also resulting from the integration of the payment system, as cross border payments can be handled as smoothly as payments within the same country.

Secondly, the introduction of a common currency has the advantage to increase price transparency (De Grauwe, 2018). More precisely, consumers can see prices expressed in the same currency unit and thus make better price comparisons, which in turn should increase competition and lower the prices. However, the issue is whether this effect is strong enough; more recent empirical papers on EMU such as Clementi et al. (2010), do not find a price convergence effect after the introduction of the common currency. Indeed, exploiting arbitrage opportunities remains prohibitive in large currency unions, as it can

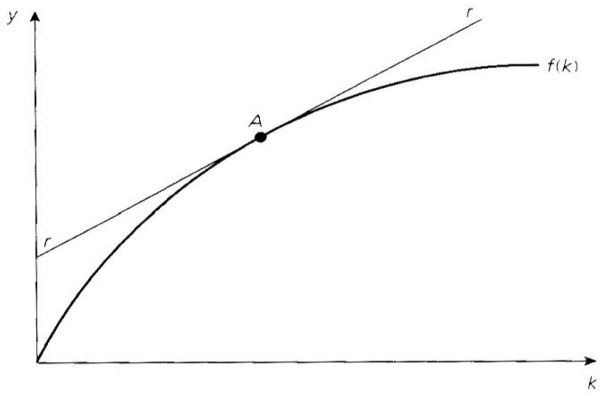
be very costly for individual consumers to move form a state to another in order to take advantage of price differentials.

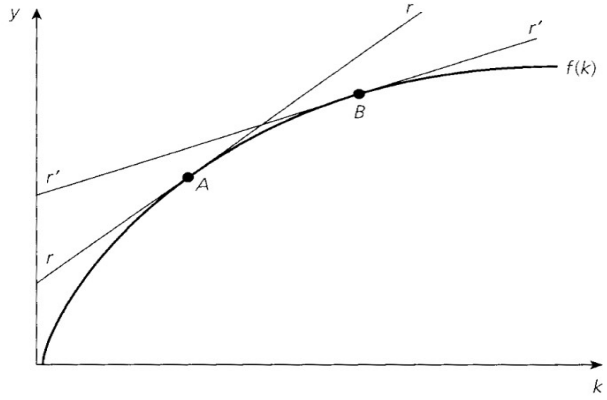
A third aspect concerns exchange rate volatility. Assuming that the world is populated by risk-adverse individuals, eliminating the exchange rate risk would increase social welfare and economic growth by making future returns more certain (Baldwin, 1989). Indeed, volatility in nominal exchange rate creates uncertainty about firms' future revenues, an issue that can hamper economic growth when home and foreign economies are highly integrated with each other. Also, large fluctuations in exchange rate can be responsible for major asymmetric disturbance instead of being variables that could be used to adjust asymmetric shocks.

Baldwin (1989) demonstrates this conclusion by using the neoclassical growth model represented in fig 1.4. The horizontal axis shows the capital stock per worker, the vertical axis the output per worker, while the line f(k) is the production function. The equilibrium is obtained where the marginal productivity of capital is equal to the interest rate individuals use to discount future consumption. This is represented in the graph by the point A, where the line rr is tangent to the production function.

The argument proceeds as follow. It is possible to assume that the elimination of the exchange risk reduces the systematic risk in the economy, which in turns leads to a lower real interest rate and to a flattening of the rr line. The reason is that as the risk diminishes investors will require a lower risk premium. As a result, the equilibrium moves from A to B causing both an accumulation of capital and a temporary increase in the growth rates. Hence, in this neoclassical model the effect of the monetary union on growth rate is just temporary.

Figure 1.4: Above the graphical representation of the neoclassical model. Below the effect of lower risk in the neoclassical model.

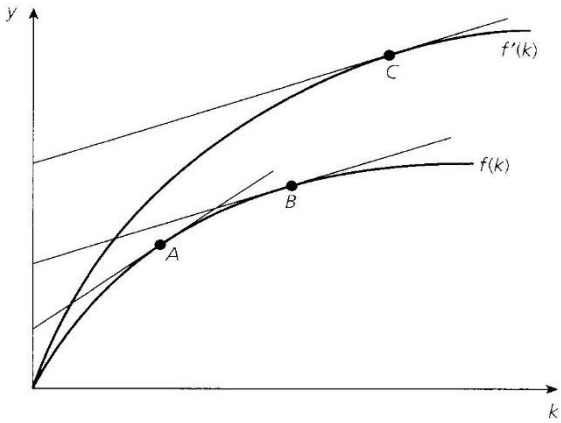




Source: European Commission (1990)

This model can be extended by introducing the effect of dynamic economies of scale. Romer (1986) argues that with a higher capital stock, the productivity of labour increases over time due to a learning effect. More specifically, assuming that capital is a public good and that the knowledge embedded in new machines is freely available to all workers, the rising capital stock determines the accumulation of additional knowledge, which in turn fosters labour productivity. Contrary to the static case described previously, this new model hypothesises that a lower interest rates – and therefore a monetary union - also raises the productivity of the capital stock per worker, leaving the economy on a permanently higher growth path. This is shown by the upward movement of the f(k) line (see fig 1.5).

Figure 1.5 Endogenous growth in the 'new' growth model.



Source: European Commission (1990)

Another source of benefits is the affirmation of the common currency as an international currency. When countries form a monetary union the new currency that

comes out of these union is likely to weigh more international monetary relations than the sum of the individual currencies prior to the union (Taylor and Feenstra, 2017). As a result, the new common currency is likely to find increasing use outside the union. The advantages of having a currency that is used as medium of exchange in the rest of the world are significant. Indeed, the issuer of the international currency will obtain additional revenues because of the greater balance sheet, what Mundell (1973) defines as seignorage gain. These profits can be used by the government to lower the taxes needed to finance government spending and investments. For example, in 1999 more than half of the dollars issued by the Federal Reserve where used outside the USA, it follows that the Federal Reserve's potential profits were also more than doubled, totalling up to 0.5% of US GDP (De Grauwe, 2016).

In addition, international currencies are generally held as international reserve by foreign central banks, typically in the form of treasury securities rather than cash. For instance, the central bank of China holds more than 1 trillion dollars in the form of US treasury securities. These holdings have been an important source to finance US budget deficits while leaving foreign holders alone in bearing the exchange rate risk (Eichengreen, 2012). Also, an international currency also boosts the activity for domestic financial markets. Indeed, foreign residents will want to invest in assets and issue debt in that currency. This enhances domestic banks ability to attract new businesses and in turn creates know how and new jobs. The City of London, a major centre of international finance, is a clear example of how a region can benefit from a currency's international vocation.

Furthermore, monetary union appears to increase trade among member states. Rose (2000) found that pairs of countries that are part of monetary unions share trade flows among themselves that are 200% higher than those among pairs countries that are not part of monetary union. Later on, these trade effects were found to be overestimated, especially in the eurozone. Indeed, the euro effect on trade appears to be much more modest, as it has been found to range between 5% and 20% (De Nardis and Vicarelli, 2003; Flam and Nordstrom, 2006). Also, in the absence of a solid theoretical framework explaining how monetary union affects trade, estimates of these correlations appeared unreliable (Baldwin, 2006). Several studies have attempted to overcome this criticism by looking at both sectoral and microeconomic evidence. For instance, Baldwin et al. (2008)

argue that the existence of a common currency lowers the fixed and variable costs to export, allowing firms that previously only catered domestic markets to start exporting to other countries. In the euro area small firms in particular seem to have profited from this effect (Nitsch and Pisu, 2008).

Finally, sharing a common currency with low inflation countries can help high-inflation countries to introduce macroeconomic stability. In the previous section the effectiveness of currency depreciation in adjusting asymmetric shocks and restore competitiveness has been addressed several times. However, an analysis by Barro and Gordon (1983) suggests that a depreciation is not a flexible instrument which can be used frequently, as the knowledge that it may be used again in the future creates strong expectational effects on individuals. This in turn ends up fostering inflation. Therefore, the use of depreciations can greatly complicate macroeconomic policies as well as undermine the credibility of governments in committing to low inflation. In this sense, high-inflation countries can benefit from sharing a common currency with low inflation countries, as it allows to introduce macroeconomic stability in a short space of time and at low costs (at least in the short-term). Indeed, by entering monetary unions high-inflation countries relinquish the possibility to devalue their currencies and subject their economies to the action of a common Central Bank, an institution that must please the preferences of all governments, including the low inflation ones. Giavazzi and Pagano (1988) address this process as a mean to borrow credibility from foreign governments by having 'monetary hands' firmly tied. For instance, the authors believe that Italy has made use of this mechanism to achieve the same inflation equilibrium of Germany and get rid of the double digits inflation rates caused by frequent lira devaluations.

To conclude, De Grauwe (2018) suggests that the welfare gains from a monetary union are directly proportional to the degree of openness of an economy. For example, the elimination of transaction costs will weigh more heavily in countries where firms and consumers buy and sell a large proportion of goods and services in foreign countries as they will be more likely to be subject to decision errors. This relationship is graphically depicted in fig 1.6, where the openness of a country is measured by the share of trade as percentage of GDP.

Figure 1.6 Benefits of monetary union and openness of the country

Source: De Grauwe (2018)

1.3 The costs of a common currency

The costs of monetary unions have their origins in the loss of monetary independence associated with the relinquishment of national currencies. Losing this important instrument of economic policy entails that nations taking part to monetary unions will no longer be able to determine the national interest rate, to change the quantity of national money in circulation, but also to depreciate its currency. As argued in Section 1.1, such constraints affect the capacity of national states to deal with asymmetric shocks. Nevertheless, the loss of monetary autonomy is also strictly linked with a series of issues relating financial markets, debt crisis and expansionary fiscal policy, that will be examined in depth in this section.

To begin with, according to De Grauwe (2011) the entry into a monetary union drastically reduces the capacity of governments to finance their budget deficits. The author develops the point in the following way. Standalone countries can guarantee bond holders that they will be paid out in the national currency when the bonds mature. The reason is that there is a national central bank, that will be ready (or be forced) to provide liquidity to the government if the latter were to face liquidity problems. On the contrary, members of a monetary union cease to issue their debt in their national currencies (over which they had full control), and they start to issue debt in a currency over which they have no control. Therefore, none of the member countries of a monetary union have the power to force the common central bank to provide liquidity in times of crisis. This implies that national governments cannot assure the holders of government bonds that

they will always be repaid when the bonds come to maturity, thus increasing the risk for investors.

In addition, the fact that governments of a monetary union cannot guarantee the intervention of the central bank as lender of last resort gives financial markets the power to force default on these countries (Fingleton et al., 2015). To better clarify this point, let us suppose investors fear a default by a member state of a monetary union (say Italy), and in response to this fear they start selling Italian government bonds, thus driving up the interest rate. In that case, the investors who have acquired euros are likely to reinvest the money in the European bond market, say in the German BUNDs. Also, there is no foreign exchange market and flexible exchange rate, hence Italy is not able to attract new foreign investors by cheapening its currency.

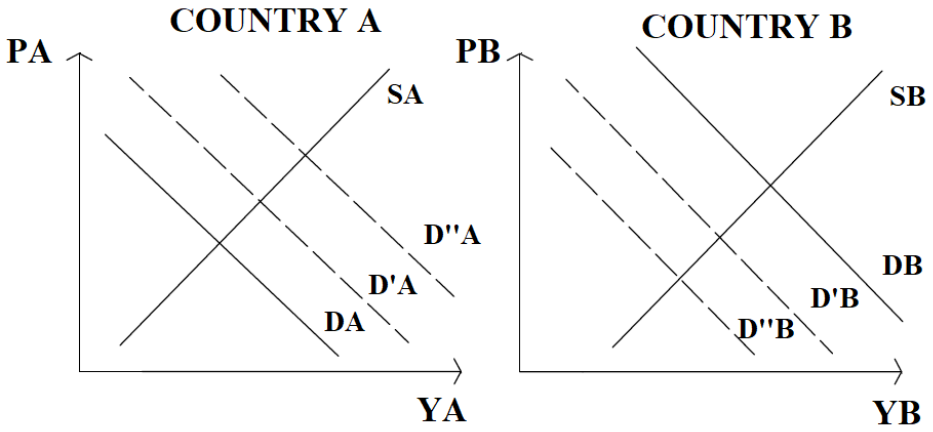
As a result, the amount of liquidity in Italy shrinks and the Italian government experiences a liquidity crisis, meaning it cannot obtain funds to finance its debt at reasonable interest rates. In addition, the Italian government cannot force the European Central Bank to provide it with the cash to pay out bondholders (namely assume the role of lender of last resort) because the government does not control that institution. This may in turn spark off a solvency problem: with a higher interest rate the debt burden increases, forcing the government to reduce spending and increase taxation. However austerity is politically costly, therefore it may lead the government to stop servicing the debt and declare a default. Financial markets are aware of this risk and will test the Italian government when budget deficits worsen. Thus, in a monetary union, financial markets gain enormous power as member countries become vulnerable to movements of distrust by investors. De Grauwe and Ji (2013) argue that there is a self-fulfilling prophecy in these dynamics. When financial markets start doubting a government's capacity to repay its debt, investors sell government securities, increasing the likelihood that the government will default on the debt.

In the light of the above, a fourth important disadvantage of monetary unions is that the greater exposure to financial markets' sentiments exacerbates the effect of asymmetric shocks (Beine et al., 2003). Booms and busts are endemic in capitalism because many economic decisions depend on future expectations and thus are vulnerable to uncertainty and irrationality, the so-called 'movements in animal spirits' (Akerlof and Shiller, 2009). As long as these movements in animal spirits are aligned between member countries,

membership in a monetary union does not aggravate this boom and bust mechanism. However, as anticipated before, in the event of both desynchronized business cycles and a debt crisis, membership in a monetary union can make these divergences drastically wider.

Let us return to the two-country model presented in section 1.1, where country B is hit by an asymmetric demand shock that reduces output and employment. The decline in GDP leads to a decline of government tax receipts while the higher level of unemployment generates an increase of government expenditures. This in turn causes a deterioration of budget deficit, which if too large, can cast doubts on the solvency of the government. Distrust leads investors to sell government bonds, causing an increase in the interest rate and in turn a further fall in demand due to the higher borrowing costs. Conversely, Country A benefits from the sales of Country B's government bonds, as investors will presumably direct their funds towards more trustworthy securities such as country A bond (it is currently facing an economic boom). The effect of these purchases is to reduce the yield on these bonds, which in turn increase aggregate demand in the country. Thus, the debt crisis amplifies both the initial negative demand shock in Country B and the economic boom in country A, making the adjustment problem even harder. This effect is shown in Fig. 1.7.

Figure 1.7 Amplification of asymmetric shocks in currency unions



Source: De Grauwe (2018)

There is a stabilizing effect from exchange rate changes, which is absent when states belong to a monetary union. For example, if Country A and Country B were standalone countries with their own national currencies, they could have mitigated these destabilizing dynamics more easily. Indeed, if during a recession investors start selling Country B bonds and switch to Country A bonds, they will necessarily have to go through the foreign exchange market, causing in turn the appreciation of currency A and depreciation of currency B. The depreciation of currency B tends to boost aggregate demand in country B by fostering exports, while the appreciation of currency A tends to reduce aggregate demand and inflation in country A.

Finally, the last criticism treated in this section stresses how monetary unions may deprive national governments of another economic policy instrument: the use of expansionary fiscal policy to stabilise business cycles (Encinas-Ferrer, 2015). As said before, governments that are hit by a liquidity crisis can be forced to apply austerity, namely to reduce spending and increase taxes in the middle of a recession in order to fix the budget deficit and calm down investors' fears. However, Keynesian economists have always stressed the essential role played by deficit spending in offsetting the effect of a GDP contraction as well as limiting its social costs. Not surprisingly, cutting spending and hiking taxes generates deeper recession and unemployment, making recovery much longer and painful.

To contrast this criticism Mundell (1973) argues that it helps to have an insurance mechanism that allows for income transfers to the country experiencing a negative demand shock. In the absence of this instrument, economic adjustments such as wage depreciation are needed. Unfortunately, this change in relative price is difficult to achieve as workers tend to resist a decline in their real wages (Temin and Vines, 2014). The authors argue that in a world in which workers have money illusion, they may resist real wage declines obtained by a drop in their nominal wage more forcefully than the same real wage decline brought about by price increases (currency depreciations cause increases in price of imports). In sum, to the extent that countries face rigidities and have poorly organised insurance system, adjustment to recessions becomes harder to achieve, making the costs of a monetary union unbearable to member states.

Chapter 2: The Eurozone as an optimum currency area: a critical assessment

2.1 Trade specialisation or further integration?

Symmetry in business cycles and economic integration are considered to be among the most important OCA criteria. Indeed, as stressed in section 1.1, a high level of synchronization and economic integration is essential in order to limit the costs of joining EMU in terms of both exposure to asymmetric shocks and relinquishing autonomy over monetary policy. In addition, these criteria are interrelated with each other, as economic integration is supposed to foster more aligned business cycles (Jager and Hafner, 2013). Therefore, the evaluation of their joint fulfilment represents a valid starting point for this analysis on EMU.

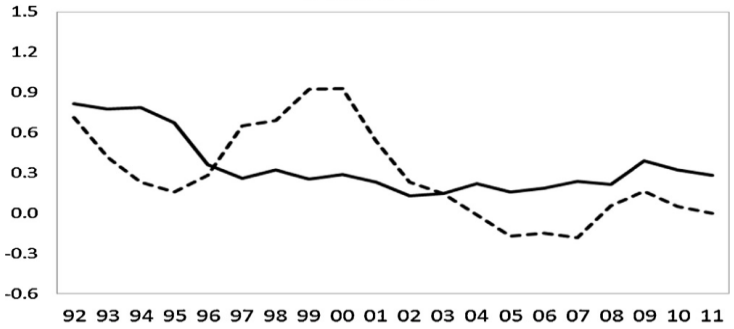
Before starting to assess these criteria in detail, it is important to stress that previous to the introduction of the euro a large literature questioned whether belonging to EMU would have made economic integration and business cycle synchronisation more likely. On the issue, two contrasting views have emerged: one expressed by Frankel and Rose and supported by the European Commission, and the other expressed by Paul Krugman. Specifically, Frankel and Rose (1998) argued that the expected increase in trade among future EMU member countries would have led to higher synchronisation and integration, therefore reducing the exposure to asymmetric shocks. Oppositely, according to Krugman (1993) trade integration leads to regional concentration of industrial activities, which in turn causes the specialisation of production and generates less correlated output fluctuations.

Examining the first criterion, the literature offers mixed results of EMU's effect on the synchronisation of business cycles, therefore no firm conclusions can be drawn on the issue. In particular, pre-crisis literature seems to confirm, although more moderately, the positive correlation hypothesised by Frankel and Rose. For instance, Clark and Wincoop (2001) and Fidrmuc (2004) find evidence that trade flows positively affect output synchronisation across countries and regions, hence supporting the OCA endogeneity hypothesis (See section 1.1). Rose (2008) writes again on the topic and finds that EMU led to an increase in trade ranging between 8% and 23%, while it is estimated that each 1% increase in trade between a pair of countries seems to raise the correlation coefficient for their detrended outputs by around .02.

Conversely, with the advent of the Global Financial crisis the notion of decoupling, namely the desynchronization of cycles, has gained attention. To start with, Papageorgiou et al. (2010) argue that Europe tended to converge during the period 1992-1999, but to diverge from 2000-2009 on, leading to an increasing number of clusters within Europe. Interestingly, they point out that crisis periods, such as the sovereign debt crisis, can lead to increasing short-term convergence, followed by long-run divergence. Along the same lines, Christodoulopoulou (2013) claim that the effect of the common currency adoption is negative and significant for two out of the three measures for business cycle correlations employed at the current study, while the third measure indicates an insignificant effect. The negative result seems to be more in line with Krugman's argument even though the results depend heavily on the assumptions underlying the filtering procedure. Additionally, this paper indicates no effect on the business cycle correlations only for some of the core group countries (Germany, Luxembourg). Spain, Italy and Belgium feature the highest divergence instead.

Turning to Caporale et al. (2015), they find that output synchronisation decreases in relative terms with respect to the euro area in peripheral countries, while it increases in the core countries. More specifically, they show that trade intensity has led to higher business cycle correlation only among the core countries but not in the case of the periphery, which has been testifying a declining effect over time instead (see Figure, 2.1). In their view structural factors such as trade specialisation, the lack of flexible exchange rates as well as fiscal policy constraints appear to have generated asymmetric responses of the core and the periphery to external shocks. Similar results are supported by Belke et al. (2017) and Ahmed et al. (2018).

Figure 2.1: the effect of trade intensity over output synchronisation for EMU's peripheral (dashed line) and core countries (dotted line).



Source: Caporale et al. (2015).

Seen on the whole, the empirical results of this strand of the literature can seem conflicting. Differences in the results can be partly explained by the myriad of different methods to determine the level of business cycle synchronization. Indeed, as Glick and Rose (2016) suggest, the observed time window is often set arbitrarily, and the correlation coefficients are prone to potential outliers biasing the results. More importantly, the lack of a common understanding on the issue symptomizes the absence of a deep and decisive economic integration among EMU countries, or at least among core and periphery, as structurally similar countries are more prone to have correlated output fluctuations.

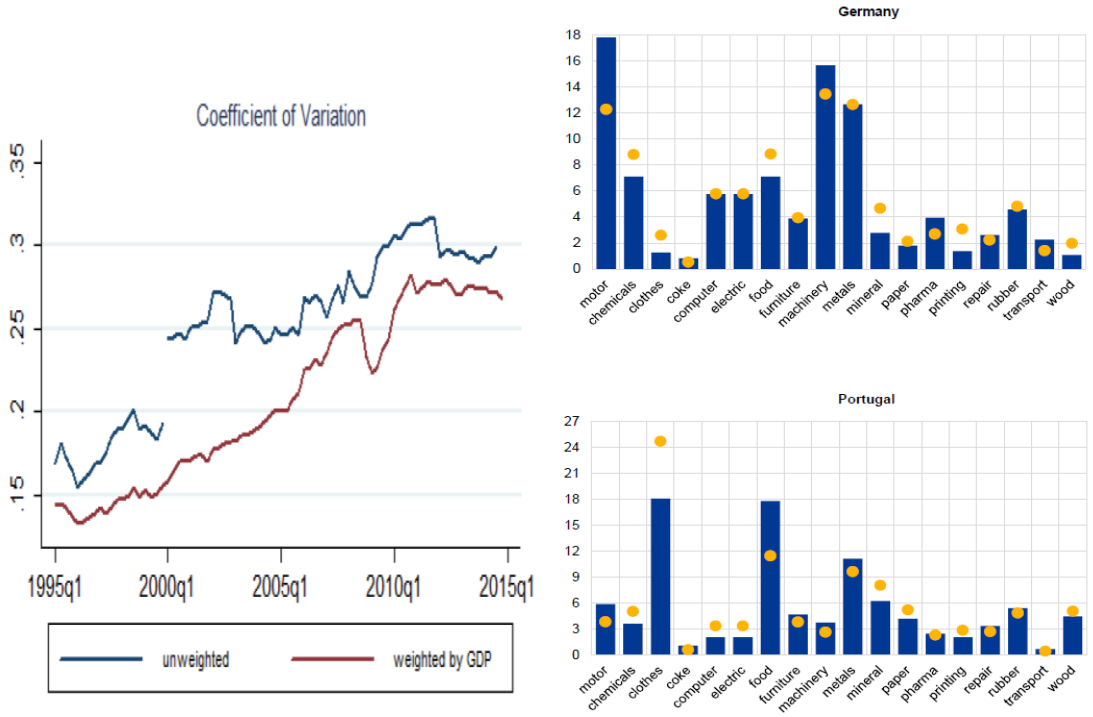
Before the introduction of EMU there was a general consensus among academics that future EMU countries lagged behind the United States in terms of regional economic integration. For instance, Eichengreen (1991) found evidence for a greater level of interregional trade in North America than in Europe, as well as higher correlation of shocks. In addition, Bayoumi and Eichengreen (1993) detected that real exchange rate variability was three to four times higher within the EU than within the United States.

If it is commonly accepted that European countries were not deeply integrated at the start of EMU, the question is whether the level of integration improved after the introduction of the single currency (the so called 'endogeneity' effect hypothesised by Rose). What appears from the most recent studies on the topic is that despite the increase in intra EMU trade since 1999, European economies are far from getting more integrated as they are witnessing a process of economic specialisation, responsible in turn to exacerbate structural imbalances among countries.

Indeed, a report of the ECB edited by Mongelli et al. (2016) clears evidence for an increase in specialisation, albeit at different rates, across countries from 1995 up to 2014. Considering the Industrial sector as benchmark, it appears that Austria, Germany, Ireland and Finland managed to maintain an high industry share. Conversely, other countries such as Belgium, the Netherlands, France, Spain, Greece, Portugal and Luxembourg saw their industrial sector decline. In addition, looking at the variation of industry gross value added (GVA) share over time, there is evidence for a drastic increase in the dispersion of the figure after the Euro introduction. A trend that highlights the underlying EMU effect on the inter-regional concentration of the sector (see figure 2.2A). To bring additional evidence to the point, the comparison of the GVA shares of 18 sub-

sectors of manufacturing for Germany and Portugal (a core and a peripheral country) from 1995 until the present is illustrated in figure 2.2B.

Figure 2.2: On the left (figure 2.2 A) it is illustrated the evolution of the GVA coefficient of variation in the industrial sector over time *in EMU countries*. On the right (figure 2.2 B) it is shown an increase in specialisation in the Motor and Machinery sub-sectors in Germany, whereas almost every sub sectors aside from food industry has decreased in Portugal



Source: Mongelli et al. (2016).

Similar trends have occurred in other sectors of the economy. For example, the financial sector has become increasingly important in Luxembourg (accounting for about 25% of economic activity) but also in Netherlands, Belgium and Italy. Nevertheless, not every industry followed this path, as the construction sector dropped with the crisis, witnessing a sort of return to a long-term average among countries. In order to bring together such a broad range of information, the Krugman Specialisation Index (KSI) - a widely-used specialisation measure - has been considered.

The Index is defined as follows:

$$KSI_k = \sum_i \left| s_k^i - \bar{s^i} \right|$$

It measures the absolute distance in a sector's relative importance between the country K and the reference group (in this case EA12). Thus, a country which is more specialised in selected industries than the reference group will obtain a higher KSI. In Table 2.1 below, it is shown the trend in specialisation according to this measure for EA12 countries from 1995 to 2014. The data reveals a general increase in specialisation but the results are mixed. Indeed, a group of countries are becoming increasingly more specialised, especially after the financial crisis (e.g. Luxembourg, Netherlands, Ireland, Portugal and Greece). Another group, which consists of Austria, Italy, France, Finland and Spain, has a stable structure or is getting less specialised.

Table 2.1: The evolution of the Krugman Specialisation Index in the EA12 over time.

KSI Country	1995q4	1999q4	2008q4	2014q4	Mean	Standard deviation
AUT	14.15	15.60	16.10	15.15	15.25	0.83
BEL	9.47	9.63	12.58	16.73	12.10	3.40
DEU	11.12	11.37	15.26	15.06	13.20	2.26
FIN	19.34	18.76	17.89	14.42	17.60	2.20
FRA	15.08	13.92	15.54	14.38	14.73	0.72
NLD	13.33	13.69	12.24	20.31	14.89	3.66
LUX		47.50	45.03	50.55	47.69	2.76
IRL		28.81	22.48	31.85	27.71	4.78
PRT	17.42	18.41	21.48	18.85	19.04	1.73
ITA	10.76	8.53	7.36	11.54	9.55	1.94
GRC	32.08	31.98	26.47	37.01	31.88	4.30
ESP	23.14	22.42	18.32	15.61	19.87	3.55

Source: Mongelli et al. (2016).

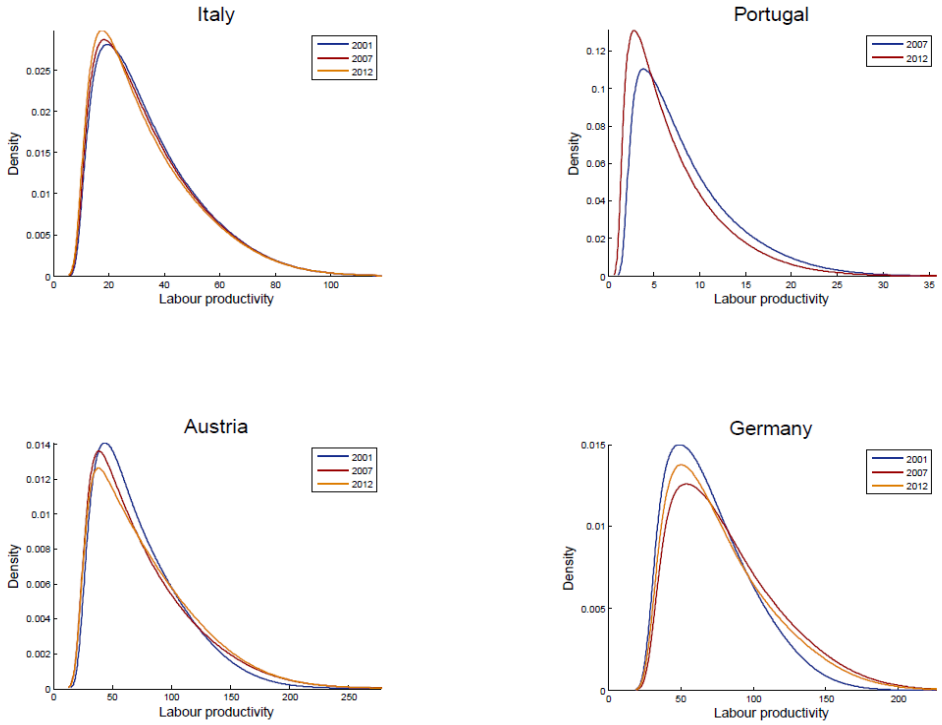
Overall, the results are not univocal and therefore it is complex to answer the questions raised in this section. Still, it appears that at least at a sectoral level there has been an increase in specialisation, which means in turn that EMU is getting further away from becoming an OCA.

2.2 Productivity, Wages and real exchange rate misalignments

Despite the large evidence considered in the previous section, it could be argued that economic integration is a broader concept than the mere specialisation argument. Indeed, integrated economies must also show an alignment in fundamentals in order to maintain a similar level of competitiveness. Therefore, this section will analyse whether after the introduction of the euro there is an increased or reduced convergence in member states' most basics economic indexes. In particular, attention will be given to the evolution of productivity, wage inflation, and real exchange rate.

Starting with labour productivity, it is found that productivity differentials across euro area countries have grown larger after the introduction of the single currency. This phenomenon is particularly evident between core and peripheral countries (Gamberoni et al., 2016). In order to give an insightful view on the issue, in fig 2.3 it has been reported the variation in the distribution of labour productivity of Italian, Portuguese, German and Austrian firms between 2001 and 2012, developed. Apparently, labour productivity of Italian firms in 2012 is more skewed than prior to the crisis, as the peak is higher and the mode of the distribution has shifted to the left over time. This shift has been even more worrying for Portugal, where a larger number of firms moved to the low productivity region, corresponding to an overall decline in productivity across the board. The developments in Italy and Portugal juxtapose with the adjustment processes that have taken place in Austria or Germany. In these countries, the distribution of labour productivity shifted outwards and the skewness reduced, indicating a rise in the number of productive firms.

Figure 2.3: Kernel density of labour productivity in firms with more than 20 employees in Italy, Portugal, Austria and Germany.



Source: Gamberoni et al. (2016)

One possible explanation for the phenomenon is related to the issue of economic specialisation. As stressed before, southern countries are getting increasingly specialised in non-tradable sectors (such as construction, hotels and restaurants, business services etc), while manufacture is gaining weight in the core. The first suffers of lower productivity on average compared to the second, a gap that according to the authors has widened over time and could explain this divergence.

However, this traditional split of the economy may be misleading in describing the phenomenon. Indeed, the productivity differences could also be explained by weaker resource allocation (Fontagné et al., 2016). CompNet data (undated:online) reveals an increase in both labour and capital misallocation in many European countries, with the exception of Germany, causing a considerable dispersion of productivity across firms. In particular, the cost of credit, demand uncertainty and excessive capital market regulation are found to hinder the ability of reallocating capital to most efficient firms (Gilchrist et al., 2013). Changes in real turnover and labour market regulation would responsible for labour misallocation instead (Haltiwanger et al., 2014).

The second parameter that has been analysed is wage inflation. The reason behind its inclusion in the analysis is that the synchronization of inflationary pressures is essential to maintain stable the relative level of competitiveness among member states of a currency union. However, this synchronisation is precisely what is lacking in EMU, especially between core and peripheral countries. Indeed, looking at OECD's data (2018) it can be observed that variations in nominal unit labour cost (hereafter NULC inflation) positively - and strongly - diverged among peripheral and core countries between 1999 and 2008, while it negatively diverged between 2010 and 2015. For instance, in the 1999-2008 period NULC remained stable in Germany and Austria, while it rose by almost 30% in Portugal and about 36-49% in Greece, Ireland, and Spain. This process is also well stressed in table 2.2, which shows a huge variance in NULC inflation among countries (±13.8 percentage points). Conversely, in the so-called 'Troika countries', between 2010 and 2015 NULC fell by around 12% in Greece, 6–7% in Spain, and 6% in Portugal (Eurostat, 2018).

Table 2.2: Overview of selected variables regarding labour costs and inflation in the EA 12.

	Cumulated growth (1999–2008, %)	Cumulated nominal unit labor cost increases (total economy, 1999–2008, %)	Cumulated nominal unit labor cost increases (manufacturing, 1999–2008, %)	Cumulated price inflation (1999–2008, %)	Current account surplus (averaged over 1999–2008, %)
Austria	27.2	6.4	−8.2	21.9	1.7
Belgium	23.9	20.4	7.1	24.6	2.8
Finland	37.5	16.7	−23.0	19.8	5.5
France	21.4	19.7	2.3	19.0	0.5
Germany	17.1	−1.8	−5.0	17.3	3.0
Greece	43.6	37.5	53.0	38.3	−8.6
Ireland	68.8	48.9	−11.0	44.7	−2.1
Italy	13.4	27.9	29.8	26.3	−1.2
Luxembourg	55.6	29.4	26.2	26.9	9.8
The Netherlands	27.1	23.0	2.8	24.6	5.2
Portugal	17.0	29.8	13.1	45.5	−9.6
Spain	40.4	36.3	28.2	37.3	−5.9
Average	32.8	24.5	9.6	28.9	0.1
Std. dev.	16.9	13.8	21.4	10.0	5.9

Authors' own calculations from OECD sources.

Source: Höpner and Lutter *(*2017).

Analysing these divergences between 1999 and 2008, Höpner and Lutter (2017) find that differences in NULC inflations among EMU countries depend on the heterogeneity

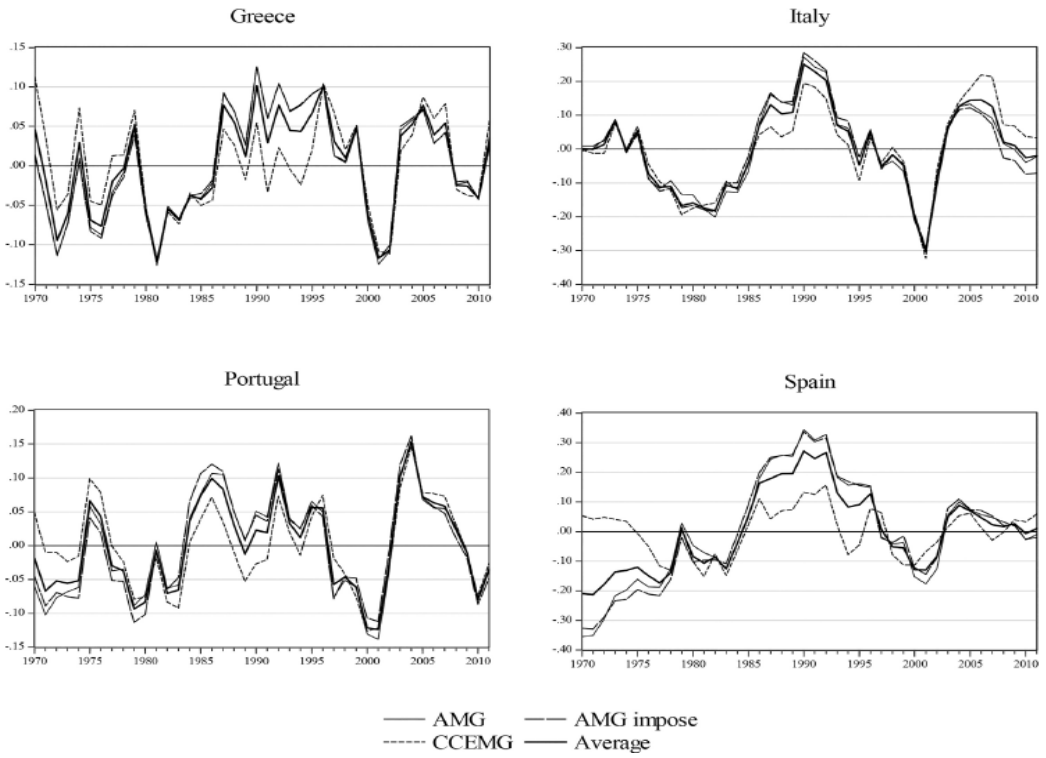
of the wage bargaining regimes. In particular, it is found that wage inflations are higher when the wage-bargaining regimes lack of a central coordination. Indeed, if wage bargaining takes place in a decentralized and uncoordinated manner, then the single units will compete on short term objectives such as pay rises, causing inflationary pressures on nominal wages (Bruno and Sachs, 1985). On the contrary, if wage bargaining is coordinated, uncertainty about the wage deals of other units disappears and forms of strategic cooperation such as strategic wage restraint can be encouraged (Bruno and Sachs, 1985). The latter strategy has the advantage to reduce export prices, and therefore to generate trade surpluses, support export-sector job security, and perhaps establish a basis for higher wages in the future. These two systems of wage bargaining may be referred to respectively as Southern and Northern-style wage bargaining, with the latter approach usually seen as more provident and long term based. Höpner and Lutter (2017) believe that this heterogeneity of wage regimes between peripheral and core countries could hamper a smooth functioning of the euro, and therefore greater integration is advisable.

Nevertheless, today any hypothesis about the transfer of Northern-style wage coordination to the South appears unrealistic, since the interventions by the former Troika pushed Southern wage bargaining in precisely the opposite direction. Indeed, as documented by Natali and Vanhercke (2013), these interventions aimed at weakening centralised trade unions and at strengthening company-based wage bargaining in order to reduce real wages in times of crisis. This change in institutions helps to explain the trend reversal on NULC occurred in peripheral countries since 2010. Paradoxically, therefore, the European Commission interventions pushed the Eurozone even further away from the condition of homogeneity necessary to make EMU an optimum currency area.

The heterogeneity of European labor relations - and therefore wage inflations - had a significant impact on the third parameter examined in this section: the fluctuations in real exchange rates (RER). In a work by Solanes et al. (2017), it is stressed how RER misalignments between core and periphery has been an evident issue in the past decades. As detailed in Chapter 1, this an extremely important matter as the adjustments to RER overvaluations in a fixed exchange rate regime entail greater economic and social sacrifices compared to when the exchange rate is let free to float. The inspection of fig. 2.4, which shows the fluctuations of RER in four southern countries between 1970 to

2011, allows to further appreciate the magnitude of the problem. The average size of RER misalignments is remarkable in each country, ranging between 10% and −13% for Greece, between 25% and −31% for Italy, between 16% and −13% for Portugal, and between 25% and −20% for Spain.

Figure 1.4: RER misalignment in Greece, Italy, Portugal and Spain (per unit values) with respect to the rest of the world.



Source: Solanes et al. (2017)

Additionally, Solanes et al. (2017) find that the variance of the annual RER misalignments and the frequency of RER overvaluations of each peripheral country increased after the introduction of the EMS and worsened with the euro. This indicates that the need to modify the NER in each country escalated after fixing the exchange rate (and particularly after the introduction of the euro). For example, a Goldman Sachs study indicated that the German economy needed a revaluation of about 25% and the Portuguese economy a devaluation of about 35%, with all other euro members positioned in between these two extremes (Goldman Sachs, 2013). As alternative, Krugman (2011) suggests that Germany should inflate labour costs in order to free the Southern European

countries from some of the pressure to deflate labour costs, an event that is unlikely to happen.

In sum, it appears as peripheral countries have suffered of a major misalignment from core countries after the decision to enter EMU rather than witnessing greater economic integration. In an interesting contribution, Batavia and Nandakumar (2016) give a theoretical framework to the issue and argue that the abovementioned poor performance of the peripheral nations could be traced back to the 'Dutch Disease' phenomenon. With the term 'Dutch disease' economists usually refer to the process of 'deindustrialization' in resource rich countries, a phenomenon stemmed by a large flow of FDIs in the non-traded sector, which in turn causes real appreciation and hampers manufacturing. Similarly, in the pre-crisis years current account surpluses in the core nations were mirrored with large capital flows to the peripheral nations, where much of these flows were into non-tradable activities like construction (especially in Ireland and Spain) rather than in highly productive and competitive sectors. Income transfers from abroad increased domestic spending and drove up the prices of services and nontraded goods. The higher prices caused wage increases also in the traded sector and made manufacturing non-profitable, leading in turn to a contraction of manufacturing as well as to the specialisation of peripheral countries in the non-traded sector (the so called 'deindustrialisation'). It can be seen from table 2.3 that manufactory has, indeed, declined sharply in the PIGS nations after the entry into EMU.

Table 2.3: Share of manufacture in total exports.

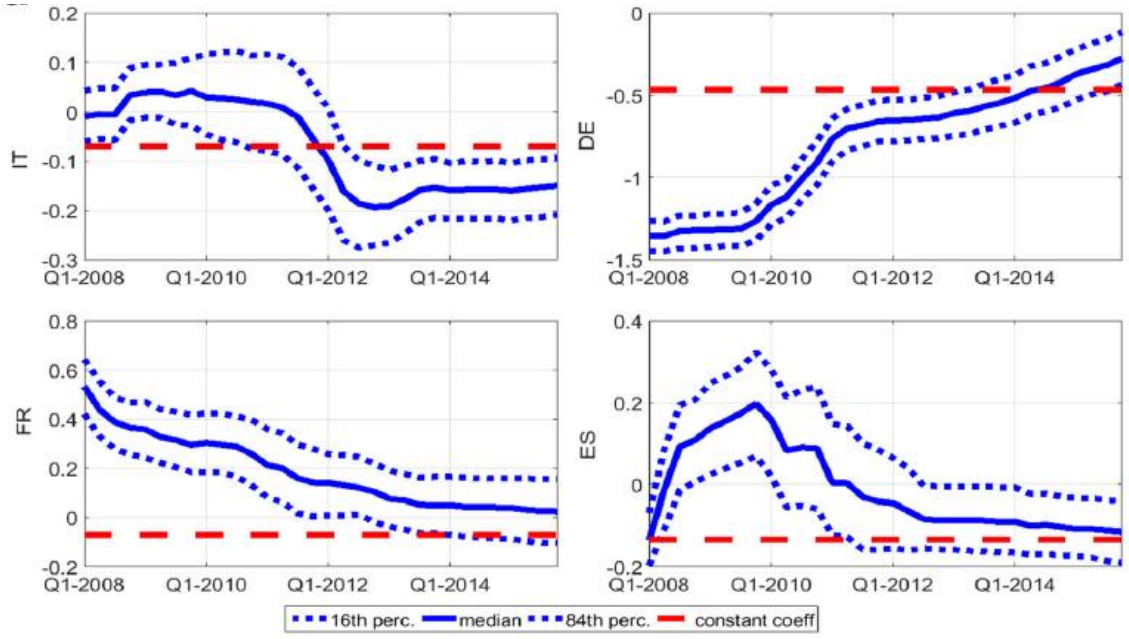
	2001	*2011*
Greece	*50%*	*38%*
Ireland	*86%*	*85%*
Portugal	*85%*	*75%*
Spain	*78%*	*70%*
Germany	*83%*	*84%*
Holland	*59%*	*64%*

(Source: Batavia and Nandakumar, 2016)

However, on the macroeconomic level is not all doom and gloom, and there are also some signs of convergence. For instance, Bulligan and Viviano (2017) find evidence that

the negative relationship between price inflation and economic slack - the wage Phillips curve- has changed since the advent of the great financial crisis and become more similar across European nations. In particular, they discover an increased correlation between wages and the unemployment rate in Italy, France and Spain, while such correlation has reduced to the European average in Germany (see figure 2.5). Therefore, it can be said that wage flexibility, which is also one of Mundell criteria, is increasing and converging in the Eurozone. This is coherent with the findings of Adamopoulou et al. (2016), who argue that after 2008 Italian firms used fixed-term workers to slow down salary dynamics. But also with the work of Font et al. (2015), that show how in Spain real wages of newly hired workers and temporary workers are more sensitive to the business cycle, as there is an increasing use of flexible wage schemes.

Figure 2.5: Philips curve steepness parameter in the private sectors in four European countries.



(Source: Bulligan and Viviano, 2017)

2.3 The Maastricht Treaty and the need for fiscal transfers in the Eurozone

The Maastricht Treaty laid the foundations for the creation of the single currency and significantly expanded cooperation between European countries. Along with setting out the timeline for the introduction of the single currency, the Treaty also established a set

of ‘convergence criteria’ that specified the conditions under which a member would qualify for participation in the common currency. These conditionalities were formulated as follows. First, the inflation rate must be no more than 1.5% higher than the average of the three lowest inflation rates among EU member states. Second, the long-term interest rate must be no more than 2% higher than the average observed in these three low inflation countries. Third, joining the European Monetary System is an essential precondition. Fourth, government deficit should not be higher than 3% of its GDP. Fifth, government debt should not exceed 60% of GDP, and if it does it should diminish sufficiently and approach the reference value.

Formally, the purpose of these criteria was to ensure a convergence of candidate countries’ economies. However, the OCA theory, which is discussed in Chapter 1, never stressed the need for so much macroeconomic convergence as condition for a successful monetary union. Heipertz and Verdun (2004) argue that these requirements should be interpreted as a self-imposed suffering demanded by Germany in order to have evidence that southern were serious about fighting inflation.

This rigidity in implementing budget austerity was also reflected in the Stability and Growth Pact (SGP), which establishes a complex system of rules that should guide national budgetary policy after the start of EMU (in particular the 3% deficit and 60% debt norms). The problem with austerity is that a strict application of SGP rules risks to hamper the capacity of national budgets to function as automatic stabilizers, thereby intensifying recessions (Eichengreen et al., 2005; Eyraud et al., 2017). This is particularly true in currency unions, where in the absence of the exchange rate instrument national government budgets remain the only available mean to contrast asymmetric shocks. On the other hand, these rules help to avoid that unsustainable debt and deficits may cause undue pressure on the BCE, as in monetary unions liquidity crisis can easily degenerate into solvency crisis (McKinnon, 1996). Still, De Grauwe (2018) observes that the lack of flexibility of national budgetary policies in the EMU creates risks that may be larger than the risk of default (De Grauwe, 2018). The author also concludes that to enhance the sustainability of both the SGP and EMU it is important to have a central budget that enables to redistribute income among states in the event of regional shocks.

The previous point is supported by additional arguments. Firstly, in a world where market imperfections prevent risk-averse individuals from buying optimal levels of

insurance, fiscal transfers play an essential role in stabilising business cycles (Mundell, 1973). A second argument is that highly indebted countries may be constrained by market fears in conducting anticyclical fiscal policy, an issue that could determine the inability of these countries to deal with economic crisis and thus challenging the integrity of the single currency (Berger et al., 2018). Thus, a degree of debt mutualisation or financial risk sharing could, in theory, helps to lower borrowing costs amongst the periphery member states and helps to take off pressure from the financial markets (Warren, 2017).

For example, during the financial crisis Florida's economy was severely hit by the bust of the housing bubble. In 2010 the state received $40 billion – 5% of Florida's GDP - in de facto transfers from the federal government, which helped the economy to recover (Krugman, 2012). The crucial point is that the federal government did not face a borrowing constraint and therefore it had very low borrowing costs. Conversely, financing the significant budget deficit would have been a burden if Florida was a sovereign state.

In principle, the same reasoning could be applied to EU budget, but, given its small size, its impact in term of risk sharing is almost non-existent. Indeed, at about 1 percent of GDP, it offsets less than 1cent for every €1 of a nation's GDP decline, an order of magnitude which is smaller than central budgets even in the most decentralized federations (O'Rourke and Taylor, 2013). Considering other two federations as benchmark, net fiscal transfers help smooth about 10–15 percent of idiosyncratic income shocks at the state level in the United States and about 20 percent at the Land level in Germany instead (Cottarelli and Guerguil, 2014). To explain this divergence, it is sufficient to note that the federal states in US and German Lands are part of a political union which has the power to enforce these transfers, whereas the same cannot be said of EMU.

The limitations of the combined application of the SGP and EU small common budget became evident as the eurozone crisis unfolded: the rigid observance of deficit rules coupled with insufficient fiscal transfers ended up intensifying the recession in southern countries rather than smoothing it (Warren, 2017). Indeed, at the beginning of the crisis European leaders, and Germany in particularly, argued that the troubles in the sovereign debt market had been caused by excessive government spending by certain periphery member states. As a result, in the following years the framing of policy solutions in

response to the crisis was guided by a neoliberal ideology which involved the intransigent application of SGP's fiscal discipline. These policies exacerbated the depression, making it necessary for the ECB to fulfil its function as lender of last resort in response to the escalating crisis in the eurozone (De Grauwe, 2013).

With the ECB able to temporarily normalise market reactions within the eurozone, many European leaders considered to reframe the crisis as demanding more supranational solutions. Despite these developments, when discussing the reform solutions there was limited ambition shown in framing supranational solutions to the eurozone crisis. Indeed, Germany made it clear that reforms should not lead to permanent transfers between countries and that efforts should be made to guarantee they are consistent with the existing EU fiscal framework (European Commission, 2015). A key constraining factor were the sovereignty concerns and issues of moral hazard circulating amongst member states, which together have ensured that a supranational fiscal policy is unlikely to be obtained in Europe (Warren, 2017). Therefore, since there is no concrete prospects for a political union in Europe any time soon, it appears as this OCA criteria will remain unfulfilled.

Nevertheless, the institutional framework has evolved in the past few years, paving the way for new developments on the topic. Indeed, the European Stability Mechanism (ESM) added a conditional lending facility available to all members that enables to extend credit when market access is in doubt and sovereign lending rates are high. However, ESM credit is subject to strict conditionalities and it ultimately must be repaid, therefore reducing its macroeconomic impact and leaving fiscal risk sharing to insufficient levels (Berger et al., 2018).

2.4 EMU and financial market integration

As stressed in section 1.1, financial market integration is an additional important requirement to become an optimum currency area. Financial and economic integration are expected to be an interrelated phenomenon as financial market fluctuations reflect the expectations about future real economic activity, but also the real economy can be destabilized by swings in financial markets. Therefore, giving the scarce economic integration discussed in section 2.1 and 2.2, one may expect a low level of financial integration too. Interestingly, most studies seem to agree that European financial markets are getting more synchronized than real markets instead.

For instance, Ahmed et al. (2018) find a positive and significant euro dummy, giving indication of increase in financial synchronization in the eurozone after 2002 (except for Portougal which decouples from the four major economies). Likewise, Walti (2011) stresses that monetary integration has raised financial returns' correlations by reducing transaction costs coming from exchange rate uncertainty, implementing a common monetary policy and converging inflation expectations. Furthermore, Beine and Candelon (2011) find again a strong support in favour of a positive impact of trade and financial liberalisation reforms on the degree of cross-country stock market linkages. Therefore, the existence of the euro had the effect of speeding up financial market integration in Europe. The main reason behind this phenomenon is that the elimination of the exchange risk also eliminates an obstacle to the free flow of financial assets and services.

On the other hand, it is argued that the complete integration of financial markets has still to be achieved as important differences in the legal system creates obstacles to the fulfilment of this criterion (Fidora et al., 2006). Indeed, accounting rules, corporate taxation, shareholders' rights, and laws governing takeovers continue to be very different across countries in the eurozone, creating divergences in the value of bonds and equity across EMU. Still, there is evidence that the introduction of the euro contributed to reduce this home bias within the Eurozone (Fidora et al., 2006).

Importantly, the role of international capital transactions during the financial and sovereign debt crises in the EU has given reasons to question the effectiveness of financial integration. Cesaroni and De Santis (2018) analyse the composition and institutional quality of international holdings in emu countries before and after the euro in order to evaluate whether this integration occurred. Surprisingly, they find that after EMU differences in the form of financing among member states got wider: in most of core countries there was an increase of sources of less volatile financing, while in the peripheral countries on average the opposite occurred.

Specifically, they focus on three main international transactions components: Foreign Direct Investment (FDI), Portfolio Debt Investment (PDI) and Portfolio Equity Investment (PEI) over the years 1996-2014. The empirical evidence shows that the ratio of net FDIs asset to GDP increased in core countries and remained stable in periphery countries, while the ratio of net PEIs asset to GDP increased in core and decreased in some periphery countries. Concerning PDI, the ratio of net PDIs asset decrease extremely

sharply in periphery countries, meaning that there was a strong inflow of foreign capitals in the latter group.

The problem with this trend is that while PEIs are considered to be a more stable and growth-friendly source of financing, portfolio debt investments increase the risk of banking and balance of payments crises (Furceri et al., 2011). This is precisely what occurred in many peripheral countries with the worsening of the financial and debt crisis. Indeed, when investors pulled out from the domestic bond markets because of the diffuse default fears, the price of government bonds drastically decreased. As a result, domestic banks – that are usually the main investors in the national bonds market – registered significant losses in their balance sheet. This process increased capital outflows, which in turn determined a liquidity crisis in the banking sector.

Such outflows are more likely to occur in a currency union as there is no risk of exchange rate depreciation and free movement of capital is allowed. De Grauwe (2018) argues that a banking union is therefore necessary in order to cut the 'deadly embrace' between national debt and banks that has been stressed before. This issue will be better analysed in Chapter 3.

2.5 Current trends in intra EU migration

From the perspective of the optimal currency area literature, labour mobility is another essential instrument to mitigate the effect of economic divergences between member countries. However, in the euro area the level of interregional labour mobility remains low, especially if compared to the USA (Taylor and Feenstra, 2017). For example, in 2013 less than 5% of EU citizens lived in a different Member State than they were born, while the same statistic accounts for more than 25% in the US (Arpaia et al. 2016). Yet, since the adoption of the Schengen Agreement - which allows free movement of people - mobility across the EU has been increasing and migration flows became more responsive to economic differences across Member States of the euro area.

In particular, Arpaia et al. (2018) find that differences in the unemployment rates between the country of origin and destination have a significant effect on migration flows in the euro area. Specifically, it is found that a 10% increase in the relative unemployment rate is associated with a 1.5% fall in the bilateral migration flow. Secondly, the paper finds that after the introduction of the euro the responsiveness to changes in

unemployment rates has increased. Indeed, it is estimated that in the "old" EU members the effect of changes in unemployment rate on migration is about 50% higher in the EMU-period (after 1999). Thirdly, it is found evidence that EU accession has increased intra EU migration by 10% (the figure increases to above 40% with dyadic controls), and there is a further increase when labour market restrictions are lifted.

The increased intra-EU mobility proves that there is a gradual deepening of the labour market integration among "old" EU member States that form the euro area. Indeed, according to a European Commission report (2017) there is a slightly larger proportion of active movers in the period 2011- 2016 than those who moved between 2006 and 2011, a result that is consistent with the findings in the literature. In particular, the report finds that Germany, which is the main destination country hosting almost 50% of all movers, is witnessing a growing number of movers as in 2016 the country has recorded a positive intra EU migration amounting to almost 800,000 individuals. Seemingly, Austria is facing similar trends as it is the second largest net receiving country in EMU. Turning to the countries of departure, Italy, Poland, Romania and Portugal are the main groups of movers, each of these groups has become larger since 2015 with the exception of Portugal. Not surprisingly, since the beginning of the economic crisis (2009), an increasing number of nationals have been leaving Spain and Italy every year and this trend continued in 2016.

Nevertheless, the report also indicates that a common language is still an important driver for cross-border migration and that language obstacles may overshadow economic opportunities of different labour markets in cross-border areas. For instance, the similarity of the Czech and Slovak languages and the same cultural heritage that the two countries share could explain why the number of Slovak cross-border workers to the neighbouring Czech regions increased, whereas the number of Slovak cross-border to the neighbouring Austrian region decreased despite these Austrian regions had higher GDP per capita and lower unemployment. Therefore, language and cultural barriers still represent an obstacle to factor mobility in Europe.

Chapter 3: Future scenarios and possible developments

3.1 Five reforms to complete the monetary union

The previous chapter has stressed the inadequacies of EMU in respect to the fulfilment of the most important OCA criteria. In order to better meet these requirements and overcome the fragilities of an incomplete monetary union, member states should agree to implement an ambitious set of policies. In particular, this section will give emphasis to five reforms: the assumption of the role of lender of last resort by the ECB, the implementation of fiscal transfers among member states, the issuing of eurobonds, but also the realisation of a banking union and the remodulation of Maastricht parameters.

Starting with the reform of the ECB, the central bank should serve as lender of last resort, that is to say it should guarantee the pay-out of member states' national debt in the event of financial distress (De Grauwe, 2013b). This function is a typical prerogative of most central banks, and it is essential to minimize the threat of liquidity crisis and reduce asymmetric shocks among member countries (Hu, 2014). Indeed, with the implementation of a lender of last resort facility, the ECB would be able to provide the necessary liquidity to national governments when the interest rate required by investors to hold national bonds becomes excessively costly due to fear over governments' solvency (Garcia-de-Andoain et al., 2016). This type of actions reduces the costs of financing national debt, diminishes the likeliness of a sovereign default, as well as enhances member countries' ability to provide anticyclical fiscal policy during times of crisis (Hu, 2014). Additionally, its mere introduction has a positive endogenous effect: the confidence that the ECB would exercise this function if needed usually prevents bondholders from panicking over budget deterioration, so that the central bank would have rarely to step in to provide cash to the government (Saka et al., 2015). On the other hand, a popular argument against this reform is that it would lead to inflation (Antinolfi et al., 2001). Indeed, by buying government bonds the ECB could end up to excessively increases the money stock, thereby causing inflationary pressures. For this reason, its implementation has been harshly opposed by core countries.

Despite the objections, in 2012 the ECB partially recognised the need to assume the role of lender of last resort and introduced the 'Outright Monetary Transactions' program (Febrero et al., 2015). With this program, the institution committed itself to buy an unlimited amount of governments bonds in the secondary bond market once a Eurozone

government asks for financial assistance. The program was quite a success, but unfortunately a number of conditions were attached in order for a state to benefit of the central bank's intervention, therefore limiting its effects (De Grauwe, 2018). First, governments that apply for OMT support must accept an austerity program imposed by the European Stability Mechanism. As stated in section 2.3, austerity has the effect to push the already troubled countries into deeper recession, an issue which in turn extends desynchronised shocks in EMU rather than diminishing them (Fitoussi and Saraceno, 2013). Second, the ECB has restricted its purchase to bond with a maturity of up to three years. This condition creates the incentive to issue bonds with shorter maturity, thus increasing the fragility of the assisted country's financial system (De Grauwe, 2018). In sum, some progress has been achieved but restrictions over the application of this function makes the reform just partially developed. Hence, greater power should be given to the ECB in order to help member countries smoothing divergences in business cycles (Rodríguez and Carrasco, 2016).

Another important reform concerns the introduction of fiscal transfers among member states, a key measure to increase economic integration, reduce asymmetries and soften competitiveness imbalances (see section 1.1). Depending on the desired level of supranational integration, fiscal transfers could be set up in different forms. In particular, this section will analyse the concept of a common unemployment insurance system as well as the more ambitious prospect of a federal budget.

Talking about the first, Van Rompuy et al. (2012) suggest a mechanism in which countries experiencing a boom transfer resources to country experiencing a recession, with the level of contribution depending on divergences in labour market developments. The policy would work like a sort of insurance, which helps both reducing the pain of recessions in countries witnessing excessive levels of unemployment and fostering integration among member states. On the other hand it has some limitations, as problems may arise when national states are all affected by a recession of different amplitudes rather than facing a 'boom and bust' scenario (Andor, 2016). In this case, countries experiencing a mild recession would struggle to transfer resources to more troubled countries, since they would end up worsening their economic situation in the midst of a crisis. This issue could be overcome with the implementation of the second option: the institution of a large central budget. Indeed, a federal budget would allow the use of deficit

spending in times of crises, therefore avoiding fiscal transfers when all members are struggling with a serious economic situation (Vandenbroucke et al., 2017). However, it is clear that a budgetary union is probably a too ambitious project at the moment, as it would entail a European government and parliament (Costa Cabral, 2016). Still, it is possibly the future direction Europe will have to take in order to make EMU more resilient to external and internal imbalances.

The symmetrical consequence to the introduction of a common budget is the joint issue of common bonds (also known as eurobonds) needed for financing it. A European safe asset would be an essential instrument to sustain financial stability, promote economic integration, and reduce uncertainty in the economy. As regards the first point, greater financial stability stems from the fact that issuing eurobonds implies the existence of a central authority with the power to both issue debt and control the currency under which the debt is issued (European Commission, 2017b). This alignment of power is a missing element in EMU, and its restoration would enable European institutions to contrast destabilizing capital flows on the bond market with the use of monetary policy (Favero and Missale, 2012).

Turning to economic integration, eurobonds would foster the homogeneity of European economies by increasing diversification of risk and putting an end to the banking system's 'home country bias', namely the tendency to overinvest in domestic national bonds (Demary and Matthes, 2017). The 'home country bias' is responsible for transmitting the risk of sovereigns to the banking system, thus hindering banks' ability to lend money and serve the economy in the more vulnerable regions of the Union (Battistini et al., 2014). By reducing this exposure, a European safe asset would allow a more even distribution of risk as well as a greater integration of eurozone' economies (Demary and Matthes, 2017). Finally, issuing eurobonds would signal the commitment of member states to the success of the common currency and in turn reduce economic uncertainty on the future of EMU (Juncker and Tremonti, 2010).

In recent years, several proposals have been put forward with different design features, ranging from full to partial common issuance, some based on a two-tranches system (blue and red bonds) and others entailing entrance fees. Despite the variety of alternatives, these proposals have always been rejected. The issue is that developing eurobonds would require the at least partial consolidation of national debts into one

federal debt, a condition which exposes the most disciplined countries in the eurozone to the moral hazard of southern countries (see section 3.2 for a more in-depth analysis) (Matthijs and McNamara, 2015). A second problem is that countries as Germany and Netherlands profit from triple A ratings, so joining a common bond mechanism with the highly indebted southern countries would cause them to pay an higher interest rate on their debt. Therefore, there is little chance to see the realisation of this reform in the near future, unless European institutions create a proposal which is sufficiently attractive for triple A countries.

A fourth necessary reform is the implementation of the so called 'banking union', namely a system that makes it possible to spread the costs of recapitalizing and restructuring insolvent banks over the whole union (Abascal et al., 2015). This mechanism would have both the effect to smooth divergences in business cycles and increase economic integration in the financial sector (Leblond, 2014). To better contextualise this assertion, it should be considered that today the resolution of banking crisis is a task which is currently carried out by national governments.

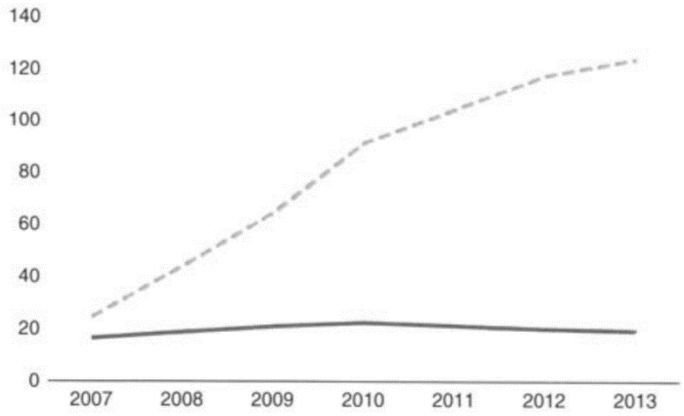
The issue with a decentralised approach, is that banking crisis can turn out as extremely expensive, and standalone countries may need to drastically increase their budget deficit in order to face bank bailouts' costs (Belke and Gros, 2016). As a result, in the context of EMU where the central bank does not act as lender of last resort and the exchange rate instrument is not available, the deteriorated budget deficit can easily trigger a financial crisis, foster a recession, and consequently increase the chances of a default (see section 1.3). This in turn creates asynchronies in business cycles and determines conflicting needs in terms of monetary policies among regions. For example, what happened in Ireland with the outbreak of the great financial crisis in 2008 can be easily reconducted to the above-mentioned process, and largely diverges from the experience of Nevada, which is part of the US banking union (see table 3.1) (Belke and Gros, 2016).

Table 3.1: Comparison between Ireland and Nevada on the effect of 2008 banking crisis on macroeconomic fundamentals.

	Ireland	Nevada
GDP (in billion ($), 2011)	200	120
Change in GDP (2007-10)	-5.3%	-17.6%
Unemployment rate (2011)	13.5%	14.4%

Source: Belke and Gros (2016).

Figure 3.1: Comparison between Ireland and Nevada on the effect of 2008 banking crisis on the debt to GDP ratio.



Source: Belke and Gros (2016).

Instead, realising a banking union could prevent this painful scenario as it would work as an insurance system: every member country gives a contribution to alleviate the bailout costs of another member, and in turn it will receive support in the future when hit by a banking crisis. In this way, the resulting deficit remains of moderate entity, financial crises are avoided, and convergence in members' economies is restored (Belke and Gros, 2016). A second benefit is that a banking union requires a centralised authority which supervises the conduct of financial institution, a feature that could help making member countries' financial sector more similar and therefore improving the level of economic integration (Capriglione, 2013).

Unlike other reforms analysed in this section, some steps have already been taken towards its implementation. In 2013 the Eurozone agreed to set up a common fund to alleviate single member states from the burden of banking crisis, what has been called the "single resolution mechanism" (SRM). However, this fund is generally criticised as insufficient, since it is relatively small (around 50€ billion) and rules governing its use reach a level of complexity that undermines its effectiveness (Alexander, 2015). Indeed, the European Commission (2017b) is planning to reinforce the SRM with a 'common fiscal backstop' and a common deposit insurance. In their view, the SRM and the insurance on deposits should be entirely pre-financed by the banking sector, while a fiscal backstop provided by member states would be made available only in the event that serious problems affects several banks at the same time, determining in turn a financing

need which is greater of the means available in the funds. These concessions would be paired with a strengthening of the ECB role in supervising the banking sector in the eurozone, which will be able to audit financial institutions' balance sheets, impose fines and close down banks if necessary. Considering the theoretical principles examined before, such reforms would go in the right direction, however it is too early to draw conclusions as their actual implementation may face resistance from member countries.

Finally, a revision of Maastricht's parameters and the Stability and Growth Pact should be considered. As stated in section 2.3, the SGP strongly limits the possibility of member states to contrast shocks through fiscal policy, therefore exacerbating depression in EMU countries. Also, it has the effect to reduce the level of public investments in countries that are required to lower their debt to GDP ratio (Balassone and Franco, 2000). An issue that hinders them from updating their capital stock and in turn sustaining the relative level of competitiveness with other member countries, therefore decreasing the degree of economic integration in EMU (Laski and Podkaminer, 2012).

If there is a general accordance in changing the SGP, there are conflicting views on how to change it. In a survey edited by Fischer et al. (2006), a vast number of academics seem to agree that the SGP should focus more on fostering economic growth rather than imposing fiscal discipline. In particular, it is argued that fiscal rules should be applied in a long-term perspective instead of imposing rigid yearly-deficit targets. For instance, Fitoussi (2002) claims that fiscal parameters should reflect country-specific economic conditions, while Teglio et al. (2017) stress the need to allow greater fiscal relaxation in bad times. Oppositely, a second branch of literature sees the failure of the SGP as a result of excessive flexibility, and thus supports stricter rules. For example, Eichengreen and Wyplosz (2003) propose to strengthen fiscal discipline by extending the SGP with rules assessing the quality of fiscal policies, whereas Fourçans and Warin (2007) assert that the SGP does not prevent countries from engaging in moral hazard, thus the dissuasive element should be intensified.

Furthermore, some authors suggest the introduction of alternative, non-fiscal, parameters. In this sense, Laski and Podkaminer (2012) support the inclusion of 'excessive external surplus' procedures against countries generating large current accounts surpluses at the expense of domestic consumption and partners' debts. Such procedures would be helpful to avoid that countries as Germany run extensive balance of

payments surpluses by reducing unit labour costs and financing deficit countries, a process that consequently exacerbates imbalances among members (Laski and Podkaminer, 2012). To conclude, despite a general awareness on the limits of the SGP, there is not a unanimous consensus on how to amend it. Further considerations on the reasons behind member countries' resistance to this whole set of policies will be examined in the following section.

3.2 Limits to further integration

The aforementioned reforms are undoubtedly necessary to create a more functional currency union. However, in the current context, serious limitations appear to constraint their effective implementation, a deadlock which is leaving EMU in a counterproductive status quo. Such limitations include the risk of moral hazard, the threat of rising inflation, and the lack of political support for a deeper integration.

Starting with the risk of moral hazard, core countries are concerned that peripheral countries could use these reforms to issue too much debt while dumping the costs of their political short-termism on them (Hebous and Weichenrieder, 2016). This is a classical free riding issue. Indeed, the issuance of eurobonds may reduce the incentive to engage in sound economic policies at national level, as singular member states could be tempted to rely on other countries to repay their liabilities (Muellbauer, 2013). This creates a general resistance on countries that behave responsibly. Similarly, by providing a lender of last resort facility there is the risk member countries would issue more debt than necessary as a result of the reduced power of market forces to constrain government spending (Wilsher, 2013). Also, the remodulation of the fiscal rules expressed in the SGP could be seen as a way to eliminate those safeguards that prevent moral hazard from occurring.

For these reasons, creditor states as Germany are unwilling to implement a transfer-union, as they fear that EMU could turn into a currency union of moral hazards (Dyson, 2012). This climate of distrust was also exacerbated by the recent crisis in the euro area, which evidenced reliability issues with southern countries and strengthened the concerns that closer ties with the Periphery could undermine the Core's creditworthiness (Wulff, 2011). Therefore, in order to achieve such reforms, highly indebted countries need to provide further assurance of their good faith and show commitment to the common

interest. For instance, they could subject their fiscal policies to tighter supranational control (i.e. the European Commission), a requirement that may however lack of political support at home.

Turning to the second limitation, these reforms might cause a boost in inflation. According to the neoliberal economics, the excessive increase in money stock possibly associated with a lender of last resort facility, and the risk of uncontrolled deficit spending entailed with relaxed fiscal rules, can elicit high inflation rates. This consequence is particularly feared by Germany, whose longstanding monetarist tradition remains highly influential in European policy making. In addition, the existence of state support in protecting the banking sector and the sovereign bond market from defaults, would cause investors to under-price risks and in turn foster inflationary bubbles (Wilsher, 2013). Indeed, the aforementioned mispricing would determine resource misallocation and alter economic expectations. A toxic combination, which is responsible for booms and busts in the economy as well as for imbalances among member states (Knütter and Wagner, 2011).

In reality, despite the outstanding increase of the monetary base resulting from the ECB's quantitative easing, the Eurozone has been far from witnessing a double digit inflation. Indeed, EMU is still fighting against the threat of stagnation and deflation (Semmler and Haider, 2016). According to Krugman (2010) and Saraceno (2016), this is because European countries are caught in a liquidity trap: the increase in the monetary base has been paired with a drop of the money multiplier due to fears over member states' precarious economic conditions (the so-called credit crunch). Given that the second effect offsets the first, the monetary stock results unchanged (De Grauwe, 2018). Therefore, in this economic context, fiscal expansion would enable to restore confidence in the economy and thus increase the responsiveness of economic agents to monetary stimulus rather than causing macroeconomic imbalances (Saraceno, 2016).

Thirdly, there is a political issue: intrusive measures such as the budgetary union implies a transfer of sovereignty to European institutions, in other words: a political union. Indeed, the power to tax and spend the income generated by European individuals could only be exercised after a process of democratic and constitutional legitimisation. However, it is clear that there is little willingness in Europe today to move in this direction, as the re-emerging of nationalistic movements across all the continent - usually

critical towards European institutions - symptomizes the detachment of citizens from the idea of further political integration.

The root of the problem lies in the fact that Europeans lack the sense of common purpose as well as the feeling of belonging to the same nation, features that are instead typical of most sovereign countries (Carl, 2017). The problem is that this sense of unity is hard to achieve, since it requires a long span of time to be naturalised in the collective imagination. In addition, the enlargement of the Eurozone to a series of Eastern European states did not help with the issue, but it has rather weakened the chance to develop a pan European-national sentiment (De Grauwe, 2018). As a result, European institutions cannot ignore the fact that deeper integration is inseparable from the formation of a European cultural identity, therefore greater efforts should be put in this regard.

In sum, the reforms enucleated in section 3.1 would struggle to be put into practice due to the lack of European identity and the risks of inflation/moral hazard that threat core countries. On the other hand, these limitations may sound more penalising than they are, especially considering the benefits coming from a well-functioning currency union. Therefore, member countries should consider the creation of safeguards mechanisms that prevent moral hazard from occurring and then agree on a roadmap that leads to further integration.

3.3 Towards a two-speed Europe?

The analysis carried out in the previous sections has emerged the existence of a deadlock in EMU: the union possesses structural flaws that hinder the correct functioning of the euro area, but despite the evident issues, member countries exercise resistance to the implementation of vital reforms such as the creation of a budgetary union. Once the path of common reforms is excluded, raising questions on the desirability to maintain the currency union in the current form represents the logical consequence to overcome this impasse. Among the many proposals on remodelling the eurozone, this section will analyse the perspective of a two-speed Europe.

Building on Stiglitz (2016), a two-speed Europe, or a flexible euro, is the idea that EMU should be split into two different regions, each of which equipped with its own currency. According to the author, the most plausible scenario would be providing core and peripheral countries with a ‘northern euro’ and ‘southern euro’ respectively, since the

states belonging to these blocks share more similar macroeconomic fundamentals. This new configuration would allow the northern euro to appreciate, determining in turn the reduction of core countries' trade surplus and fixing competitive imbalances with the South. At the same time, the southern euro would depreciate, thus increasing the level of exports and restoring growth and employment in peripheral countries. Additionally, considering the greater homogeneity in terms of business cycles and labour market dynamics resulting from this split, the new central banks would be able to pursue more effective monetary policies, while governments would have similar needs in terms of fiscal policy (Bagnai et al., 2017). The latter point would come to the advantage of southern countries who could get rid of austerity (at least in the short term) and undertake countercyclical fiscal policies.

A complementary view is stressed by Arbatova (2017), who argues that the different regions could also differentiate from each other on the speed of political integration. According to this perspective a smaller group of European states, possibly the core countries, should integrate at a faster pace, while the remaining members would join the core group once their economies reach greater macroeconomic alignment and their political base shows stronger willingness to commit to the cause of political union. In essence, this measure would help member countries to overcome the current impasse by allowing them to cooperate at different level of integration (Warleigh, 2002). For instance, Piris (2011) suggests that the core group could collaborate more intensively on defence, security and research, whereas countries who do not wish to give up more sovereignty could simply opt out. This view seems to obtain consensus from a part of European institutions, as President Macron has publicly endorsed the prospect to adopt a common budget and institute a European minister of finance in a limited group of countries (The Economist, 2017).

A revision of the treaties to allow EMU's fragmentation is not on the agenda at the moment, but things could change in the near future as Europe is moving defacto at two speeds. Indeed, since the introduction of the euro half the population of the EU has improved its standard of living, while the other half has witnessed lower growth, greater unemployment, and deeper inequality (see table 3.2) (Matthijs, 2016). Similarly, productivity and competitiveness have increased in core countries and decreased in the periphery, turning into current accounts imbalances and proving once again a persistent

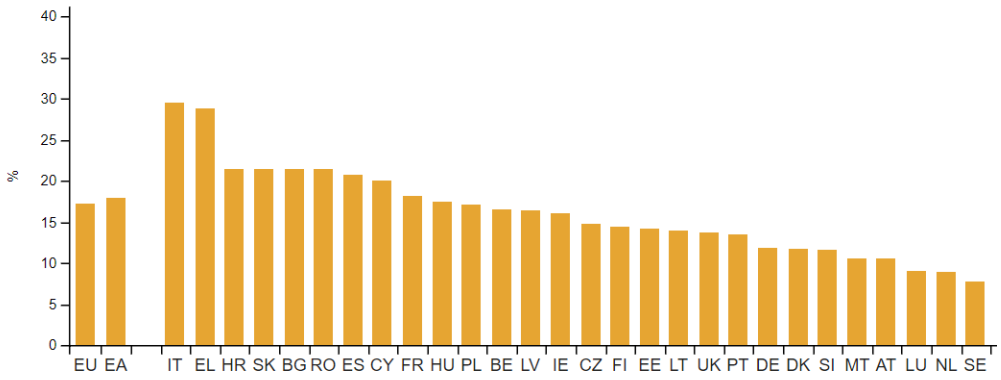
divergence in economic fundamentals among the two regions (Campiglio, 2017). The contrast between the lack of future prospects in the South and growing economies in the North is also visible from the recent developments in the statistics related to young people neither in employment nor in education or training (NEET). Looking at Eurostat data, southern countries have a percentage of NEET people that is two/three times higher than their northern counterparts (see figure 3.2). An issue, that will produce negative long-term effects on southern countries' productivity, given that a large part of young individuals is not accumulating human capital through education or developing on-the-job skills (Helgesson et al., 2014).

Table 3.2: Change in income inequality ratios in EA12 since 1998

	1998 Level	2008 Level	2013/4 Level	Percentage Change (2003–08)	Percentage Change (2008–13/4)
				North—CMEs	
Austria	5	6.6	6.6	+32.00	0.00
Finland	4.8	5.5	5.2	+14.58	–5.45
Germany	5.3	8.1	7.4	+52.83	–8.64
Netherlands	5.3	6.7	5.4	+26.42	–19.40
Luxembourg	5.3	6.2	7.3	+16.98	+17.74
				Center	
Belgium	5.5	6.4	5.6	+16.36	–12.50
France	7.3	7	7.1	–4.11	+1.43
Italy	7.7	8.8	11.8	+14.29	+34.09
				South—MMEs	
Greece	13	10.6	12.7	–18.46	+19.81
Ireland	9	6.6	7.2	–26.67	+9.09
Spain	12.5	10.6	13.7	–15.20	+29.25
Portugal	14	10	10.6	–28.57	+6.00

Source: Matthijs (2016)

Figure 3.2: Young people (aged 20 to 34) neither in employment nor in education and training in EU countries, 2017



Source: Eurostat (2017:online)

Academics have largely debated what are the reasons that could explain these growing divergences, with the most common explanations ranging from southern countries' bad management of public finances to the wrong economic policies imposed by the Troika (Matthijs, 2016). Whatever the truth may be, the underlying fact is that increasing disparities among the two regions are generating a demand for change in Europe, and if European institutions are not able to restore convergence and diminish inequalities, alternative solutions - such as a 'two-speed' Europe - will consequently find support in the public opinion.

Clearly, the perspective of a two-speed Europe is full of uncertainty and entails some important limitations. Firstly, there is uncertainty on the response of financial markets to the decision of adopting a different currency in southern countries. Indeed, investors might be panicked by the prospect of a devaluation and in turn rush to divest their money from southern countries' securities (Belke and Verheyen, 2013). A capital flight could result into a liquidity crisis, raising the risk of a default and causing the distress of the already weak banking system (Belke and Verheyen, 2013). Besides, the prospect of a devaluation would make southern countries more vulnerable to the attack of financial speculators, who would seize the opportunity to profit from sovereign bond markets and currency's collapse (Walter and Willett, 2012).

Secondly, creating a two-speed Europe would essentially divide the EU and weaken its power as a foreign policy actor (Chryssogelos, 2017). Undeniably, the greater negotiating power associated with speaking with one voice has helped European countries to conclude more favourable trade deals in the past decades (Frennhoff and Larsén, 2017), a topical issue considering the latest developments in foreign trade policies and the raising threat of trade wars. Thirdly, this division might entail the end of the dream of a European unification, with the consequent threat of a return to less peaceful neighbourly relations. Indeed, this fear was one of the reasons that led to the stipulation of the Treaty of Rome. Finally, Stiglitz fails to address the issue of country-level regional disparities. According to Calleo (2011), country-level regional differences can be wider than European-level ones. For instance, Northern Italy shows greater convergence in competitive conditions with Germany rather than with Southern Italy (Calleo, 2011). Therefore, even with separating core and peripheral countries, substantial inequalities would persist at the regional level.

To conclude, a two speed Europe would be a second-best option to amend the incompleteness of the monetary union. However, it hides many risks, and hence a careful analysis should be carried out before taking hasty decisions. Surprisingly, as Holzingerand and Schimmelfennig (2012) report, there is a lack of theoretical research on this proposal. Therefore, before making further conclusions on its feasibility, European institutions should promote additional research on the topic in order to properly assess the costs and benefits of the measure.

Conclusion:

This work questioned whether the European Economic and Monetary Union is an optimal currency area, so as to address the widespread concerns over the actual benefits of adopting the common currency.

In order to support this analysis, the first chapter has illustrated a solid theoretical framework based on the most important contributions on the topic. In particular, six OCA criteria have been identified: namely wage flexibility, labour mobility, fiscal transfers, coordinated business cycles, economic and financial integration. According to the literature, complying with these criteria is a key step to make sure the benefits of a currency union offset its costs.

In the second chapter, this OCA framework has been applied to EMU, suggesting in turn an alarming result: in the current form EMU is not an optimal currency area as empirical evidence has let us conclude that four out of six OCA requirements remain unfulfilled. For instance, the level of economic integration is inadequate if compared to other currency unions, not to mention it has worsened since the introduction of the euro due to the effect of trade specialisation. Similarly, the degree of labour mobility and fiscal transfers are found to be largely insufficient: cross-border migration is constrained by important cultural barriers among member states, while the European budget currently represents less than 1% of the Eurozone's GDP. Turning to the coordination of business cycles, the literature shows contrasting results on the topic, but most recent researches agree on the existence of a process of desynchronization since the 2008 financial crisis.

Conversely, wage flexibility and financial integration are the only parameters that seem to fulfil the OCA requirements. The first has witnessed an important boost after Troika's employment policy recommendations (particularly in southern countries), whereas the latter has benefitted of the enhanced synchronisation in financial markets associated with the introduction of the euro. Still, the substantial differences in labour market relations and the growing divergences in the composition of capital flows call into question the effectiveness of such compliance.

Finally, the third chapter stressed the need to implement a series of reforms, such as the creation of a federal budget, the remodulation of Maastricht parameters, but also the issuing of eurobonds and the realisation of a banking union. Unfortunately, so far the developments in this direction have been disappointing, held back in particular by the

lack of European identity and the risk of inflation/moral hazard. As a result, different proposals such as a two-speed have been considered. This concept entails some benefits, but has also important limitations as it fails to address critical issues such as the regional differences that persist at country-level.

In sum, on an OCA perspective the euro's performance has been lacklustre, especially in terms of integrating core and peripheral regions. Indeed, the first is increasing its prosperity, while the latter suffers of stagnation and lacks future prospects. A gloomy reality, which is also reflected by southern countries' increasing number of young people neither in employment, education or training (NEET). Again, in order to address these issues, a budgetary union is drastically needed, as it would allow to tackle growing inequalities and make the euro more sustainable for depressed regions. If actions to smooth these divergences are not undertaken, alternative solutions such as the return to national currencies or a two-speed euro will inevitably gain support in the public opinion, thus leading to the fragmentation of the monetary union and determining the failure of the European dream.

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