Carlos A. Carrasco

Department of Applied Economics V,
University of the Basque Country,
Spain

✉ carlosalberto.carrasco@ehu.eus

Patricia Peinado

Department of Applied Economics V,
University of the Basque Country,
Spain

✉ patricia.peinado@ehu.eus

On the Origin of European Imbalances in the Context of European Integration

Summary: We study the origin of European imbalances in the context of European integration. As a whole, the European Union and Eurozone have had nearly balanced external accounts. However, member countries have presented divergent positions. We analyse the short-term and medium-term factors underlying the presence of European external imbalances. Our results reveal the existence of divergent trends in key macroeconomic variables within the Eurozone. Moreover, the current account (CA) responds in the short-term to real unit labour cost (ULC) and discretionary fiscal policy. However, we point out the possible existence of a structural component of the CA. When assessing the medium-term determinants of the CA imbalances, catching-up, old-age dependency ratio and country-level specialisation (non-price competitiveness) are relevant variables explaining those imbalances.

Key words: Current account, European imbalances, European integration, Competitiveness, Catching-up.

JEL: E61, E62, E65, H62, H63.

The origin of European macroeconomic imbalances and their connection with the global financial crisis and the European sovereign debt crisis has been a focus of study in the economic literature. European imbalances have been associated with the European integration process and the adoption of the single currency. The economic literature has emphasised certain factors underlying the origin of European imbalances. First, the emergence of imbalances has been connected with the process of global economic and financial integration, which has increased within the European Monetary Union (EMU). Second, external European imbalances have been linked to diverging trends in price and non-price competitiveness. Third, these imbalances have been related to the fiscal positions of national governments, the so-called twin deficits. Finally, these imbalances are a consequence of the private saving-investment decision in the context of an aging population.

The analysis presented in this paper attempts to contribute to the economic literature by analysing the factors underlying the emergence of European imbalances with a particular focus on CA imbalances. After this brief introduction, the structure of the paper is as follows. In the first section, we present some features of the EMU imbalances. In the second section, we review the economic literature regarding the origin of European macroeconomic imbalances. In section three, we quantitatively

analyse the factors responsible for European imbalances in the context of European integration. Finally, in the fourth section, we present our main conclusions. According to our results, there is evidence of divergent trends in the real effective exchange rate (REER), industrial production (IP), harmonised index of consumer prices (HICP) and CA balances, while we observed strong convergence in convergence criterion interest rates (IR). In addition, in short-term, the Eurozone countries' CA have responded to real ULC rate of growth and to discretionary fiscal policy. However, when assessing medium-terms determinants of the CA, catching-up, old-age dependency ratio and economic structure are key variables explaining those imbalances.

1. Some Features of EMU Imbalances

The global financial crisis and the European sovereign debt crisis have demonstrated the unsustainability of divergent external positions and key macroeconomic variables among European Union member states and, particularly, Eurozone countries (Carlos A. Carrasco and Felipe Serrano 2015). However, while the EMU as a whole has had a relatively balanced CA, the external positions of member countries have differed (Olivier J. Blanchard and Francesco Giavazzi 2002; Philip R. Lane and Gian Maria Milesi-Ferretti 2007; Ruo Chen, Milesi-Ferretti, and Thierry Tressel 2013), especially since the adoption of the single currency. Figure 1 presents CA balances (as a share of GDP) for the Euro area, European Union, China, Japan and the United States (U.S.). As Figure 1 indicates, the Euro area and European Union have had a net CA that is nearly balanced. Moreover, Japan and China have had significant and sustained current CA surpluses, while the U.S. has presented a negative balance with an increasingly negative trend since beginning of the 1990s until the onset of the international financial crisis.
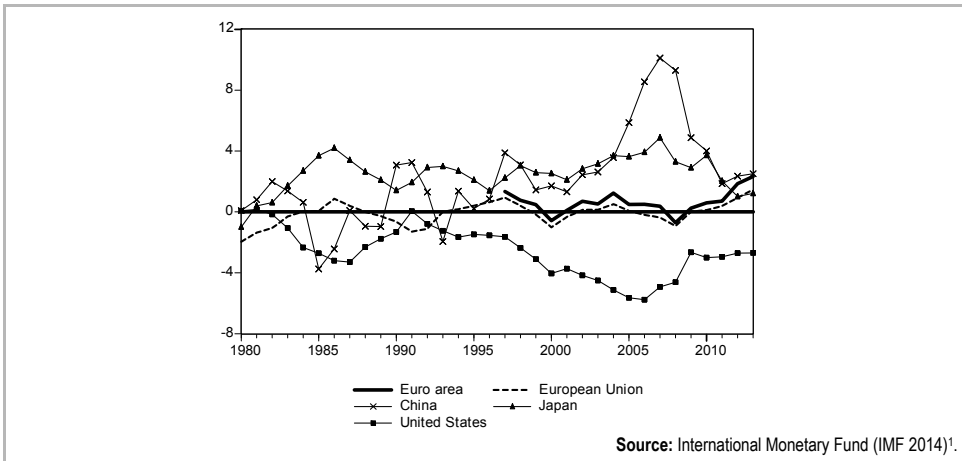

Figure 1 Current Account (% of GDP) for Selected Countries and Regions

---

[1] **International Monetary Fund (IMF).** 2014. International Financial Statistics. http://www.allthatstats.com/en/statistics/ifs/international-financial-statistics/ (accessed August 14, 2014).

Differences in external positions, as reflected in the CA imbalances of EMU countries, are not the only type of imbalances. For instance, EMU countries have presented divergent inflation rates, ULC trends and productivity growth (see Figure 2 and Figure 3). Regarding CA imbalances, Portugal, Spain and Greece are particular examples of deficit countries, in contrast to Luxembourg, the Netherlands and Germany, which have been characterised by significant surpluses. Regarding inflation, southern European economies have also had higher inflation rates than countries such as Germany or the Netherlands. With respect to labour costs and productivity growth, general economic data reveal diverging trends among Euro area countries. Portugal, Greece and Spain have had significantly higher ULC growth than countries such as Germany and Austria, while in the case of productivity growth, there have been significant differences between countries, such as Germany, Finland and Greece having higher growth and others such as Italy and Spain having lower growth, especially in the period from the adoption of the Euro to the onset of the international financial crisis.

## 2. Literature Review on the Factors Underlying European Imbalances

The global financial crisis and the European sovereign debt crisis have demonstrated the unsustainability of macroeconomic imbalances among European Union member states and, particularly, Eurozone countries. The economic literature has highlighted certain factors responsible for external European imbalances. The first factor relates to the process of economic and financial integration in the Eurozone. In this regard, external imbalances are consequence of a real convergence process in which EMU countries with relatively low levels of development are converging toward highly developed countries (Blanchard and Giavazzi 2002; José M. Campa and Ángel Gavilán 2011; Birgit Schmitz and Jürgen von Hagen 2011; Ansgar Belke and Christian Dreger 2013). In this case, according to the neoclassical theory of economic growth, capital would flow from more-developed to less-developed countries in the EMU to obtain higher marginal returns due to baseline differences in capital-to-labour ratios (Blanchard and Giavazzi 2002). The trends would cease once the catching-up process had been completed and convergence achieved. In addition, in the context of a global process of economic and financial integration, which is more extensive in the EMU, countries such as France, Germany or the Netherlands served as financial intermediaries between global financial markets and southern European countries (Schmitz and Von Hagen 2011; Chen, Milesi-Ferretti, and Tressel 2013). The positive impact of the introduction of the Euro (Lane and Milesi-Ferretti 2007; Lane 2013), namely, eliminating exchange rate risk and decreasing uncertainty, in addition to the relative homogeneity of the financial markets in EMU countries, which have a high degree of sophistication and high institutional quality, encouraged capital flows towards the southern European economies, creating diverging imbalances in the external positions of EMU countries.
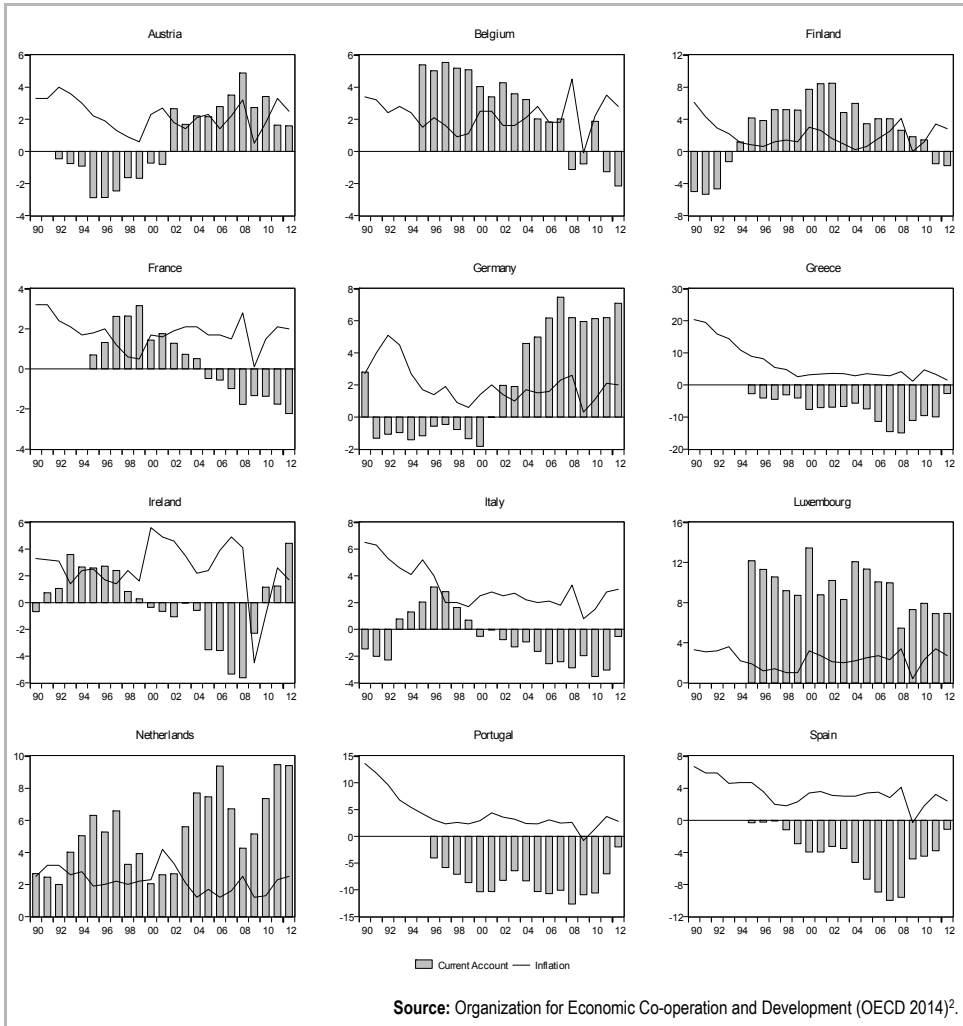
Figure 2 Current Account (% of GDP) and Inflation Rates

The second factor concerns the diverging trends in price and non-price competitiveness with a loss of relative competitiveness in the convergence countries of the EMU with respect to the core countries (Belke and Dreger 2013). The diverging trends in competitiveness within the Eurozone are related to three interconnected characteristics of the Eurozone: significant differences in economic structures, different economic strategies and the current economic policy design of the EMU. For instance, according to Eckhard Hein (2013), European countries can be grouped into three types of growth strategies during the financialisation period. The first group (Greece,

---

[2] **Organization for Economic Co-operation and Development (OECD).** 2014. http://stats.oecd.org/ (accessed August 14, 2014).
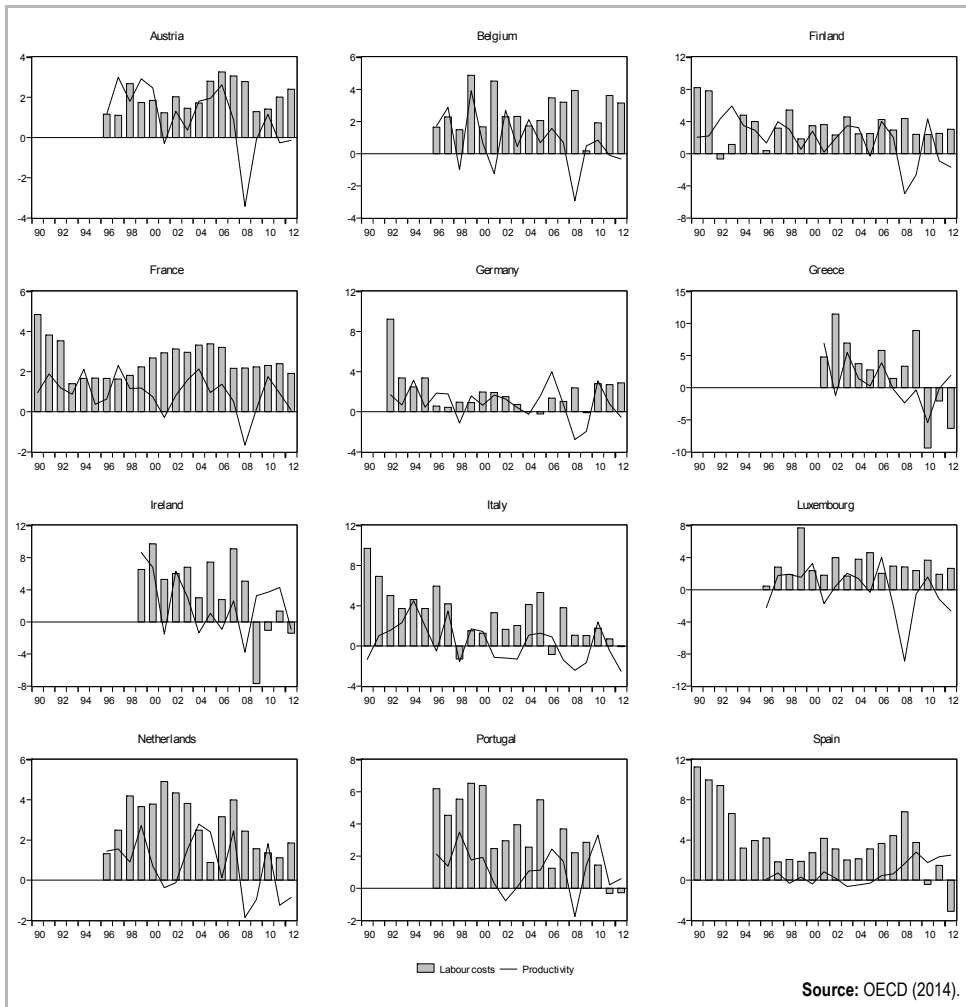
Figure 3 Rate of Growth of Labour Costs (Labour Compensation per Employed Person) and Rate of Growth of Productivity (GDP per Person Employed)

Ireland and Spain) is characterised by debt-led consumption demand. The second group (Austria, Belgium, Finland, Germany and the Netherlands) follows a neo-mercantilist, export-led growth strategy, in which export surpluses are used to stabilise aggregate demand. Finally, the third group (France, Italy and Portugal) is characterised by a domestic demand-led growth strategy. This unbalanced overall growth strategy is accompanied by a deterioration in the income distribution that is temporarily corrected by the accumulation of debt in certain countries (Jorge Uxó, Jesús Paúl, and Eladio Febrero 2011). These diverging strategies are reflected in the different trends in productivity growth, ULC and inflation rates among Eurozone member states. On the one hand, by depressing internal demand, neo-mercantilist, export-led growth countries secure gains in competitiveness, increasing their exports and fi-

nancing the CA of debt-led consumption demand countries. On the other hand, growth in certain southern countries is based on debt-led consumption, partly encouraged by the low cost of funding originating in the core countries. These capital flows exert downward pressures on the price of money and upward pressures on prices and wages and contribute to a loss of competitiveness in debt-led consumption countries.

Regarding the current economic policy design of the EMU (Hein, Achim Truger, and Till van Treeck 2012; Nina Dodig and Hansjörg Herr 2015), the adoption of the single currency and the entrance into the Eurosystem fully transferred monetary policy competences from EMU member states to common monetary authorities, while fiscal policy was established based on coordination rules framed in the Stability and Growth Pact (SGP), whilst other economic policies, such as income policy, are subject to a soft coordination scheme. In the absence of a proper synchronisation of business cycles and a relatively heterogeneous economic structure among members of the EMU, the threshold imposed by the SGP limits the ability to respond to changes in the business cycle and contributes to the creation of diverging trends in inflation and ULC. In addition, external imbalances are connected to errors in the design of the EMU or design faults (Philip Arestis and Malcolm Sawyer 2011), for instance, in the convergence criteria, which focused on nominal rather than real variables while failing to consider the nominal exchange rates at which countries enter the EMU or differences in inflation mechanisms between countries.

The third factor underlying the external imbalances is based on differences in population structure and old-age dependency ratio projections (Sebastian Barnes, Jeremy Lawson, and Artur Radziwill 2010; Joshua Aizenman and Rajeswari Sengupta 2011; Kamrul AFM Hassan, Ruhul A. Salim, and Harry Bloch 2011), that is, countries with higher expected old-age dependency ratios exhibit higher savings rates, while those countries having reached the "old" society stage would present lower or even negative savings rates (dissaving process). This excess of savings would then have been channelled to countries with higher marginal returns, and this would be manifested in the different external positions of EMU countries. This factor has been highlighted in the case of global imbalances. However, in the case of the Eurozone, this factor has not been deeply explored in the economic literature.

Finally, the fourth factor underlying the emergence of European imbalances pertains to the fiscal position of government budgets, the so-called twin deficits. In this case, evidence from EMU countries does not present a common pattern: for some countries, fiscal positions have contributed to CA imbalances, while this relationship does not exist for others (Blanchard 2007; Barnes, Lawson, and Radziwill 2010; Sophocles N. Brissimis et al. 2010; Hein, Truger, and van Treeck 2012). Certain contributions analyse this relationship and its connection with fiscal consolidation in the context of the EMU. John C. Bluedorn and Daniel Leigh (2011) demonstrate that a fiscal consolidation of 1% of GDP improves CA balances by 0.6% of GDP. Roel Beetsma, Massimo Giuliodori, and Franc Klaassen (2008) report that an increase in public expenditures of 1% of GDP worsens the CA balance by 0.5% of GDP, and over the next two years, this increases to up to 0.8% of GDP. Barnes, Lawson, and Radziwill (2010) observe a relationship between fiscal policy and CA

but with effects that are lower than a one-to-one relationship. While some economic policy discussions following the onset of the great moderation argue that government fiscal problems cause European imbalances, at least in the countries of southern Europe, Hein, Truger, and van Treeck (2012) argue that this is not the case. When examined in detail, external imbalances in peripheral EMU countries are rooted in private saving-investment decisions. However, once the crisis began, the high indebtedness of the private sector forced a restructuring of private sector balance sheets to deleverage. This change forced the governments of these countries to increase the level of public expenditure and, therefore, public debt in an attempt to compensate for and mitigate the effects of private sector adjustment on the economy.

What can we determine from these findings? The entry into the third stage of the EMU, characterised by the adoption of the Euro, which reduced exchange rate risks and placed business in the institutional framework of the EU, incentivised capital flows from the core countries to periphery countries in the Eurozone in a search for higher marginal returns due to the expected process of real convergence and, to some extent, the overestimation of future growth in the peripheral economies. Those capital flows exerted downward pressure on nominal interest rates and encouraged the creation of a debt-led consumption bubble in the periphery countries. In addition, these capital flows contributed to the development of a bubble in the residential investment sector while exerting demand-side pressure on prices and wages in the southern countries. Capital flows also contributed to the formation of sectorial imbalances. The development of the bubble in the construction sector diverted resources from other sectors. For instance, stronger wage growth in this sector attracted workers from other sectors or even students who entered the labour force to work in construction. The construction sector is characterised by limited potential for productivity increases, which was reflected in low overall productivity growth. Moreover, the core countries of the Eurozone have been characterised by depressed domestic demand and growth in prices and wages below the level of productivity growth, thereby securing gains in competitiveness relative to the countries of the periphery. Additionally, non-price competitiveness reflects differences in economic structure and specialisation between peripheral and core countries, whereby core countries have a relative advantage in the high-added value sector and export-based industries.

In addition to the above-mentioned factors, the design of economic policies in the Eurozone permitted the continuation of divergent trends in key macroeconomic indicators. First, given the lack of complete synchrony in the business cycle among the countries of the Eurozone, the common monetary policy has been ineffective overall. For instance, as southern countries expand due to the expectation of a catching-up process and core countries exhibit slow economic growth, expansionary monetary policy would have overheated the economies of the periphery countries, creating demand-side pressures contributing to the creation of bubbles in sectors such as construction. Second, fiscal policy, framed within the limits of the SGP, has constrained the actions of national governments in the presence of external shocks, contributing to the exacerbation of the crisis and the deterioration of economic outlooks in the peripheral countries. Finally, wage and income policies have not been coordinated to correct macroeconomic imbalances without affecting inflation rates through

controlling the divergent wage growth rates among Eurozone member countries (Hein 2002). However, to address the problem under the Eurozone's current economic policy design, any measures implemented must be regarded as a policy package that includes monetary, fiscal, regional, industrial and income policies (Hein and Daniel Detzer 2014).

In the Euro area, the member states have not exhibited a homogeneous or linear relationship between the deterioration of the public balance and the development of CA imbalances. In addition, while the literature has highlighted the relationship between aging and the deterioration of CA balances *via* private and public saving, further studies on the European economy are required. In the next section, we analyse the aforementioned factors and their relationship with the CA in Eurozone countries.

3. Empirical Analysis

3.1 Convergence and Divergence

Our first approach to analysing European imbalances is presented in Table 1, which reports the results of panel unit root tests for selected macroeconomic variables. We conduct these panel unit root tests to formally analyse the converging or diverging trends in a selection of macroeconomic variables. We restrict our analysis to Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, the Netherlands, Portugal and Spain. We use the German economy as a benchmark given its importance in Europe and due to the lack of quarterly data in other potential benchmark economies such as the EU or Eurozone. The REER, IP and HICP are presented as logarithmic differences, while the convergence criterion IR are simple differences, in both cases with respect to Germany's. Finally, we also present the CA balance as a share of GDP.

We apply the panel unit root tests proposed by Kaddour Hadri (2000), Andrew T. Levin, Chien-Fu Lin, and Chia-Shang James Chu (2002) and Kyung S. Im, Mohammad H. Pesaran, and Yongcheol Shin (2003). In the case of REER, IP, HICP and IR, the presence of a unit root would indicate divergent trends between the indicated country and the reference country, while in the case of CA, the presence of a unit root indicates the persistent absence of a balanced CA. The results in Table 1 reveal a marked divergence in IP. In the case of REER, there is evidence of the presence of a common unit root for all of the members of the panel, while for HICP and CA, there is evidence of individual unit roots. Finally, IR is the only variable exhibiting convergence. In summary, REER, IP, HICP and CA reveal evidence of diverging trends, while there has been convergence in IR.

Table 1 Panel Unit Root Tests for Selected Variables

		REER index based on ULC (log differentials)	IP index (log differentials)	HICP (log differentials)	IR differentials-convergence criterion	CA balance (% of GDP)
		(1)	(2)	(3)	(4)	(5)
Levels						
Levin, Lin, and Chu (2002)	t^*-stat	-0.3302	2.7576	-5.4172	-6.5903	-2.5451
	(p-value)	(0.3706)	(0.9971)	(0.0000)	(0.0000)	(0.0055)
Im, Pesaran, and Shin (2003)	W-stat	-2.5624	4.5520	-0.7107	-3.4200	0.2770
	(p-value)	(0.0052)	(1.0000)	(0.2386)	(0.0003)	(0.6091)
Hadri (2000)	Z-stat	13.1337	18.1015	17.2118	3.7558	9.0634
	(p-value)	(0.0000)	(0.0000)	(0.0000)	(0.0001)	(0.0000)
First difference						
Levin, Lin, and Chu (2002)	t^*-stat	-14.6834	-26.5607	-6.6075	-21.0701	-34.9605
	(p-value)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Im, Pesaran, and Shin (2003)	W-stat	-11.6030	-26.5798	-6.5290	-19.1955	-34.0930
	(p-value)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Hadri (2000)	Z-stat	0.4374	6.0066	7.9244	0.8475	2.3868
	(p-value)	(0.3309)	(0.0000)	(0.0000)	(0.1983)	(0.0085)

Note: Differentials with Germany. Panel data includes Austria, Belgium, Finland, France, Greece, Ireland, Italy, the Netherlands, Portugal, Spain and only for CA Germany. Source and period: (1) IMF (2014): 1990Q1-2013Q2; (2) IMF (2014): 1990Q1-2012Q4; (3) Eurostat (2014): 1996Q1-2013Q4; (4) Eurostat (2014): 1990Q1-2013Q4; (5) Eurostat (2014): 1996Q1-2013Q3.

Source: Authors' calculations.

3.2 Short-Term Factors behind the European Imbalances

As mentioned above, the four factors that may have any influence on the development of European imbalances are the catching-up process, price competitiveness, differences in population structure (old-age dependency ratio projections), and the fiscal position. In this section, we analyse the effect that each factor may have in the short-term on European imbalances. To do so, we estimate the model described by Equation (1):

$$CA_{it} = \beta_0 + \beta_1 GDPpc_{it} + \beta_2 ULC_{it} + \beta_3 DR_{it} + \beta_4 FP_{it} + \lambda_t + u_{it}, \qquad (1)$$

where GDP *per capita* is measured by the variable $GDPpc_{it}$, which reflects the catching-up process. The effect of differences in price competitiveness is explained as the growth rate of the real ULC associated with country i at time $t (ULC_{it})$. Population ageing is captured by the old-age dependency ratio of country i in period $t (DR_{it})$. Finally, variable FP_{it} explains the type of fiscal policy followed by the corresponding country i in each year t. This last variable is the cyclically adjusted net lending (+) or net borrowing (-) of general government, this is, the discretional component of fiscal policy. Controls for time are included.

Data for all the variables are only available on an annual basis. Therefore, we use annual data for the period 1995-2013 for EA-12 countries. CA and dependency ratios are obtained from Eurostat (2014)[3], GDP *per capita* is in thousands of 2005

---

[3] **Eurostat.** 2014. http://ec.europa.eu/eurostat/data/database (accessed September 04, 2014).

USD from the World Bank (WB 2014)[4] while real ULC are taken from European Commission (EC 2014)[5].

Panel unit root tests (Levin, Lin, and Chu 2002; Im, Pesaran, and Shin 2003) for the variables in our model indicate that CA_{it} is I(1), $GDPpc_{it}$, ULC_{it} and FP_{it} are I(0) and DR_{it} is I(2) (results are available upon request of the authors). Given these features, the specification of the model we finally estimate is given by Equation (2):

$$\Delta CA_{it} = \beta_0 + \beta_1 GDPpc_{it} + \beta_2 ULC_{it} + \beta_3 \Delta^2 DR_{it} + \beta_4 FP_{it} + \lambda_t + u_{it} , \tag{2}$$

where ΔCA_{it} represents current account increases from period *t-1* to period *t*; $\Delta^2 DR_{it}$ is the second difference of the dependency ratio for country *i* at time *t*. The remaining variables are those explained in Model 1 above. Column 1 in Table 2 reports the results from panel OLS estimates with dummy variables for time periods. Real ULC and the cyclically-adjusted component of fiscal policy are determinants of the short-term dynamics of the CA. The coefficients are jointly significant and the R^2 accounts for 31 per cent. These two factors explain the cyclical short-run component of the CA for the EA-12.

Table 2 Short-Term Determinants of Current Account

Endogenous variable: ΔCA_{it}

	(1)	(2)
$GDPpc_{it}$	0.000	0.000
	(0.000)	(0.000)
ULC_{it}	-0.210	-0.227
	(0.084)**	(0.096)**
$\Delta^2 DR_{it}$	0.046	0.190
	(0.577)	(0.615)
FP_{it}	-0.068	-0.066
	(0.036)*	(0.037)*
$\Delta High\text{-}tech_{it}$	-	0.090
	-	(0.082)
Significant years	1998; 2005; 2009; 2012; 2013	1998; 2002; 2005; 2009; 2012
Constant	-0.160	-0.403
	(0.735)	(0.516)
Obs.	195	177
R^2	0.31	0.30

Note: Results from OLS estimates with time effects. * shows significance at 10% level; ** shows significance at 5% level; *** shows significance at 1% level. Robust standard errors in parenthesis. Control for period with year dummies. Reference year: 1997. Regression in (1) includes data for the period 1995-2013. Regression in (2) includes data for the period 1995-2012.

Source: Authors' calculation.

3.3 Structural Component of CA

Estimates above show the importance of short-run determinants of CA (discretionary fiscal policy and real ULC). However, much of the variance remains unexplained, as

---

[4] **World Bank (WB).** 2014. World Development Indicators. http://data.worldbank.org/data-catalog/world-development-indicators (accessed September 04, 2014).
[5] **European Commission (EC).** 2014. Annual Macro-Economic Database. http://ec.europa.eu/economy_finance/ameco/user/serie/SelectSerie.cfm (accessed September 04, 2014).

revealed by the value of the adjusted R^2 (31 per cent). What factors drive these results? There are several reasons to suspect from the existence of a strong structural component of the CA. Examples of these are country-level specialisation and other non-price competitiveness factors affecting the CA. On the one hand, differences among countries could be associated with the structural component of the CA imbalances, namely, country-level specialisation and non-price competitiveness. For instance, if we plot high-technology exports (proxy for non-price competitiveness) against the CA period average, as in Figure 4, we observe a positive relationship between those variables. A country with a structural non-price competitive advantage tends to exhibit a CA surplus.

Source: Eurostat (2014) and WB (2014).
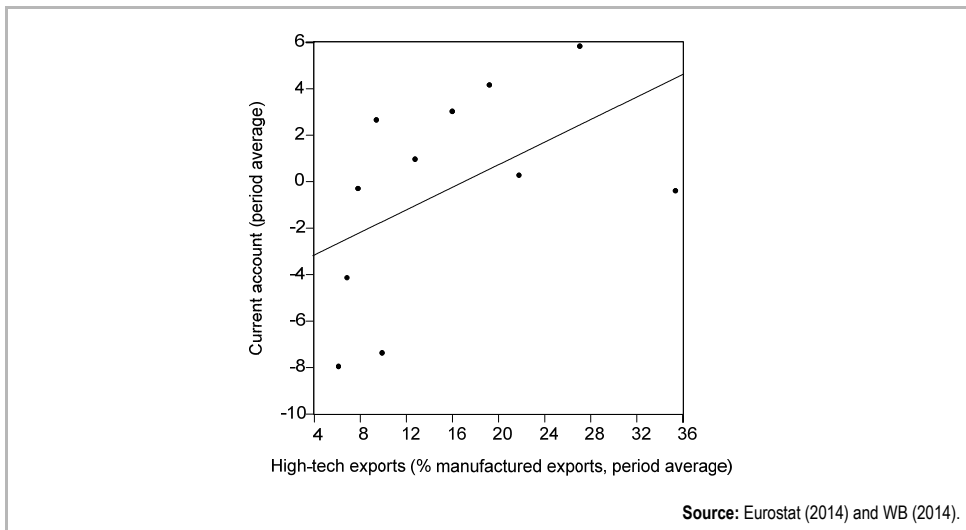
Figure 4 Current Account Period Average versus Period Average of High-Technology Exports (% of Manufactured Exports, 1995-2012)

On the other hand, if we plot the average CA in the period preceding the adoption of the Euro *versus* the average for the Euro period, as in Figure 5, we observe a positive relationship between the average CA in both the pre- and post-Euro periods. This is, countries' average CA during the Euro period is significantly positively related to the average CA in the pre-Euro period, which reaffirms the possible existence of a structural relationship beyond the cyclical effects considered in the models above and the effects of the introduction of the single currency. Column 2 in Table 2 reports the results from panel OLS estimates with time effects including as regressor the high-technology exports as share of manufactured exports. In this case, real ULC and discretional fiscal policy remain as the relevant variables for the short-run dynamics. However, since the high-tech exports and the old-age dependency ratio are structural variables, those variables should have an effect in the medium-term and long-term dynamics.
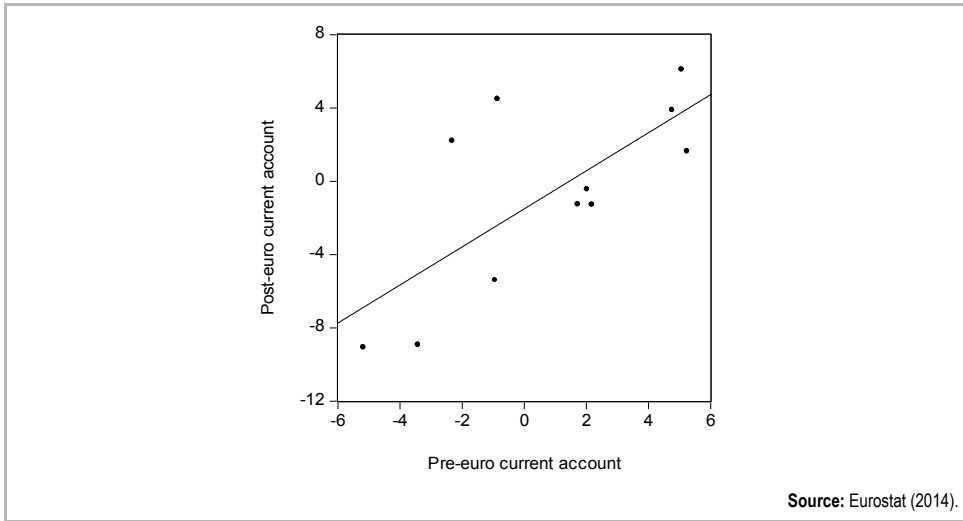
Figure 5 Post-Euro Average of Current Account (2000-2010) versus Pre-Euro Average of Current Account (1995-1999)

3.4 Medium-Term Determinants of EA-12 CA Imbalances

In accordance with our theoretical model represented in Equation (1) we follow the methodology implemented by Menzie D. Chinn and Eswar S. Prasad (2003) in order to analyse the medium-term determinants of CA in the EA-12. We split the full period (1995-2013) into 5-years non-overlapping average periods. We estimate our theoretical model in an OLS panel framework with time effects. In addition, we introduce the variable high-technology exports as share of manufactured exports which accounts for industrial structure and non-price competitiveness.

Table 3 summarises results. In the medium-term framework, GDP *per capita*, old-age dependency ratio and high-tech exports, a proxy for industrial structure and non-price competitiveness, are individual and jointly significant. GDP *per capita* would reflect the catching-up process of less developed countries within the EA-12 toward more developed countries. Old-age dependency ratio would account for the effects of an aging process in the CA through the flows of saving-investment from older to relative younger societies. Finally, the case of the high-tech exports is of remarkable relevance since it reflects the effects of non-price competitiveness and country-level specialisation. Old-age dependency ratio and high-tech exports reflect the structural component of the CA imbalances. In the medium-term model, neither real ULC nor cyclically-adjusted fiscal policy variables are significant. In the case of real ULC this result is expected since this variable turns relevant only in the short-run framework when cyclical factors drive results. In the case of fiscal policy, as developed in the literature review above, there is not a common path in the EA-12 countries in the relation between fiscal policy and CA (Blanchard 2007; Barnes, Lawson, and Radziwill 2010; Brissimis et al. 2010; Hein, Truger, and van Treeck 2012), this is, while for some countries fiscal policy is relevant explaining CA, for other countries this relationship does not exist.

Table 3   Medium-Term Determinants of Current Account

Endogenous variable: $CA_{i,t}$	(1)	(2)
$GDPpc_{it}$	0.260	0.293
	(0.000)***	(0.000)***
ULC_{it}	-0.510	-0.380
	(0.636)	(0.674)
DR_{it}	0.273	0.603
	(0.201)	(0.216)***
FP_{it}	0.472	0.326
	(0.309)	(0.322)
$High\text{-}tech_{it}$	-	0.164
	-	(0.03)**
Significant periods	2005-2009	2000-2004; 2005-2009; 2010-2013
Constant	-11.845	-23.181
	(6.091)*	(6.419)***
Obs.	46	46
R^2	0.65	0.69

Note: Results from OLS estimates with time effects. * shows significance at 10% level; ** shows significance at 5% level; *** shows significance at 1% level. Robust standard errors in parenthesis. Control for period with period-dummies. Reference period: 1995-1999.

Source: Authors' calculation.

What implications do our results have for with respect to policy interventions to address the external imbalances? The primary implication is that restrictive fiscal and monetary policy would only correct the cyclical component of the external imbalances. Second, as part of the external imbalances is related to labour cost growth that exceeds the rate of productivity growth, income-policies could be effective if they warranted a rate of growth of the real ULC in peripheral countries not exceeding that of the core countries. Finally, policies addressing external imbalances should focus on sectorial incentives and long-run dynamics, i.e. industrial policies to develop a long-run economic structure in those countries currently experiencing a deficit that encourage the development of industries that provide non-price competitive advantages.

4. Final Remarks

In this paper, we study the origins of European imbalances. Following a literature review on the factors responsible for the imbalances, we present evidence of the diverging trends in the Eurozone concerning certain key macroeconomic variables such as the REER, IP and the HICP, while there has been convergence in IR.

In addition, we quantitatively analyse the short-term and medium-term determinants of the CA imbalances in the EA-12. Our results demonstrate the relevance in the short-run of the real ULC and the fiscal policy. In addition to cyclical factors, our results point out to the possible presence of a structural component of the CA. When assessing medium-term determinants of the CA, catching-up and structural factors such as aging process and high-tech exports (accounting for industrial specialisation and non-price competitiveness) are relevant variables. Although more research is necessary to reach appropriate conclusions, this fact implies that the adoption of policy measures should focus on medium-term determinants of the EA-12 CA imbalances to address this structural component.

References

Aizenman, Joshua, and Rajeswari Sengupta. 2011. "Global Imbalances: Is Germany the New China? A Sceptical View." *Open Economies Review*, 22(3): 387-400.

Arestis, Philip, and Malcolm Sawyer. 2011. "The Design Faults of the Economic and Monetary Union." *Journal of Contemporary European Studies*, 19(1): 21-32.

Barnes, Sebastian, Jeremy Lawson, and Artur Radziwill. 2010. "Current Account Imbalances in the Euro Area: A Comparative Perspective." Organization for Economic Co-operation and Development Economics Department Working Paper 826.

Beetsma, Roel, Massimo Giuliodori, and Franc Klaassen. 2008. "The Effects of Public Spending Shocks on Trade Balances and Budget Deficits in the European Union." *Journal of the European Economic Association*, 6(2-3): 414-423.

Belke, Ansgar, and Christian Dreger. 2013. "Current Account Imbalances in the Euro Area: Does Catching up Explain the Development." *Review of International Economics*, 21(1): 6-17.

Blanchard, Olivier J., and Francesco Giavazzi. 2002. "Current Account Deficits in the Euro Area: The End of the Feldstein-Horioka Puzzle?" *Brookings Papers on Economics Activity*, 33(2): 147-210.

Blanchard, Olivier J. 2007. "Current Account Deficits in Rich Countries." *IMF Staff Papers*, 54(2): 191-219.

Bluedorn, John C., and Daniel Leigh. 2011. "Revisiting the Twin Deficits Hypothesis: The Effect of Fiscal Consolidation on the Current Account." *IMF Economic Review*, 59(4): 582-602.

Brissimis, Sophocles N., George Hondroyiannis, Christos Papazoglou, Nicholas T. Tsaveas, and Melina A. Vasardani. 2010. "Current Account Determinants and External Sustainability in Periods of Structural Change." European Central Bank Working Paper Series 1243.

Campa, José M., and Ángel Gavilán. 2011. "Current Accounts in the Euro Area: An Intertemporal Approach." *Journal of International Money and Finance*, 30(1): 205-228.

Carrasco, Carlos A., and Felipe Serrano. 2015. "Global and European Imbalances and the Crisis: A Critical Review." In *The Demise of Finance-Dominated Capitalism: Explaining the Financial and Economic Crises*, ed. Eckhard Hein, Daniel Detzer, and Nina Dodig, 265-288. Cheltenham: Edward Elgar Publishing.

Chen, Ruo, Gian Maria Milesi-Ferretti, and Thierry Tressel. 2013. "External Imbalances in the Eurozone." *Economic Policy*, 28(73): 101-142.

Chinn, Menzie D., and Eswar S. Prasad. 2003. "Medium-Term Determinants of Current Accounts in Industrial and Developing Countries: An Empirical Exploration." *Journal of International Economics*, 59(1): 47-76.

Dodig, Nina, and Hansjörg Herr. 2015. "EU Policies Addressing Current Account Imbalances in the EMU: An Assessment." Financialisation, Economy, Society and Sustainable Development Working Paper Series 74.

Hadri, Kaddour. 2000. "Testing for Stationarity in Heterogeneous Panel Data." *The Econometrics Journal*, 3(2): 148-161.

Hassan, AFM Kamrul, Ruhul A. Salim, and Harry Bloch. 2011. "Population Age Structure, Saving, Capital Flows and the Real Exchange Rate: A Survey of the Literature." *Journal of Economic Surveys*, 25(4): 708-736.

Hein, Eckhard. 2002. "Monetary Policy and Wage Bargaining in the EMU: Restrictive ECB Policies, High Unemployment, Nominal Wage Restraint and Inflation above the Target." *Banca Nazionale del Lavoro Quarterly Review*, 55(222): 299-337.

Hein, Eckhard, Achim Truger, and Till van Treeck. 2012. "The European Financial and Economic Crisis: Alternative Solutions from a (Post-) Keynesian Perspective." In *The Euro Crisis*, ed. Philip Arestis and Malcolm Sawyer, 35-78. Basingstoke: Palgrave Macmillan.

Hein, Eckhard. 2013. "The Crisis of Finance-Dominated Capitalism in the Euro Area, Deficiencies in the Economic Policy Architecture, and Deflationary Stagnation Policies." *Journal of Post Keynesian Economics*, 36(2): 325-354.

Hein, Eckhard, and Daniel Detzer. 2014. "Coping with Imbalances in the Euro Area: Policy Alternatives Addressing Divergences and Disparities between Member Countries." Financialisation, Economy, Society and Sustainable Development Working Paper Series 63.

Im, Kyung So, Mohammad H. Pesaran, and Yongcheol Shin. 2003. "Testing for Unit Roots in Heterogeneous Panels." *Journal of Econometrics*, 115(1): 53-74.

Lane, Philip R., and Gian Maria Milesi-Ferretti. 2007. "Europe and Global Imbalances." International Monetary Fund Working Paper 07/144.

Lane, Philip R. 2013. "Capital Flows in the Euro Area." European Commission, Directorate-General for Economic and Financial Affairs, European Economy Economic Paper 497.

Levin, Andrew T., Chien-Fu Lin, and Chia-Shang James Chu. 2002. "Unit Root Tests in Panel Data: Asymptotic and Finite-Sample Properties." *Journal of Econometrics*, 108(1): 1-24.

Schmitz, Birgit, and Jürgen von Hagen. 2011. "Current Account Imbalances and Financial Integration in the Euro Area." *Journal of International Money and Finance*, 30(8): 1676-1695.

Uxó, Jorge, Jesús Paúl, and Eladio Febrero. 2011. "Current Account Imbalances in the Monetary Union and the Great Recession: Causes and Policies." *Panoeconomicus*, 58(Special Issue): 571-592.