Elisabetta Croci Angelini and Francesco Farina

CURRENT ACCOUNT IMBALANCES AND SYSTEMIC RISK WITHIN A MONETARY UNION

1. Introduction

The adoption of the Euro was a major change for Europe. On the one hand, the end of the currency risk magnified opportunities for portfolios' cross-border reshuffling. The financial integration brought about a huge increase in the liabilities of commercial and investment banks, set up wide opportunities for risk diversification and securization, and activated the reallocation of capital flows in search of the highest short-term rate of return. On the other hand, the policy instrument that had been extensively used by the laggard economies, that is the nominal adjustment permitted by the participation in the fixed – but adjustable – exchange rates of the European Monetary System (EMS)[1], was lost. Since wage and price reductions remained the sole adjustment tool facing negative shocks, macroeconomic imbalances across the European Monetary Union (EMU) countries have exacerbated.

Two interpretations of current account imbalances within the Eurozone have been proposed, one centred on domestic demand, the other one on real divergence. The first interpretation posits the European monetary and financial integration fully within the financial globalization scenario. The seminal paper on rising current account imbalances in Europe naturally pointed to the structural change represented by the financial liberalisation, which, in the last decades, has fostered an unprecedented jump in capital movements worldwide (Blanchard and Giavazzi, 2002). This paper argues that the Feldstein-Horioka puzzle (i.e. the home bias characterising financial markets) has been fading in Europe. Two facts underpin this view. First, as an effect of both faster financial innovation and the creation of the Euro, cross-border assets and liability positions have hugely increased, at a pace even faster than that taking place at the world level (Lane and Milesi-Ferretti, 2008). In fact, financial integration across the European capital markets has eventually taken the shape of the substitution of a *home bias* with an *euro bias* (Balli, Basher, and Ozer-Balli, 2010). Second, while the direction taken by capital movements between the United States and the Asiatic financial markets does not confirm the theoretical prediction whereby capitals should move from high to low per-capita GDP countries, this diversion of financial flows has typically occurred within the Eurozone. A recent econometric investigation reveals a quite substantial financial deepening of European capital markets, whereby divergent capital endowments across the EMU countries triggered financial flows going from countries where capital was abundant to countries where it was scarce (Schmitz and von Hagen, 2012). The faster financial integration, and the faster convergence between the advanced and the backward economies of Europe, the larger current account imbalances ensue.

In this perspective, the European monetary integration process has been straight understood as an aspect the overall financial globalisation process. The acceleration in current account imbalances across the countries belonging to the EMU is viewed as the mirror of the decoupling between savings and investment which has taken place worldwide after the capital markets' liberalisation. In the low per-capita GDP countries, firms enjoyed the advantage to be trusted by the banking institutions of the more advanced countries as debtors backed by solid national and European institutions, though their expected returns were uncertain, being too much linked to speculative investments in the real as well as in the financial sectors. Similarly, governments benefitted from the disappearance of the currency risk premium from the interest rates on their public debt, even if

---

[1] The EMS was launched in 1979, aiming at establishing the "public good" of monetary stability in Europe, through its exchange rate mechanism (ERM).

their public finances were far from sound. The Euro denomination swiftly equalised governments with a wobbly reputation as for rigorous management of the inter-temporal budget constraint to governments whose higher reliability was warranted by low levels of public deficit and debts.

The view that the introduction of the Euro prompted real convergence among the European economies does not rely on straightforward evidence. Econometric studies indicate that the distinctive feature of the diversion in trade flows within the Eurozone is the persistence, more important than the size, of surpluses and deficits (Decressin and Stavrev, 2009). The large deficits accumulated by the foreign sector of some EMU countries are likely to reflect profound weaknesses in their private and/or public sectors (Belke and Dreger, 2011). Thus, the expectation that the reallocation of capital flows across Europe would have allowed the "convergence countries" of the Eurozone to climb up on the advanced countries' technological frontier (Aghion *et al.*, 2005) has been disproved. Financial integration has not brought about the *catching-up* by laggard EMU economies such as Greece and Portugal, and even Ireland – by large the best performer in Europe as for per-capita GDP growth – suffered in the last years a striking set-back. The highly uneven propagation of the financial crisis across the EMU economies suggests that more complex developments than a well-balanced *catching-up* process sustained by financial integration have been taking place in the EMU.

The second interpretation of the widening current account imbalances shifts attention from financial globalisation to the interplay between the real and the financial sectors within the Eurozone. When the monetary union was launched, the real convergence of the less advanced productive systems towards the most efficient ones was far from being completed. The functioning of the real economy under the macroeconomic governance ruled by the European Central Bank (ECB) and the Stability and Growth Pact (SGP) has resulted in a widening divide between the Core[2] and the Peripheral[3] EMU countries. The large diversions in trade flows between the two groups of countries, measured as the fraction of deficits and surpluses in total bilateral trade, appear to be correlated with the degree of labour market regulation (Berger and Nitsch, 2010). In fact, nominal rigidities are held responsible for divergent macroeconomic performances across countries (Arghyrou and Chortareas, 2006). Heterogeneous paths of the Real Effective Exchange Rate (REER) among the economies of the monetary union are also attributed to the persistency of productivity gaps across the service sectors of the EMU countries disproportionately affecting national overall price levels, which magnify the impact of the Balassa-Samuelson effect within the Eurozone (European Commission, 2006).

This interpretative framework needs be completed with the role played by common monetary policy. Being the sole centralised institution of macroeconomic governance, the ECB was not foreign to the mounting of macroeconomic imbalances. To set a common monetary policy, by working out the interest rate according to the EMU-average inflation and output gaps of the Taylor rule, is problematic in case of highly heterogeneous countries, as unlikely it "does fit all" (Le Cacheux and Saraceno, 2008). A country experiencing a negative output gap wider than the EMU average is bound to suffer from monetary policy under-stabilization (Farina and Tamborini, 2004). After the demise of currency risks and the huge shrinking of the default risk premia (the less disciplined governments benefitted from Euro-denominated public debts), the higher-than-EMU-average-inflation countries enjoyed real interest rates significantly lower than EMU-average (see European Commission, 2010). The enlarged scope for the accumulation of external liabilities resulted in an enormous expansion in the bank financing, which provoked an overheating of domestic demand in the 2004-07 period and fuelled huge price increases mainly in the housing and financial markets. These bubbles encountered the benign neglect of the ECB, as stock prices are not

---

[2] Austria, Belgium, Finland, France, Germany and the Netherlands. Obviously, until 1990 econometric estimates refer to data for West Germany. The following symbols will be used hereafter, respectively: AT, BE, FI, FR, DE, NL

[3] Greece, Ireland, Italy, Portugal and Spain. The following symbols will be used hereafter, respectively: GR, IE, IT, PT, ES.

considered in the EMU monetary authorities' reaction function.[4] The contagion effect of the burst of the bubbles spread over the numerous linkages across the European banking institutions and the divergences between surplus and deficit countries widened.

Taking stock of the two interpretations above presented, we search for excess domestic demand or competitiveness loss, or a mixture of the two, as the cause of the trade deficits. The aim of this paper is to cast light on possible influences of current account imbalances on the escalation of systemic risk which hit the Eurozone. The hypothesis, which was set up by examining empirical evidence, points to heterogeneity across the macroeconomic conditions prevailing in different clusters of EMU countries. Given the strengthened financial and real interconnections across the EMU countries, the capital flows triggered by widening distances between surplus and deficit trade balances, and also between sound and deteriorating public budgets, represent an important factor magnifying systemic risk.

The remainder of this paper is organised as follows. Section 2 provides empirical evidence for each country of deviations with respect to the EMU-average, of domestic demand, current account, and REER (measured by relative unit labour costs). Section 3 presents the first two regression models. Regression model 1 measures the impact on the price dynamics of the lagged values of the same variable, the output gap, and the Nominal Effective Exchange Rate (NEER), where we obviously expect a negative sign for this latter variable. The independent variables test the resilience of the price level, the influence of the business cycle, and the impact of the nominal exchange rate, respectively. The econometric estimates concern two sub-periods, the two decades from the launch of the EMS in 1979 to 1999, and the first twelve years (1999-2010) of the monetary union. These estimates point to understanding to what extent - during the years of the single market and of progressive loss of the nominal exchange rate adjustment culminated in the single currency - the mounting competition in the goods' markets stimulated price flexibility[5]. Given the residual resilience of the price level to shocks, we then introduce Regression model 2, in order to investigate the labour market adjustment, that is whether nominal rigidities kept limiting price flexibility, in particular after the adoption of the Euro. In these estimates, REER is the dependent variable, and the lagged values of the same variable and the output gap are the independent variables. We expect positive signs for both variables. Section 4 presents the third regression model. Regression model 3 focuses on the EMU period evaluating three drivers of current account imbalances as the dependent variable: demand shocks which detach investment from savings; supply shocks in the form of divergent national ULC *vis-à-vis* the EMU average; and the evolution of the public primary balance. These estimates are supposed to help in separating out the role of the domestic demand and of real convergence as the drivers, also considering fiscal policy, of trade surplus and deficits. We expect negative signs for all three independent variables. Section 5 concludes.

2. Heterogeneous macroeconomic performances in Europe: some evidence

In Figure 1, current account surpluses are portrayed together with domestic demand growth rates. Germany appears as the country where domestic demand growth is more compressed, while the trade surplus is the second largest after that of the much smaller Netherlands. Also the other Core countries, except France, exhibit higher than EMU-average figures both for current account and domestic demand. Three Peripheral countries - Greece, Spain, and Ireland - display a positive gap *vis-à-vis* the EMU average as for domestic demand growth. On the contrary Portugal and Italy

---

[4] Barnes (2010) found a remarkable correlation of a measure of real interest rates which departs from the ones computed through the Taylor rule with current account positions. This is a clue that the ECB disregarded the financial instability which progressively developed within the Eurozone.

[5] The long term stability shown by the EMU-average REER *vis-à-vis* the USD and the Yen ensures that the divergent national trends with respect to the average EMU REER are not biased by fluctuations of the overall Eurozone REER. in various sub-periods, going from the launch of the EMS in 1979 to the first twelve years of the single currency (1999-2010)

exhibit a domestic demand growth slightly lower than EMU-average, and a negative deviation from the EMU-average current account /GDP ratio, much larger in the former country.

Within the group of Peripheral countries there is a divide in domestic demand growth between the above-EMU-average growth rate countries (Ireland, Spain, and Greece) on the one hand, and the below-EMU-average growth rate countries (Italy and Portugal) on the other hand. The expansionary demand shock mainly happened in lower per-capita income countries, namely *catching-up* countries as Ireland and Spain, where very low (or even negative) real interest rates, along with the large availability of cross-border loanable funds, boosted the demand for credit. In particular, the real interest rate became negative in Ireland soon after the adhesion to monetary union, as this country experienced a sharp increase in the inflation rate after year 2000, and passed from one of the highest nominal interest rates in the pre-EMU period to the lowest within the EMU. The trade deficits of Ireland and Spain has to do with the increase in imports more than by a decrease in exports caused by nominal rigidities (European Commission, 2009), especially in the former country where competitiveness has been boosted by a flexible labour market and fiscal competition. In these two high-growth Peripheral countries, the prolonged rise in the GDP growth rate avoided that the 3% constraint on the public deficit / GDP ratio set by the SGP could bite, so to limit soaring public expenditures. Hence, expansionary fiscal policies added a further source of macroeconomic instability and the Mundell-Fleming "twin deficits" manifested. The case of Greece is particularly telling. While a lowering competitiveness was depressing exports, an expanding domestic demand, mainly due to a ruthless increase in public expenditures, was rising imports.


Figure 1 - Domestic demand and current account
(average 2002-2007)
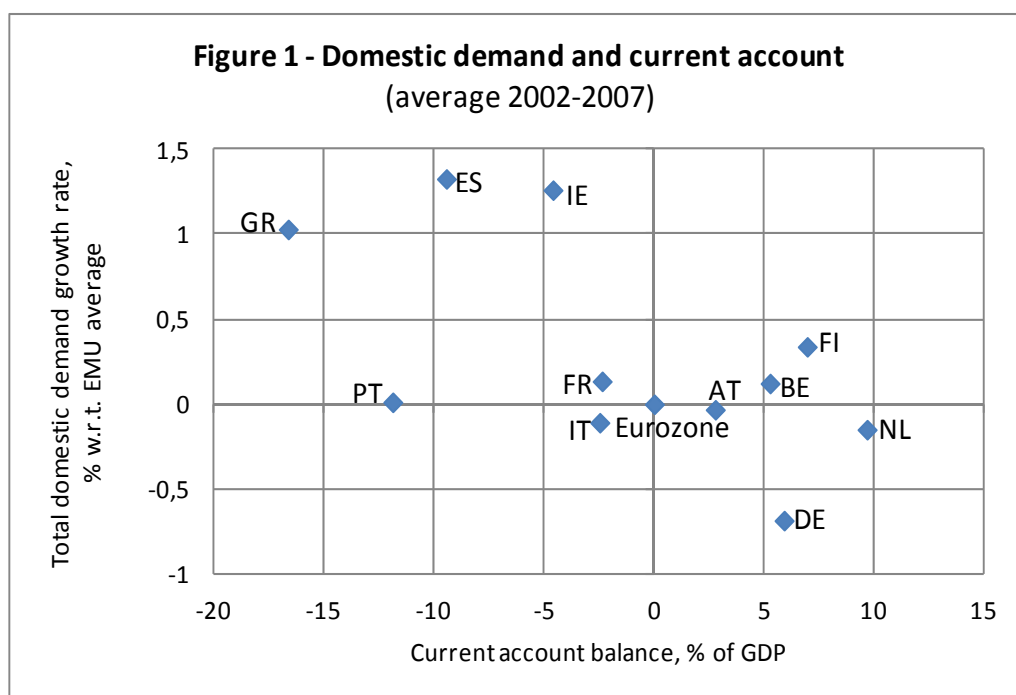
Figure 2 presents the evolutionary path followed by the REER measured by the ULC of the EMU economies from 2000 to 2010. Just after the switch to the single currency a widening divide has opened across the REER paths, till the reversals beginning in 2007 with the financial crisis. Once a flexible exchange rates regime ends, the theoretical prediction is that a sharp drop in the REER volatility should ensue (Monacelli, 2005). Thus, the large fluctuations of the REER appearing in the graph are to be traced back to nominal rigidities preventing the adjustment in relative prices after a shock.[6] Germany stands out as the best performer country of the Eurozone for productive efficiency,

---

[6] Nominal rigidities were utterly important in decoupling the real from the nominal exchange rate also in the two decades in which the EMS functioned as the engine for nominal convergence (1979-99). Along with the evolution

as it has experienced a huge fall in ULC *vis-à-vis* the EMU-average value (year 2000 = 100). Till the inception of the financial crisis in 2007, Austria and Finland are the other two Core countries with a ULC performance lower than, and respectively almost equal to, the EMU-average.

In the EMU period, Ireland and Spain suffered from the boost to wages and prices prompted by the boom in domestic demand. The much steeper trend followed by ULC in the former *catching-up* country could also stem from a Balassa-Samuelson effect, and from the share of US goods in its imports much larger than EMU-average, during the sharp appreciation of the dollar *vis-à-vis* the Euro at the inception of the monetary union (Angeloni and Ehrmann, 2007). Also Greece, Italy, and Portugal exhibit rapidly increasing ULC trends. The competitiveness loss of Italy and Portugal is due to the institutional bias of nominal rigidities, which causes a sluggish downward adjustment of wages and prices, and probably even more to the disturbing flat path of productivity dynamics. Greece suffered from the worst increase in the REER till the financial crisis after Ireland.
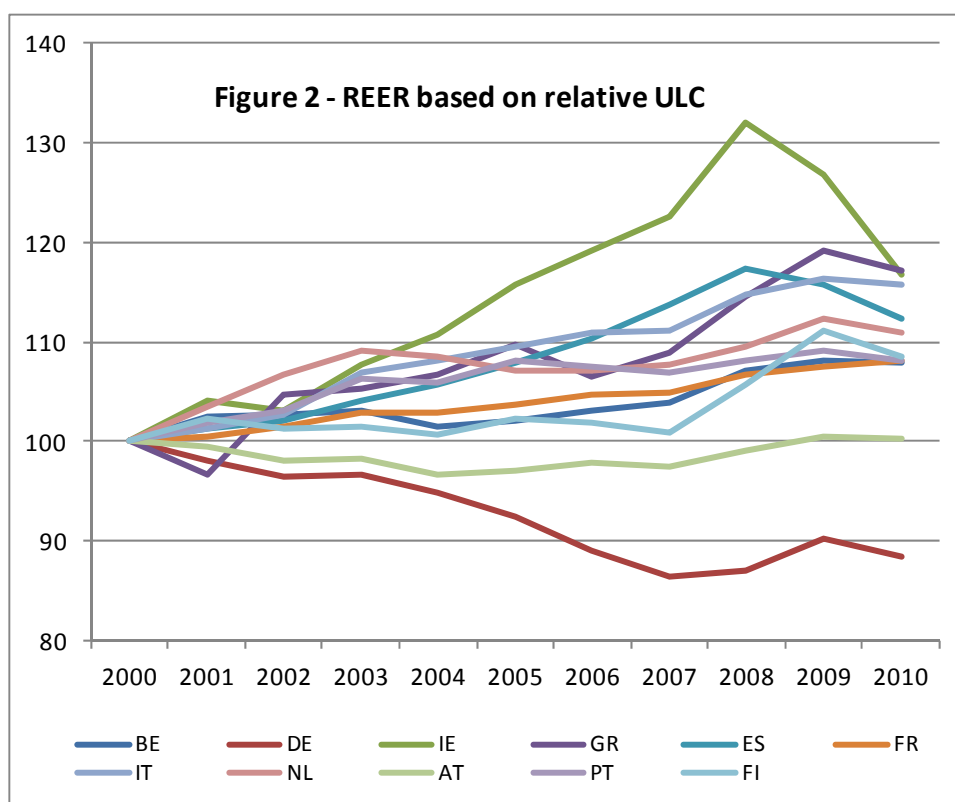
AMECO database

By taking advantage from this empirical evidence, with the regression models of the next section we will conduct econometric estimates for the whole currency area and for the three groups of countries above considered. The aim is to detect whether the single currency favoured a more competitive environment since the inception of the monetary integration process to the EMU years.

3. Market adjustment: an econometric assessment

On the road to the single currency, along with the progressive demise of the relief in the trade balance through nominal devaluations, the European productive systems were required to moderate their price setting, so to facilitate monetary integration. The question can be posed about the extent to which the integration process strengthened the market adjustment, in particular once the single

---

towards stable bilateral parities (no realignments took place during the "hard" EMS of years 1987-1992, and in the 1993-99 period of wide bilateral bands), in all countries the REER volatility declining till the monetary unification, as shocks were no longer offset by nominal exchange rate adjustments.

currency was introduced. Following Honohan and Lane (2003), Regression 1 estimates changes in the price level (the GDP deflator) as a reaction to the relative output gap (computed as the each country's deviation from the other countries' average of the difference between actual and potential output computed by the Commission services), and to changes in the Nominal Effective Exchange Rate (NEER). The price reaction to the output gap, measured independently from the export and imports elasticities, allows verifying to what extent the integration process strengthened the market adjustment.

Regression 1 $dP_t = \alpha + \beta_1 dP_{t-1} + \beta_2 OG_{t-1} + \beta_3 dNEER_{t-1} + u_t$

Table 1	period	dP_{t-1}	p-value	OG_{t-1}	p-value	$dNEER_{t-1}$	p-value
All pooled data	1979-2010	0.559***	[0.00000]	0.214***	[0.00000]	-0.312***	[0.00000]
All countries	1979-2010	0.668***	[0.00000]	0.239**	[0.02008]	-0.340***	[0.00000]
All countries	1979-1999	0.699***	[0.00000]	0.244*	[0.05690]	-0.396***	[0.00002]
All countries	1999-2010	0.173	[0.13258]	0.120***	[0.00205]		
Core countries	1979-1999	0.739***	[0.00000]	0.100	[0.56631]	-0.309***	[0.00104]
Core countries	1999-2010	0.234***	[0.00030]	0.189**	[0.00223]		
IE, ES	1979-1999	0.621***	[0.00000]	0.497*	[0.06913]	-0.887***	[0.00001]
IE, ES	1999-2010	0.161	[0.18979]	0.102	[0.16468]		
GR, IT, PT	1979-1999	0.695***	[0.00000]	0.593	[0.10838]	-0.556***	[0.00007]
GR, IT, PT	1999-2010	-0.068	[0.66444]	0.149	[0.33297]		

Significance levels: *** significant at 1%; ** significant at 5%; * significant at 10%

The GMM estimates concern the whole period from 1979 to 2010, and the two sub-periods. The first one (1979-99) includes the years from the inception of the EMS till the end of controls on capital movements in 1990, which facilitated the high-inflation countries in their effort to reconcile enlarging inflation differentials with the fixed parities, and subsequently the years of compliance with the Maastricht criteria as the main convergence mechanism of nominal convergence. The second sub-period (1999-2010) comprises the monetary union years when, by definition, the NEER vanishes[7].

Table 1 exhibits the regression results for a pooled panel data model (row 1), and a panel estimated without imposing a common constant to the eleven countries (rows 2 for the entire period, rows 3 and 4 for the two sub-periods). The main finding is that the price reactions to shocks amplified in the EMU sub-period. The coefficient of the lagged price level (dP_{t-1}) greatly falls from the first to the second sub-period, thus indicating a pattern of reduction in the inertia of the price level during the twelve years of the EMU. Yet, this coefficient, highly significant for the entire period as well as for the first sub-period, becomes non-significant just in the EMU period. Moreover, the lagged value of the coefficient of the relative output gap (OG_{t-1}), concerning the capacity of price adjustments to absorb macroeconomic shocks, in the EMU period is significant but exhibits a much lower elasticity. Hence, the expectation that the single market and the single currency would have resolutely strengthened the market reaction to negative shocks, by favouring a release in nominal rigidities, is not verified. This finding is in line with evidence showing that the synchronization across EMU economies' business cycles has been sluggish, as it is still limited to the reduction of co-movements with the world cycle (European Commission, 2010).

The hint conveyed by these two panel models is that the EMU countries' market adjustment processes become more separated starting from the monetary unification. Thus, we implemented the

---

[7] The Maastricht Treaty establishing the European Union envisaged three stages towards full monetary integration. The so called "Maastricht criteria" allowed the participation to the monetary union to those EMS countries who could demonstrate compliance with the almost full convergence to the three best performers' average values as for inflation and nominal interest rates, and set the thresholds of 3% for the public deficit/GDP and 60% for the public debt/GDP ratios.

disaggregation suggested by the empirical evidence presented in section 2. The other rows of Table 1 show high heterogeneity across the three clusters of countries (Core: AT, DE, BE, FI, FR, NL; the two high-GDP-growth countries: IE and ES; the three low-GDP-growth countries: GR, IT, PT). As expected, the regressions conducted for the whole period on panel data (with and without imposing the constant to all countries) present significant coefficients for all the three variables, but the lagged price level ones for the EMU period. By dividing countries in the three clusters, a scattered picture appears. The loss of instrument of the nominal exchange rate adjustment does not affect the Core countries, where the price reaction to output gaps increases and becomes significant. In the other two clusters, instead, in the first period the coefficients of the lagged price variable and of the NEER are highly significant (and often much larger than in the Core), while the switch to the single currency provokes non significant coefficients (moreover, in the cluster of the three low-GDP-growth countries there is an over-reaction of the price level with respect to the previous period). All countries' parameters have also been individually estimated for the whole period. Since the GMM estimates release all coefficients to the regression in each country, Table 1.b, showing the regression results for the longest period only, presents high heterogeneity across countries. The highest significance, apart from the dP coefficients, is exhibited by the NEER coefficients in most countries, which is likely to stem from similar macroeconomic policies – to be applied to dissimilar national business cycles, and thus, output gaps - which were required by the participation to the ERM in the EMS and then to the single currency..

Table 1.b	dP_{t-1}	p-value	OG_{t-1}	p-value	$NEER_{t-1}$	p-value	pseudoR2
Belgium	0.532***	[0.00594]	-0.336	[0.59243]	-0.318	[0.10370]	0.20
Germany	1.112***	[0.00000]	0.059	[0.80721]	-0.458***	[0.00000]	0.61
Ireland	0.616***	[0.00000]	0.0414*	[0.05801]	-1.03***	[0.00001]	0.67
Greece	0.352**	[0.04152]	0.123	[0.69100]	-0.178	[0.16572]	0.13
Spain	0.777***	[0.00002]	1.505**	[0.00325]	-1.033***	[0.00003]	0.41
France	0.737***	[0.00000]	0.743	[0.11218]	-0.237*	[0.07616]	0.66
Italy	0.593***	[0.00001]	1.713**	[0.03129]	-0.706***	[0.00001]	0.56
Netherlands	0.923***	[0.00000]	-0.021	[0.94343]	-0.661***	[0.00017]	0.48
Austria	1.265***	[0.00000]	-0.155	[0.71907]	-0.965**	[0.02760]	0.66
Portugal	0.453***	[0.00402]	-0.534	[0.61198]	-0.308***	[0.00276]	0.24
Finland	0.745**	[0.01240]	-0.012	[0.96964]	-0.504	[0.19982]	0.23

Significance levels: *** significant at 1%; ** significant at 5%; * significant at 10%

These regression results suggest to investigate more in depth how the output shocks impinged on nominal rigidities, which typically prevent the fast functioning of the market adjustment. In the next regression, we analyse how the REER have reacted to its lagged value and to the output gap, in the whole period and in the EMU period, also by separating out the output for the different clusters of EMU countries.

In Regression model 2, we focus attention on market adjustment after shocks. Changes in the REER, measured by unit labour costs (ULC) relative to the each country share of EU15 trade, depend on the lagged changes in the REER, and on the lagged relative output gap.[8]

The market adjustment is measured by the variation in REER to a shock to output, also considering the inertia with respect to the previous year. The positive sign of the output gap coefficient indicates that the reaction of REER amounts to an increase in ULC after a positive shock and secures some relief in competitiveness after a negative shock. However, the GMM panel regressions of Table 2 show that after the inception of the monetary union the REER coefficient, expressing inertia, shrinks. Tough this coefficient is not significant, this is a clue that market adjustment via diminishing wages and prices becomes more sluggish, and, consequently, divergences among

---

[8] The long term stability shown by the EMU REER *vis-à-vis* the USD and the Yen ensures that the divergent national trends with respect to the average EMU REER are not biased by fluctuations of the overall Eurozone REER.

national inflation rates and deviations from long-run output more persistent. This is expected, given that in approaching the monetary union the fading support provided by nominal exchange rate realignments was transferring the whole weight of the adjustment on the market forces.

Regression model 2: $dREER_t=\alpha+\beta_1 dREER_{t-1}+\beta_2 OG_{t-1}+u_t$

Table 2	period	$dREER_{t-1}$	p-value	OG_{t-1}	p-value
All pooled data	1979-2010	0.213***	[0.00001]	0.485***	[0.00005]
All countries	1979-2010	0.223***	[0.00016]	0.664***	[0.00000]
All countries	1979-1999	0.218***	[0.00512]	0.799***	[0.00000]
All countries	1999-2010	0.014	[0.89159]	0.456***	[0.00000]
Core countries	1979-1999	0.266**	[0.01006]	0.426**	[0.04899]
Core countries	1999-2010	0.119	[0.33557]	0.779***	[0.00000]
IE, ES	1979-1999	-0.064	[0.64372]	0.698***	[0.00187]
IE, ES	1999-2010	-0.155	[0.44499]	1.151***	[0.00004]
GR, IT, PT	1979-1999	0.254**	[0.02019]	0.148	[0.75005]
GR, IT, PT	1999-2010	-0.283*	[0.08547]	0.473***	[0.00359]

Significance levels: *** significant at 1%; ** significant at 5%; * significant at 10%

The pooled panel regression shows highly significant coefficients for REER and the OG. As for the subsequent panel regressions with all countries, the coefficient of the output gap, measuring the size of a shock, presents a positive sign and is always significant, but in the EMU period its stabilizing impact on the REER drastically reduces, along the fall (and the above mentioned loss of significance) of the coefficient of the lagged REER. The significance for the 1999-2010 period is captured by the constants, which absorb the stabilizing effect of ULC after a shock to output. The lagged REER even changes of sign for the second and for the third clusters. Since the significance of the coefficient is preserved for the third cluster, the change in the sign indicates that after a shock the REER reaction is in the same direction of the shock, but reversing the trend with respect to the previous period. This weaker resilience of ULC is a clue of diminishing nominal rigidities, probably also influenced by the deflationary impact of the financial crisis in the last four years.

Table 2.b	$dREER_{t-1}$	p-value	OG_{t-1}	p-value	$pseudoR^2$
Belgium	0.428***	[0.00197]	1.246***	[0.00492]	0.38
Germany	0.272*	[0.08233]	0.863**	[0.03688]	0.20
Ireland	2.026	[0.18014]	0.803***	[0.00139]	0.29
Greece	0.069	[0.69489]	-0.274	[0.72099]	0.01
Spain	-0.141	[0.34318]	1.923***	[0.00002]	0.36
France	0.304*	[0.05874]	0.378	[0.16601]	0.16
Italy	0.014	[0.92495]	3.323***	[0.00032]	0.31
Netherlands	0.300*	[0.07999]	0.022	[0.96783]	0.09
Austria	0.193	[0.20603]	0.616	[0.14619]	0.10
Portugal	0.348**	[0.01203]	0.260	[0.62389]	0.22
Finland	1.504	[0.37814]	0.738	[0.10314]	0.17

Significance levels: *** significant at 1%; ** significant at 5%; * significant at 10%

The very same model was run leaving the estimate of all parameters of the panel independent so to evaluate each country's individual behaviour and therefore implicitly detect the persistence of heterogeneity across countries after many years since economic integration took place. Table 2.b again shows the regression results for the longest period, only. Since p-values are often high, we did not undertake the sub-period estimates. Belgium and Germany present the best results in terms of parameter significance, while Greece, Austria and Finland show the worst. For the remaining

countries, a high significance is alternatively ascribed to the output gap (Ireland, Spain, and Italy) or to the REER (France, the Netherlands and Portugal).

4. Estimating the determinants of current account imbalances

The econometric estimates conducted so far suggest that economic and monetary integration did not secure the strengthening of a common pattern of market adjustment. Price flexibility has remained heterogeneous across the EMU economies; similarly, convergence among very diverse labour market institutions did not proceed much. The formation of an Eurozone business cycle was then hampered. To investigate the evolution of real divergence across Europe more in depth, we estimate a panel regression model meant to explore the causality chain linking the two lagged independent variables of Regression 1 (dREER and the output gap), together with the primary balance (the variable expressing the impact on the public budget of automatic stabilizers and discretionary fiscal policy), to the evolution of the current account.

Regression 3 $CA_t = \alpha + \beta_1 dREER_{t-1} + \beta_2 OG_{t-1} + \beta_3 PB_{t-1} + u_t$

Table 3		$dREER_{t-1}$	p-value	OG_{t-1}	p-value	PB_{t-1}	p-value
All pooled	1999-2010	-0.310	[0.20274]	0.480***	[0.19345]	0.562***	[0.00097]
All countries	1999-2010	-0.385***	[0.00000]	-0.170*	[0.05691]	-0.245***	[0.00000]
Core countries	1999-2010	-0.923***	[0.00001]	-0.636**	[0.01582]	0.120	[0.44554]
IE, ES	1999-2010	-0.169	[0.18146]	-0.721***	[0.00000]	-0.258***	[0.00001]
GR, IT, PT	1999-2010	0.004	[0.97851]	-0.120	[0.47453]	-0.414***	[0.00012]

Significance levels: *** significant at 1%; ** significant at 5%; * significant at 10%

Table 3 exhibits the GMM estimates of the Regression 3 model run as a pooled panel, with all countries together and separately for the selected groups of countries, in order to single out specific heterogeneities dividing the Core from the Peripheral countries and Ireland and Spain from Greece, Italy and Portugal.

As for the Core, the efficient functioning of the productive systems of these countries has been provoking a satisfying evolution of net exports (in Germany in particular,) also during the upward business cycle. The lack of significance of the primary balance coefficient for Core countries indicates that the management of public budgets was overall sound, to the extent that no influence could be detected on the evolution of the current account. The current account present a high dependence from the output gap, the primary balance doesn't count much, while the coefficient of the REER, the indicator of competitiveness is even higher than the output gap one. The enlargement of current account surpluses enjoyed by Germany, has been originated the huge rise in its intra-EMU exports, favoured both by wage moderation and a constant productivity growth. The real depreciation manifested by the declining path of REER *vis-à-vis* the EMU-average facilitated the transfer of excess savings into the financing of the exports boom of 2004-07, with the overall macroeconomic equilibrium also resulting from a substantial fiscal consolidation. In the other very open small Core economies, large trade deficits have added up to excess savings, due to the REER following a continuously rising path after monetary unification.

Nearly all parameters are significant for both the Peripheral countries' groups, even though only the second period could be estimated, due to lack of time series long enough for primary balance. Ireland and in Spain experienced an excess domestic demand brought about rising imports, thus deteriorating the current account. Relative to the Core, these two countries exhibit a higher and more significant coefficient for the output gap; and also the coefficient of the primary balance is high and significant. The lack of significance of the REER is likely to stem from the relevant fall in unit labour costs, due to the deflation developing after the financial crisis. These results suggest that total domestic demand was responsible for the deterioration of the trade balance. In particular in Spain, the additional fiscal revenues created by the vigorous GDP growth stemming from the

domestic demand growth permitted to expand public expenditure within the 3% limit to public deficit / GDP ratio. To the extent that tradable goods prices are fixed in international markets, prices increases in response to the positive demand shock have mainly concerned non-tradable goods, first of all the construction sector. Since in this *catching-up* country SGP did not bite enough during upswings, the upward output trend sustained by both the private and the public sectors demand has also greatly increased the Spanish imports, so that a "twin deficits" was started.

Table 3.b	$dREER_{t-1}$	p-value	OG_{t-1}	p-value	PB_{t-1}	p-value	pseudoR2
Belgium	0.103	[0.72066]	0.092	[0.91717]	0.258	[0.06271]	0.23
Germany	0.040	[0.86209]	-1.011	[0.12775]	0.046	[090127]	0.22
Ireland	-0.107	[0.56661]	-1.284***	[0.00479]	-0.037	[0.79287]	0.61
Greece	0.156	[0.37041]	0.023	[0.95759]	-0.022	[0.94828]	0.08
Spain	0.551**	[0.02673]	1.727**	[0.00000]	-0.467***	[0.00000]	0.86
France	-0.515**	[0.03274]	-0.285	[0.64081]	0.427*	[0.03174]	0.56
Italy	0.096	[0.28522]	0.161	[0.54046]	0.559***	[0.00000]	0.78
Netherlands	0.066	[0.68471]	-0.803***	[0.00215]	-0.084	[0.55348]	0.60
Austria	0.771***	[0.00001]	-1.485***	[0.00030]	0.103	[0.56534]	0.75
Portugal	0.334	[0.25522]	-0.290	[0.28675]	-0.338**	[0.02515]	0.32
Finland	-0.623***	[0.01240]	-0.988*	[0.06739]	0.658**	[0.02108]	0.60

The cluster of Greece, Italy, Portugal presents a dependence of the current account mainly from the public sector. This is a clue that the lack of significance of the REER, also showing a sign opposite to the expected one, stems from a GDP growth which was sluggish in most of the years from 1999 to 2007 (and even with largely negative values after the financial crisis), thus leading imports to shrink even more than exports were falling. In particular Greece is another case of "twin deficits", as a falling output has provoked the rise of the numerator and fall of the denominator the public deficit / GDP ratio, while a soaring REER has been causing the deterioration of the trade balance. The Italian economy differentiates *vis-à-vis* the other two countries. As a relatively closer economy within the EMU, the constraint that the SGP puts on discretionary fiscal policies of stabilisation hits its GDP recovery after a negative shock to a degree higher than many smaller EMU economies. Italy's fiscal multiplier is larger than these latter countries' one, so that the SGP 3% limit to public deficit / GDP is more painful. Moreover, its large manufacturing sector is a drawback for Italy when microeconomic reforms are needed. Any hike in its ULC index due to faster nominal wage than labour productivity dynamics must be promptly counteracted, though the competitiveness recovery after wage moderation in this much less open economy is weaker than in small-size EMU economies.

The results for single countries in Table 3.b show again high heterogeneity. In particular, the high significance of output gap coefficients for Ireland and Spain confirm the finding of the previous estimates, stressing the common rapid expansion of domestic demand. Italy and Spain show also high significance for the primary balance coefficients.

5. Concluding remarks

We have questioned a widespread appraisal of divergent goods and capital flows within the Eurozone. Namely, the interpretation whereby the accumulation of current account imbalances across the EMU countries is a signal of financial integration triggering a safe and sound *catching-up* path of the backward economies of the Eurozone. The optimistic forecast of a well-balanced convergence process triggered by the market and financial liberalisation has been disproved by destabilising developments in Peripheral countries. On the one hand, a fast credit expansion, followed by higher growth rates of domestic demand, ended up in the explosion of real and financial bubbles. On the other hand, a progressive deviation in unit labour costs *vis-à-vis* the EMU-

average, continuous loss of competitiveness, and declining exports, prompted the accumulation of large amounts of private and public liabilities in the Core countries' banking systems. Our econometric estimates pointed to investigating a soaring financial instability in the Eurozone and a widening divide between Core and Periphery.

In the Introduction we posed the question whether the monetary integration process, by progressively imposing the demise of competitive devaluations, succeeded in pushing the European economies to strengthen market adjustment after a shock and cancel nominal rigidities. The answer is negative. The message of Regression models 1 and 2 is that diversity in labour market institutions is important within the Eurozone. Since nominal rigidities impinge mainly on the market adjustment of the Peripheral countries, a divide in the cost of waiving monetary policy autonomy has opened between Core and Periphery.

The trade surplus and deficits matured during the last decade nourished the systemic risk. As demonstrated by the financial crisis, a tight relationship exists between the accumulation of excessive current account imbalances on the one hand, and the aggravation of systemic risk on the other hand (Morris and Shin, 2008). The results of the Regression model 3 present a varying weight of the drivers of current account imbalances, depending on different clusters of countries. In Ireland and Spain, the monetary and financial integration prompted the 2004-07 boom in domestic demand, which in turn boosted imports.[9] As an effect of the rapid credit creation exceeding the core-liabilities, the large recourse to the non-core liabilities endangered the banks' balance-sheet structure[10]. The contagion stemming from the dangerous financial exposure (or even bankruptcy) of banking institutions, provoked the accumulation of illiquid positions in the Ireland's and Spain's banking systems, which in turn started the upward leap in the Eurozone's systemic risk.

The case of Italy, Portugal and Greece is different. As above reckoned, the trade balance of these countries was worsened mostly by real exchange rates shocks. In particular, in Italy and Portugal nominal rigidities negatively impinged on market adjustment as unit labour costs constantly rising above the EMU average caused a fall in exports. In Portugal and in Greece, the current account deficits were created by continuous increases in public consumption and by a fragile savings-investment imbalances as a declining competitiveness reduced exports; moreover, excessive expenses both in the private and the public sectors, by soaring imports, were responsible for the violation of the foreign sector constraint. In particular in Greece, the worsening in exports reduced the GDP growth, and the substitution of public expenditures to domestic demand, so that a growing public debt was issued in Eurozone's financial markets. Also Italy contributed to the building-up of the Eurozone's systemic risk, though to a much lesser extent, both because of a declining competitiveness slowing down exports and its aggravating fiscal sustainability due to the burden of the second public debt /GDP ratio in Europe after Greece, and also due to fiscal revenues reduced by a very slow GDP growth. Overall, the banks of the Core have increased their lending to private firms and banks and to the public sectors of the Periphery. When the bubbles burst, the systemic risk embodied by the deep interconnectedness across European banks materialised in the contagion effect which transmitted financial instability

Also the ECB's monetary policy contributed to worsen macroeconomic performance of the economies involved in the formation of systemic risk. Some New Keynesian models show that under nominal rigidities a "pure" *inflation targeting*, such as the very low inflation rate implicitly targeted by the ECB, leads to a sub-optimal equilibrium (Blanchard and Galì, 2007c, and 2010).[11] Since nominal rigidities are relevant in the Eurozone, to set an inflation target higher than 2%, so to

---

[9] However, facing a rise in wages and prices, the current account was not much affected in the former country, as the favourable evolution of the REER counteracted the deterioration in net exports, while the latter country experienced an increasingly negative trade balance.

[10] We define bank deposits as core-liabilities and liabilities to claim holders who are financial intermediaries as non-core-liabilities.

[11] Contrary to the presumption of the DSGE models, due the presence of nominal rigidities a Central bank does not face a "*divine coincidence*" but a trade-off between inflation stabilisation and employment stabilisation, so that sticking to "pure" *inflation targeting* causes unemployment to be higher than the natural rate.

create room for "active" monetary manouvres, would permit to take issue with labour market rigidity by reducing the real wage through a hike in the price level.[12] The example of Portugal, where wage and price deflation came at the cost of a enduring deflation, shows that to the objective to restore competitiveness has to be balanced with the objective of output stabilization.[13]

These findings sound as a confirmation that the strengthened financial and real interconnections across the EMU countries, instead of facilitating convergence among the EMU economies, have magnified mutually reinforcing liabilities. The divide between surplus and deficit countries – the backward EMU countries running larger current account deficits, and the more advanced countries accumulating larger current account surpluses - have brought about increasing capital outflows from the Periphery to pay for excess imports from the Core. Conversely, increasing capital flows were invested by the banks of the Core countries in the Periphery's public bonds.

The enlarging current account imbalances within the Eurozone need eventually be re-balanced, as distortions in debt and wealth stocks easily become unsustainable, so to cripple the market functioning and jeopardize the credibility of national governments.[14] The present turmoil, with recurrent threats of break-up of the Eurozone, is demonstrating that excessive current account imbalances across economies characterised by heterogeneous macroeconomic performances, endanger not only the ordered functioning of the Eurozone but its survival, too. The pre-condition which allowed macroeconomic imbalances to feed the rise of systemic risk, that is the passive attitude of monetary authorities and national agencies towards the expansion of banks' liabilities, has to be substituted by a more stringent financial regulation and a much more rigorous monitoring of interconnectedness across banks.

The huge output slump of 2007-10 has started the reversal of current account surpluses, mainly in Germany, Austria, and Finland. Current account deficits shrank in Ireland (where huge wage cuts triggered a large real depreciation), and to a lesser extent, in Italy and France (European Commission, 2010). A long-term current account equilibrium within the Eurozone could stem from two possible strategies aimed at balancing the distribution of demand flows across countries. A tight coordination among EMU institutions and national governments is needed to take issue with financial instability and reverse the current account imbalances between the Core and the Peripheral countries. And a tight coordination of microeconomic reforms is also needed to improve the functioning of the Eurozone markets, so to strengthen competitiveness.. Excessive reliance has

---

[12] The alternative instrument pointing to wage cuts is the open method of coordination (OMC). This method was introduced by the European Council of Lisbon in 2000 to induce the European Union countries to use as a benchmark the policy reforms adopted by best performing economies. The OMC is obviously inadequate to fill the void of valuable guidelines for regulatory convergence in goods and financial markets, but it is also doubtful either to force convergence across welfare and labour market institutions or to promote some sort of EMU-wide coordination among wage contracts.

[13] How to reconcile the fiscal retrenchment required by the SGP with the need of government expansionary interventions once wages are falling, is an empirical question. It has been argued that this policy question is to be solved by looking at the phase of the business cycle. For instance, the need of Portugal to sustain aggregate demand, during the negative output gaps of the first half of the 2000s, should have met by a sensible mix of fiscal expansion and wage deflation To quote, "(f)or a better coordination of wage and fiscal adjustments (…) it would have been better for Portugal to combine *fiscal contraction and wage increases* in the 1990s, in exchange for *fiscal expansion and wage decreases* in the 2000s" (Blanchard, 2007a, p.32; italics in the text. See also Blanchard, 2007b and Blanchard and Giavazzi, 2002).

[14] The accumulation of current account imbalances is deemed dangerous by many institutions, also because they are diminishing much more slowly than expected during the current recession. The IMF is recurrently putting forward the view that their progressive absorption could only stem from a common effort and the strengthening of international coordination across macroeconomic policies is advocated (Blanchard and Milesi-Ferretti, 2009). Structural reforms and a stronger coordination among monetary and budgetary policies is strongly suggested by the OECD, so that the ensuing adjustment in real exchange rates could facilitate the rebalancing of international trade flows (De Mello and Padoan, 2010). Episodes of reversal of current account imbalances are more likely to occur in countries suffering from unfavorable terms of trade and are not necessarily related to currency nominal depreciation (Milesi-Ferretti and Razin (2000), as the within-EMU divide between the surplus Core countries and the deficit Peripheral countries witnesses.

probably been put in a smooth *catching-up* process sustained by financial integration. There is room for an improvement in the macroeconomic governance of the monetary union, by tightening the intra-EMU coordination between the common monetary policy, the SGP fiscal surveillance, and national wage policies.

References

Aghion P., P. Howitt, and D. Mayer-Foulkes (2005) "The Effect of Financial Development on Convergence: Theory and Evidence," *Quarterly Journal of Economics*, 120 : 173-222.

Angeloni I. and M. Ehrmann (2007) "Euro Area Inflation Differentials", *The B.E. Journal of Macroeconomics*, Vol.7, 1.

Arghyrou M.G. and G. Chortareas (2006) "Current Account Imbalances and Real Exchange Rates in the Euro Area", *Review of International Economics*, 16: 747-764.

Balli F., S.A. Basher, and H. Ozer-Balli (2010) **"**From home bias to Euro bias: Disentangling the effects of monetary union on the European financial markets", *Journal of Economics and Business* 62: 347–36.

Barnes S. (2010) "Resolving and Avoiding Unsustainable Imbalances in the Euro Area", OECD Economics Department Working Papers, No. 827

Belke A. and C. Dreger (2011) *Current account imbalances in the euro area: Catching up or competitiveness?*, European University Viadrina Frankfurt (Oder), Department of Business Administration and Economics Discussion Paper n. 297

Berger H. and V. Nitsch (2010) *The euro's effect on trade imbalances*, IMF Working Paper 10/226, International Monetary Fund, Washington DC.

Blanchard O. (2007a) "Current account deficits in rich countries", *IMF Staff Papers*, No. 2.

Blanchard O. (2007b) "Adjusting within the euro. The difficult case of Portugal", *Portuguese Economic Journal*, 6: 1 -21.

Blanchard, O. and J. Galì (2007c) "Real Wage Rigidities and the New Keynesian Model," *Journal of Money Credit and Banking*, 82: 35-66

Blanchard O. and J. Galì (2010) "Labor Markets and Monetary Policy: A New-Keynesian Model with Unemployment"*, American Economic Journal: Macroeconomics,* 2: 1-30.

Blanchard O. and F. Giavazzi (2002) "Current Account Deficits in the Euro Area: The End of the Feldstein-Horioka Puzzle?", *Brookings Papers on Economic Activity*, 2: 147-186.

Blanchard O. and G..M. Milesi-Ferretti (2009) *Global Imbalances: In Midstream?,* IMF Staff Position Note SPN/09/29, International Monetary Fund, Washington/DC.

Decressin J. and E. Stavrev (2009) *Current Accounts in a Currency Union*, IMF Working Papers 09/127, International Monetary Fund, Washington/DC.

De Mello L., P.C. Padoan, and L. Rousová (2011) "Are Global Imbalances Sustainable? Shedding Further Light on the Causes of Current Account Reversals", *Review of International Economics,* forthcoming.

European Commission (2006) "The EU Economy: 2006 Review. Adjustment Dynamics in the Euro Area. Experiences and Challenges*", European Economy*, No.6, Brussels.

European Commission (2009) "Competitiveness developments within the euro area", *Quarterly Report on the Euro Area*, Vol.8, No.1.

European Commission (2010) *The impact of the global crisis on competitiveness and current account divergences in the euro area*, *Special Issue*, Brussels.

Farina F. (2001) "Monetary Policy and Competitiveness in the Euro Area", in M.Franzini and F.R.Pizzuti (eds.) *Globalization, Institutions and Social Cohesion*, Springer-Verlag, Berlin (Italian edn, *Globalizzazione, istituzioni e coesione sociale*, Donzelli, Roma, 1999).

Farina F. and R. Tamborini (2004), "'Set a sufficiently ambitious budget target and let the automatic stabilizers work'. Can it really work in the European Monetary Union?", *Open Economies Review*, 15: 143-168.

Honohan P. and P.R. Lane (2003) "Divergent inflation rates in EMU", *Economic Policy*, Vol. 18(37): 357-394.

Lane P.R. and G.M. Milesi Ferretti (2008) "The Drivers of Financial Globalization", *American Economic Review, Papers and Proceedings*, May.

Le Cacheux J. and F. Saraceno (2008) "One size does not fit all. Country size and fiscal policy in a monetary union", in F. Farina and R.Tamborini (eds.), *Macroeconomic Policy in the European Monetary Union*, Routledge, London.

Monacelli T. (2005) "Into the Mussa puzzle: monetary policy regimes and the real exchange rate in a small open economy", *Journal of International Economics*, 62: 191-217.

Morris S. and H.S. Shin (2008) "Financial Regulation in a System Context" *Brookings Papers on Economic Activity*, Fall, 229-274.

Schmitz B. and J von Hagen (2012) "Current account imbalances and financial integration in the euro area", *Journal of International Money and Finance*, 30(8):1676-1695.