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Current Account Imbalances in the Eurozone: Is Institutional Heterogeneity to Blame?

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Abstract

Can differences in institutional quality explain current account imbalances in the Euro area? This paper emphasizes a link between current accounts and institutional quality based on a country study for Greece. Subsequently it tests the relationship for a homogeneous sample of 24 European countries over the period 1990 through 2013. Regression analysis indicates that institutional quality is crucial to understand the evolution of the current accounts. The relationship holds for both the Euro area and the EU, however it is starker for the former. In addition, we find that with the introduction of the euro the influence of institutional quality became stronger. Furthermore, our results hold for the intra-EU and total trade balances but not for the external trade balances. Finally, the findings support the argument for structural reforms and more efficient governance in order to avoid future imbalances of the same magnitude. Supranational institutions such as the ESM, closer scrutiny of national regulators and governments as well as the strengthening of the regulatory mandate of the ECB likely contribute to a more stable currency area.

Key words: current account, institutional quality, structural reforms, Euro area, Panel Data

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Remaining mistakes are, however, my own.

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1. Introduction

Current account imbalances in the years before the financial crisis of 2008 have been identified as an amplifier for the severity of the crisis in several Euro area countries. In addition, structural reforms as part of adjustment programs have recently raised considerable interest. For instance, public administration reforms, a more efficient tax collection system as well as anti-corruption measures were frequently highlighted in the wake of the latest bailout program for Greece. In a similar fashion, structural reforms have also been part of the adjustment programs for Portugal and Cyprus.

While there is no economic reason to assume that current accounts in highly integrated areas such as the EU should be balanced, the severity and the persistence of the imbalances before 2008 had been unsustainable. The current account literature, explains this with the presence of market rigidities and distortions. For example, fixed exchange rates may prevent the adjustment of real exchange rates. This however results either in a gain or loss in competitiveness and thus current account imbalances. Similarly, bad macroprudential policies may result in an exaggeration of exogenous shocks instead of adjustment. Two examples for such policies are the inflated government budgets in Greece and the weakly regulated distribution of housing credit in Spain in the years before the financial crisis.

The motivation behind this paper, is to test the hypothesis that heterogeneity in institutional quality across countries can explain the dispersion of the current account within the EU. Specifically, the pattern across the Euro area is investigated. Two potential problems arise from the nature of institutions. First, political institutions cannot be measured directly; institutional quality in the sense of this paper therefore refers to outcome measures. Government effectiveness and corruption constitute amongst others such measures. Second, institutional quality typically is higher, the more developed a state is. According to Glaeser et al. (2004) the causality could however go into both directions. For the current account the direction of causality however should be one way. There is no reason to assume that current account deficits cause weak institutions.

Previewing the main results, this paper finds that differences in institutional quality contributed to the widening of current account dispersion in the EU over the period 1990 to 2008. In addition, the results show that the effect is starker for the Euro area. Moreover, the adoption of the Euro had a significant impact on the relationship between current accounts and institutional

quality. Finally, we establish that our findings hold for the intra-EU trade balance as well as for the total trade balance likewise.

The results of this paper show that to a first order, the results of this study back the narrative that institutional quality matters with respect to the current account. Overall, this entails two important messages for policy makers. Without further improvements in institutional quality, in the crisis countries, the mistakes of the past are likely to be repeated. Not now, but as soon as the economic conditions become brighter. The positive message is that EU policy makers can support national authorities with expertise. As a result efficient and appropriate institutions that reflect the best characteristics of each nation's administrative practices could be developed.

This paper is structured as follows. The next section focuses on the case of Greece and points out a country specific narrative for the ongoing crisis in line with the rest of this paper. Section 3 provides an overview over the related literature. Data and Methodology are described in Section 4. Subsequently section 5 presents the results of the regression analysis. The last section summarizes the findings. In addition, directions for further research as well as policy advices are given.

2. Greece as an Example for Institutional Weaknesses

After six years of deep recession, during which Greek GDP contracted by more than 25 percent, the economy showed for the first time an expansion of 0.8 percent in 2014¹. Nevertheless, the economic situation in Greece seven years after the crisis continues to be bleak. On a purchasing power basis, Greece's per capita GDP which had risen to 86.1% (77%) by 2008 fell to 67% (58%) of Euro area (German) levels by 2014². With one quarter of the workforce still unemployed and youth unemployment persistently close to 50 percent the labour market remains in distress³. Moreover, government debt peaked around 177.1 percent of GDP by the end of 2014. Additionally, capital controls which have been introduced to avoid a collapse of the banking sector will remain until 2016, according to the Bank of Greece. More notably, Greece reports a small current account surplus in the first two quarters of 2015. This however was the result of an outflow of capital and a sharp decline in imports, accompanied by only a modest increase in exports according to the Bank of Greece.

¹ GDP Annual Growth Rate in Greece is reported by the National Statistical Service of Greece.

² Source: Eurostat (GDP per capita in PPS EU15=100)

³ Source: Eurostat, numbers are for June 2015

As argued in Beck (2015), a significant difference between Greece and the rest of the Eurozone exists, with regard to institutional indicators. Figure 1 shows the rank of EU countries in the category *effectiveness of the government*. Additionally, the upper and lower significance bands (90%) are reported. Greece has the lowest rank compared to the rest of the Euro area. More notably, with exception to Italy its significance band does not overlap with the Euro area countries that virtually adopted the Euro in 1999⁴.

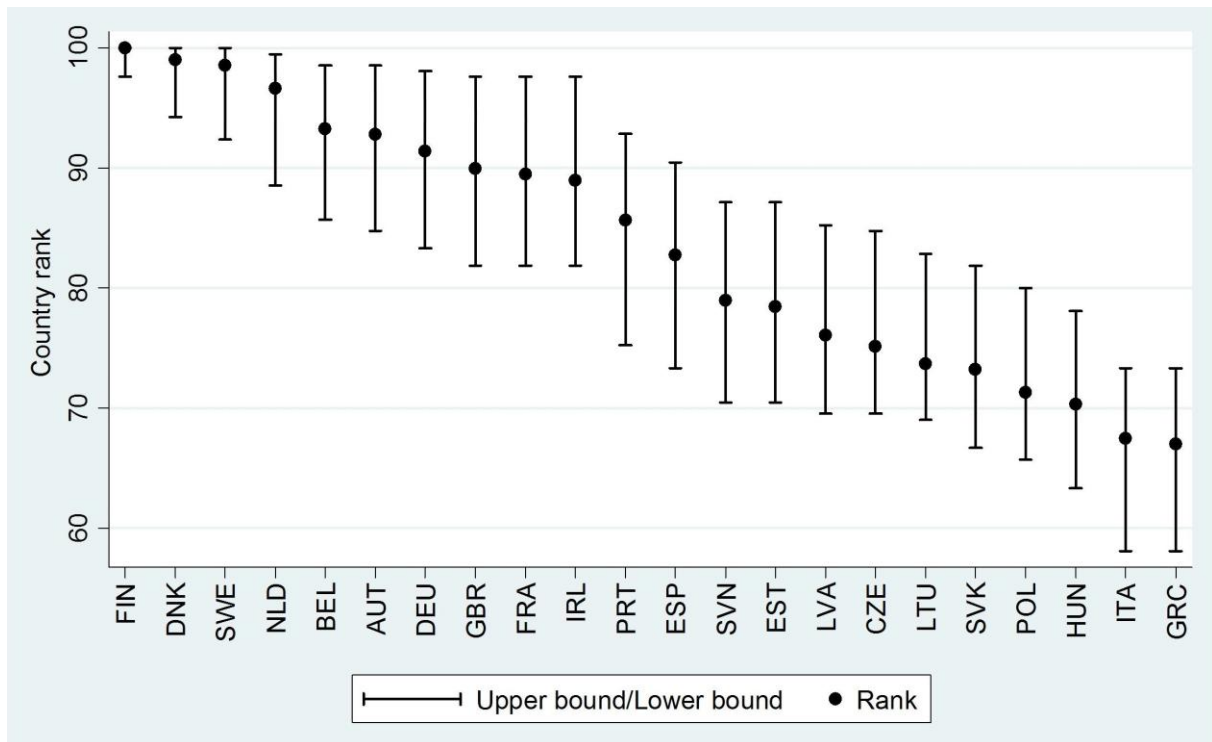


Figure 1 *Effectiveness of Government*

Source: World Governance Indicators Database

Similarly, the numbers in Table 1 support the argument of Greece as an outlier with regard to institutional quality. Table 1a is based on the latest Sustainable Governance Indicators (SGI2015) for 41 OECD and EU countries. The SGI are divided into three main categories. The first category is *Policy Performance* which consists of economic policies, social policies and environmental policies. *Quality of Democracy* constitutes the second category. Lastly, measures of *Governance* form category three. In comparison with other indicators such as the Worldwide Governance Indicators, the SGI provide more in depth measures and considerably more categories.

⁴ Greece adopted the Euro in 2001 and participated in the public roll-out of the coins. In 1999, however it failed to meet the criteria.

Table 1a illustrates that Greece's performance compared to other Euro area countries is weak. Its overall score in *Policy Performance* ranks it last, behind Cyprus (40) and Bulgaria (36), which are geographically close. The differences are extremely pronounced, in comparison to Sweden and Germany, however less stark for Portugal. In *Policy Performance* Greece index value is only 56% of the Swedish and 61% of the German level. The same difference is evident for *Governance*, where Greece ranks 36, with an index score of 60% relative to Sweden and 69% to Germany.

Table 1 Sustainable Governance Indicators and Doing Business ranking

	Greece		Sweden		Germany		Portugal	
a. SGI								
	rank	index	rank	index	rank	index	rank	index
<i>Policy Performance</i>	41	4.40	1	7.83	6	7.19	29	5.30
<i>Quality of Democracy</i>	29	6.90	2	9.25	5	8.70	21	7.38
<i>Governance</i>	36	5.02	1	8.42	8	7.25	33	5.54
b. Doing Business								
	DB15	DB14	DB15	DB14	DB15	DB14	DB15	DB14
<i>Total Rank</i>	61	65	11	12	14	13	25	23
<i>Paying Taxes</i>	59	41	35	38	68	64	64	56
<i>Registering Property</i>	116	170	18	21	89	80	25	25
<i>Resolving Insolvency</i>	52	51	17	18	3	3	10	11
<i>Enforcing Contracs</i>	155	155	21	21	13	13	27	27
<i>Construction Permits</i>	88	90	18	17	8	7	58	58
<i>Getting Electricity</i>	80	73	7	6	3	2	47	43

Note: Rank indicates country rank among a sample of 41 (a) / 189 (b) countries. Index values range between 0 and 10. Source: Bertelsmann Foundation, SGI 2015, Doing Business 2014&2015

Table 1b shows that Greece significantly improved its World Bank rating in terms of ease of doing business (Doing Business 2015). Though, its 61st place in the ranking is still one place

behind Tunisia, and far behind Sweden (11), Germany (14) and Portugal (25). On individual measures Greece's performance is also poor. In enforcing contracts, a key characteristic of advanced economies it ranks 155, one behind Malawi and 128 ranks behind Portugal. On construction permits, one rank behind Peru; on registering property, behind Morocco and one resolving insolvency Greece neighbours China. Nonetheless, on paying taxes, where high tax rates and complicated procedure hamper a business friendly environment, Greece is in the range of Sweden, Germany and Portugal. In fact, its tax legislation is more business friendly than in Germany⁵.

Nevertheless, the numbers reported in Table 1, show that Greece is still a developing country in many ways (Bulow and Rogoff, 2015). Nonetheless, it has made significant improvements in certain areas due to reforms in the recent past. Nevertheless some reforms by now simply exist on paper or require more time to impact (Beck, 2015). Despite its efforts, the conclusion from this exercise is that Greece still performs poorly in governance and policy measures. Furthermore this section concludes that Greece does not have a business environment as friendly as other Euro area or non-Euro EU countries.

One possible explanation for the prevalence of corruption and inefficient government procedures in Greece can be found in the country's history⁶. A proud nation with a rich cultural heritage, Greece, however suffered under foreign occupation for several hundred years. From the mid-15th century until its war of independence, Greece had been under Ottoman rule. This had a lasting impact on its business practices, its social norms as well as on its political culture (Koliopoulos and Veremis, 2009). The new elite, that held posts in the Ottoman administration became an oligarchy and gained a negative reputation for corruption and nepotism (Koliopoulos and Veremis, 2009).

In 1832 the republic of Greece was established after France, Britain and Russia helped the Greek national movement to overthrow the occupants. Britain, Russia and France implemented King Otto of Bavaria, as ruler in 1833. Otto's German regents tried to implement institutions based on German-style rigid hierarchical structures, which turned out to be unpopular. Throughout the 19th century, clientelism and reoccurring electoral upheavals characterized

⁵ Unfortunately Doing Business rank values are not available for earlier years. However, on individual measures the improvements Greece has made compared to 2008 are substantial. One example is the significant reduction in the time it takes to import goods. Bourdet and Persson (2012) provide a more detailed discussion on the doing business database.

⁶Koliopoulos, John S., and Thanos M. Veremis. *Modern Greece: A History since 1821* (2009)

Greek politics. In 1826 Greece had to declare insolvency for the second time in modern history. The cause had been corruption and excessive spending. In total, Greece defaulted 6 times between 1826 and 1964 on its debt (Reinhardt and Rogoff, 2011). Furthermore Reinhardt and Rogoff (2011) emphasize that Greece had been in external default for almost 50 years during that period.

Despite the fact, that Greece is commonly known as the “cradle of democracy”, the democratic Greece of today evolved only in 1974. Before 1974 a military junta ruled Greece. This junta had previously overthrown the monarchy and parliamentary rule in a coup d'état in 1967. The dictatorship came to an end in 1974 when senior military officers withdrew their support after the failed coup d'état in Cyprus, which had been sponsored by the Greek junta. A new civil government of national unity replaced the military government. However, the old civil servants remained in power (Koliopoulos and Veremis, 2009). Parliamentary democracy was re-established and elections were held for the first time since the coup. Yet, monarchy was finally abolished and Greece became a republic by the end of 1974.

In 1981, Greece became a member of the European Community⁷. The reason for its membership back then was its geopolitical position as a member of NATO (Kalatzidis, 2010). As argued by Eleftheriadis (2014) this step strengthened traditional Greek hierarchies and increased the influence of oligarchs. At the same time it weakened the position of the state. Greek oligarchs nowadays control over 90 percent of the media, and dominate almost all key industries that depend heavily on government patronage (Eleftheriadis, 2014). In 2004 hosted the Olympic Games. With more than 9 billion Euros in total costs, hosting the event became a burden to the Greek taxpayers. In that sense, Malkoutzis (2012) argues, that the Olympics revealed the structural problems that existed for decades and foreshadowed prospective vulnerability. Nonetheless, important interest groups such as unions for certain professions block attempts to reform the country (Kalatzidis, 2010). According to Eleftheriadis (2014) opposition from the media has been the biggest barrier to such reforms, in the 1990s but also in the aftermath of the crisis.

When Greece adopted the Euro in 2001, its official debt statistics were subject to fraud, a problem of which the European institutions had been unaware until 2004 (European Commission, 2010). In addition, the general government deficit figures were revised for various

⁷ A detailed discussion focussing on post-dictatorial Greece and the institutional weaknesses such as extralegal corruption in Greece politics can be found in Kalatzidis(2010).

years (2007, 2008 and 2009) and resembled a “pack of lies” (Giavazzi and Spaventa, p. 2, 2010). Furthermore, in 2010 obligatory reporting requirements on financial derivatives were not respected by the Greek authorities. These two incidences ignited the 2009/2010 crisis in Greece. The root of the crisis however lies deeper.

As argued by Lane (2010), the elimination of currency risks and the deeper financial integration had substantial impacts. Even low yield differentials had the potential to attract massive capital flows. Therefore, the formation of the Euro area represented a major shock for countries such as Greece and Portugal. To analyse this issue in more detail, Figure 2 plots the evolution of long term government bond yields in percent, from 1993 onwards⁸.

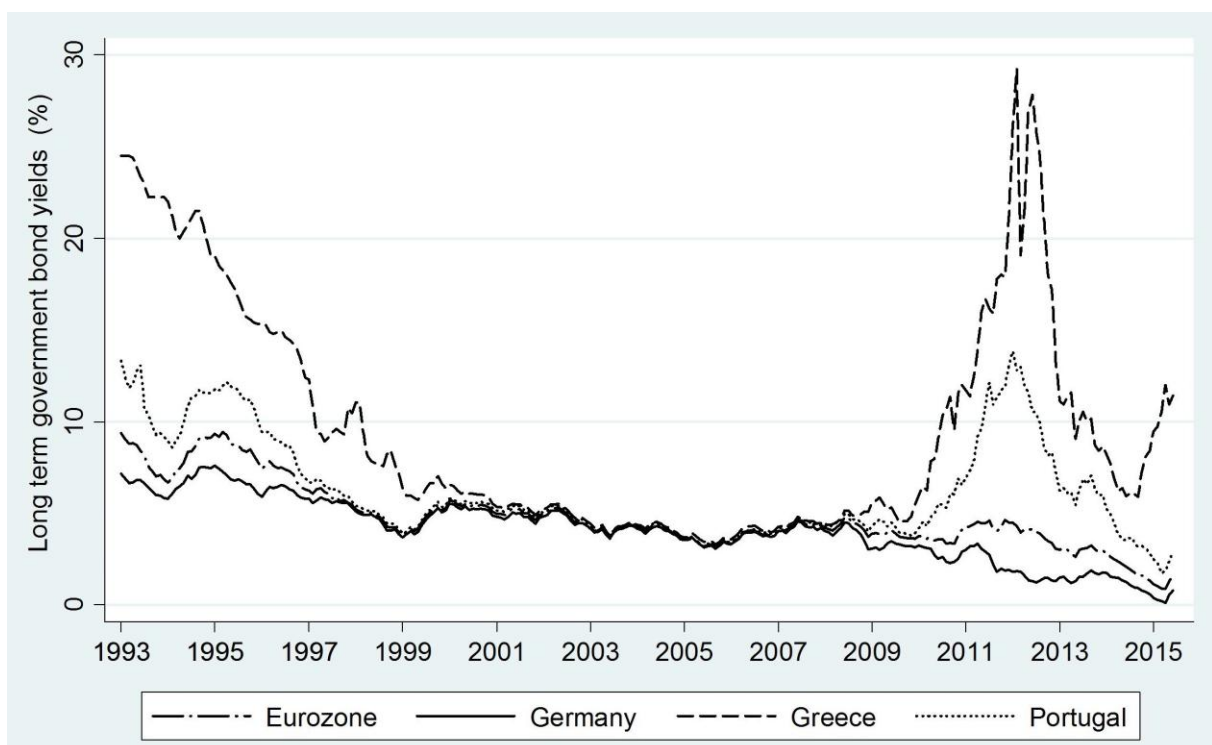


Figure 2 Evolution of Long Term Government Bond Yields

Source: Eurostat

For Greece, the decline is especially stark. In 1993, Greece had to pay as much as 24.6% for bonds with a 10 year residual maturity. By 2001, however the difference in bond yields had narrowed to 26 basis points compared to German bonds. This development is linked to the criteria of the Maastricht Treaty. In order to adopt the euro, Greece had to discipline its finances

⁸ Long term government bond yields are calculated as monthly averages. They refer to central government bond yields on the secondary market, gross of tax, with a residual maturity of around 10 years. The bond or the bonds of the basket have to be replaced regularly to avoid any maturity drift. This definition is used in the convergence criteria of the Economic and Monetary Union for long-term interest rates, as required under Article 121 of the Treaty of Amsterdam and the Protocol on the convergence criteria.

in the early and mid-1990s. Though, when it became public that public debt data had been revised, bond yields increased sharply and peaked close to 30% in February 2012.

The sudden availability of external finance resulted in two developments. On one hand, rising current account as well as trade deficits. On the other, less budget discipline. The left graph in Figure 3 shows the evolution of the current account and trade balance. The right graph plots the net foreign asset position. Four observations stand out. First, Greece never managed to run a trade surplus as indicated by the dashed line. Moreover its trade deficit in 2013 was still greater than 10% of GDP.

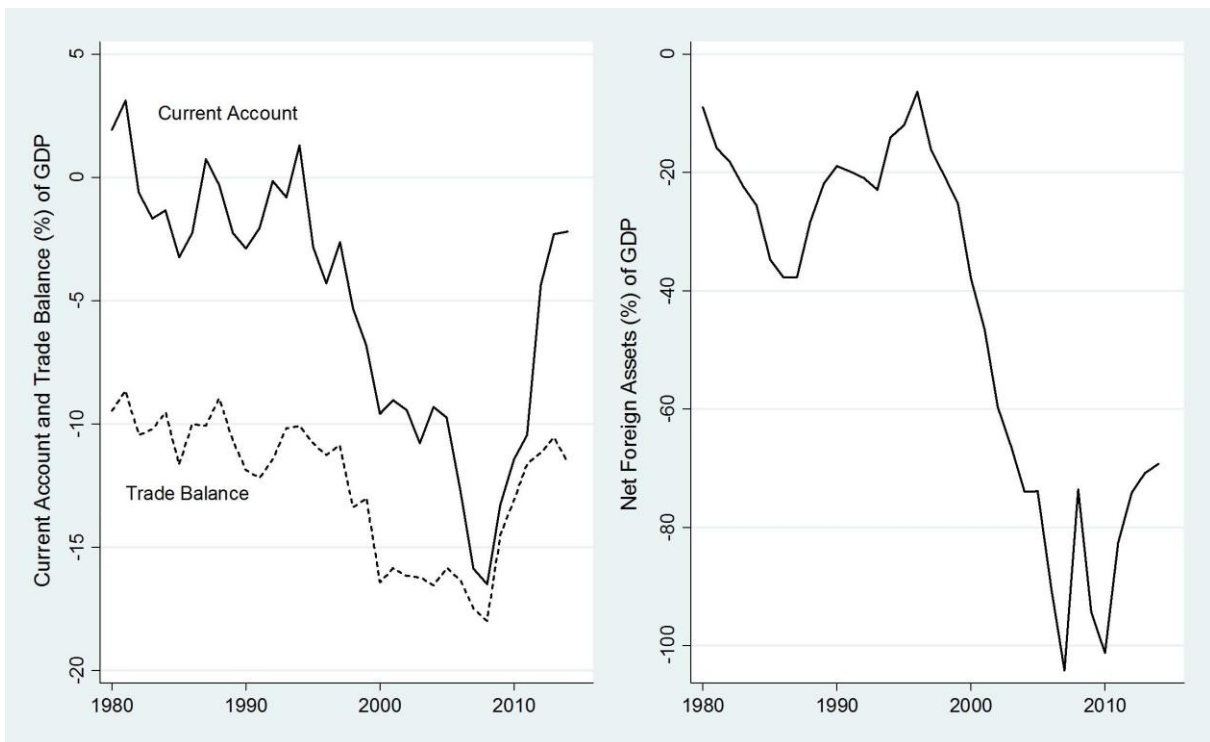


Figure 3 Current Account, Trade Balance and Net Foreign Assets in Greece

Source: AMECO and Lane and Milesi-Ferretti's External Wealth of Nations MarkII Database 2007

Second, its current account position improved in the early 1990s but worsened in the wake of the Euro. Overall, current account to GDP averaged -5.03 percent from 1980 until 2014. It reached an all-time high of 0.90 percent in 2014 and a record low of -14.90 percent in 2008. Third the persistency of its current account deficit led to deterioration in the net foreign assets position. In 2008 the NFA exceeded 100 percent of GDP and became clearly unsustainable. Similar levels usually indicate the potential of a balance of payment crisis as shown by Catao and Milesi-Ferretti (2013). Fourth, after 2009 a sharp reversal in its current account took place. This happened in the presence of a sudden stop and the incapability of the Greek government to finance its deficit on the bond market.

During 2003 and 2008 the Greek government persistently violated the criteria of the Stability and Growth Pact. Table 2 displays the change in general government balance as well as general government debt to GDP for Greece and 3 additional benchmarks. With gross debt above 100 percent and an average budget deficit of more than 6 percent, the 60 percent debt and 3 percent deficit criteria was clearly not met throughout the whole period. In 2008, but more drastically in 2009, the general government deficit worsened substantially. In 2009 it peaked with a deficit of almost 14 percent of GDP. Similarly, the budget deficits increased in Portugal as well as in Spain. However, both countries had close to average or below average debt levels.

Table 2 General Government Balance and Consolidated Gross Debt (%) of GDP

	<i>General Government Balance</i>			<i>Debt</i>		
	Average 2000-07	2008	2009	2000	2008	2009
<i>Euro Area</i>	-2.3	-2.0	- 6.3	-	69.5	79.2
<i>Greece</i>	-6.1	-7.7	-13.6	99.5 ^e	109.3	126.8
<i>Portugal</i>	-4.1	-3.7	- 7.1	50.3	71.1	83.6
<i>Spain</i>	-1.3	-4.1	-11.2	58	39.4	52.7

Source: General Government Consolidated Gross Debt AMECO. Estimated (e) Gross Debt for Greece in 2000 taken from IMF's WEO. General Government Balance taken from Giavazzi and Spaventa (2010).

3. Related Literature

Previous research on current account imbalances has been an important area of research during the last decades. Nevertheless, the majority of papers focus on emerging economies. The financial crisis of 2008, however, has triggered new research based on the determinants of current account deficits in the European Union. Nevertheless, the direct link between the current account balances and institutional heterogeneity across the EU has not been the direct subject of any previous study⁹. Therefore this study aims to fill that gap. By doing so, this paper provides another view on intra- Eurozone imbalances. The argument is that downhill flows of capital resulting in current account deficits are not solely driven by fundamentals and higher expected growth rates. Instead, this paper emphasizes the importance of institutional quality or its absence to explain current account behaviour.

This paper builds on previous work from recent literature. Closest to this study is a paper written by Berger and Nitsch (2010). The authors examine the persistence of intra-euro imbalances

⁹ However papers such as Eichengreen (2010) and Beck (2015) mention corruption and bad governance in the context of the crisis in Greece.

after the introduction of the Euro in a country-pair model. They use several OECD indicators for structural reforms and show that labour- product- and financial market rigidities have an effect on the direction of bilateral trade. By doing so, Berger and Nitsch (2010) provide empirical support for a model, theoretically derived in Blanchard (2007).

In this respect, a related strand of the literature that relates persistency in current account behaviour to structural factors may also be of importance. Zmanek et al. (2010) for instance, analyse the role of private restructuring and public structural reforms for readjustment of intra-euro area imbalances. They use structural unemployment as well as social benefits as proxies for structural reforms. Another paper, Biroli, Mouree, and Turrini (2010) emphasizes that regulation affecting price and nominal wage flexibility as well as employment protection, influence the adjustment of real exchange rates in the Eurozone.

In addition, some papers explore the relationship of the current account dispersion and the monetary union¹⁰. Givazzi and Spaventa (2010) amongst others, describe aberrations including potential moral hazard for governments associated with participation in the monetary union. More notably, Lane (2013) proposes reforms to improve the macroeconomic stability across the euro area based on observations of gross and net flows before the crisis. For Ireland, Lane (2014) presents an explanation for the built-up of the crisis, based on financial debt inflows related to its open financial policies and its attractiveness for FDI due to its tax legislation.

Finally, some papers look at the development of institutions and their effect on economic outcomes. In an early paper, Hayek (1960) argues that institutions have to evolve organically and cannot be designed. The more recent literature, amongst others Berkowitz et al. (2003) and Roderik (2007), though claims that country specific circumstances determine whether institutions can be seen as appropriate. Related to structural reforms approaches, which are part of crisis adjustment programs in the Euro area, the findings of Acemoglu and Robinson (2008) are noteworthy. They point out that as long as the socio-economic power structure and the old institutions prevail, changes imposed from outside are most likely not successful.

¹⁰ The literature on current account imbalances in the Eurozone has come up with certain explanations for the evolution and persistence of the deficits. Evidence for increased bilateral intra-EU bond holdings and increased financial integration is presented in Lane (2006) and Lane and Milesi-Ferretti (2002, 2007). Blanchard and Giavazzi (2002), Blanchard (2007) and Ahearn et al. (2009) describe the so called convergence mechanism as key driver. Furthermore Lane and Pels (2012) highlight the importance of growth expectations for the evolution of current accounts in the Eurozone.

In the remainder, this paper adds to the literature on current accounts and external imbalances in the following dimensions. First, it focusses exclusively on a sample of European countries of which most have adopted a common currency. In addition institutional heterogeneity is discussed in more detail, and a link to the current account imbalances in the EU is established. Furthermore, the situation in Greece is given special attention, because it provides a natural experiment that overshadows European monetary integration. Finally, we examine a wide variety of empirical settings to present the importance of the institutional dimension for the development of current accounts across the European Union and especially within the Eurozone.

4. Data and Pro-estimation Procedures

Initially, we are interested in the relationship between institutional quality across the EU and the current account. To that end, the main model is given by:

$$(1) \quad CA_{it} = \alpha_i + \beta_1 Institutions_{it} + \beta_2 X_{it} + u_{it}$$

where CA_{it} is the dependent variable and represents the current account expressed as ratio to GDP of country i at time t . $Institutions_{it}$ is a vector that contains two customized proxies for institutional quality of country i at time t . Furthermore, X_{it} is a vector of further explanatory variables. Finally, α is a constant and u_{it} is the error term that captures unobservable effects. Several specifications of the model are estimated using four different estimation techniques. Depending on the econometric specification, country as well as time fixed effects are added. The specific composition of the error term thus depends on the type of estimator. A more detailed discussion of the differences, similarities and strengths of the estimators follows in the econometrics section.

At the core of the dataset are current account data in levels as well as the two indices as proxies for institutional quality. More precisely, the Fraser Economic Freedom of the World Index and the ICRG Index. The former is published by the Fraser institute on a yearly basis. Before 2000 data is available only for years that end either with 0 or 5. The EFW contains five different areas. These are, size of government, legal system including property rights, sound money, freedom to trade internationally and regulation. Somehow similar in its components, but more detailed the ICRG index is based on the ICRG Researchers Dataset which is a subset of the larger International Country Risk Guide (ICRG) dataset. It contains sub-indices for government stability, socioeconomic conditions, investment profile, internal conflict, external conflict,

corruption, military in politics, religion in politics, law and order, ethnic tensions, democratic accountability as well as bureaucratic quality.

Both indices are altered to better serve the purpose of this study. In a first step internal conflict, external conflict, military in politics and religion in politics are excluded from the ICRG Index, due to irrelevance for advanced countries. In a second step both indices were recalculated relative to an unweighted average of the top 3 countries in the Euro area. We decide to use the top 3 countries Germany, Austria and the Netherlands instead of only Germany as a baseline since the German series suffer from a unification bias in the early 1990s¹¹. All three countries share a similar economic structure which is manifested by comparable country performances. Additionally, all three are very open to trade. Moreover Germany is the largest economy with respect to GDP in both the EU and the Eurozone.

In line, with previous literature on European current accounts, the analysis focuses on a set of solely European countries. The dataset consists of the former EU15 countries as well as the countries of the Eastern Enlargement process plus Norway and Switzerland covering the period from 1990 to 2013. Luxembourg, Malta and Cyprus are excluded. The reason for their exclusion is their small geographical area, their population size, their oversized financial sector or the low value of total GDP. The resulting dataset is thus homogeneous in its composition. One advantage of this selection is the shared adoption of the EU's common framework or its close association to it (Berger and Nitsch, 2010). Furthermore potential outliers due not affect the results.

The main sources of data are the IMF's *World Economic Outlook* database for current account data as well as the European Commission's *AMECO* database for key macroeconomic variables. Institutional data are taken from the Fraser Institute as well as from the ICRG Group's Researcher Dataset. In addition, the dataset is augmented with data from the World Bank's *World Development Indicators* and from Lane and Milesi-Ferretti's(2007) *External Wealth of Nations* dataset. A complete list of countries as well as a variable list which explains the construction of the explanatory variables is given in the in the appendix. The list does also report the data sources for each variable.

Table 3 shows the correlation matrix for the main variables as well as additional control variables. As expected, the altered *Fraser* and *ICRG* indices show a high level of correlation

¹¹ The index values for the unified Germany are lower than for West Germany in 1990.

with the *current account*, with the correlation being stronger for the latter. Furthermore the negative correlation between the outputgap and the current account follows basic economic theory. As demonstrated in Blanchard and Giavazzi(2002) the correlation between the *output per worker* and *current accounts* is quite substantial. This indicates that high levels of GDP per capita from which the aforementioned variable is constructed and current account surpluses go hand in hand.

Table 3 Correlation Matrix

	<i>CA</i>	<i>Fraser</i>	<i>ICRG</i>	<i>gap</i>	<i>Private credit</i>	<i>Output per worker</i>	<i>Government debt</i>	<i>NFA/GDP_{t-1}</i>
<i>CA</i>	1.000							
<i>Fraser</i>	0.389	1.000						
<i>ICRG</i>	0.519	0.5792	1.000					
<i>Outputgap</i>	-0.274	-0.115	0.160	1.000				
<i>Private credit</i>	0.242	0.561	0.521	0.013	1.000			
<i>Output per worker</i>	0.739	0.621	0.719	-0.039	0.576	1.000		
<i>Government debt</i>	0.121	-0.033	-0.106	-0.245	0.078	0.200	1.000	
<i>NFA/GDP_{t-1}</i>	0.631	0.335	0.285	-0.040	0.155	0.629	-0.138	1.0000

Government debt on the other hand is weakly correlated with the *current account* but the sign is puzzling. One possible explanation for this puzzle is the overall high level of government debt in the sample. Furthermore, countries such as Italy and France which managed to run balanced current accounts during the whole sample period despite above average levels of Government debt can finance their debt domestically. This however, is no option for countries with less developed financial systems.¹² In addition countries such as the Baltic States or Spain pursued macroprudential policies that reduced their sovereign debt pre-2008, despite substantial current account deficits.

Summary statistics are presented in the Appendix. All variables show a high variation across time as well as across countries, which makes the dataset suited for panel analysis. The mean current account is marginally negative but close to zero. This indicates a balanced current

¹² In the Baltic States foreign banks dominate the financial sector and control more than 80% of the market according to the IMF. Major financial players in the Baltics are the Swedish banks Nordea and Swedbank.

account for the whole sample. Surplus and deficit countries generally equalized the overall current account of the Euro Area. The standard deviation is almost six percent. Extreme ratios for the current accounts are present for both the minimum and the maximum. The maximum with more than 16 percent is Norway, which run current account surpluses above 10 percent for several years. One reason is its role as an oil exporter and the returns from its high net foreign asset surplus. The minimum value of nearly minus 21 percent or more than 3.5 standard deviations represents the Latvian current account deficit in 2006.

Especially noteworthy are the time series as well as the cross-sectional dimension. Typically, panel data estimators are designed for “micro panel datasets”, e.g. small time and large cross-sectional dimensions. With more than 20 years but only 24 cross-sectional units, the dataset in this paper epitomizes a typical “macro panel dataset” (Roodman, 2009). Therefore, potential problems arising from non-stationarity need to be addressed.

In addition, the heterogeneity across the cross-sectional unit poses another problem; potential cross-sectional dependence. In two error component models, u_{it} is formed by a combination of a fixed component specific to the country and a random component that captures pure noise. This means that they rely on the premise, that the cross-sectional units in the underlying panel are independent. Considering the high level of integration across the EU15, and more so, the Euro area, this assumption seems highly unlikely.

In order to deal with both problems, all variables are tested using three testing procedures suited for panel unitroot tests. The *Im, Pesaran and Shin(2003) test*, and the *Fisher-type unit root test*, based on the augmented Dickey-Fuller test. Both tests reject non-stationarity at the 1% level based on the p-values (0.0000) for all explanatory variables after taking first-differences¹³. Since the dependent variable is bound between 1 and -1 it is assumed to be stationary by construction. The Fisher-type test backs this reasoning. Based on the Im, Pesaran and Shin test, the H_0 that all panels contain unit roots (p-value 0.1211) however cannot be rejected. By subtracting cross-sectional means, the same test also rejects the H_0 that all panels contain unit roots (p-value 0.0239). This indicates that cross-sectional dependence is present. To further explore this issue, the average correlation coefficients and Pesaran’s cross-sectional dependence test proposed in Pesaran (2004) is conducted. For the current account as well as for

¹³ The full results of the Fisher-type test, the IPS test and the test results for Pesaran's simple panel unit root test in presence of cross section dependence and the Pesaran cross-sectional dependence test are available upon request.

the two indices, the test rejects the H_0 of no cross-sectional dependence at the 1% level (p-value 0.000). In order to further investigate this issue, *Pesaran's CADF test*, proposed in Pesaran (2003), is employed. Based on the p-value (0.022) we can reject the H_0 that all series are non-stationary. To conclude the results of these preestimation procedures, one can most conservatively say that non-stationarity cannot be ruled out completely. Nevertheless, this problem is well known in the non-stationary panel literature (Eberhardt and Teal, 2010).

5. Institutional Quality and the Current Account

Current Account imbalances across the European Union and especially across the Euro area have become substantial since the mid-1990s. The dynamics of the imbalances however are starker after 2000 (Blanchard and Giavazzi, 2002). Figure 4 graphs the development of the current account dispersion in our sample over time. While the dispersion among the EU15 and the Euro area is almost equal until 2007, it becomes more pronounced between 2007 and 2009 due to the high Swedish current account surplus. Excluding Greece and Portugal, the difference between the Eurozone minus the two and the EU15 is in almost one standard deviation. After 2008, the gap widens to about 1.5 standard deviations.

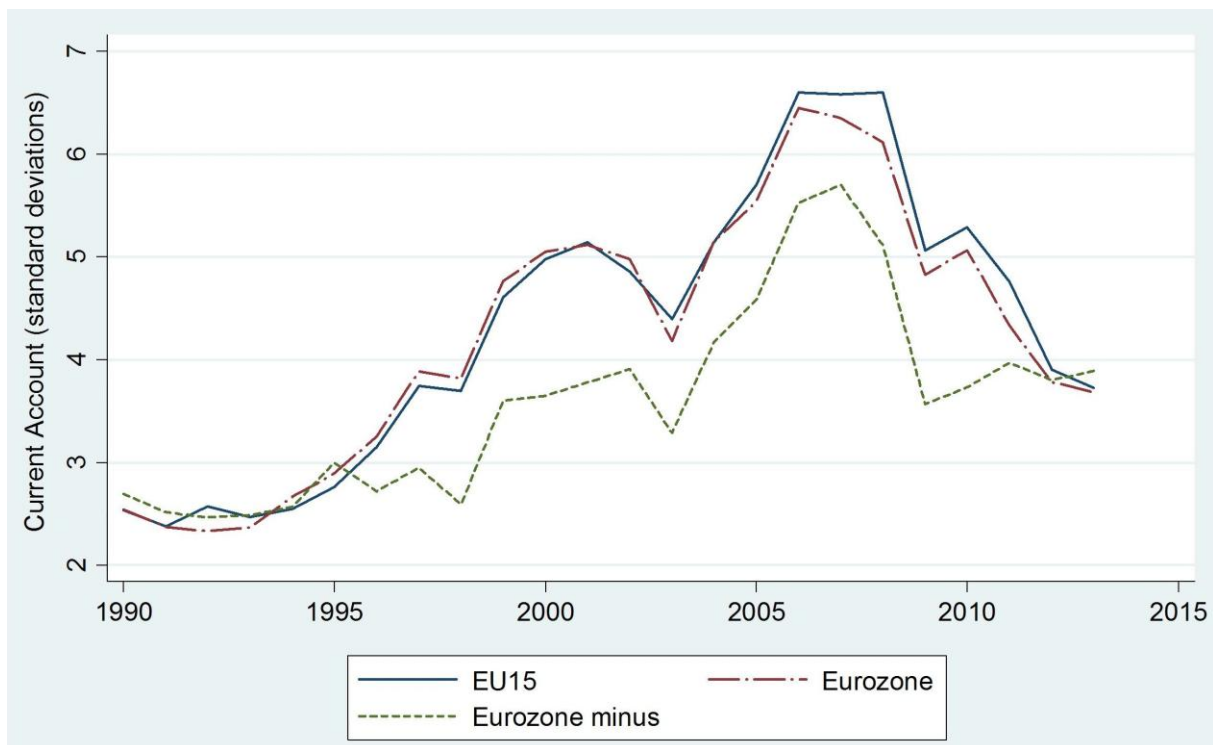


Figure 4 Current Account Dispersion

Finally, Figure 5 plots the average current account balance against the average Index values for the whole sample period and shows the yearly correlation coefficient.

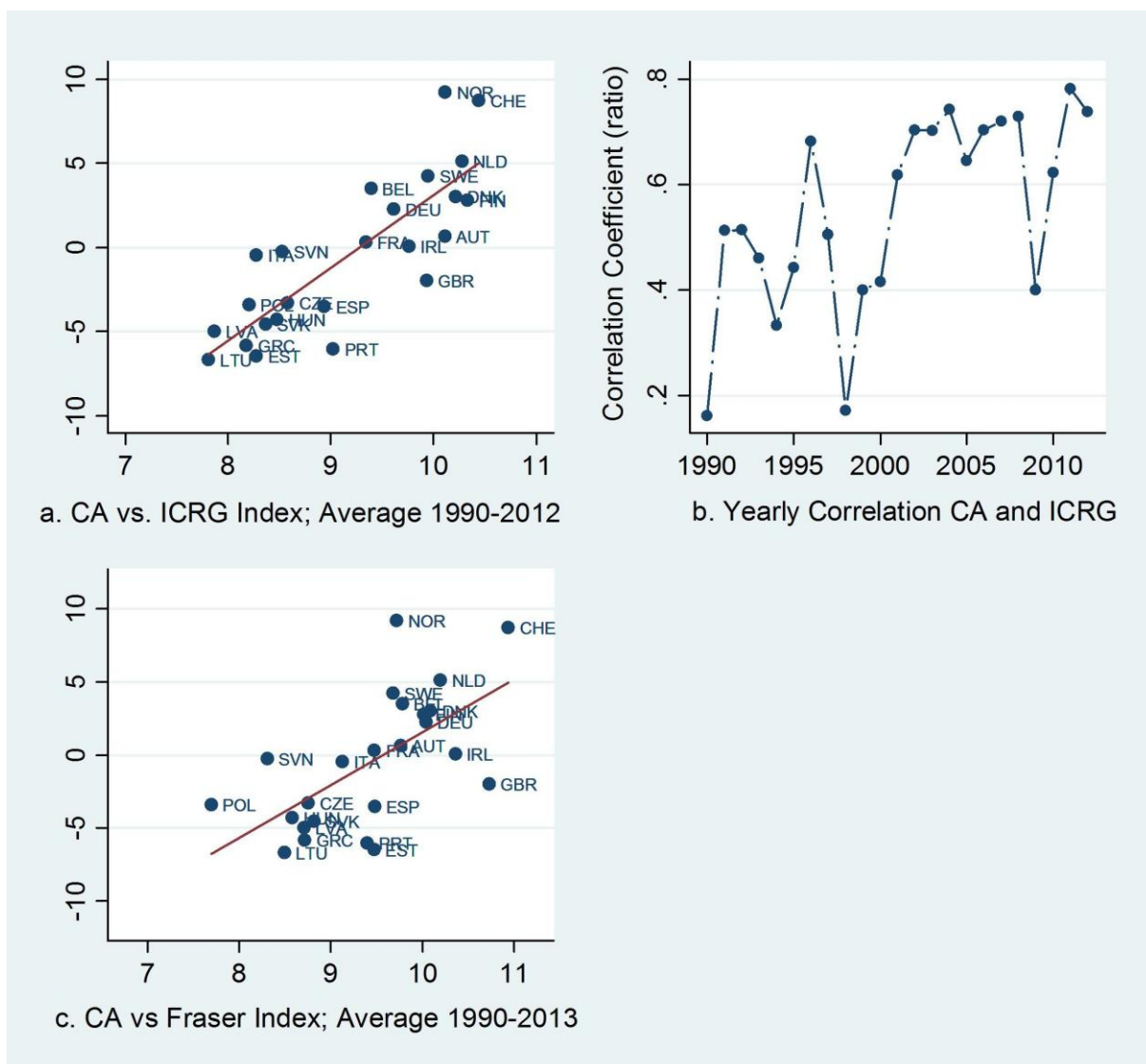


Figure 5 Institutional Quality and the Current Account (Y-axis in figure a. & c. is current account as percentage of GDP)

The upper left graph a. plots the average current account for each country for the whole sample period plotted against the country average for the altered *ICRG Index*. The scatterplot displays a positive linear relationship. In the upper right graph, the yearly correlation between the current account and the altered *ICRG index* is presented. The correlation is substantial with coefficients between 0.6 and 0.8 for the period 2000 to 2008. This supports the postulated relationship between both variables. Moreover, the correlation is lowest in the advent of the Euro, due to countries efforts to fulfil the Maastricht criteria. Lastly, graph c. shows the same relationship as graph a. for the altered Fraser Index.

6. Empirical Specification and Results

Before the results of the regression analysis are being discussed, several methodological issues need to be addressed. More specifically those issues are non-stationarity and potential serial correlation, cross-sectional dependence as well as heterogeneous slopes. Thereafter various estimations with different sets of explanatory variables are performed. In total five estimators are compared.

First, a two way error component model, with country as well as time specific effects. Due to the existence of country inherent characteristics for instance firm structure not covered by the set of variables, a fixed effect model is a good choice to capture such effects. One key assumption of the fixed effects model due to its OLS properties is, that it requires exogenous regressors. By construction it allows for an analysis of the independent variable on the dependent variable by removing the time-invariant “country-specific” characteristics (Verbeek, 2012). However, Verbeek (2012) argues, that OLS is an inefficient method, since the assumption that error term is independently and identically distributed (iid) is too strong and often violated in panel-data settings. All subsequent FE regressions are estimated using robust standard errors to correct for autocorrelation as well as heteroscedasticity in the error term.

Second, a dynamic panel model is considered. Current accounts typically show a high degree of persistency over time. To test for this the Wooldridge test for serial correlation in panel data is computed¹⁴. The null hypothesis of no serial correlation is clearly rejected at the 1% level (p-value = 0.0000), indicating that a high degree of autocorrelation is present. As emphasized by Alvarez and Arellano (2003), fixed effect models can also be used with a lagged dependent variable. However, for dynamic panel data estimations, Arellano-Bond or Blundell-Bond GMM estimators are more commonly used (Roodman, 2009)¹⁵. The baseline model in (1) takes the following form with the inclusion of a lagged dependent variable:

$$(2) \quad CA_{it} = \alpha_i + \beta_1 CA_{i,t-1} + \beta_2 Institutions_{it} + \beta_k X_{it} + \beta_j Year_t + u_{it}$$

In the case of the Arellano-Bond estimator, overfitting is apparent for this panel dataset with 24 countries and more than 20 years of observations. This occurs, since the number of instruments

¹⁴ See Drucker(2003) for an application of the Wooldridge test for serial correlation in panel data

¹⁵ Roodman(2007, 2009) and Alvarez and Arellano(2003) provide a detailed description on dynamic-panel estimations.

is increasing quadratically in T for a standard GMM setting (Roodman, 2007). Thus, as a result the Arellano-Bond estimator converges to an OLS estimator (Alvarez and Arellano, 2003).

The third estimator is the Generalized Least Square (GLS) estimator. This estimator already captures fixed effects to some extent; using additional fixed effects would only capture the unobserved characteristics (Phillips et al., 2013). The main advantage of the GLS estimator for panel data compared to the OLS FE estimator is that assumptions about the structure of the distribution of the error term can be made. For example, in terms of variances, correlations (cross-sectional) or autocorrelations (time series). All GLS estimations in this paper are run using panel wide AR (1) correction and allow for correlations across cross-sections. The downside of this estimator is that it requires a balanced panel.

Fourth, the Mean Group and the Augmented Mean Group estimator, belong to the panel-time series literature. Both are primarily designed for the application in cases where the nature of the data set is more “macro” than “micro”. The Pesaran and Smith (1995) mean group (MG) as well as the AMG estimator, developed by Eberhardt and Teal (2010), allow for heterogeneous slope coefficients across group members. In addition, the AMG estimator allows for unobserved correlation across panel members as well¹⁶.

In contrast to the previous model specified in (1), all mean group regression in this paper are based on a simple model of the following form, similar to the one in Eberhardt(2012).

$$(3) \quad CA_{it} = \alpha + \beta_{1i} Institutions_{it} + \beta_2 X_{it} + u_{it}$$

$$(4) \quad \text{where } u_{it} = \alpha_{1i} + \theta_i f_t + \varepsilon_{it}$$

$$(5) \quad x_{it} = \alpha_{2i} + \theta_i f_t + \gamma_i g_t + e_{it}$$

where x_{it} and CA_{it} are according to observables, the country- specific slope on the observable regressors is given by β_{1i} . Moreover, u_{it} contains the unobservables and the error terms e_{it} (Eberhardt, 2012). According to Eberhardt (2012) the unobservables in (4) are made up of α_{1i} , the standard group-specific fixed effects. They capture time-invariant heterogeneity across groups. The unobserved common factor f_t with heterogeneous factor loadings θ_i , which can capture time-variant heterogeneity and cross-section dependence belongs as well to u_{it} .

¹⁶ Applications of panel time-series estimators can be found amongst other in Eberhardt and Teal (2010, 2011), Hernández (2015) and Moscone and Tosetti(2010).

Furthermore, the factors f_t and g_t can be nonlinear and nonstationary. Last, ε_{it} and e_{it} are assumed white noise (Eberhardt, 2012).

Table 4 shows the most parsimonious specification of the model specified in (1) for a balanced sample of the former EU15 countries. column (1) introduces the FE estimator in its non-dynamic form, whereas column (3) depicts the dynamic version, with a lagged dependent variable. The results of the GLS estimator are shown in column (2). The second dynamic model, based on the Arellano-Bond GMM estimator is presented in column (4). The last two columns report the results of the Mean Group estimators. The Fraser and ICRG indices as independent variables are included in first-differences.

Table 4 EU15 countries

	(1)	(2)	(3)	(4)	(5)	(6)
	FE	GLS	FE dyn.	xtabond	MG	AMG
Dep.var	CA	CA	CA	CA	CA	CA adj.
CA_{t-1}			0.850*** (0.016)	0.815*** (0.047)		
$\Delta Fraser$	0.297** (0.103)	0.080*** (0.023)	0.078 (0.063)	0.104 (0.067)	0.292* (0.174)	0.197 (0.144)
$\Delta ICRG$	0.184*** (0.058)	0.009 (0.010)	0.0093 (0.027)	-0.004 (0.025)	0.118** (0.059)	0.088* (0.052)
Constant	0.015 (0.009)	-0.002 (0.003)	0.012* (0.007)	0.012** (0.005)	0.005 (0.011)	-0.006 (0.011)
Observations	308	308	308	294	308	308
Country FE	yes		yes			
Time FE	yes		yes	yes		
RMSE					0.0243	0.0239
R ²	0.157		0.769			
Number of countries	14	14	14	14	14	14

Note: (robust) standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1, the common dynamic process of the AMG estimations has been subtracted from the dependent variable. All coefficient averages were computed as outlier-robust means.

Except for the dynamic specifications, the coefficients of the two institutional measures point into the right direction and are significant. This supports the association of a positive relationship between institutional quality and the current account. The sign of the coefficient for *ICRG* in column (4) points into the wrong direction. Albeit its magnitude is small and the effect is not significant. Additionally, the *Root Mean Square Errors* in column (5) and (6) are small indicating a good fit of the model. Based on the regression in column (1) two last tests

are performed. Pesaran's CD test, which is a parametric testing procedure proposed by Pesaran (2004) that can be applied on balanced as well as unbalanced panels. Furthermore, in the context of large T and small N, the Lagrange multiplier test statistic proposed by Breusch and Pagan (1980) is used. Both tests lead to a rejection of the *null hypothesis* of no cross sectional dependence (p-value 0.0011 and 0.0000 respectively)¹⁷.

In a next step, Table 5 displays similar regressions for a smaller sample that includes only countries which adopted the Euro in 1999 plus Greece. Again *Fraser* and *ICRG* are taken in first-differences.

Table 5 Euro area

	(1)	(2)	(3)	(4)	(5)	(6)
	FE	GLS	FE dyn.	xtabond	MG	AMG
Dep.var	CA	CA	CA	CA	CA	CA adj.
CA_{t-1}			0.856*** (0.0187)	0.830*** (0.0454)		
$\Delta Fraser$	0.318** (0.113)	0.0953*** (0.0279)	0.0848 (0.0656)	0.111 (0.0676)	0.468** (0.195)	0.315** (0.153)
$\Delta ICRG$	0.200*** (0.0628)	-0.00237 (0.0116)	0.00629 (0.0287)	-0.00600 (0.0242)	0.182** (0.0776)	0.137*** (0.0495)
Constant	0.0103 (0.0106)	-0.00272 (0.00394)	0.0161* (0.00736)	0.0158*** (0.00521)	-0.000398 (0.0137)	0.0117 (0.0136)
Observations	242	242	242	231	242	242
Country FE	yes		yes			
Time FE	yes		yes	yes		
RMSE					0.0251	0.0246
R ²	0.157		0.769			
Number of countries	11	11	11	11	11	11

Note: (robust) Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1, the common dynamic process of the AMG estimations has been subtracted from the dependent variable. All coefficient averages were computed as outlier-robust means.

Again, the two proxies for institutional quality are significant in three of the non-dynamic estimations. Surprisingly, the sign of the ICRG index changes and becomes negative, yet the coefficient is not statistically significant. Most notably, is the fact, that in all four non-dynamic estimations the relationship between the current account, indicated by higher coefficient values, and the variables of interest is not only starker, but also highly significant

¹⁷ The correlation matrices for both tests are available upon request.

on the 1% or 5% level. To a first order, these finding confirms the hypothesis that institutional quality has an effect on the current account.

The next set of regressions focuses on the whole sample (Table 6). Comparing the estimations with the results of the previous tables, the size of the coefficients indicate a still but less significant, but weaker relationship for the whole sample of 24 countries. Due to the unbalanced sample, the GLS estimator however cannot be computed. Noteworthy, is the sign for the ICRG index in column (3) which changes sign and is now positive as well. Table 7 overall shows, that the results from the previous subsamples extend to the whole sample.

Table 6 whole sample

	(1)	(2)	(3)	(4)	(5)
	FE	FE dyn.	xtabond	MG	AMG
Dep.var	CA	CA	CA	CA	CA adj.
CA_{t-1}		0.687*** (0.0416)	0.604*** (0.0560)		
$\Delta Fraser$	0.140** (0.0574)	0.0770 (0.0530)	0.0585 (0.0473)	0.0453 (0.0640)	0.0717 (0.0715)
$\Delta ICRG$	0.147*** (0.0427)	0.0316 (0.0285)	0.00719 (0.0298)	0.0851** (0.0356)	0.0768** (0.0317)
Constant	-0.00957 (0.00836)	0.00198 (0.00328)	0.000606 (0.00479)	-0.00981 (0.0111)	-0.0213* (0.0112)
Observations	483	482	458	483	483
Country FE	yes	yes			
Time FE	yes	yes	yes		
RMSE				0.0312	0.0297
R-squared	0.118	0.552			
Number of countries	24	24	24	24	24

Note: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1, the common dynamic process of the AMG estimations has been subtracted from the dependent variable. All coefficient averages were computed as outlier-robust means.

To reinforce the findings of the previous regression sets, another battery of regressions is run. This time additional explanatory variables are added to the set up. Table 7 reports estimates for the augmented version of the baseline model. All explanatory variables except the two dummy variables are taken in first-differences. Since the GLS is the only estimator that can account for autocorrelation and correlations across panels, the sensitivity analysis is performed only with the GLS estimator. In addition this selection is in line with previous research. Papers such as Philipps et al. (2013), Ahearne et al. (2009) and Eichengreen(2010) evaluated determinants of the current account based on GLS regressions.

Table 7 Sensitivity Analysis based on the GLS estimator with AR (1) correction

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	GLS	GLS	GLS	GLS	GLS	GLS	GLS
t	-2009	-2013	-2013	-2009	-2013	-2009	-2013
	<i>Euro</i>	<i>Euro</i>	<i>Euro</i>	<i>EU15</i>	<i>EU15</i>	<i>EU15</i>	<i>EU14</i>
Dep.var	CA	CA	CA	CA	CA	CA	CA
$\Delta Fraser$	0.064*** (0.023)	0.080*** (0.029)	0.050 (0.0307)	0.050*** (0.014)	0.073*** (0.022)	0.589** (0.238)	1.106*** (0.400)
$\Delta Fraser^2$						-0.280** (0.125)	-0.533*** (0.207)
$\Delta ICRG$	-0.006 (0.010)	0.002 (0.012)	-0.013 (0.013)	-0.001 (0.007)	0.014 (0.010)	0.239*** (0.054)	0.148 (0.106)
$\Delta ICRG^2$						-0.126*** (0.028)	-0.071 (0.056)
<i>outputgap</i>	-0.279*** (0.057)	-0.143*** (0.054)	-0.076 (0.061)	-0.183*** (0.024)	-0.106*** (0.039)	-0.195*** (0.024)	-0.097** (0.040)
$\Delta output$	0.062*** (0.023)	0.062** (0.029)	0.016 (0.030)	0.025*** (0.00902)	0.042** (0.020)	0.030*** (0.009)	0.041** (0.020)
$\Delta Credit$	-0.013 (0.011)	-0.039*** (0.011)	-0.049*** (0.017)	-0.005** (0.003)	-0.009*** (0.003)	-0.006** (0.003)	-0.009*** (0.004)
ΔToT	0.151*** (0.023)	0.081*** (0.028)	0.080*** (0.029)	0.143*** (0.012)	0.078*** (0.022)	0.148*** (0.013)	0.074*** (0.022)
<i>Fin. centre</i>	0.035*** (0.007)	0.042*** (0.006)	0.039*** (0.005)	0.029*** (0.006)	0.035*** (0.007)	0.031*** (0.006)	0.036*** (0.006)
<i>Euro</i>				-0.016** (0.006)	-0.014** (0.006)	-0.017*** (0.007)	-0.0149** (0.006)
<i>Constant</i>	-0.008*** (0.003)	-0.009*** (0.003)	0.002 (0.002)	0.009** (0.004)	0.006 (0.005)	0.010** (0.004)	0.006 (0.005)
Observations	198	242	198	252	308	252	308
Number of countries	11	11	9	14	14	14	14

Note: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Columns (1) – (5) tabulate regression results for the baseline specification and the control variables *output per worker*, (demeaned) *private credit*, *terms of trade* in first differences, the *outputgap* and two dummies, *financial centre* and *Euro*. Column (1) and (2) test differ in the length of the time dimension. Whereas Column (1), (4) and (6) are restricted by 4 years, the remaining columns contain regression results for the whole sample period through 2013. All additional regressors are significant in most specifications and their coefficient point into the direction one would assume from economic theory, except for the *outputgap*. Due to the lack

of available data, the outputgap was constructed using a Hodrick-Prescott filter on yearly data. Therefore the magnitude of the coefficients should be taken with a “grain of salt”.

The result for the main variables of interest is somewhat ambiguous. On the one hand, the coefficient for the *Fraser index* supports the findings from the previous exercises. On the other hand, the results for the *ICRG index* are small, display the wrong direction in several columns and are statistically insignificant at the conventional levels. The results in column (3) however stand out. Excluding Greece and Portugal from the Euro sample, results in a breakdown of the relationship. Not only for institutional quality, as measured by the indices, but also for the variable *output per worker*. This supports the argument, that weak institutions can explain current account deficits. On the other hand the remaining “high-quality” sample is more bedeviled by *private credit* which is negatively related to the current account and highly significant in almost all columns. Furthermore, a positive change in the terms of trade has a positive effect on the current account. Additionally, country which are small financial centres tend to have higher current accounts.

Another noteworthy result is found in the columns (4)-(7). The dummy *Euro* has a highly significant (at the 5% or 1% level) and negative coefficient. This implies, that among EU15 countries, those that adopted the Euro have lower current account balances. More generally, it highlights, that the Euro had an effect on current account development across the EU.

The last two columns are different from the rest, since they add squared coefficients (in first differences) to the setting. Including these squared coefficients results in highly significant results both for the *Fraser* as well as the *ICRG Index*. The *negative coefficients* for both squared explanatory variables, could indicate a threshold. Improving institutional quality could have a positive effect on the current account, but only until a certain level is reached.

Nonetheless, the results are ambiguous and indicate potential misspecification. Including squared independent variables, dramatically increases the size of the coefficients of the non-squared institutional measures. Possible explanations for inconclusive estimation results on the effect of institutional quality on current account behaviour in the presence of squared independent variables are potential nonlinearities. Sizeable improvements in the indices may reflect lower imbalances, but lower Index volatility does not necessarily imply a further reduction in current account imbalances after a certain threshold.

As a last exercise the dependent variable is changed. Variants of equation (1) are estimated with the Intra-Euro, the External-EU and the total trade balance as ratio to GDP as dependent variables. In columns (1) to (6) of the table, estimates for the full sample period are presented.

Table 8 Trade Balances and Institutional Quality

	(1)	(2)	(3)	(4)	(5)	(6)
	<i>Euro</i>	<i>EU15</i>	<i>Euro</i>	<i>EU15</i>	<i>Euro</i>	<i>EU15</i>
Dep.var	<i>Intra-EU TB</i>	<i>Intra-EU TB</i>	<i>External TB</i>	<i>External TB</i>	<i>TB</i>	<i>TB</i>
$\Delta Fraser$	0.041*** (0.016)	0.038*** (0.013)	-0.002 (0.008)	-0.009 (0.007)	0.038** (0.019)	0.024 (0.016)
$\Delta ICRG$	0.009* (0.005)	0.011*** (0.004)	0.013*** (0.005)	0.017*** (0.003)	0.010 (0.007)	0.016*** (0.006)
<i>Constant</i>	0.012* (0.007)	0.005* (0.002)	0.001 (0.007)	-0.003 (0.005)	-0.003 (0.013)	-0.004 (0.009)
Observations	242	308	242	308	242	308
Number of countries	11	14	11	14	11	14

Note: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Replacing the current account, with the Trade Balances, yields similar results. For the Overall trade balance there seems to be a link to institutional quality. The same hold, for the Intra-EU trade balance. In columns (1) and (2) both independent variables are significant, mostly at the 1% level. Yet, the size of the coefficients is smaller than for the current account.

Finally, having obtained the econometric results two limitations must be addressed. First, dynamic panel estimations have proved to be difficult. Several different specifications were tested and depending on the selection of independent variables, significant results for the Arellano bond as well as the dynamic fixed effects estimator have also been obtained. However, these results are not reported in this section. The inclusion of the lagged dependent variable does not only render the overall setting of the model, more severely it opens up a normative problem. If current accounts are mostly determined by previous years current accounts, additional factors become insignificant or extremely sensitive to changes in the variable selection This section therefore relies on GLS estimation with cross-sectional correlation and common AR(1) coefficients for all panels. Robustness tests are additionally performed using Mean group estimators that account for heterogeneous slopes.

7. Conclusion

This paper provides consistent evidence, that institutional quality is a key aspect to explain the dispersion of the current account across the Euro area but also within the EU and the whole sample of 24 European countries. Whereas countries with better institutional quality tend to run current account surpluses, deficits are higher for countries with lower institutional quality. Moreover, we show that with the introduction of the euro the influence of institutional quality on the current accounts became stronger. In addition, excluding Greece and Portugal from the Euro sample breaks down the relationship. More than that, regression analysis suggests, that a potential threshold value for institutional quality exists. This indicates that above a certain level of institutional quality other aspects likely contribute to current account surpluses. Being a financial centre constitutes such a cause. Potential explanations are the domestic sectoral mix and firm structure or the disposability of natural resources. Albeit this question lies outside the scope of this paper and could be a promising direction for further research. Furthermore, the relationship between the current account and institutional quality holds for the intra-EU and total trade balances, but not unambiguously for the external trade balances. Yet, the relationship between trade balances and institutional quality is weaker than for the current account.

In the econometric part several issues such as the misfit of traditional panel estimators for macro datasets, non-stationarity, cross-sectional dependence and heterogeneous slopes are addressed. Robustness tests of regressions based on different estimators are employed. Controlling for the aforementioned issues, the findings remain valid.

The findings of this paper add to the policy debate in various dimensions. First, they support the inclusion of structural reforms in additional bailout programs. Second, the mistakes of the past are likely to be repeated, if the economic conditions brighten up and no improvements in institutional quality are made. Third, potential Euro area candidates should be scrutinized more precisely. Fourth, European Institutions such as the ECB and the European Commission should provide further expertise based on experiences from high quality institution countries to support countries with weaker institutions. By that, a second economic tragedy like the one Greece faces can most likely be avoided. This warning is targeted towards Romania which plans to join the Euro. Based on the results of this paper, its adoption seems prematurely.

Finally, for Greece the findings imply that it should create a more business friendly environment. Among other improvements, this requires a faster and much better enforcement

of contracts as well as a legal system that is capable to settle disputes in a reasonable time and according to international standards. The fight against corruption and its proscription should also become a top priority. Taking such measures would strengthen the confidence and could increase the attractiveness of Greece as a business location. Without such changes and no improvements in institutional quality, Greece's perspective in the Euro area however remains bleak.

8. References

- Acemoglu D., and Robinson A., J. (2008). Persistence of Elites, Power and Institutions, *American Economic Review*, March 2008, Vol. 98:267-293
- Ahearne, Schmitz and von Hagen (2009), "Current Account Imbalances and Financial Integration in the Euro Area," unpublished manuscript, Bruegel and University of Bonn.
- Arellano M., and Bond S., R. (1991). Some Tests of Specication for Panel Data. *Review of Economic Studies*, Vol. 58(2): 277-297.
- Alvarez J., and Arellano M., (2003). The Time Series and Cross-Section Asymptotics of Dynamic Panel Data Estimators. *Econometrica*, Vol. 71(4): 1121-59
- Beck T., (2015), Groundhog Day in Greece. *European Policy Analysis*, March Issue, Swedish Institute for European Policy Studies
- Berger, Helge and Volker Nitsch (2010), "The Euro's Effect on Trade Imbalances," IMF Working Paper no. 10/226 (October).
- Berkowitz D., Pistor K., and Richard J-K. (2003). "Economic Development, Legality, and the Transplant Effect." *European Economic Review*, 47(1): 165–95.
- Biroli P., Mourre G. and Turrini A. A., (2010). "Adjustment in the Euro Area and Regulation of Product and Labour Markets: An Empirical Assessment," *CEPR Discussion Papers* 8010, C.E.P.R. Discussion Papers.
- Blanchard, Olivier (2007), "Current Account Deficits in Rich Countries," IMF Staff Papers 54(2), 191-219.
- Blanchard, Olivier and Francesco Giavazzi (2002), "Current Account Deficits in the Euro Area: The End of the Feldstein-Horioka Puzzle?", *Brookings Papers on Economic Activity* 2(2002), 147-186.
- Bourdet, Yves and Persson, Maria. (2012) "Completing the European Union Customs Union: The Effects of Trade Procedure Harmonization". *Journal of Common Market studies*. Vol. 50, No.2, pp.300-314.
- Catao, L. and G.M. Milesi-Ferretti (2013), External Liabilities and Crises, *IMF Working Paper* 13113.
- Doing Business Database Available online at: <http://www.doingbusiness.org/data> [Accessed 28 September 2015]
- Drukker D.,(2003), Testing for serial correlation in linear panel-data models, *The Stata Journal*, 3, Number 2, pp.168-177
- Eberhardt, M, (2012). Estimating panel time-series models with heterogeneous slopes. *The Stata Journal* 12, Number 1, pp. 61–71

Eberhardt, M., and Teal F.. (2010). Productivity analysis in global manufacturing production. *Discussion Paper 515*, Department of Economics, University of Oxford.

The Fraser Institute – Economic Freedom of the World (2015) Dataset Available at: <http://www.freetheworld.com/release.html> [Accessed 9 September 2015]

Eichengreen B., (2010), “Imbalances in the Euro Area,” mimeo, UC Berkeley.

European Commission (2009), “Special Report - Competitiveness Developments within the Euro Area,” *Quarterly Report of the Euro Area* 8(1), 18-49.

Eleftheriadis P.,(2014) Misrule of the Few, How the Oligarchs Ruined Greece, *Foreign Affairs*, November/December 2014 Issue, Politics & Society

European Commission (2010), “A New EU Economic Governance: A Comprehensive Commission Package of Proposals,” Brussels: European Commission .

Glaeser, E., La Porta, R., Lopez-de-Silences, F. and Shleifer, A. (2004), Do Institutions Cause Growth?, *Journal of Economic Growth* 9(3), 271-303.

Giavazzi, F., and Spaventa L., (2010), “Why the Current Account Matters in a Monetary Union: Lessons from the Financial Crisis in the Euro Area,” CEPR Discussion Paper no.8008.

Hayek F., (1960). *The Constitution of Liberty*. Chicago: Chicago University Press.

Im, K. S., M. H. Pesaran, and Y. Shin. 2003. Testing for unit roots in heterogeneous panels. *Journal of Econometrics* 115: 53-74. Kalatzidis, (2010)

Koliopoulos, John S., and Thanos M. Veremis. (2009) *Modern Greece: A History since 1821*.

Lane P.,(2014)" International Financial Flows and the Irish Crisis," CESifo Forum 15(2), 14-19, 2014. Lane and Milesi-Ferretti 2002

Lane P., R. and Milesi-Ferretti G., M,(2008), “The Drivers of Financial Globalization,” *American Economic Review (Papers & Proceedings)* 98(2), 327-332.

Lane P., R. (2013), Capital Flows in the Euro Area, *Economic Papers*, No.497, April 2013

Lane P., R. and McQuade P., (2012), “Domestic Credit Growth and International Capital Flows,” mimeo, Trinity College Dublin.

Lane P., R. and Milesi-Ferretti G., M(2007), “The External Wealth of Nations Mark II: Revised and Extended Estimates of Foreign Assets and Liabilities, 1970-2004,” *Journal of International Economics* 73, 223-250.

Malkoutzis, Nick (2012). How the 2004 Olympics Triggered Greece’s Decline. August 02 at: <http://www.bloomberg.com/bw/articles/2012-08-02/how-the-2004-olympics-triggered-greeces-decline> [Accessed 7 October 2015]

Pesaran, M. H. 2004. General diagnostic tests for cross section dependence in panels. University of Cambridge, Faculty of Economics, *Cambridge Working Papers in Economics* No. 0435.

Pesaran, H., (2003), A Simple Panel Unit Root Test in the Presence of Cross Section Dependence, *Cambridge Working Papers in Economics* 0346, Faculty of Economics (DAE), University of Cambridge

Pesaran, M. H., and R. Smith. (1995). Estimating long-run relationships from dynamic heterogeneous panels. *Journal of Econometrics* 68: 79-113.

Phillips S., Catao L., Ricci L., Bems R., Mitali D., (2013). The External Balance Assessment (EBA) Methodology. *IMF Working Paper*, WP/13/272

Reinhardt C.,and Rogoff K., (2011). From Financial Crash to Debt Crisis, *American Economic Review*, August 2011, Vol. 101:.1676-1706.

Rogoff K., and Bulow J., (2015). The modern Greek Tragedy, VOXeu Columne, Available at: <http://www.voxeu.org/article/modern-greek-tragedy> [Accessed 10 September 2015]

Rodrik D.,(2007). One Economics, Many Recipes: Globalization, Institutions, and Economic Growth. Princeton, NJ: Princeton University Press.

Roodman D., (2007). "A Note on the Theme of Too Many Instruments," *Working Papers 125*, Center for Global Development.

Roodman D., (2009). A note on the theme of too many instruments. *Oxford Bulletin of Economics and Statistics* 71: 135-158.

Verbeek, M. (2012). A guide to modern econometrics. Hoboken, NJ: Wiley.

Wooldridge, J. (2010) *Econometric Analysis of Cross Section and Panel Data: Second Edition*

Zemanek, Holger, Ansgar Belke and Gunther Schnabl (2009), "Current Account Imbalances and Structural Adjustment in the Euro Area: How to Rebalance Competitiveness," *Policy Paper* no.7, IZA Bonn (April).

Appendix A**Country Appendix**

Countries in the dataset

Austria	Germany	Poland
Belgium	Greece	Portugal
Czech Republic	Hungary	Spain
Denmark	Ireland	Slovak Republic
Belgium	Italy	Slovenia
Estonia	Latvia	Sweden
Finland	Lithuania	Switzerland
France	Netherlands	United Kingdom

Appendix B Data Appendix

Current Account: all data comes from the IMF's WEO database and is reported as ratio to GDP.

External Trade Balance relative to GDP:

All series taken from AMECO database. Defined as Exports of goods extra-EU (DXGE) – Imports of goods extra- EU (DMGE)/ Gross Domestic Product at current prices (UVGD)

Internal Trade Balance relative to GDP:

All series taken from AMECO database. Defined as Exports (DXGI) – Imports (DMGI) /GDP (UVGD)

Total Trade relative to GDP:

All series taken from AMECO database. External Trade Balance- Internal Trade Balance / Gross Domestic Product at current prices (UVGD)

Demeaned private credit to capture credit growth above its previous historical trend level.

(Source: World Development Indicators)

Output per worker (GDP/working age population (15-65)) measured in Purchasing Power Parities (PPP) relative to an unweighted average of Austria, Germany and Austria, and finally demeaned to reflect departures from long run productivity. (own calculations, data taken from AMECO).

Government debt as ratio to GDP. (Source: AMECO)

The terms of trade, included to capture the effects of changes in world market prices for a country's exports or imports (AMECO)

The lagged value of the net foreign asset position expressed as ratio to GDP (Lane and Milesi-Ferretti 2007 – External Wealth of Nations Database)

A dummy variable for EURO which is one for all years, where a country joins or belongs to the eurozone.

A dummy variable capturing whether a country is a major centre for international financial trade. (Philipps et al. 2013)

Appendix C

Summary Statistics

variable		Mean	Std. Dev.	Min	Max	Observations
ca	overall	-.0034482	.0581436	-.2092	.16232	N = 555
	between		.0463406	-.0668426	.0920275	n = 24
	within		.03639	-.162662	.199818	T-bar = 23.125
fraser	overall	.9461273	.1021893	.4789543	1.120121	N = 551
	between		.0801396	.7696552	1.093889	n = 24
	within		.065441	.6554264	1.142213	T-bar = 22.9583
icrg	overall	.9248862	.1021932	.5950263	1.144368	N = 510
	between		.0881374	.7811155	1.043918	n = 24
	within		.0577037	.7019488	1.066874	T = 21.25
L.NFA/Y	overall	-.1666274	.4386245	-1.595329	1.382568	N = 551
	between		.3648879	-.7399609	1.047011	n = 24
	within		.2455486	-1.393474	.5924093	T-bar = 22.9583
prv.cred	overall	.8641913	.4732749	.0717473	2.24048	N = 548
	between		.3613427	.3132182	1.517775	n = 24
	within		.3158226	-.0248819	1.908178	T-bar = 22.8333
gov debt	overall	.5662654	.2968485	.03646	1.74948	N = 512
	between		.262356	.0613742	1.117702	n = 24
	within		.1486682	.1577633	1.261392	T-bar = 21.3333