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Abstract

Since the breakdown of the Bretton Woods System diverging current account positions in Europe have prevailed. While the Southern and Western European countries have tended to run current account deficits, the current accounts of the Central and Northern European countries, in particular Germany, have tended to be in surplus. The paper scrutinizes the role of diverging fiscal policy stances for current account imbalances in Europe since the early 1970s under alternative institutional monetary arrangements (floating exchange rates, European Monetary System, and European Monetary Union). It sheds light on the interaction of fiscal and monetary policies with respect to their impact on the current account and analyses the role of exchange rate changes and credit facilities as adjustment mechanisms for current account imbalances. Panel regressions reveal a robust impact of fiscal policy divergence on current account imbalances, which to a large extent is independent from the exchange rate regime, but which turns out to be contingent on the monetary policy stance.

JEL-Code: H620, F320, F330, F420.

Keywords: Europe, EMU, EMS, current account imbalances, exchange rate adjustment, credit mechanisms, European debt crisis.

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1. Introduction

The smoldering European debt crisis is rooted in persistently diverging current account balances and strongly diverging net international investment positions in Europe. After the turn of the millennium fast rising and persistent current account surpluses of Germany (and some of its smaller neighboring countries) have been matched by rising and persistent current account deficits of Southern, Western and Eastern European countries. Unidirectional capital flows from the center to the periphery financed increases of unit labor costs in the periphery countries and thereby triggered real appreciations of the abolished national currencies of the later crisis countries.

The origins of rising intra-European current account imbalances and the European sovereign debt crisis have been linked to random shocks (De Grauwe 2010) or the 1999 introduction of the common European currency, which facilitated intra-euro area capital flows (Berger and Nitsch 2011). Alternative approaches see macroeconomic policy behavior at the roots of the crisis. Expansionary monetary policy can be seen as the main determinant of speculative international capital flows and excessive risk taking (Hoffmann and Schnabl 2011). Merler and Pisani-Ferry (2012) provide theoretical evidence that divergent fiscal policy stances in Europe caused real exchange rate divergence and current account imbalances since the turn of the millennium. Sinn and Wollmershäuser (2012) have stressed the role of the TARGET2 payment system as an implicit credit mechanism for current account deficits within the European Monetary Union since the outbreak of the European sovereign debt crisis.

Previous empirical research on the impact of fiscal policy behavior on current account balances is either based on multi-country panels or single country studies. For instance, the panel regressions of Chinn and Prasad (2003) find a positive correlation between government budget deficits and current account deficits for a sample of industrial and developing countries. Kim and Roubini (2008) do not trace any evidence for a twin deficit hypothesis in the US based on historical data. Abbas et al. (2010) find a significant positive impact of budget deficits on current account positions based on panel regressions and vector autoregressions for a sample of low and high-income countries.

We extend previous research in three regards. First, we focus on the impact of divergent fiscal policy stances on current account imbalances in Europe. Second, we approach the research question from a historical perspective since the breakdown of the Bretton Woods System, controlling for different institutional monetary frameworks, i.e. a high degree of exchange rate flexibility between 1973 and 1978, the European Monetary System (EMS) (1979-1998) and the European Monetary Union (EMU) (since 1999). Third, we analyze the impact of diverging fiscal policy stances on current account positions controlling for the interaction of fiscal and monetary policy.

The investigation provides evidence that heterogeneous fiscal policy behavior is at the root of current account imbalances in Europe, with the dimension being contingent on the monetary policy stance in the creditor country. This implies that with the start of the EMU the Maastricht fiscal criteria have failed to unify fiscal policy stances to prevent crisis-prone current account imbalances and monetary policy has contributed to the imbalances. To cure this Achilles' heel of the EMU fiscal policies would have to take a more active role towards smoothing out asymmetric economic development within the common currency area.

2. Current Account and Fiscal Divergence from a Historical Perspective

The interaction of fiscal policy stances and current account positions can be approached from two angles. First, from a single country perspective based on income identities the current account balance is equivalent to the difference between aggregate saving and investment. Given constant private saving and investment, changes in the public saving behavior (government spending minus tax income) are equivalent to changes in the current account position. Rising public deficits are linked to rising current account deficits (twin deficit hypothesis) (see for instance Chinn and Prasad 2003, Abbas et al. 2010).

Second, the divergence of current account balances between two (or a group of) countries can be understood as the outcome of divergent fiscal policy paths (and their spillover effects on private saving and investment behavior) as observed in Europe after the turn of the millennium (Merler and Pisani-Ferry 2012). A restrictive fiscal policy stance in Germany combined with expansionary fiscal policy stances in a set of other

E(M)U member states triggered the rise of unidirectional capital flows from Germany to the E(M)U periphery and thereby rising current account imbalances in Europe. During this time period, the change of public inter-temporal optimization patterns was linked to changes in the private inter-temporal optimization patterns into the same direction, thereby aggravating current account imbalances in Europe.

It will be shown that inter-temporal optimization behavior in Europe not only hinges on national fiscal policy behavior and its impact on private net saving behavior, but also on the availability of international credit to finance current account deficits. Credit mechanisms in broad sense can be understood as institutionalized part of international monetary agreements (such as the credit mechanism in the EMS), changes in foreign reserve positions of central banks, or monetary policy stances in the creditor country affecting private international capital flows.

a. Current Account (Im-)balances from a Historical Perspective

Figure 1 shows the current account balances of the European countries (excluding Central and Eastern Europe) from a historical perspective since the year 1973. It groups the European countries into Northern European countries clustered around Germany (Austria, Belgium, Denmark, Finland, Germany, Netherlands, Sweden, Switzerland) and into Southern and Western European countries (France, Greece, Italy, Ireland, Portugal, Spain, UK).¹ The grouping is based on different intertemporal optimization patterns: A preference for comparatively high saving rates, price stability, tight fiscal policy stances, high investment and export driven growth in the North and a preference for comparatively high consumption, inflation, expansionary fiscal policy stances and net capital imports in the South and West. Germany is listed not only as part of the North, but also separately because of its crucial role for current account imbalances in Europe, in particular since the turn of the millennium.

Figure 1 reveals that from a cross-country perspective a tendency towards current account surpluses in the North is matched by comparatively high current account deficits in the South and West. The current account divergence in Europe is amplified

¹ Luxemburg and Norway are excluded from the sample as they are important outliers.

starting from the 1990s. The current account surpluses of the smaller Northern European countries rise since the early 1990s (possibly linked to the German unification process), the deficits of the Southern and Western European countries rise starting from the late 1990s. Germany stands out as the largest country in Europe with a strong historical tendency for running current account surpluses with the major exception of a ten-year period after its unification. It exhibits soaring current account surplus starting from the year 2001.² As shown in Figure 2 in terms of nominal values current account imbalances in Europe soared starting from the year 2001.

The European integration process forged these two country groups together, favored by the mutual interest of trade integration. The markets of the consumption-prone countries in the South and the West were opened up to the export-oriented countries in the North (in particular Germany). While the mutual interest of complementary intertemporal preferences in Europe remained widely unchanged (with the major exception of a ten years period after the German unification) the size of the current account deficits (and surpluses) in Europe hinged on the international financing conditions, i.e. intra-European private capital flows as well as public credit mechanisms for current account deficits. Figure 3 reveals the average size of current account deficits and surpluses under different institutional monetary frameworks independent from the compass point. It shows that the size of average current account deficits measured in percent of GDP gradually increased over time, soaring after the introduction of the euro.

During the 1950s and 1960s when private intra-European capital mobility was strongly restricted – inter alia due to the missing convertibility of the European currencies up to the year 1958 – the international monetary relations in Europe were organized under the umbrella of the Bretton Woods System (BWS). The BWS treaties incorporated a credit mechanism, which allowed countries with balance of payments deficits to postpone monetary and fiscal tightening without being forced into exchange rate adjustment (Genberg and Swoboda 1993). The credit mechanism comprised a quantitative credit ceiling based on the deposited quota, a restriction concerning the

² The only major period of a negative current account was triggered by the German unification, when Germany turned into a net capital and goods importer due to high investment and consumption in the new eastern part of Germany. This period lasted about one decade from 1991 up to the year 2001, when the German current account balance started to turn strongly positive again (Schnabl and Zemanek 2011).

time frame – usually from 18 up to 60 months –, as well as conditionality concerning economic policy making, in particular with respect to fiscal policy behavior. Even though the IMF treaties provided the possibility of discretionary revaluations of the dollar parities to adjust current account deficits, the changes of the parities required the coordination with the IMF members and remained comparatively rare. Given a low degree of international private capital mobility, and given the tight restrictions concerning international public credit, current account deficits in Europe remained at about 3% of GDP on average (see Figure 3).

During the following period of widely floating exchange rates (1973-1978) current account deficits in Europe increased – favored by an increase in intra-European capital mobility – to an average of 4% of GDP. As under bloc floating only a rudimentary credit mechanism (labeled European Monetary Cooperation Fund) had been put in place (Gros and Thygesen 1994: 21-22), the financing of current account deficits in Europe can be assumed to have worked mainly via private capital flows. The high degree of exchange rate flexibility allowed for reiterated exchange rate realignments, including frequent exits from the core Deutsche Mark bloc.

The constitution of the European Monetary System (EMS) unified countries with different structural current account positions into a system with closer monetary cooperation. The EMS credit mechanism implicitly accepted current account divergence in Europe, but incorporated clear limits for credit provision (Gros and Thygesen 1992: 48-50): The Very Short-Term Facility provided unlimited credit to support foreign exchange intervention for 45 days (starting from the end of the month).³ This credit could be prolonged under certain conditions by a maximum of three months. Any automatic extension by an additional three months (extendable once) was limited to the size of debtor quotas in the so-called Short-Term Monetary Support, originally set at a maximum 14 billion ECU for debtor countries. The Medium-Term Financial Assistance (11 billion ECU) allowed for longer-term credit, but only in case of balance of payments deficits and if the stability of the Common Market was at risk.

³ In effect central banks of hard currency countries had the obligation not to restrict the amounts of their own currency used to defend the existing bilateral margins (Gros and Thygesen 1992: 49). Therefore, changes in foreign reserves de facto include international credit provision during this time period.

Given the clear limits concerning the credit provision in face of balances of payments deficits, the average current account deficits in Europe slightly declined to about 3.5% of GDP. The EMS was subject to frequent exchange rate realignments (including EMS exits, entries, and re-entries), which in most cases took place at the depreciation side versus the German mark as the informal EMS anchor currency (Gros and Thygesen 1992: 67-98). The incidental event of the German unification not only constituted an asymmetric, destabilizing shock for Europe and the European Monetary System. It temporarily stopped the structural tendency of Germany to finance European current account deficits for about 10 years. Current account positions of most European countries (except Germany) improved substantially during this time period (Figure 1 and 2).

With the advent of the euro the need for foreign exchange intervention and exchange rate adjustment in the face of current account deficits was formally eliminated for euro area member states. In contrast to BWS and EMS no formal credit mechanism was part of the treaties on the European Monetary Union. Nevertheless the current account deficits increased to unprecedented levels (Figure 2 and 3), financed by rising private intra-European capital flows starting from the year 2001 up to the outbreak of the sovereign debt crisis. During the crisis current account adjustment only took place partially (Figures 1 and 2). Instead private capital flows to the crisis countries were substituted by public capital flows in form of rescue packages (IMF, European Commission, EFSF, ESM etc.) and changes in the TARGET2 balances of national central banks vis-à-vis the Eurosystem (Sinn and Wollmershäuser 2012).⁴ Figure 4 shows the rapid increase of TARGET2 claims and liabilities since the outbreak of the crisis, taking over the role of foreign currency purchases and sales and the EMS credit mechanism in response to current account deficits and capital flight.

b. Heterogeneous Macroeconomic Policy Stances and Current Account Balances

Given limited central bank independence there is a close link between the fiscal and the monetary policy stance, as governments tend to finance expenditure via inflation (rather than via tax collection). For instance, in Southern Europe up to the start of the euro

⁴ In contrast to Sinn and Wollmershäuser (2012) Bindseil and König (2011) argue that there is little evidence for the hypothesis that TARGET2 developments reflect the financing of current account deficits of crisis countries.

qualification process, expansionary fiscal policy stances tended to be financed via government bond purchases of the central bank. The resulting high inflation rates were matched by comparatively low saving rates and current account deficits. In contrast, in countries with independent central banks (such as Germany) public spending had to be financed by taxes, thereby putting a restriction on spending and allowing central banks to pursue a price stability-oriented monetary policy stance. The resulting low inflation rates tended to favour private saving both from a national perspective as well as from an international perspective based on current account surpluses.

Figure 5 shows the substantially lower government deficit-to-GDP ratios (excluding interest rate payments) in the North of Europe compared to the South and the West. The divergence of fiscal policy behavior narrows during the euro qualification period and strongly diverges again after the turn of the millennium. Figure 6 shows structurally higher government expenditure as percent of GDP in the Northern European countries compared to the Southern and Western European countries during most of the observation period. Yet, over time, government expenditure as percent of GDP is rising faster in the Southern and Western European countries, indicating a more expansionary spending behavior compared to the North. After the turn of the millennium up to the crisis the divergence of spending patterns accelerates, with the North getting tighter and the South and West getting more expansionary. In Germany, following fast rising government expenditure and government debt during the German unification process, the decline of government expenditure as a share of GDP starting from the mid-1990s stands out.

The question of how relative expansionary fiscal policy stances are translated into diverging current account positions hinges on the monetary policy stance, as an expansionary (tight) monetary policy encourages (discourages) expenditure and debt accumulation by reducing (raising) domestic interest rates. Expansionary (tight) monetary policy also encourages (discourages) private risk taking in international financial markets in form of rising private capital outflows (McKinnon 2012). During the Bretton Woods System expansionary monetary policy stances in all member states other than the US were prevented by tight exchange rate stability against the dollar (as long as US monetary policy remained restrictive). Limited international capital mobility and

constrained institutionalized international credit mechanisms constituted a restriction on fiscal expansion and current account deficits.

The shift towards exchange rate flexibility in the early 1970s allowed for more independence in national monetary and fiscal policy making during the 1970s. Monetary expansion and exchange rate flexibility in Europe reached its preliminary peak in the post war period.⁵ Government deficits and inflation rates increased. Current account deficits in Europe rose, being financed mainly by private capital flows. Risk taking in international and intra-European financial markets was encouraged by expansionary monetary policies.

The European Monetary System did not stipulate any direct restrictions on monetary or fiscal behavior, although tight bilateral parities with narrow bandwidths would have implied a close convergence in macroeconomic policy stances. A tight monetary policy stance in Germany – and its small neighboring countries maintaining stable exchange rates against the German Mark – put a ceiling on capital outflows from low inflation countries and thereby the financing of current account deficits of other European countries via private capital flows. Frequent realignments allowed for the adjustment of more expansionary monetary policy stances in other parts of Europe. The German unification can be understood as a sudden tightening of financing conditions in Europe as German capital exports dried out due to large financing needs in Germany underpinned by tight German monetary policy. Current account deficits in Europe (other than Germany) reached a historical low (Figure 1 and 2).

After the introduction of the euro the macroeconomic conditions can be assumed to be inversed compared to the German unification period. Divergent fiscal policy stances – restrictive fiscal policy in Germany and fiscal expansion in many Southern, Western and Eastern European countries – was underpinned by a monetary expansion by the European Central Bank starting in the year 2001 in response to the burst of the dotcom bubble. Fiscal austerity in Germany and expansionary monetary policy by the European Central Bank encouraged fast rising intra-European capital flows from Germany to a

⁵ On average in the 1970s real short-term interest rates were negative for most of the countries in our sample.

number of mostly Southern, Western and Eastern European countries, where current account deficits soared (Abad et al. 2012). During the crisis the private German capital flows to the later crisis countries were to a large extent substituted by public capital flows to the crisis countries underpinned by monetary expansion. This helped to a large extent sustain current account imbalances in Europe (Figure 1 and 2).

Figures 7 and 8 provide first evidence on the relationship between current account and fiscal policy stances in Europe under alternative monetary arrangements. The straight lines indicate fitted values. Figure 7 suggests that the correlation between budget deficits and current account positions increased over time, with a very tight correlation since the introduction of the euro. Figure 8 associates the changes of government spending as percent of GDP over the previous year with the current account positions. In contrast, to the budget deficits the correlation between both variables is not clear. As Figures 7 and 8 do not control for the impact of other macroeconomic determinants of current account positions such as monetary policy stances, credit mechanisms and exchange rate adjustment we embark on panel estimations.

3. Data and Model Specification

Given the historical dimension of our investigation we use a panel of 15 Western European countries⁶ to test for the impact of fiscal policies on the current accounts contingent on the monetary policy stance. Current account balances (ca) as endogenous variables are compiled in percent of nominal GDP (see Table 1 for a description of all the variables). We use overall current account balances because bilateral current account balances are not available for the complete time period. The use of overall current account balances as a dependent variable is in line with the assumption that country-specific macroeconomic policy behavior is reflected in overall current account balances rather than bilateral current account balances versus specific countries. Furthermore in Europe, overall current positions can be also seen as a proxy for bilateral current account positions versus the other country group.

⁶ Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Portugal, Spain, Sweden, Switzerland, United Kingdom. Luxemburg and Norway are removed from the sample as they constitute major outliers. The Central, Eastern and Southeastern European countries are not included in the sample as this would considerably shorten the observation period.

The fiscal policy stances are proxied in terms of government net lending in percent of GDP (gdef) and government expenditure in percent of GDP (gexp) both including and excluding interest rate payments (the latter ones are shown as country-group averages in Figures 5 and 6). General government net lending as a proxy for the fiscal policy stances reflects the income identity approach to current accounts as well as the Maastricht general government deficit criterion. The downside is that government income via inflation tax or via additional tax incomes during speculative booms can hide expansionary government spending and its impact on private saving and investment decisions.

Therefore government expenditure is used as an additional proxy for the fiscal policy stance. A relative rise (decline) in the government expenditure as percent of GDP indicates relative expansionary (restrictive) expenditure patterns. With interest payments being subtracted from government expenditure as proxy for past lending habits and monetary policy stances rather than actual spending is compiled. Both proxies for the fiscal policy stance are cyclically adjusted and expressed in terms of potential GDP instead of actual GDP.⁷

National monetary policy stances of European countries are proxied by nominal short-term (money market) interest rates (i). Nominal exchange rate adjustment (to cope with current account imbalances) is captured by percent nominal exchange rate changes of national currencies versus the previous year (based on year-end values) against the German mark and later against the euro (dexchg). This reflects the notion that the German Mark served as an informal anchor currency in Europe after the break down of the Bretton Woods System up to the introduction of the euro (Gros and Thygesen 1994). For the years of EMU membership the exchange rate variable is set equal to zero. For Germany, up to the EMU entry, the arithmetic average of the exchange rate change of the German Mark versus the French Franc, the Italian Lira and the British Pound is used as a proxy for exchange rate changes.

⁷ The use of cyclically adjusted fiscal variables is one way to measure discretionary fiscal impulses, as it filters out the impact of the business cycle on government expenditures and revenues, and hence the endogenous components of the fiscal variables (see Blanchard 1990). This approach of cyclical adjustment does not control for cyclical effects caused by speculative booms as they took place for instance in the real estate or financial sectors of Spain and Ireland or in government spending and consumption of Greece between 2001 and 2008 (see Schnabl 2012).

Prior to the entry in the European Monetary Union and in the current non-EMU member states exchange rate stabilization can be seen as a means of financing current account deficits (or surpluses) without outright exchange rate realignment or adjustment of macroeconomic policy stances. Changes in foreign reserves can be assumed to include credit provided within the European Monetary System, as it affected the foreign reserve positions of central banks (see footnote 3). Changes in foreign reserves are measured in terms of the absolute changes of the year-end values against previous year-end values divided by GDP ($dres$). For current account surplus (deficit) countries the accumulation (decline) of foreign reserves is equivalent to the financing of a current account surplus (deficit). Changes in TARGET2 balances of the national central banks of EMU member states at the European Central Bank (change of year-end value against previous year-end value) divided by GDP are used as proxy for an informal credit mechanism in the EMU ($dtarget$).

We add several control variables, which have been identified as important determinants of current account positions in Europe (see for instance Merler and Pisani-Feri 2012). Unit labor costs – reflecting productivity increases and wage policies – are proxied by real unit labor costs in percent changes versus the previous year ($drulc$). Real interest rates are used as a proxy for asymmetric transmission of one-size monetary policy ($ireal$). Furthermore, global current account positions have been influenced by US current account balances and US monetary policy decisions (Freitag and Schnabl 2012). As capital exports of the European surplus countries can be assumed to be either absorbed by the US or by (potential) European deficit countries, the bilateral current account position of the US versus Europe as percent of US GDP (ca_us) is included as a control variable. The money market rate of the US (federal funds rate) is used as a proxy for the US monetary policy stance (i_us).

The estimations are based on yearly data, because data for fiscal spending and budget deficits are only available on a yearly basis. The observation period ranges from the year 1973 – when the Bretton Woods System collapsed – up to the year 2011. We exclude the 1960s from our estimations since harmonized data in particular on fiscal policy stances is unavailable for many countries. Panel unit roots tests reveal that there is no concern

about unit roots.⁸ Dummies are compiled for euro area membership (*_euro*), the period after 2001 when the current account imbalances in Europe started to strongly increase (*_2001*), for countries with structural (average) current account surpluses over the sample period (Austria, Belgium, Finland, Germany, Netherlands, Sweden, Switzerland) (*_surplus*), for membership in the EMS and the European Exchange Rate Mechanism (ERM) II (*_ems*) and for countries being neither members of the EMS nor ERMII (*_nonems*).

A dummy is constructed for relative expansionary fiscal policies (*_expans*). For this purpose, we calculate the average budget deficit of all countries in the sample for a year. If the budget deficit in the respective year is higher than the all-country arithmetic average the dummy is set to one, indicating a relative expansionary fiscal policy. Otherwise the dummy is zero. The dummy will be used to isolate the effect of different macroeconomic policy mixes on the current account balance. The prior is that an expansionary (tight) monetary policy combined with an expansionary (tight) fiscal policy will stimulate (curb) strongly domestic demand and therefore will contribute to a deterioration (improvement) of a current account deficit. In contrast, monetary expansion (tightening) combined with fiscal tightening (expansion) is expected to have no predictable effect on the current account balance.

To explain the impact of heterogeneous fiscal policy stances in Europe on current account positions under different exchange rate arrangements we use the following model:

$$ca_{it} = \gamma_i + \varphi g_{it} + \delta v_{it} + \varepsilon_{it} \quad (1)$$

where *ca_{it}* is the vector of yearly overall current account positions from 1973 to 2011 for the countries *i*. The explanatory variables consist of the proxies for fiscal spending *g_{it}*

⁸ The panel unit root tests of Breitung and Fisher indicate that the null hypothesis that all series contain a unit root can be rejected at conventional significance levels. This result is also confirmed by the tests of Levin-Lin-Chu and Im-Pesaran-Shin, except for the current account and short-term nominal interest rates for which the null is only rejected if the autoregressive test equation is augmented by a linear trend. For this reason we also present the results of our regressions including a country-specific linear trend. Our main results are largely unaffected by this extension.

and the matrix of control variables vit . As we regard macroeconomic policy making as exogenous we use a standard panel fixed effects model as estimation framework. To see whether our results change with the institutional environment or whether they depend on the fiscal policy stance or on the structural current account balance we augment the matrix of control variables with interaction terms, which are created by multiplying (some of) the regressors with one of the dummy variables ($_dum$) defined above. As robustness test we augment equation (1) either by additional country-fixed effects which are interacted with the dummy variable ($_dum \times \gamma_i$), or we introduce a country-specific linear trend to take account of trend stationarity (see footnote 8).

4. Estimation Results

The estimation results of equation (1) are reported in Table 2 to Table 5 in different specifications with different proxies for fiscal spending behavior. Table 2 reports the regression results with cyclically adjusted government financial balances (including interest payments) as proxy for the fiscal policy stance. Regression (1) shows that the impact of rising government deficits on the national current account position is significant at the one percent level, with rising budget deficits being linked to worsening current account positions. An expansionary monetary policy stance, which is proxied by the nominal interest rate, is linked to worsening current account positions, significant at the 1% level.

Whereas the estimated coefficients on nominal exchange rate changes, changes in foreign reserves (incl. EMS credit mechanism), changes in TARGET2 balances and the real interest rate with respect to their impact on current account positions in Europe have the correct sign, they are not statistically significant at the common levels over the whole observation period. Yet, a relative increase (decline) of real unit labor costs is linked to a worsening (improving) current account position, significant at the 10% level.⁹ The baseline regression also suggests that the European current account positions have to be seen in a global context, as they highly respond to the US current account position and to US interest rate changes. Monetary expansion in the US leads to rising capital outflows from Europe and thereby improving current account positions,

⁹ Taking into account the estimation result for the impact of government expenditure on the current account position, this suggests that private austerity is systematically linked to public austerity with a symmetric impact on the current account.

which are matched by a rising current account deficit of the US versus Europe. Both effects are significant at the 1% level.

Regression (2) tests for the impact of the monetary and fiscal policy mix on the current account balances by interacting the short-term nominal interest rate with the dummy for fiscally expansionary countries. The dummy takes the value of 1 for countries with relatively expansionary fiscal policies. The positive coefficient on the interaction term (with a significance level at 1%) reveals that in countries with relative expansionary fiscal policies interest rate cuts lead to a deterioration of the current account deficit. In contrast in countries with relative tight fiscal policy stances no significant impact of monetary policy on the current account position is revealed. Thus the interaction term can explain why – linked to the policy mix with respect to fiscal policies – ECB interest rate cuts after 2001 were accompanied by fast rising current account deficits in one part of the euro area (countries with relative restrictive monetary policy stances), whereas current account positions in the northern part of Europe behaved in a different way as suggested by the negative sign of the coefficient on interest rate changes.

Regression (3) tests for asymmetric effects of fiscal, monetary and wage policies since the introduction of the euro by interacting the proxies for government expenditure, nominal interest rates, real interest rates and changes in unit labor costs with the dummy for euro area membership. The impact of public expenditure on the current accounts positions is estimated to be significantly larger for countries, which have introduced the euro. Without being interacted with the term for relative expansionary fiscal policy, ECB interest rate cuts are associated with improving current account positions. For euro area member states the role of real interest rates and unit labor costs as driving forces of current account imbalances is significantly larger.

Regression (4) copes with the argument that the fast divergence of the current account imbalances in Europe is linked to factors beyond the introduction of the euro, for instance low interest rate policies in response to the burst of the dotcom bubble starting from 2001 (Abad et al. 2012). To test for this hypothesis the proxies for government expenditure, monetary policy, real interest rates and unit labor costs are interacted with a dummy taking the value of unity starting from the year 2001 for all countries in the sample. The results are mainly unchanged compared to the euro dummy thereby

suggesting that the divergence of current account positions after the turn of the millennium is not necessarily driven by the introduction of the euro, but mainly to factor emerging after the turn of the millennium, for instance a looser monetary policy stance after 2001.

Regression (5) tests for asymmetric effects of the bilateral US current account balances against Europe and of US monetary policy on countries with structural current account surpluses. The dummy (*_surplus*) takes the value of one for euro area countries having on average current account surpluses over the sample period (Austria, Belgium, Finland, Germany, Netherlands, Sweden, and Switzerland). The highly negative coefficient indicates that this country group produced rising current account surpluses in response to rising US current account deficits and declining US interest rates. In contrast, the significance level of the coefficients for the other European countries strongly declines suggesting that the European current account surplus versus the US is driven by the European surplus countries.

Regressions (6) and (7) aim to reveal if under the European Monetary System and under widely flexible exchange rate regimes¹⁰ reserve accumulation and exchange rate realignments had a significantly different impact on current account positions in Europe. There is no statistical evidence that reserve accumulation of member states in EMS and ERM II had a different impact on current account positions than in other periods or non-EMS, ERMII member states. Furthermore, reserve accumulation and exchange rate adjustment of non-EMS and ERMII member states has no different impact on their current account positions than other western European countries. In specification (7) there is evidence that for EMS and ERMII member states a negative (positive) current account positions is linked to declining (increasing) reserves. This implies a limited role of the EMS credit mechanism to finance current account deficits in Europe.

Table 3 reports the results for the impact of government expenditure excluding interest rate payments on current account positions. Interest rate payments are assumed to reflect past government debt accumulation rather than current fiscal policy behavior and are therefore excluded from our proxy for government spending as a robustness

¹⁰ The period from 1973-1978 for all countries in the sample and the non-EMS and non-EMU members afterwards.

test. The results remain widely unchanged. The only difference is that for the pre-EMU period rising real interest rates are associated with worsening current account positions.

Tables 4 and 5 report the results for government expenditure as proxy for the fiscal policy stance (including and excluding interest rate payments). Note that government net lending as a proxy for the fiscal policy stances may be distorted by revenues generated by inflation tax (as in Southern Europe prior to the convergence process to the monetary union) and financial market bubbles (as in many Southern and Western European countries after the turn of the millennium). Overall, the results are unchanged. The evidence for a significant impact of public expenditure on current account positions is strong. All coefficients are significant at the one percent level, with rising expenditure being associated with deteriorating current account positions, at high levels of significance.

In specification (2) of Table 4, again, for countries with relative expansionary fiscal policies an interest rate cut is associated with a worsening current account position, whereas in countries with relatively tight fiscal policies monetary expansion is linked to improving current account positions, with both effects being significant at the 1% level. Thus, specification (2) of Table 4 provides evidence that expansionary monetary policy can contribute to the divergence of current account positions, contingent on the relative fiscal policy stance. This is particular the case if the same monetary policy stance is pursued in current account deficit and surplus countries.

In the specifications (3) and (4) of Table 4 the effect of diverging fiscal policy stances on diverging current account positions is similar for euro area countries and / or for all Western European countries after 2001. The role of real interest rates and unit labor costs as transmission channels of current account imbalances in the euro area after 1999 and /or in Western Europe since 2001 is widely confirmed. In contrast to the specifications with government financial balances as dependent variable now changes of TARGET2 balances are revealed as a determinant of current account balances, significant at the 1% level. A decrease in TARGET2 balances (e.g. an increase in the intra-Eurosystem liabilities of a deficit country's national central bank) leads to a reduction in current account balances (e.g. a widening of current account deficits). Thus,

this specific form of balance-of-payments assistance seems to work in a similar manner as changes in foreign reserves or credit mechanisms in traditional systems of fixed exchange rates. The results remain widely unchanged with interest rate payments being excluded from the budget balances.

As a further robustness test the estimations are repeated with country-specific dummies in the specification aiming to isolate structural breaks for the introduction of the euro and after the year 2001. The results are reported in Tables 6, 7, 8 and 9. There is one major change in the results: For the specification with government financial balances as a proxy for fiscal behavior no structural break is revealed. If government expenditure is used as a proxy for the fiscal policy stance the coefficients for the impact of TARGET2 balances get insignificant. Beyond that the results are widely unchanged.

Finally, the estimations are performed with a country-specific linear trend. The results as reported in Table 10, 11, 12 and 13 widely confirm the previous findings, although the significance of the interaction terms for euro area membership and the post-2001 period declines and the evidence for structural breaks in the euro area or in whole Western Europe after 2001 is somewhat weaker.

All in all, our estimations reveal a crucial and very robust impact of diverging fiscal policy stances on diverging current account positions in Europe. Furthermore the policy mix seems to matter. Expansionary monetary policy combined with an expansionary fiscal policy seems to be the roadway into increasing current account deficits, in particular if monetary policy is expansionary in the capital exporting country. Current account positions of Northern European (surplus) countries are strongly contingent on the US monetary policy stance and the US current account position. Unit labor costs and real interest serve as transmission channels of current account imbalances. A structural break can clearly identified with the introduction of the euro and / or after 2001, when monetary policy in whole Europe turned looser. This implies that the divergence of current account imbalances in Europe is not necessarily linked to the introduction of the euro, but more to macroeconomic policy making. The evidence concerning the impact of credit mechanisms for financing current account deficit is mixed both with respect to the EMS credit mechanism and TARGET2.

5. Conclusion

Since World War II Europe has been divided into two country groups with different philosophies concerning fiscal policy making, monetary policy making and inter-temporal optimization. Whereas the countries in Southern and Western Europe traditionally had a preference for consumption and expansionary fiscal and monetary policies, the countries in the North preferred saving, investment, and comparatively tighter fiscal and monetary policy stances. The different macroeconomic policy stances were reflected in diverging current account balances, a tendency towards current account deficits in the South and West, and towards surpluses in the North. Both country groups were forged together by the mutual interest of the European integration process, which facilitated intra-European trade and capital flows. During the pre-stages of the common currency unsustainable current account deficits were prevented by tight restrictions in the intra-European credit mechanisms, the possibility of exchange rate realignment, macroeconomic instability in the capital importing countries, and a tight monetary policy stance in Germany as the center of the European monetary system.

In contrast, with the introduction of the euro these control mechanisms for structural current account deficits were removed and the Maastricht fiscal criteria failed to make fiscal policy stances converge, what would have been necessary to prevent rising intra-European current account imbalances. We have provided evidence that diverging fiscal policies stances have been historically a major driving force of current account imbalances in Europe. Further, it seems that after 2001 the loosening of the common monetary policy had a significant impact on the increasing divergence of current account imbalances in Europe contingent on the macroeconomic policy mix. Whereas countries with comparatively tight fiscal policies stances exhibited rising current account surpluses, the Southern and Western European countries – driven by a policy mix of expansionary monetary cum relative expansionary fiscal policy stances – exhibited rising current account deficits. Expansionary policy making in general encouraged intra-European risk taking.

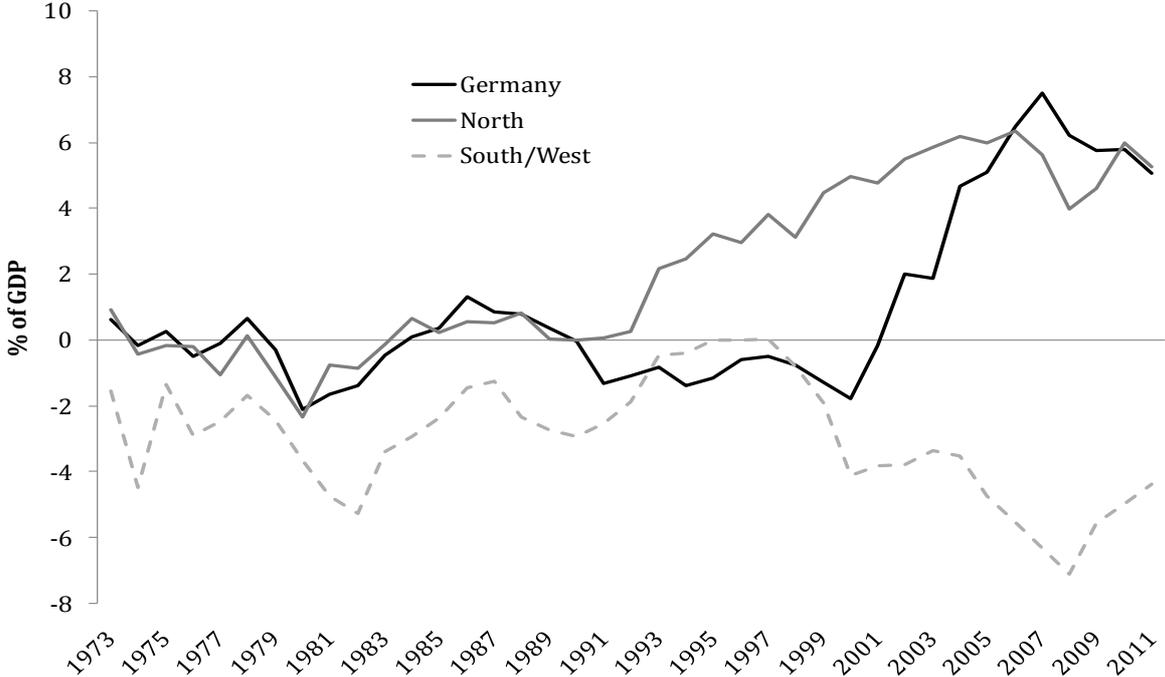
From this point of view the Maastricht fiscal criteria have fundamentally failed to take into account divergent fiscal policy stances as a driving force of current account imbalances in the European Union. They could not provide sufficient incentive for anti-

cyclical fiscal policy stances, which would have been necessary to prevent diverging current account positions in Europe. Furthermore, relatively loose monetary policy seems to have encouraged risk taking. A comprehensive policy approach to cure intra-European current account imbalances would be to incorporate three pillars in a European surveillance mechanism. First, in a common currency area national fiscal policies have to take an active anti-cyclical role to counterbalance current account divergence (instead of causing it). A simple benchmark for maximum budget deficits is not sufficient to achieve this, in particular if speculative boom cycles are likely to make fiscal balances look sound. Second, a tighter common monetary policy stance has to curtail international risk taking. Third, as a tight overall European macroeconomic policy stance would contribute to structural current account surpluses versus the US, international policy coordination would have to reach a tighter macroeconomic policy stance in the US.

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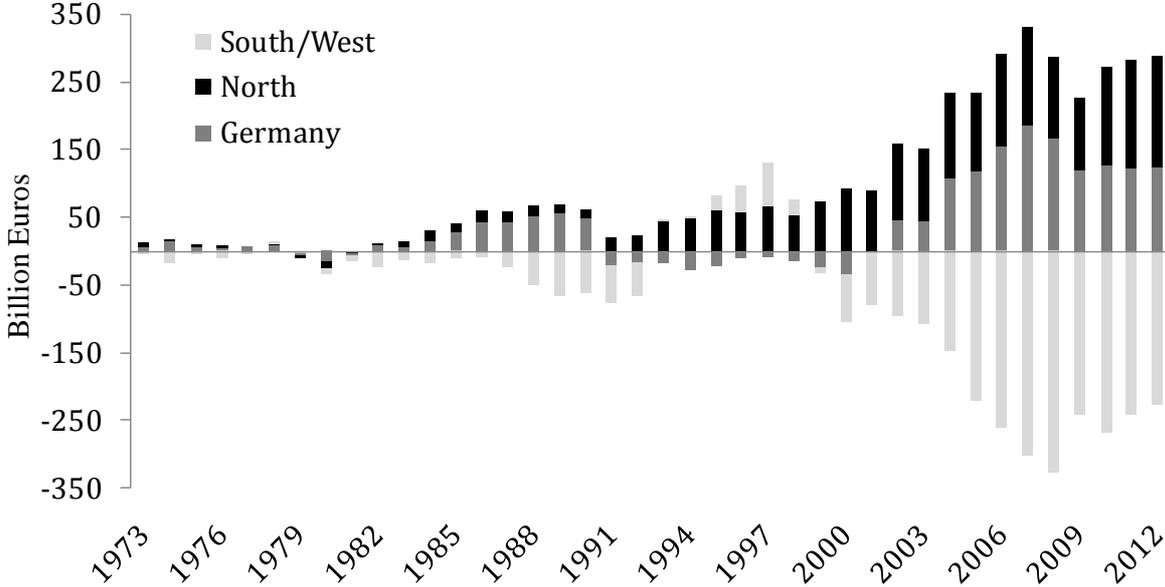
Figure 1: Average Current Account Balance in Western Europe



Source: European Commission AMECO database.

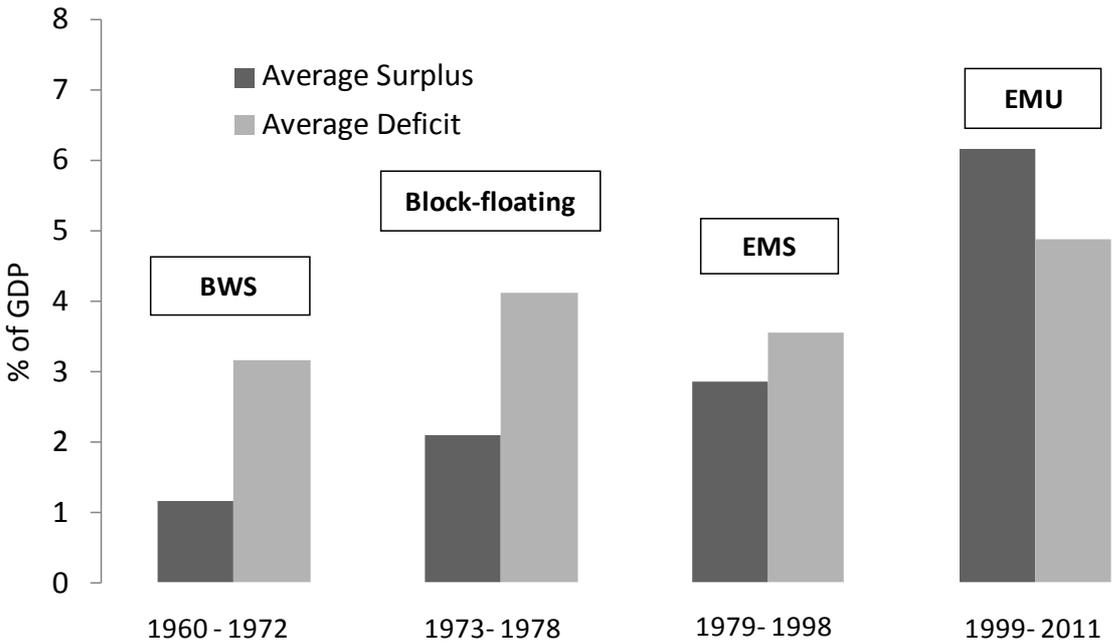
Notes: North = Austria, Belgium, Denmark, Finland, Germany, Netherlands, Switzerland, Sweden. South/West = France, Greece, Italy, Ireland, Portugal, Spain, UK. Arithmetic averages.

Figure 2: Current Account Balances in Western Europe



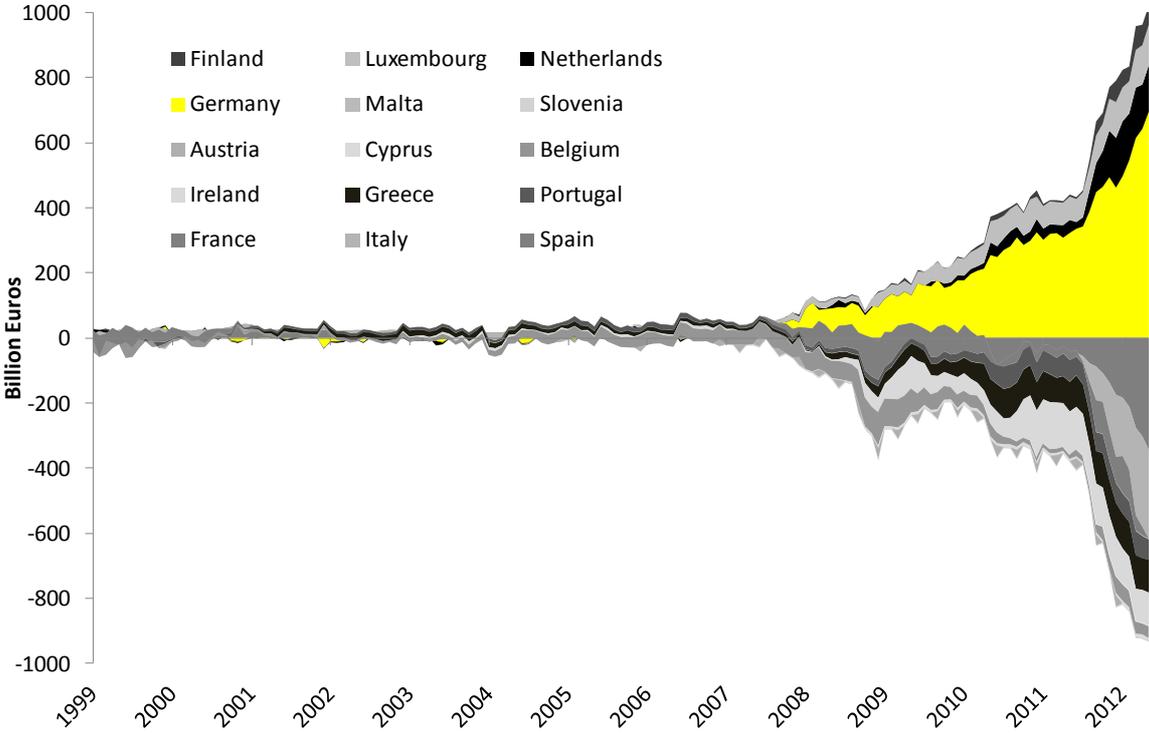
Source: IMF, European Commission AMECO database.

Figure 3: Current Account Balances by International Monetary Framework



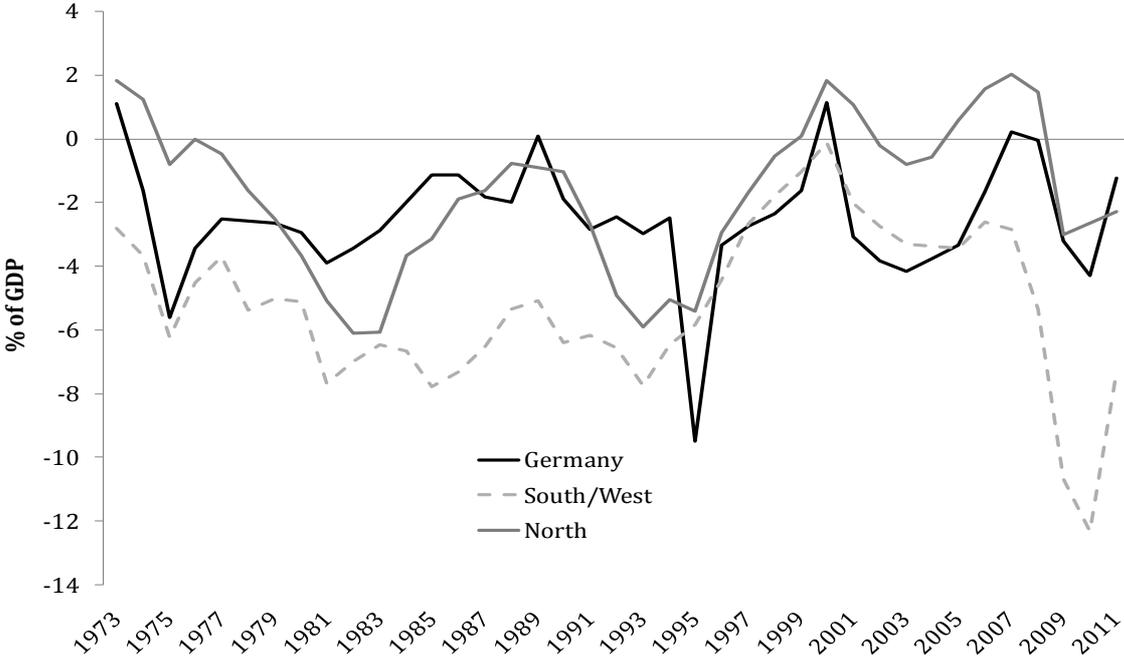
Source: IMF, European Commission AMECO database. Arithmetic averages.

Figure 4: TARGET2 Balances of National Central Banks vis-à-vis the Eurosystem



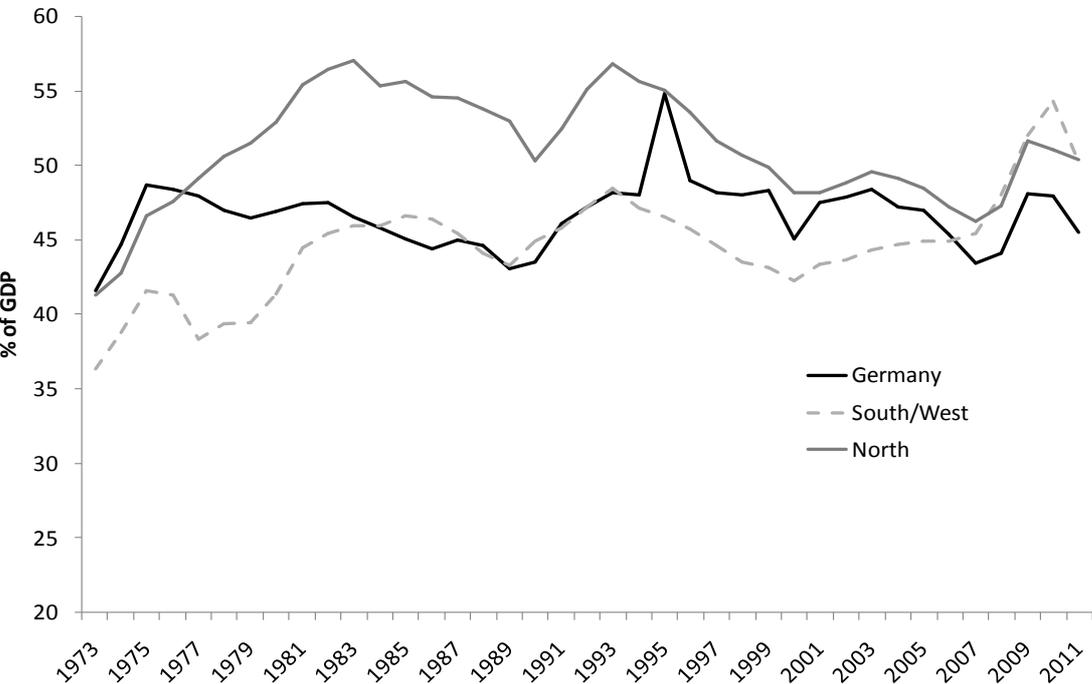
Source: Ifo Institute (<http://www.cesifo-group.de/ifoHome/policy/Haftungspegel.html>).
 Notes: Positive values indicate claims of the national central bank on the Eurosystem, negative values indicate liabilities to the Eurosystem.

Figure 5: Cyclically Adjusted Government Net Lending (Excluding Interest Rate Payments) by Country Group in % of Potential GDP



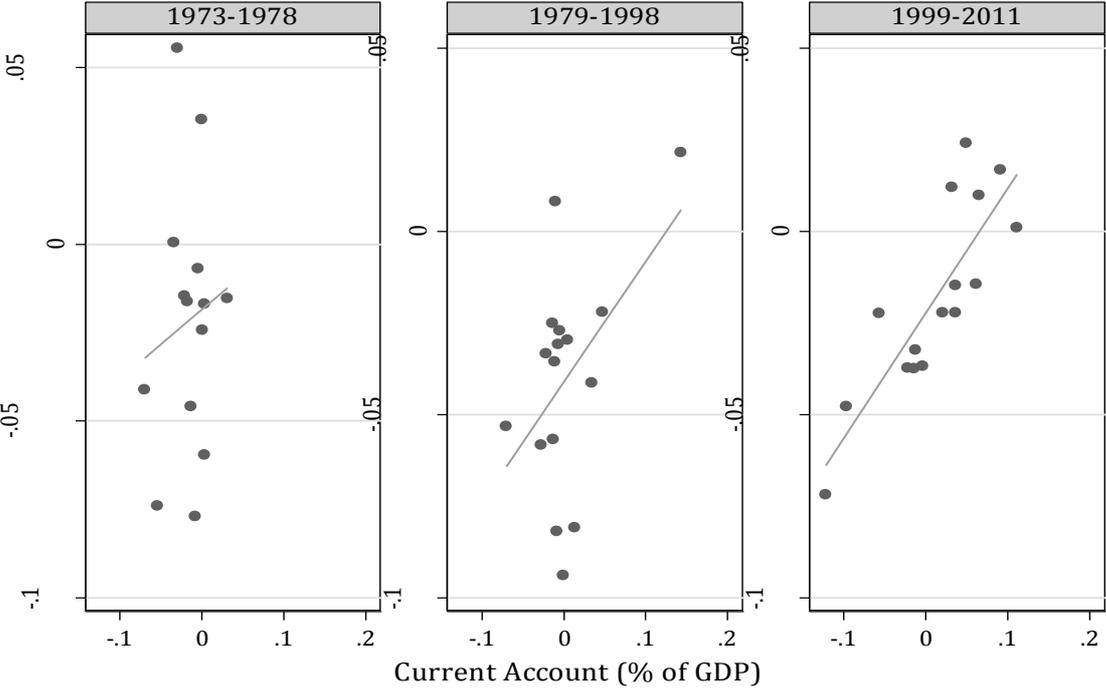
Source: OECD Economic Outlook No. 91.

Figure 6: Cyclically Adjusted Government Expenditure (Excluding Interest Payments) by Country Group in % of Potential GDP



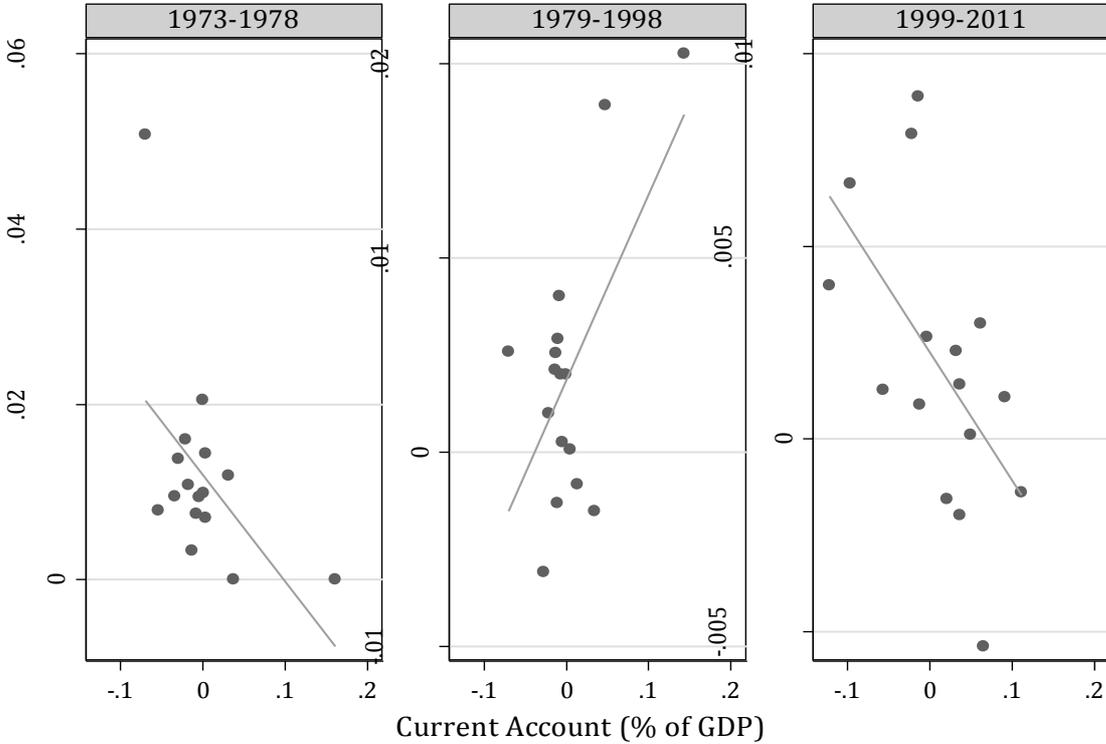
Source: OECD Economic Outlook No. 91.

Figure 7: Budget Deficits and Current Accounts



Source: OECD Economic Outlook No. 91, European Commission AMECO database.
 Notes: Straight lines indicate fitted values.

Figure 8: Changes in Government Expenditure and Current Accounts



Source: OECD Economic Outlook No. 91, European Commission AMECO database.
 Notes: Changes calculated in percentage points of GDP versus previous year. Straight lines indicate fitted values.

Table1: Data Description

| Acronym | Description | Source |
|-----------------|---|--|
| <i>ca</i> | current account balance in % of nominal GDP | European Commission AMECO database |
| <i>gdef</i> | cyclically adjusted government financial balance in % of potential GDP (surplus: +, deficit: -) | OECD Economic Outlook No. 91 |
| <i>gdefexi</i> | cyclically adjusted government financial balance excluding interest payments in % of potential GDP (surplus: +, deficit: -) | OECD Economic Outlook No. 91 |
| <i>gexp</i> | cyclically adjusted government expenditure in % of potential GDP | OECD Economic Outlook No. 91 |
| <i>gexpexi</i> | cyclically adjusted government expenditure excluding interest payments in % of potential GDP | OECD Economic Outlook No. 91 |
| <i>i</i> | short-term nominal interest rate (3-month interbank rate, call money rate) | OECD Economic Outlook No. 91 / Eurostat / IMF International Financial Statistics |
| <i>dexchg</i> | exchange rate change versus German mark (euro since 1999), year-end value against previous year-end value (increase equals depreciation); for Germany arithmetic average of changes versus French Franc, Italian Lira and British Pound | IMF International Financial Statistics |
| <i>dres</i> | changes of foreign reserves, year-end value against previous year-end value in % of GDP | IMF International Financial Statistics |
| <i>dtarget</i> | changes in TARGET2 claims in % of nominal GDP, year-end value against previous year-end value | Ifo Institute (http://www.cesifo-group.de/ifoHome/policy/Haftungspegel.html) |
| <i>ireal</i> | real short-term interest rate (computed as nominal short-term interest rate minus inflation rate) in % | OECD Economic Outlook No. 91 |
| <i>drulc</i> | real unit labor costs in total economy, change against previous year in % | OECD Economic Outlook No. 91 |
| <i>ca_us</i> | US current account balance against Europe in % of US nominal GDP | Bureau of Economic Analysis, U.S. Department of Commerce |
| <i>i_us</i> | US federal funds rate in % | IMF International Financial Statistics |
| <i>_expans</i> | dummy (=1) for countries and years in which the cyclically adjusted government financial balance (<i>gdef</i>) was smaller than the average for all countries in the same year, otherwise 0 | |
| <i>_euro</i> | dummy (=1) for membership in the euro area, otherwise 0 | |
| <i>_2001</i> | dummy (=1) for the period after 2001, otherwise 0 | |
| <i>_surplus</i> | dummy (=1) for countries with structural current account surpluses over the sample period (Austria, Belgium, Finland, Germany, the Netherlands, Sweden, Switzerland), otherwise 0 | |
| <i>_ems</i> | dummy (=1) for membership in the EMS or Exchange Rate Mechanism II, otherwise 0 | |
| <i>_nonems</i> | dummy (=1) for countries being not members of EMS or Exchange Rate Mechanism II, otherwise 0 | |

Table 2: Regression Results Cyclically Adjusted Government Financial Balance

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|-------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| <i>gdef</i> | 0.290*** (4.48) | 0.366*** (4.48) | 0.161*** (2.67) | 0.128** (2.01) | 0.291*** (4.44) | 0.300*** (4.59) | 0.302*** (4.61) |
| <i>i</i> | 0.207*** (3.58) | -0.035 (-0.51) | 0.045 (0.85) | 0.067 (1.28) | 0.111* (1.83) | 0.226*** (3.81) | 0.225*** (3.81) |
| <i>dexchg</i> | -0.164 (-0.63) | -0.237 (-0.94) | -0.341 (-1.51) | -0.230 (-1.01) | -0.156 (-0.65) | -0.151 (-0.59) | -0.135 (-0.28) |
| <i>dres</i> | 0.107 (1.46) | 0.086 (1.26) | 0.108 (1.64) | 0.088 (1.57) | 0.146** (2.17) | 0.052 (0.48) | 0.237** (2.36) |
| <i>dtarget</i> | 0.022 (0.30) | -0.019 (-0.26) | -0.031 (-0.42) | -0.034 (-0.47) | 0.022 (0.29) | 0.011 (0.15) | 0.014 (0.18) |
| <i>ireal</i> | -0.081 (-1.55) | -0.028 (-0.54) | -0.131*** (-2.73) | -0.107** (-2.24) | -0.023 (-0.45) | -0.133** (-2.22) | -0.131** (-2.21) |
| <i>drulc</i> | -0.151* (-1.86) | -0.179** (-2.51) | -0.092 (-1.16) | -0.109 (-1.30) | -0.158** (-2.05) | -0.128 (-1.52) | -0.135 (-1.60) |
| <i>ca_us</i> | -0.884*** (-2.96) | -0.617** (-2.13) | -0.947*** (-3.29) | -0.813*** (-2.81) | 0.571 (1.36) | -0.956*** (-3.22) | -0.976*** (-3.30) |
| <i>i_us</i> | -0.318*** (-5.83) | -0.278*** (-5.26) | -0.311*** (-5.77) | -0.283*** (-5.25) | -0.152* (-1.86) | -0.358*** (-6.29) | -0.360*** (-6.33) |
| <i>i_expans</i> | | 0.372*** (5.33) | | | | | |
| <i>gdef_euro</i> | | | 0.670*** (5.33) | | | | |
| <i>i_euro</i> | | | -1.248*** (-4.15) | | | | |
| <i>ireal_euro</i> | | | 1.526*** (6.24) | | | | |
| <i>drulc_euro</i> | | | -0.417** (-2.16) | | | | |
| <i>gdef_2001</i> | | | | 0.709*** (6.91) | | | |
| <i>i_2001</i> | | | | -1.448*** (-5.52) | | | |
| <i>ireal_2001</i> | | | | 1.549*** (6.09) | | | |
| <i>drulc_2001</i> | | | | -0.308* (-1.87) | | | |
| <i>ca_us_surplus</i> | | | | | -2.670*** (-5.08) | | |
| <i>i_us_surplus</i> | | | | | -0.222*** (-2.76) | | |
| <i>dres_ems</i> | | | | | | 0.162 (1.06) | |
| <i>dexchg_nonems</i> | | | | | | | -0.040 (-0.08) |
| <i>dres_nonems</i> | | | | | | | -0.228 (-1.38) |
| observations | 546 | 546 | 546 | 546 | 546 | 546 | 546 |
| R ² | 0.62 | 0.65 | 0.70 | 0.71 | 0.65 | 0.63 | 0.63 |
| adjusted R ² | 0.61 | 0.64 | 0.69 | 0.69 | 0.64 | 0.61 | 0.61 |

Robust *t* statistics in parentheses* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 3: Regression Results Cyclically Adjusted Government Financial Balance (Excluding Interest Payments)

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|-------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| <i>gdefexi</i> | 0.309*** (5.06) | 0.312*** (4.63) | 0.203*** (3.30) | 0.221*** (3.49) | 0.298*** (4.90) | 0.302*** (4.89) | 0.304*** (4.90) |
| <i>i</i> | 0.185*** (3.30) | -0.031 (-0.46) | 0.090* (1.67) | 0.124** (2.21) | 0.091 (1.57) | 0.199*** (3.47) | 0.197*** (3.46) |
| <i>dexchg</i> | -0.023 (-0.09) | -0.085 (-0.35) | -0.231 (-0.98) | -0.124 (-0.52) | -0.022 (-0.09) | -0.021 (-0.08) | -0.015 (-0.03) |
| <i>dres</i> | 0.103 (1.38) | 0.087 (1.23) | 0.100 (1.42) | 0.091 (1.52) | 0.141** (2.05) | 0.044 (0.40) | 0.240** (2.32) |
| <i>dtarget</i> | 0.007 (0.09) | -0.020 (-0.28) | 0.021 (0.33) | 0.013 (0.19) | 0.009 (0.12) | 0.002 (0.03) | 0.005 (0.06) |
| <i>ireal</i> | -0.156*** (-3.11) | -0.120** (-2.52) | -0.202*** (-4.18) | -0.170*** (-3.49) | -0.098** (-2.07) | -0.190*** (-3.34) | -0.189*** (-3.34) |
| <i>drulc</i> | -0.109 (-1.38) | -0.124* (-1.74) | -0.049 (-0.59) | -0.073 (-0.82) | -0.115 (-1.53) | -0.095 (-1.17) | -0.101 (-1.26) |
| <i>ca_us</i> | -0.692** (-2.31) | -0.562** (-2.01) | -0.994*** (-3.27) | -0.784** (-2.47) | 0.671 (1.58) | -0.759** (-2.51) | -0.778*** (-2.59) |
| <i>i_us</i> | -0.300*** (-5.65) | -0.262*** (-5.00) | -0.317*** (-5.82) | -0.270*** (-4.91) | -0.137* (-1.67) | -0.328*** (-5.94) | -0.329*** (-5.97) |
| <i>i_expans</i> | | 0.321*** (4.55) | | | | | |
| <i>gdefexi_euro</i> | | | 0.388*** (2.66) | | | | |
| <i>i_euro</i> | | | -1.099*** (-3.21) | | | | |
| <i>ireal_euro</i> | | | 1.519*** (5.98) | | | | |
| <i>drulc_euro</i> | | | -0.430** (-2.19) | | | | |
| <i>gdefexi_2001</i> | | | | 0.448*** (3.20) | | | |
| <i>I_2001</i> | | | | -1.479*** (-4.99) | | | |
| <i>ireal_2001</i> | | | | 1.624*** (6.00) | | | |
| <i>drulc_2001</i> | | | | -0.311* (-1.79) | | | |
| <i>ca_us_surplus</i> | | | | | -2.541*** (-4.81) | | |
| <i>i_us_surplus</i> | | | | | -0.219*** (-2.68) | | |
| <i>dres_ems</i> | | | | | | 0.175 (1.10) | |
| <i>dexchg_nonems</i> | | | | | | | -0.029 (-0.05) |
| <i>dres_nonems</i> | | | | | | | -0.240 (-1.40) |
| observations | 546 | 546 | 546 | 546 | 546 | 546 | 546 |
| R ² | 0.63 | 0.65 | 0.68 | 0.68 | 0.66 | 0.63 | 0.63 |
| adjusted R ² | 0.61 | 0.63 | 0.66 | 0.66 | 0.64 | 0.61 | 0.61 |

Robust *t* statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4: Regression Results Cyclically Adjusted Government Expenditure

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|-------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| <i>gexp</i> | -0.287*** (-6.70) | -0.298*** (-6.70) | -0.295*** (-7.28) | -0.288*** (-7.04) | -0.276*** (-6.19) | -0.315*** (-7.66) | -0.316*** (-7.68) |
| <i>i</i> | 0.053 (0.98) | -0.178*** (-2.64) | -0.027 (-0.50) | 0.030 (0.56) | -0.034 (-0.60) | 0.065 (1.18) | 0.063 (1.14) |
| <i>dexchg</i> | -0.424 (-1.62) | -0.444* (-1.69) | -0.547** (-2.17) | -0.482* (-1.95) | -0.416* (-1.72) | -0.430 (-1.65) | -0.304 (-0.66) |
| <i>dres</i> | 0.104 (1.43) | 0.099 (1.48) | 0.088 (1.25) | 0.102 (1.47) | 0.143** (2.09) | 0.057 (0.55) | 0.227** (2.30) |
| <i>dtarget</i> | 0.072 (1.56) | 0.041 (0.97) | 0.109*** (2.78) | 0.105*** (2.75) | 0.071 (1.50) | 0.060 (1.29) | 0.062 (1.34) |
| <i>ireal</i> | 0.096 (1.57) | 0.134** (2.13) | 0.045 (0.76) | 0.059 (1.01) | 0.143** (2.36) | 0.043 (0.68) | 0.044 (0.70) |
| <i>drulc</i> | -0.192*** (-2.63) | -0.207*** (-3.27) | -0.128 (-1.61) | -0.148* (-1.76) | -0.192*** (-2.79) | -0.164** (-2.12) | -0.171** (-2.22) |
| <i>ca_us</i> | -1.237*** (-4.50) | -1.052*** (-4.05) | -1.596*** (-5.66) | -1.623*** (-5.79) | 0.140 (0.35) | -1.356*** (-5.00) | -1.376*** (-5.08) |
| <i>i_us</i> | -0.294*** (-5.42) | -0.267*** (-5.04) | -0.301*** (-5.27) | -0.262*** (-4.47) | -0.131 (-1.59) | -0.350*** (-6.10) | -0.352*** (-6.14) |
| <i>i_expans</i> | | 0.349*** (5.49) | | | | | |
| <i>gexp_euro</i> | | | 0.192*** (3.07) | | | | |
| <i>i_euro</i> | | | -0.381 (-1.18) | | | | |
| <i>ireal_euro</i> | | | 1.057*** (3.95) | | | | |
| <i>drulc_euro</i> | | | -0.394** (-2.25) | | | | |
| <i>gexp_2001</i> | | | | 0.178*** (3.79) | | | |
| <i>i_2001</i> | | | | -0.953*** (-3.30) | | | |
| <i>ireal_2001</i> | | | | 1.076*** (3.96) | | | |
| <i>drulc_2001</i> | | | | -0.204 (-1.30) | | | |
| <i>ca_us_surplus</i> | | | | | -2.528*** (-4.89) | | |
| <i>i_us_surplus</i> | | | | | -0.224*** (-2.82) | | |
| <i>dres_ems</i> | | | | | | 0.145 (0.98) | |
| <i>dexchg_nonems</i> | | | | | | | -0.171 (-0.34) |
| <i>dres_nonems</i> | | | | | | | -0.209 (-1.32) |
| observations | 551 | 546 | 551 | 551 | 551 | 551 | 551 |
| R ² | 0.64 | 0.67 | 0.68 | 0.68 | 0.67 | 0.65 | 0.65 |
| adjusted R ² | 0.62 | 0.66 | 0.66 | 0.66 | 0.65 | 0.63 | 0.63 |

Robust *t* statistics in parentheses* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

**Table 5: Regression Results Cyclically Adjusted Government Expenditure
(Excluding Interest Payments)**

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|-------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| <i>gexpexi</i> | -0.406*** (-8.08) | -0.412*** (-8.12) | -0.416*** (-8.34) | -0.419*** (-8.66) | -0.384*** (-7.25) | -0.421*** (-8.61) | -0.423*** (-8.63) |
| <i>i</i> | -0.038 (-0.71) | -0.249*** (-3.71) | -0.120** (-2.27) | -0.057 (-1.11) | -0.113** (-2.06) | -0.025 (-0.46) | -0.028 (-0.53) |
| <i>dexchg</i> | -0.331 (-1.30) | -0.334 (-1.30) | -0.434* (-1.78) | -0.381 (-1.62) | -0.323 (-1.36) | -0.328 (-1.29) | -0.058 (-0.13) |
| <i>dres</i> | 0.104 (1.42) | 0.101 (1.49) | 0.090 (1.27) | 0.100 (1.44) | 0.140** (2.04) | 0.050 (0.48) | 0.245** (2.43) |
| <i>dtarget</i> | 0.061 (1.42) | 0.032 (0.80) | 0.084** (2.33) | 0.082** (2.39) | 0.060 (1.37) | 0.050 (1.16) | 0.053 (1.22) |
| <i>ireal</i> | 0.072 (1.36) | 0.099* (1.88) | 0.030 (0.57) | 0.061 (1.18) | 0.113** (2.18) | 0.019 (0.34) | 0.021 (0.37) |
| <i>drulc</i> | -0.166** (-2.41) | -0.176*** (-3.04) | -0.109 (-1.48) | -0.137* (-1.82) | -0.165** (-2.54) | -0.141* (-1.93) | -0.149** (-2.07) |
| <i>ca_us</i> | -0.997*** (-3.65) | -0.823*** (-3.20) | -1.303*** (-4.67) | -1.292*** (-4.74) | 0.268 (0.66) | -1.087*** (-4.01) | -1.108*** (-4.09) |
| <i>i_us</i> | -0.279*** (-5.28) | -0.254*** (-4.89) | -0.257*** (-4.61) | -0.202*** (-3.64) | -0.121 (-1.51) | -0.324*** (-5.82) | -0.326*** (-5.85) |
| <i>i_expans</i> | | 0.322*** (5.04) | | | | | |
| <i>gexpexi_euro</i> | | | 0.291*** (4.70) | | | | |
| <i>i_euro</i> | | | -0.262 (-0.86) | | | | |
| <i>ireal_euro</i> | | | 0.891*** (3.67) | | | | |
| <i>drulc_euro</i> | | | -0.359** (-2.26) | | | | |
| <i>gexpexi_2001</i> | | | | 0.255*** (5.46) | | | |
| <i>i_2001</i> | | | | -0.867*** (-3.20) | | | |
| <i>ireal_2001</i> | | | | 0.941*** (3.80) | | | |
| <i>drulc_2001</i> | | | | -0.172 (-1.20) | | | |
| <i>ca_us_surplus</i> | | | | | -2.340*** (-4.50) | | |
| <i>i_us_surplus</i> | | | | | -0.218*** (-2.76) | | |
| <i>dres_ems</i> | | | | | | 0.165 (1.08) | |
| <i>dexchg_nonems</i> | | | | | | | -0.342 (-0.70) |
| <i>dres_nonems</i> | | | | | | | -0.237 (-1.46) |
| observations | 550 | 546 | 550 | 550 | 550 | 550 | 550 |
| R ² | 0.66 | 0.69 | 0.70 | 0.70 | 0.68 | 0.66 | 0.67 |
| adjusted R ² | 0.64 | 0.67 | 0.68 | 0.69 | 0.67 | 0.65 | 0.65 |

Robust *t* statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 6: Regression Results Cyclically Adjusted Government Financial Balance with Interacted Country-Fixed Effects

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|-------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| <i>gdef</i> | 0.290*** (4.48) | 0.278*** (3.59) | 0.253*** (4.44) | 0.227*** (3.79) | 0.291*** (4.44) | 0.348*** (5.24) | 0.342*** (5.15) |
| <i>i</i> | 0.207*** (3.58) | -0.165** (-2.29) | -0.164** (-2.57) | -0.113* (-1.85) | 0.111* (1.83) | 0.187*** (2.92) | 0.182*** (2.86) |
| <i>dexchg</i> | -0.164 (-0.63) | -0.289 (-1.16) | -0.448** (-2.18) | -0.407** (-2.10) | -0.156 (-0.65) | -0.085 (-0.34) | -0.773* (-1.91) |
| <i>dres</i> | 0.107 (1.46) | 0.147** (2.49) | 0.107* (1.88) | 0.094* (1.75) | 0.146** (2.17) | 0.072 (0.68) | 0.235** (2.35) |
| <i>dtarget</i> | 0.022 (0.30) | -0.046 (-0.67) | -0.041 (-1.24) | -0.049 (-1.58) | 0.022 (0.29) | 0.005 (0.07) | 0.008 (0.12) |
| <i>ireal</i> | -0.081 (-1.55) | -0.002 (-0.04) | -0.037 (-0.88) | -0.023 (-0.55) | -0.023 (-0.45) | -0.121** (-2.02) | -0.119** (-1.99) |
| <i>drulc</i> | -0.151* (-1.86) | -0.152** (-2.13) | -0.153** (-2.58) | -0.171*** (-2.66) | -0.158** (-2.05) | -0.149* (-1.76) | -0.152* (-1.81) |
| <i>ca_us</i> | -0.884*** (-2.96) | -0.771*** (-2.64) | -0.550** (-2.47) | -0.474** (-2.14) | 0.571 (1.36) | -0.810*** (-2.75) | -0.833*** (-2.85) |
| <i>i_us</i> | -0.318*** (-5.83) | -0.241*** (-4.45) | -0.150*** (-2.78) | -0.137*** (-2.66) | -0.152* (-1.86) | -0.325*** (-5.69) | -0.323*** (-5.65) |
| <i>i_expans</i> | | 0.527*** (7.24) | | | | | |
| <i>gdef_euro</i> | | | 0.003 (0.02) | | | | |
| <i>i_euro</i> | | | -0.086 (-0.42) | | | | |
| <i>ireal_euro</i> | | | 0.211 (1.13) | | | | |
| <i>drulc_euro</i> | | | -0.166 (-1.61) | | | | |
| <i>gdef_2001</i> | | | | 0.018 (0.19) | | | |
| <i>i_2001</i> | | | | -0.249 (-1.27) | | | |
| <i>ireal_2001</i> | | | | 0.219 (1.32) | | | |
| <i>drulc_2001</i> | | | | -0.081 (-0.87) | | | |
| <i>ca_us_surplus</i> | | | | | -2.670*** (-5.08) | | |
| <i>i_us_surplus</i> | | | | | -0.222*** (-2.76) | | |
| <i>dres_ems</i> | | | | | | 0.170 (1.21) | |
| <i>dexchg_nonems</i> | | | | | | | 0.805* (1.67) |
| <i>dres_nonems</i> | | | | | | | -0.197 (-1.24) |
| observations | 546 | 546 | 546 | 546 | 546 | 546 | 546 |
| R ² | 0.62 | 0.70 | 0.80 | 0.81 | 0.65 | 0.67 | 0.67 |
| adjusted R ² | 0.61 | 0.68 | 0.78 | 0.80 | 0.64 | 0.65 | 0.65 |

Robust *t* statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 7: Regression Results Cyclically Adjusted Government Financial Balance (Excluding Interest Payments) with Interacted Country-Fixed Effects

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|-------------------------|----------------------|----------------------|----------------------|---------------------|----------------------|----------------------|----------------------|
| <i>gdefexi</i> | 0.309*** (5.06) | 0.248*** (3.82) | 0.240*** (4.48) | 0.245*** (4.46) | 0.298*** (4.90) | 0.368*** (5.95) | 0.365*** (5.87) |
| <i>i</i> | 0.185*** (3.30) | -0.158** (-2.26) | -0.173*** (-2.76) | -0.116* (-1.96) | 0.091 (1.57) | 0.154** (2.49) | 0.149** (2.44) |
| <i>dexchg</i> | -0.023 (-0.09) | -0.170 (-0.69) | -0.338* (-1.66) | -0.297 (-1.53) | -0.022 (-0.09) | 0.074 (0.30) | -0.635 (-1.44) |
| <i>dres</i> | 0.103 (1.38) | 0.151** (2.52) | 0.110* (1.87) | 0.090* (1.66) | 0.141** (2.05) | 0.066 (0.61) | 0.249** (2.44) |
| <i>dtarget</i> | 0.007 (0.09) | -0.050 (-0.72) | -0.047 (-1.47) | -0.054* (-1.79) | 0.009 (0.12) | -0.003 (-0.04) | 0.001 (0.01) |
| <i>ireal</i> | -0.156*** (-3.11) | -0.074 (-1.49) | -0.097** (-2.56) | -0.076** (-2.08) | -0.098** (-2.07) | -0.186*** (-3.30) | -0.182*** (-3.26) |
| <i>drulc</i> | -0.109 (-1.38) | -0.109 (-1.53) | -0.125** (-2.22) | -0.148** (-2.43) | -0.115 (-1.53) | -0.119 (-1.47) | -0.122 (-1.54) |
| <i>ca_us</i> | -0.692** (-2.31) | -0.739*** (-2.63) | -0.376* (-1.68) | -0.264 (-1.20) | 0.671 (1.58) | -0.541* (-1.79) | -0.566* (-1.89) |
| <i>i_us</i> | -0.300*** (-5.65) | -0.229*** (-4.26) | -0.135** (-2.52) | -0.111** (-2.18) | -0.137* (-1.67) | -0.285*** (-5.19) | -0.283*** (-5.16) |
| <i>i_expans</i> | | 0.488*** (6.85) | | | | | |
| <i>gdefexi_euro</i> | | | 0.068 (0.67) | | | | |
| <i>i_euro</i> | | | -0.166 (-0.84) | | | | |
| <i>ireal_euro</i> | | | 0.271 (1.56) | | | | |
| <i>drulc_euro</i> | | | -0.170* (-1.68) | | | | |
| <i>gdefexi_2001</i> | | | | 0.046 (0.50) | | | |
| <i>i_2001</i> | | | | -0.313 (-1.63) | | | |
| <i>ireal_2001</i> | | | | 0.283* (1.77) | | | |
| <i>drulc_2001</i> | | | | -0.094 (-1.04) | | | |
| <i>ca_us_surplus</i> | | | | | -2.541*** (-4.81) | | |
| <i>i_us_surplus</i> | | | | | -0.219*** (-2.68) | | |
| <i>dres_ems</i> | | | | | | 0.187 (1.30) | |
| <i>dexchg_nonems</i> | | | | | | | 0.825 (1.65) |
| <i>dres_nonems</i> | | | | | | | -0.221 (-1.34) |
| observations | 546 | 546 | 546 | 546 | 546 | 546 | 546 |
| R ² | 0.63 | 0.70 | 0.80 | 0.82 | 0.66 | 0.68 | 0.68 |
| adjusted R ² | 0.61 | 0.68 | 0.78 | 0.80 | 0.64 | 0.65 | 0.65 |

Robust *t* statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 8: Regression Results Cyclically Adjusted Government Expenditure with Interacted Country-Fixed Effects

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|-------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| <i>gexp</i> | -0.287*** (-6.70) | -0.237*** (-5.48) | -0.158*** (-3.81) | -0.154*** (-3.67) | -0.276*** (-6.19) | -0.367*** (-8.37) | -0.363*** (-8.25) |
| <i>i</i> | 0.053 (0.98) | -0.267*** (-3.77) | -0.253*** (-4.14) | -0.206*** (-3.54) | -0.034 (-0.60) | 0.024 (0.41) | 0.022 (0.37) |
| <i>dexchg</i> | -0.424 (-1.62) | -0.440* (-1.71) | -0.601*** (-2.74) | -0.548*** (-2.62) | -0.416* (-1.72) | -0.425 (-1.61) | -0.809** (-2.12) |
| <i>dres</i> | 0.104 (1.43) | 0.150** (2.52) | 0.127** (2.27) | 0.098* (1.81) | 0.143** (2.09) | 0.071 (0.70) | 0.207** (2.09) |
| <i>dtarget</i> | 0.072 (1.56) | 0.004 (0.08) | -0.016 (-0.71) | -0.024 (-1.11) | 0.071 (1.50) | 0.047 (1.02) | 0.049 (1.06) |
| <i>ireal</i> | 0.096 (1.57) | 0.126* (1.95) | 0.062 (1.17) | 0.073 (1.42) | 0.143** (2.36) | 0.074 (1.14) | 0.074 (1.14) |
| <i>drulc</i> | -0.192*** (-2.63) | -0.177*** (-2.75) | -0.174*** (-3.02) | -0.192*** (-3.13) | -0.192*** (-2.79) | -0.179** (-2.34) | -0.180** (-2.38) |
| <i>ca_us</i> | -1.237*** (-4.50) | -1.066*** (-3.96) | -0.536** (-2.28) | -0.597*** (-2.60) | 0.140 (0.35) | -1.264*** (-4.81) | -1.281*** (-4.87) |
| <i>i_us</i> | -0.294*** (-5.42) | -0.229*** (-4.30) | -0.154*** (-2.79) | -0.140*** (-2.59) | -0.131 (-1.59) | -0.332*** (-5.77) | -0.331*** (-5.74) |
| <i>i_expans</i> | | 0.499*** (7.58) | | | | | |
| <i>gexp_euro</i> | | | -0.662*** (-5.26) | | | | |
| <i>i_euro</i> | | | -0.366** (-2.39) | | | | |
| <i>ireal_euro</i> | | | 0.474*** (2.89) | | | | |
| <i>drulc_euro</i> | | | -0.131 (-1.35) | | | | |
| <i>gexp_2001</i> | | | | -0.387*** (-3.51) | | | |
| <i>i_2001</i> | | | | -0.301* (-1.71) | | | |
| <i>ireal_2001</i> | | | | 0.274* (1.78) | | | |
| <i>drulc_2001</i> | | | | -0.043 (-0.49) | | | |
| <i>ca_us_surplus</i> | | | | | -2.528*** (-4.89) | | |
| <i>i_us_surplus</i> | | | | | -0.224*** (-2.82) | | |
| <i>dres_ems</i> | | | | | | 0.148 (1.08) | |
| <i>dexchg_nonems</i> | | | | | | | 0.444 (0.96) |
| <i>dres_nonems</i> | | | | | | | -0.158 (-1.03) |
| observations | 551 | 546 | 551 | 551 | 551 | 551 | 551 |
| R ² | 0.64 | 0.72 | 0.80 | 0.81 | 0.67 | 0.69 | 0.69 |
| adjusted R ² | 0.62 | 0.70 | 0.79 | 0.80 | 0.65 | 0.67 | 0.67 |

Robust *t* statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 9: Regression Results Cyclically Adjusted Government Expenditure (Excluding Interest Payments) with Interacted Country-Fixed Effects

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|-------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| <i>gexpexi</i> | -0.406*** (-8.08) | -0.340*** (-6.84) | -0.208*** (-4.18) | -0.232*** (-4.51) | -0.384*** (-7.25) | -0.475*** (-9.32) | -0.472*** (-9.20) |
| <i>i</i> | -0.038 (-0.71) | -0.323*** (-4.71) | -0.275*** (-4.63) | -0.239*** (-4.26) | -0.113** (-2.06) | -0.076 (-1.34) | -0.078 (-1.37) |
| <i>dexchg</i> | -0.331 (-1.30) | -0.355 (-1.40) | -0.527** (-2.44) | -0.478** (-2.33) | -0.323 (-1.36) | -0.308 (-1.20) | -0.542 (-1.45) |
| <i>dres</i> | 0.104 (1.42) | 0.151** (2.51) | 0.134** (2.37) | 0.096* (1.78) | 0.140** (2.04) | 0.068 (0.67) | 0.230** (2.27) |
| <i>dtarget</i> | 0.061 (1.42) | -0.001 (-0.03) | -0.012 (-0.70) | -0.020 (-1.11) | 0.060 (1.37) | 0.040 (0.94) | 0.043 (1.01) |
| <i>ireal</i> | 0.072 (1.36) | 0.101* (1.83) | 0.038 (0.82) | 0.071 (1.56) | 0.113** (2.18) | 0.043 (0.77) | 0.044 (0.78) |
| <i>drulc</i> | -0.166** (-2.41) | -0.153** (-2.57) | -0.162*** (-2.86) | -0.189*** (-3.19) | -0.165** (-2.54) | -0.155** (-2.16) | -0.158** (-2.24) |
| <i>ca_us</i> | -0.997*** (-3.65) | -0.900*** (-3.39) | -0.394* (-1.69) | -0.395* (-1.74) | 0.268 (0.66) | -0.960*** (-3.65) | -0.981*** (-3.73) |
| <i>i_us</i> | -0.279*** (-5.28) | -0.219*** (-4.17) | -0.150*** (-2.77) | -0.119** (-2.31) | -0.121 (-1.51) | -0.298*** (-5.39) | -0.298*** (-5.37) |
| <i>i_expans</i> | | 0.469*** (7.27) | | | | | |
| <i>gexpexi_euro</i> | | | -0.636*** (-6.07) | | | | |
| <i>i_euro</i> | | | -0.457*** (-3.18) | | | | |
| <i>ireal_euro</i> | | | 0.417*** (2.98) | | | | |
| <i>drulc_euro</i> | | | -0.077 (-0.86) | | | | |
| <i>gexpexi_2001</i> | | | | -0.409*** (-3.77) | | | |
| <i>i_2001</i> | | | | -0.391** (-2.27) | | | |
| <i>ireal_2001</i> | | | | 0.286** (2.00) | | | |
| <i>drulc_2001</i> | | | | -0.021 (-0.24) | | | |
| <i>ca_us_surplus</i> | | | | | -2.340*** (-4.50) | | |
| <i>i_us_surplus</i> | | | | | -0.218*** (-2.76) | | |
| <i>dres_ems</i> | | | | | | 0.165 (1.17) | |
| <i>dexchg_nonems</i> | | | | | | | 0.262 (0.59) |
| <i>dres_nonems</i> | | | | | | | -0.190 (-1.22) |
| observations | 550 | 546 | 550 | 550 | 550 | 550 | 550 |
| R ² | 0.66 | 0.73 | 0.81 | 0.82 | 0.68 | 0.71 | 0.71 |
| adjusted R ² | 0.64 | 0.71 | 0.80 | 0.81 | 0.67 | 0.69 | 0.69 |

Robust *t* statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 10: Regression Results Cyclically Adjusted Government Financial Balance Including a Linear Country-Specific Trend

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|-------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| <i>gdef</i> | 0.229*** (5.23) | 0.222*** (4.08) | 0.074 (1.61) | 0.127** (2.47) | 0.233*** (5.40) | 0.206*** (4.73) | 0.207*** (4.68) |
| <i>i</i> | -0.089 (-1.34) | -0.193*** (-2.67) | -0.175*** (-2.80) | -0.132** (-2.06) | -0.082 (-1.23) | -0.056 (-0.82) | -0.058 (-0.86) |
| <i>dexchg</i> | -0.665*** (-3.09) | -0.736*** (-3.46) | -0.538*** (-2.97) | -0.520*** (-2.68) | -0.668*** (-3.14) | -0.565*** (-2.74) | -0.528* (-1.75) |
| <i>dres</i> | 0.112* (1.92) | 0.098* (1.74) | 0.082 (1.57) | 0.097* (1.83) | 0.121** (2.10) | 0.100 (1.21) | 0.129* (1.93) |
| <i>dtarget</i> | -0.026 (-0.84) | -0.056* (-1.70) | -0.057** (-1.98) | -0.056** (-2.02) | -0.011 (-0.34) | -0.024 (-0.85) | -0.024 (-0.83) |
| <i>ireal</i> | 0.108** (2.03) | 0.122** (2.22) | 0.016 (0.37) | 0.036 (0.74) | 0.102* (1.92) | 0.056 (0.92) | 0.057 (0.92) |
| <i>drulc</i> | -0.195*** (-2.93) | -0.197*** (-3.11) | -0.102* (-1.91) | -0.111* (-1.83) | -0.191*** (-2.91) | -0.171** (-2.57) | -0.171** (-2.58) |
| <i>ca_us</i> | -0.372* (-1.70) | -0.222 (-0.98) | -0.524** (-2.49) | -0.545** (-2.44) | 0.250 (0.83) | -0.590*** (-2.64) | -0.594*** (-2.67) |
| <i>i_us</i> | -0.180*** (-3.64) | -0.164*** (-3.38) | -0.114** (-2.44) | -0.131*** (-2.76) | -0.250*** (-3.29) | -0.132*** (-2.67) | -0.132*** (-2.64) |
| <i>i_expans</i> | | 0.143** (2.46) | | | | | |
| <i>gdef_euro</i> | | | 0.238** (2.10) | | | | |
| <i>i_euro</i> | | | -0.016 (-0.08) | | | | |
| <i>ireal_euro</i> | | | -0.084 (-0.40) | | | | |
| <i>drulc_euro</i> | | | -0.218** (-2.14) | | | | |
| <i>gdef_2001</i> | | | | 0.125 (1.23) | | | |
| <i>i_2001</i> | | | | -0.175 (-0.80) | | | |
| <i>ireal_2001</i> | | | | 0.049 (0.24) | | | |
| <i>drulc_2001</i> | | | | -0.123 (-1.31) | | | |
| <i>ca_us_surplus</i> | | | | | -1.362*** (-3.42) | | |
| <i>i_us_surplus</i> | | | | | 0.140 (1.62) | | |
| <i>dres_ems</i> | | | | | | 0.048 (0.46) | |
| <i>dexchg_nonems</i> | | | | | | | -0.048 (-0.13) |
| <i>dres_nonems</i> | | | | | | | -0.022 (-0.19) |
| observations | 546 | 546 | 546 | 546 | 546 | 546 | 546 |
| R ² | 0.81 | 0.83 | 0.86 | 0.86 | 0.81 | 0.83 | 0.83 |
| adjusted R ² | 0.79 | 0.81 | 0.84 | 0.84 | 0.80 | 0.81 | 0.81 |

Robust *t* statistics in parentheses
 * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 11: Regression Results Cyclically Adjusted Government Financial Balance (Excluding Interest Payments) Including a Linear Country-Specific Trend

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|-------------------------|----------------------|----------------------|----------------------|---------------------|----------------------|----------------------|----------------------|
| <i>gdefexi</i> | 0.339*** (8.51) | 0.336*** (7.07) | 0.169*** (3.47) | 0.263*** (4.94) | 0.338*** (8.70) | 0.324*** (7.96) | 0.326*** (7.93) |
| <i>i</i> | -0.091 (-1.47) | -0.167** (-2.38) | -0.159** (-2.56) | -0.128** (-2.04) | -0.085 (-1.38) | -0.070 (-1.12) | -0.073 (-1.17) |
| <i>dexchg</i> | -0.496** (-2.49) | -0.572*** (-2.85) | -0.466*** (-2.63) | -0.427** (-2.29) | -0.500** (-2.51) | -0.403** (-2.08) | -0.281 (-0.91) |
| <i>dres</i> | 0.111** (2.02) | 0.097* (1.79) | 0.087* (1.69) | 0.091* (1.79) | 0.120** (2.21) | 0.101 (1.29) | 0.146** (2.24) |
| <i>dtarget</i> | -0.050 (-1.59) | -0.073** (-2.22) | -0.064** (-2.35) | -0.062** (-2.38) | -0.036 (-1.06) | -0.049 (-1.64) | -0.048 (-1.61) |
| <i>ireal</i> | 0.034 (0.70) | 0.044 (0.87) | -0.003 (-0.08) | 0.018 (0.40) | 0.027 (0.57) | 0.016 (0.29) | 0.017 (0.32) |
| <i>drulc</i> | -0.167*** (-2.73) | -0.169*** (-2.85) | -0.103** (-2.01) | -0.114** (-2.04) | -0.163*** (-2.69) | -0.163*** (-2.70) | -0.164*** (-2.75) |
| <i>ca_us</i> | -0.030 (-0.15) | 0.078 (0.38) | -0.311 (-1.53) | -0.247 (-1.16) | 0.541* (1.87) | -0.193 (-0.93) | -0.195 (-0.94) |
| <i>i_us</i> | -0.162*** (-3.49) | -0.148*** (-3.23) | -0.108** (-2.38) | -0.111** (-2.46) | -0.226*** (-3.12) | -0.102** (-2.20) | -0.103** (-2.19) |
| <i>i_expans</i> | | 0.101* (1.81) | | | | | |
| <i>gdefexi_euro</i> | | | 0.188* (1.77) | | | | |
| <i>i_euro</i> | | | -0.125 (-0.62) | | | | |
| <i>ireal_euro</i> | | | -0.058 (-0.30) | | | | |
| <i>drulc_euro</i> | | | -0.191* (-1.91) | | | | |
| <i>gdefexi_2001</i> | | | | 0.044 (0.44) | | | |
| <i>i_2001</i> | | | | -0.276 (-1.30) | | | |
| <i>ireal_2001</i> | | | | 0.106 (0.53) | | | |
| <i>drulc_2001</i> | | | | -0.116 (-1.27) | | | |
| <i>ca_us_surplus</i> | | | | | -1.267*** (-3.28) | | |
| <i>i_us_surplus</i> | | | | | 0.128 (1.57) | | |
| <i>dres_ems</i> | | | | | | 0.052 (0.52) | |
| <i>dexchg_nonems</i> | | | | | | | -0.153 (-0.42) |
| <i>dres_nonems</i> | | | | | | | -0.045 (-0.42) |
| observations | 546 | 546 | 546 | 546 | 546 | 546 | 546 |
| R ² | 0.82 | 0.84 | 0.86 | 0.86 | 0.83 | 0.84 | 0.84 |
| adjusted R ² | 0.81 | 0.82 | 0.85 | 0.85 | 0.82 | 0.83 | 0.83 |

Robust *t* statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 12: Regression Results Cyclically Adjusted Government Expenditure Including a Linear Country-Specific Trend

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|-------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| <i>gexp</i> | -0.256*** (-6.52) | -0.234*** (-5.69) | -0.154*** (-4.39) | -0.190*** (-4.43) | -0.255*** (-6.67) | -0.291*** (-7.00) | -0.292*** (-6.92) |
| <i>i</i> | -0.110* (-1.79) | -0.207*** (-3.01) | -0.147** (-2.42) | -0.115* (-1.86) | -0.105* (-1.71) | -0.064 (-1.01) | -0.067 (-1.06) |
| <i>dexchg</i> | -0.737*** (-3.40) | -0.766*** (-3.54) | -0.462*** (-2.65) | -0.516*** (-2.68) | -0.741*** (-3.47) | -0.627*** (-2.98) | -0.575* (-1.72) |
| <i>dres</i> | 0.112* (1.90) | 0.096* (1.69) | 0.093* (1.77) | 0.099* (1.83) | 0.120** (2.05) | 0.096 (1.21) | 0.150** (1.99) |
| <i>dtarget</i> | 0.010 (0.38) | -0.025 (-0.88) | -0.022 (-1.14) | -0.027 (-1.25) | 0.025 (0.96) | 0.003 (0.12) | 0.004 (0.17) |
| <i>ireal</i> | 0.222*** (3.80) | 0.215*** (3.52) | 0.049 (1.09) | 0.087* (1.79) | 0.217*** (3.82) | 0.176*** (2.71) | 0.177*** (2.72) |
| <i>drulc</i> | -0.222*** (-3.78) | -0.215*** (-3.71) | -0.132** (-2.53) | -0.129** (-2.31) | -0.216*** (-3.75) | -0.204*** (-3.42) | -0.205*** (-3.44) |
| <i>ca_us</i> | -0.645*** (-3.02) | -0.478** (-2.21) | -0.429** (-2.08) | -0.654*** (-2.94) | -0.058 (-0.19) | -0.766*** (-3.52) | -0.774*** (-3.57) |
| <i>i_us</i> | -0.163*** (-3.33) | -0.153*** (-3.23) | -0.096** (-2.14) | -0.124*** (-2.63) | -0.217*** (-2.91) | -0.153*** (-3.02) | -0.153*** (-3.00) |
| <i>i_expans</i> | | 0.117** (2.11) | | | | | |
| <i>gexp_euro</i> | | | -0.792*** (-5.09) | | | | |
| <i>i_euro</i> | | | -0.353** (-2.07) | | | | |
| <i>ireal_euro</i> | | | 0.313 (1.56) | | | | |
| <i>drulc_euro</i> | | | -0.173* (-1.69) | | | | |
| <i>gexp_2001</i> | | | | -0.334** (-2.46) | | | |
| <i>i_2001</i> | | | | -0.263 (-1.30) | | | |
| <i>ireal_2001</i> | | | | 0.144 (0.74) | | | |
| <i>drulc_2001</i> | | | | -0.089 (-0.97) | | | |
| <i>ca_us_surplus</i> | | | | | -1.301*** (-3.29) | | |
| <i>i_us_surplus</i> | | | | | 0.109 (1.28) | | |
| <i>dres_ems</i> | | | | | | 0.067 (0.60) | |
| <i>dexchg_nonems</i> | | | | | | | -0.069 (-0.17) |
| <i>dres_nonems</i> | | | | | | | -0.056 (-0.47) |
| Observations | 551 | 546 | 551 | 551 | 551 | 551 | 551 |
| R ² | 0.81 | 0.83 | 0.87 | 0.86 | 0.82 | 0.83 | 0.83 |
| adjusted R ² | 0.80 | 0.82 | 0.85 | 0.84 | 0.80 | 0.81 | 0.81 |

Robust *t* statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 13: Regression Results Cyclically Adjusted Government Expenditure (Excluding Interest Payments) Including a Linear Country-Specific Trend

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|-------------------------|-----------------------|-----------------------|----------------------|----------------------|-----------------------|-----------------------|-----------------------|
| <i>gexpexi</i> | -0.489*** (-11.56) | -0.473*** (-10.41) | -0.298*** (-6.50) | -0.388*** (-7.52) | -0.483*** (-11.69) | -0.509*** (-11.52) | -0.512*** (-11.43) |
| <i>i</i> | -0.140** (-2.57) | -0.191*** (-2.98) | -0.137** (-2.45) | -0.128** (-2.27) | -0.137** (-2.51) | -0.086 (-1.59) | -0.091* (-1.68) |
| <i>dexchg</i> | -0.488** (-2.43) | -0.548*** (-2.70) | -0.341** (-2.04) | -0.368** (-2.01) | -0.492** (-2.47) | -0.386** (-2.00) | -0.148 (-0.48) |
| <i>dres</i> | 0.114** (2.06) | 0.096* (1.76) | 0.106** (2.06) | 0.101* (1.94) | 0.121** (2.19) | 0.096 (1.30) | 0.154** (2.31) |
| <i>dtarget</i> | -0.002 (-0.10) | -0.027 (-1.01) | -0.017 (-0.97) | -0.023 (-1.18) | 0.011 (0.45) | -0.004 (-0.18) | -0.003 (-0.13) |
| <i>ireal</i> | 0.191*** (3.94) | 0.185*** (3.74) | 0.035 (0.83) | 0.089* (1.95) | 0.187*** (3.93) | 0.139** (2.57) | 0.142*** (2.62) |
| <i>drulc</i> | -0.210*** (-4.20) | -0.202*** (-4.02) | -0.132*** (-2.69) | -0.137*** (-2.72) | -0.206*** (-4.15) | -0.193*** (-3.86) | -0.195*** (-3.92) |
| <i>ca_us</i> | -0.317 (-1.60) | -0.222 (-1.11) | -0.254 (-1.29) | -0.402* (-1.90) | 0.190 (0.67) | -0.465** (-2.32) | -0.471** (-2.35) |
| <i>i_us</i> | -0.124*** (-2.79) | -0.118*** (-2.77) | -0.074* (-1.76) | -0.089** (-2.06) | -0.167** (-2.36) | -0.093** (-2.12) | -0.094** (-2.12) |
| <i>i_expans</i> | | 0.048 (0.96) | | | | | |
| <i>gexpexi_euro</i> | | | -0.728*** (-5.31) | | | | |
| <i>i_euro</i> | | | -0.511*** (-3.16) | | | | |
| <i>ireal_euro</i> | | | 0.266 (1.48) | | | | |
| <i>drulc_euro</i> | | | -0.092 (-0.95) | | | | |
| <i>gexpexi_2001</i> | | | | -0.316** (-2.22) | | | |
| <i>i_2001</i> | | | | -0.416** (-2.11) | | | |
| <i>ireal_2001</i> | | | | 0.210 (1.13) | | | |
| <i>drulc_2001</i> | | | | -0.054 (-0.61) | | | |
| <i>ca_us_surplus</i> | | | | | -1.132*** (-3.06) | | |
| <i>i_us_surplus</i> | | | | | 0.085 (1.06) | | |
| <i>dres_ems</i> | | | | | | 0.068 (0.68) | |
| <i>dexchg_nonems</i> | | | | | | | -0.296 (-0.81) |
| <i>dres_nonems</i> | | | | | | | -0.057 (-0.53) |
| Observations | 550 | 546 | 550 | 550 | 550 | 550 | 550 |
| R ² | 0.84 | 0.86 | 0.88 | 0.87 | 0.84 | 0.86 | 0.86 |
| adjusted R ² | 0.83 | 0.84 | 0.87 | 0.86 | 0.83 | 0.85 | 0.85 |

Robust *t* statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.