Determinants of Internal and External Imbalances within the Euro Area

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Abstract

The widening of global current account balances has been an important subject of academic debate in recent years. Several authors have pointed out that there has been a direct link between the world financial crisis in 2007/09 and the so called euro crisis since 2010. Structural imbalances, similar to the ones that caused the global financial crisis, might have also been the underlying cause for the events that finally triggered the euro crisis. The current state of literature focuses on the current account side of the problem rather than onto the financial accounts.

The purpose of this paper is to show that the capital flows that were created by the particular structure of the EMU were not sustainable. Therefore we will conduct a simplified three country model that shows the capital flows into the EMU and inside the EMU. We find that the core EMU countries served as intermediaries for external investors. We show how this caused the imbalances in the according financial accounts and that a rebalancing of internal current accounts will not be sufficient to stop the Target2 balances from diverging.

The EMU ended in an equilibrium in which a system that seemed to have come to a halt after the beginning of the euro crisis is still going on, and there is no mechanism for the core countries to stop the unbalanced capital flows.

We will start by elaborating how the same trade shock that hit the US in a symmetrical way, hit the single EMU member states’ Balance-of-Payments asymmetrically.

The current reforms only aim on the current account side of the problem and leave out the distortions in the financial accounts. A rebalancing of current accounts will not be sufficient, as long as the bilateral linkages with external trade partners are not balanced with the according financial accounts.

JEL codes: E42, E58, F32, F34

Keywords: Euro Crisis, Intra-EMU Imbalances, Sovereign Debt Crisis, Current Account Imbalances, Target2, Balance-of-Payment Crisis

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Introduction

Given the concurrent nature of two severe crises hitting the world, with the euro crisis emerging right after the peak of the global financial crisis, it is not surprising that the question arose if there is a direct link between the two. The trade imbalances between the US and emerging Asia led to massive current account (CA) imbalances which laid the ground to the world financial crisis in 2007-2009. The EMU is also characterised by trade imbalances between the surplus countries in the north and the deficit countries in the south. In fact there is little doubt that the economic development within the EMU has been anything but balanced since the introduction of the euro in 1999.

The purpose of this work is to investigate on how the current account imbalances are related to the financial account imbalances and why that matters at all in a currency union, which blurs the concept of a member nation’s Balance-of-Payments and where no individual country can be exposed to speculative attacks, as Imgram (1973) states.

We state the hypothesis that only the particular construction of the EMU allowed third countries to continuously export to an EMU country running a current account deficit, whilst investing their proceeds in EMU countries with a surplus, without facing devaluation risks. We find that the capital flows into the peripheral EMU countries were mainly intermediated by banks in France and Germany, whilst the trade flows of the peripherals with e.g. China were of direct nature. There is evidence that the external investors attributed different risk profiles to the single EMU countries, whilst the core EMU countries attributed similar risk profiles to all EMU countries. That left the peripherals in a dis-equilibrium of their bilateral current account and financial account that disturbed the automatic adjustment processes and ended in a Balance-of-Payment crisis.

The consequence was that the euro-system had to step in and take over the role of redirecting capital flows into the peripheral EMU countries, what led to rising Target2 imbalances. We identify one external and two internal drivers of diverging Target2 balances: The portfolio rebalancing of non-EMU countries which puts the peripherals’ FAs under pressure from the outside, and internally, the capital flight from the peripherals to the core countries and the repatriation of funds from the EMU core countries. If a CA deteriorates and private investors (inside and outside the EMU) stop financing the deficit then the currency system has to step in and provide liquidity (to avoid a sudden stop of financing similar to the one observed in Asia in the late 90s). Thus, an internal rebalancing of the current accounts in the EMU might not be enough, as long as the bilateral linkages with external trade partners are not balanced with the according financial accounts. If the CAs and FAs amongst the EMU member countries are not balanced, the Target2 balances will always diverge. We will analyse if this provision of liquidity mitigated the crisis or if it prolonged it, and which distortions were caused by the crowding out of traditional means of deficit financing through the (cheaper) euro-system financing.

We further find that the same trade shock that hit the US in a symmetrical way, hit the single member states of the EMU asymmetrically. We will answer the question if there is a link between the global financial crisis and the euro crisis and if the global imbalances worked as direct forces on the EMU that have just been amplified by the particular structure of the EMU or if the particular composition of the EMU generated internal forces that worked in a comparable way and created imbalances internally.

One result is that the rise of China (and other emerging countries) during the 2000s formed an external shock that asymmetrically hit trade balances of the EMU countries. Whilst China was demanding goods from core European countries, it was exporting goods similar to the
ones the peripheral countries were exporting. Thus, China was competing with them for shares in the world export markets and maybe displaced exports from the peripherals.

The paper finds new explanations why the world financial crisis turned into a euro crisis. Our approach differs from the existing literature by using a new approach which focuses on the bilateral financial accounts of the EMU countries and displays what challenges lie ahead of a rebalancing in the EMU. Considering the EMU design, we develop a three country model to show the imbalanced capital flows that derive from the particular construction of the EMU and in which way the EMU intrinsic mechanisms prolonged the crisis and caused new distortions.

Overall, it seems as if the events in the aftermath of the world financial crisis have not brought the system of asymmetric trade and financial flows inside the EMU to a halt. It just led to a crowding out of private capital flows by public ones.

The reforms that were imposed onto the peripherals will establish a new equilibrium for the EMU. By now, we are in a crucial period. The current events will determine if the new equilibrium will be a more sustainable one or if the private capital flows that ceased will just be replaced by public ones and the asymmetric system continues to exist.

The structure of this paper will be as follows. Section 2 will present some stylised facts on the evolution of intra-EMU Imbalances. Section 3 will elaborate the external forces that worked onto the EMU. It will distinguish between current account and financial account distortions. Section 4 will investigate on the factors working inside the EMU, the mechanisms through which liquidity is provided and which effects this will have in the long run. Section 5 will conclude.

2 Stylised facts

Figure 1 shows the CA developments of the peripheral EMU countries and Germany. It confirms that the rise of the EMU CA imbalances started with the turn of the millennium, following the introduction of the euro (Schnabl and Freitag, 2012). The CAs of all peripheral EMU countries\(^2\) deteriorated after the adoption of the euro, until the financial crisis of 2007 brought this development to an end. The detailed picture is somewhat more complicated. Some countries (Greece and Portugal) experienced a severe deterioration of their CAs with a subsequent harsh adjustment, whilst in others (Italy and Ireland), the development was more shallow. Interpreting the improvements of all countries\(^\text{2}\) CA after the financial crisis broke out in 2007, one should be careful. Dettmann, Moebert and Weistroffer (2012) showed that the adjustment came mainly through a lack of domestic demand in these countries, after their access to credit markets dried up and less through a regained competitiveness.

To understand better what determined the depth of the CA crisis in each country, we will analyse the intra-emu imbalances in a broader picture. Schnabl (2011) states that crises seem to be more severe if debt is denominated in a foreign currency, which cannot be controlled, and when capital inflows are used in a speculative way or for consumption\(^3\). Where does the euro crisis fit in?

\(^2\) This term, “the peripherals” or the “EMU deficit countries” will be used in the following as an acronym for Italy, Portugal, Ireland, Spain and Greece.

\(^3\) Schnabl (2011) differentiates between four different generations of international CA imbalances, which all contained some kind of boom, followed by a crisis. First, the boom in the so called tiger economies came to an abrupt end when a sudden stop of capital inflow caused the Asia crisis in 1997/1998. Next came the imbalances between the US and the oil exporting countries during the 2000s, which jointly with the
Figure 1: Current account figures for the peripherals and Germany

In contrast to previous generations of imbalances, which were centred around the world’s key currency (the USD), this time the affected countries share their currency with the centre of their currency area, Germany. Despite having a centre, the currency area is constructed in a symmetrical way. The monetary policy is conducted by the independent European Central Bank (ECB) to suit the whole euro area. None of the EMU countries can tailor their monetary policy to their own needs. So, the euro crisis is a special case of a CA crisis in the way that all the deficit countries indebted themselves in a currency that on the one hand was their domestic one, but on the other hand could not be fully controlled by their national authorities and thus they could not just monetarise their debt. Despite being similar in the structure of their indebtedness and the lack of an opportunity for a monetary expansion, the peripheral countries differ substantially in the way they used these capital inflows. Some countries used their foreign debt for consumption purposes mainly (Greece, Portugal); others (Ireland and Spain) used the inflowing money to invest in (mainly) the construction sector (see Giavazzi and Spaventa, 2010). Even though, the boom of investment and consumption led the GDP growth increase temporarily, in both cases capital was not invested in the tradable sector, where gains in productivity could have enhanced the long-term growth potential. Thus, the permanent inflow of foreign capital was hardly

Data: IMF, World Economic Outlook Database, October 2012

Note that figures for 2012 are estimates.

The first three generations of imbalances all had an asymmetric structure. The US would conduct their monetary policies and the dollar periphery would have to do what was necessary to stabilise their exchange rates.

In contrast to the former DM zone, where the Bundesbank would determine the monetary policy and the rest had to follow. If one of the goals of the euro introduction was to break the power of the Bundesbank and to create a more symmetrical monetary structure in Europe, it succeeded.
sustainable in the long run and cannot be considered a healthy convergence of catching up countries in a currency area.

3. External Factors
The financial turmoil that led to the global financial crisis (2007-2009) was substantially driven by the divergence of the world’s CAs. As Lin and Treichel (2012) state, the dynamics between core and non-core EMU countries in the euro crisis appear analogous to those that were the biggest contributors to the global CA imbalances (the ones between the East Asian surplus countries and the US), in the run-up to the global financial crisis.

Looking at figure 2 shows that the Euro area’s external CA has been roughly balanced in the years preceding the crisis and even in the crisis. The EMU’s contribution on Global Imbalances therefore seems rather limited, which does not imply that the Global Imbalances, in turn did not have an impact on the intra-EMU imbalances. Maybe events that hit the US, causing the Global Imbalances, hit the EMU in a similar way. In that case the asymmetrical composition of the EMU would have translated that external shock into a widening of the internal CA positions.

Figure 2: CA positions as percentage of GDP

Source: OECD.stat

We will use this section to take a closer look at the developments outside the EMU, and how they hit the EMU asymmetrically and so affected the internal balance of the EMU. We will start with the trade side. Therefore we will examine the effect of the emerging Asian economies (China) on the CAs of the EMU countries, and how the EMU countries dealt with the rapid appreciation of the euro during the 2000s. Then we will have a look on the financial account side and on what explains the capital flows that were observed.

3.1 Current Account
Even though the EMU was constructed in a symmetrical way, shocks can affect it asymmetrically. Trade shocks or terms-of-trade shocks that hit the EMU will affect the single countries differently. This section will show how this happened and how these shocks were translated into internal imbalances.
The economic rise of China (and other emerging countries) that found it's affirmation in the Chinese WTO membership in late 2001 (and accelerated ever since) affected the EMU countries in different ways. It worked rather in favour of the export sector of the surplus countries (mainly Germany), whilst it increased competition for the exports of the deficit countries. The Chinese demand for German goods (e.g. machinery) increased, whilst China competed with the deficit countries in goods such as textiles. We can consider it an asymmetric trade shock that hit the EMU.

Table 1: Correlation of CAs

<table>
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<tr>
<th></th>
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<th>EUR</th>
<th>EU</th>
<th>C</th>
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<th>ES</th>
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</tr>
<tr>
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<td>-0.63</td>
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<tr>
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<td>-0.39</td>
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<td>1.00</td>
<td></td>
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Table 1 is a correlation matrix of CAs, showing how the German (D) and Chinese (C) CA are positively correlated. Germany profits from a positive development of the Chinese economy. The table also shows that the correlation of all peripheral countries’ CA was more negative with the Chinese one than with the German one (with the exception of Italy (IT)). The same observation holds if we compare the Asian emerging countries(EAE) CA with the one of the peripherals. These results seem to work in favour of the asymmetric trade shock hypothesis. The higher the Chinese net exports, the worse for the peripherals’ CA and the better for the German CA. European Commission (2012) uses an export similarity index to describe the trade shock. Contrary to common believe, surplus countries’ exports were challenged as much as deficit countries’ by Chinese exports. The difference came rather through imports of China and other emerging countries. Chen, Milesi-Feretti and Tressel (2012) show how German exports to non EMU countries7 doubled between 2000 and 2008, whilst the exports of the peripherals to these countries remained basically unchanged8. Figure 3 shows how German exports to China and the so called BRIC9 countries in particular more than tripled during that period (from 9,4bn EUR in the whole year 2000 to 33,9bn EUR in 2008 for China and from EUR 23,1bn to 83,1bn for the BRIC countries).

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7 Namely China, the oil and commodity exporters and Central and Eastern Europe.
8 In the case of Italy, there was an increase in exports to these economies, but it was outpaced by the rise in imports form these economies.
9 The acronym BRIC stands for Brazil, Russia, India, China and was first used by Jim O’Neill (chief economist of Goldman Sachs then).
Figure 3: German exports to EMU vs. non-EMU, monthly, Bn. EUR, s.a.

Source: Deutsche Bundesbank and DB Research

One of the reasons for the weak development of peripherals exports can be found in figure 4. It shows the development of the EUR exchange rate vs. the Chinese renminbi (CNY) and the USD. From 2001 to 2008, the EUR appreciated vs. the currencies of the two world's biggest economies, what led to a significant deterioration in the terms of trade of the EMU countries which directly translated into an increase in the real effective exchange rate (REER) of these countries.

Figure 4: Exchange rate of the EUR vs. Chinese renminbi and US-dollar 2000-2008, 2002=1

Source: European Central Bank (ECB). Frequency: Quarterly

That led to a crowding out of eurozone's manufacturing and exports. But why did this not affect German exports in the same way as the ones from the peripheral EMU countries? One explanation was given by European Commission (2012). The price elasticity for low-tech peripheral goods was relatively high, whilst the elasticity for medium-high-tech goods from Germany, and other EMU-surplus countries was relatively low. They competed rather in

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10 Note that the USD and the CNY developed in a rather similar way because of the peg of the CNY to the USD.
11 Movements in the real exchange rate can be decomposed into two components: Movements in the external value of the currency (euro nominal exchange rate) and the internal inflation differentials, which means movements in domestic prices (or unit labour costs) relative to those of trading partners (Chen, Milesi-Feretti and Tressel, 2012 or Bibow, 2012).
quality than in price\textsuperscript{12}. Another explanation is that Germany compensated for exchange based REER up by reducing its inflation based REER (via lowering its relative price level).

Figure 3 confirms that the increased German exports to the EMU compensated for sluggish exports to the US. Increasing exports to China and the BRIC countries also brought some relief, but in absolute figures, the increase in exports to the EMU countries was higher than the increase in exports to any other region or country (from EUR 271,3bn in 2000 to 418,7bn in 2008). Section 4 will demonstrate how the lower inflation in Germany and the easy access to credits in the peripherals helped the German economy to redirect their exports into the EMU, when the exchange rate of the EUR began to appreciate.

Another interesting observation is that the CA of the EU as a whole was more negatively affected by the CAs of China and the emerging economies than the euro area. This can be partially explained by the relatively bigger share of Germany in the EMU but also means that EMU membership alone is not a sufficient condition for a troubled CA. It rather looks like the EU as a whole has been hit by an asymmetric trade shock, depending on the similarity of every single country’s exports to the one of the emerging countries and on the price elasticity of their products, but not solely depending on EMU membership.

The overall picture we see is that the price elastic export goods of the peripherals were put under pressure from outside the EMU by a worsening of the exchange rate based REER, and inside the EMU by a crowding out through German products based on the worsening of the inflation based REER vis-a-vis Germany\textsuperscript{13}.

3.2 Financial Account

So far, we focused on the CA side (which means the trade side) of the problem only, whilst there is some evidence that the imbalances in the euro area originated in the capital markets (EEAG, 2012). Therefore we will now take a look on the financial account side. The burst of the US subprime bubble in 2007 let the EMU interbank market freeze so banks would stop lending each other money, what formed a severe shock on the EMU. But was this shock purely an external shock that spilled over to Europe? Not only that the EMU banks had provided help for the US housing bubble, they had also fuelled a similar bubble in the euro peripherals (mainly Spain and Ireland, where housing prices rose at an average annual rate of 8 and 12 per cent, compared to 4.6 per cent in the US, during its bubble (Lin and Treichel, 2012)). This bubble burst in line with the US bubble (Bibow, 2012). Throughout most of the 2000s, the US Fed conducted an expansionary monetary policy and reduced the

\textsuperscript{12} Deutsche Bank Research (2009) confirms that typical German export products, such as Machinery and Chemicals are less vulnerable to changes in the FX market.

\textsuperscript{13} It might be worth looking at other components of the CA than the trade balance, which might also explain a part of the CA divergence in the EMU. Holsinki, Kool and Muysken (2012) show that a part of the deteriorating current accounts can be explained by the change in net current transfer flows, rather than by the trade account. The inflow of current transfers went down from over 2 per cent to close to zero after 1998, whilst it remained basically unchanged in northern Europe. Transfer flows into the peripherals started diminishing already in the mid 1990s (the upcoming process to the euro). This dynamics further accelerated after 2004. The public transfer programs stemming from the Mediterranean enlargements of the EU in 1981 (Greece) and 1986 (Spain & Portugal) were expiring at that time, thus the drop in transfer payments might have happened coincidentally at the same time as the EU enlargement. The over optimistic business expectations of the converging peripheral countries might additionally have led to a decline in transfers of emigrants to their home countries. In any case, the change in current transfers does explain a big share in the deterioration of peripherals’ CAs and should not be neglected as a reason for divergence.
interest rate (Schnabel/ Freitag, 2011)\textsuperscript{14}. To avoid an appreciation of their exchange rate, the central banks in Europe (and Asia) had to adopt that stance\textsuperscript{15}. Consequently the ECB followed an interest rate policy that has been too low for the peripherals and too high for the core countries\textsuperscript{16}. Capital flows from north to south accelerated. What mechanisms led to these lush intra EMU capital flows that allowed asset prices to boom and substitute for domestic savings in the peripherals?

The German banks profited from cheap refinancing conditions and, in a lack of domestic investment opportunities, they looked for investment opportunities in other countries. Traditionally, German banks had a strong bias in their exposure towards domestic securities, since regulations allowed them only to take a limited exchange risk. After the EMU had abolished that risk for intra-EMU capital flows, the German banks were allowed to invest in other EMU countries and thus, the international investment position with respect to the EMU countries increased substantially. Consequently the German home bias was more and more transformed into an EMU bias (Bibow, 2012). Figure 5 displays the German international investment position (IIP) from 2005 to 2012. Whilst from 2005 to 2006 the IIP rose even more than the according CA surplus, from 2006 to 2008, the years leading into the world financial crisis, it did not rise as much as German CA surpluses would suggest. From 2008 to 2009 the IIP went in line with the CA surplus, and from 2009 to 2011 we have a similar situation as in 2006-2008. In 2012 the IIP increased faster than the CA surplus. Figure 6 shows a similar picture for France, with the difference that France was having CA deficits. Until 2006, France had a positive IIP, which then deteriorated quickly to 317 billion in 2011 (about 16 per cent of the French GDP), before surging in 2012.

German and French banks were heavily exposed to the peripherals and had to deal with negative price effects on their portfolio in the forerun of the financial crisis. In 2008, the financial crisis stopped this development, when banks repatriated their funds quicker than third countries’ banks drew capital from Germany and France. When the euro crisis broke out in 2010, we therefore observe the same phenomenon again. The pictures of the early stages of the two crises ‘06 -’08 and ‘10 -’11 look broadly similar. Consequently, in 2012 we observe a repatriation of funds again, being a lot harsher in France, due to the high level of involvement of French banks in the peripheral EMU countries. For the case of Germany, DIW (2013) showed how this led to a loss of EUR 600 bn. in foreign investments between 2006 and 2012.

What these figures suggest is that international investors use German and French Banks as intermediaries (Sinn, 2012) to invest in the euro zone, and as safe havens in a crisis. The real estate bubbles and consumption bubbles in the GIIPS countries were mainly financed by intra-EMU flows from German and French banks, but Germany and France in turn have been the main destination of capital inflows from outside the EMU (mainly UK banks)\textsuperscript{17}. Later in this chapter we will use a three-country model to show how this is only possible (for a prolonged period) in a currency union and that this particularity will always have the consequence of internal imbalances.

\textsuperscript{14} The Fed took this stance as a reaction to the burst of the dotcom bubble.
\textsuperscript{15} Mandler (2010) shows how the optimal monetary policy reaction function for the ECB implies strong reactions to shocks to US variables, particularly to shocks to the Federal Funds Rate.
\textsuperscript{16} Using the Taylor rule, Ahrend et al. (2008) find that the policy interest rates over 1999-2007 were significantly too high for Germany and too low for Italy, Spain, Greece, Ireland and Portugal.
\textsuperscript{17} The idea that banks in these two countries functioned as some kind of intermediary that redirected capital inflows into the EMU towards the peripherals was also described by European Commission (2012).
Figure 7 uses data from the Bank for International Settlements to compare the biggest international investment positions of German (D) and French (F) banks. We see that the by far highest level of exposure was from French banks to Italy (IT). As assumed above, German banks were involved in the peripherals to a lesser extent, mainly in Spain (ES) and (especially in relation to its size) in Ireland (IR). Considering the smaller exposures (not displayed), the figures show an about 56 per cent higher involvement of French banks in Greece, whilst German banks were about 40 per cent more involved in Portugal. For all country combinations we can observe the aforementioned repatriation of funds around 2008 and especially after 2010.

The external CA and FA of the EMU might be balanced, but if external investors prefer to invest their money in the core countries (which in turn channel these investments into the peripherals), the CAs and FAs amongst the single EMU member countries might have been in mismatch for a prolonged period.

As European Commission (2012) stated, a country might have a bilateral trade surplus with one country but invest the surplus in a third country. In case of the EMU, the rest of the world had a surplus with the peripherals but invested the capital in the EMU core countries. The core countries in turn financed the peripherals beyond their bilateral trade balances. They intermediated capital flows originating outside the EMU. Germany (D) for example, recorded CA surpluses of roughly the same size with the EMU and the rest of the world (RoW), but had much larger surpluses on its FA with the EMU.
Figure 7: German and French foreign bank claims in million USD

Source: Bank for International Settlements

Figure 8 illustrates in a simplified example the dynamics of these flows. Germany has a CA surplus with the EMU of 100\(^{18}\), but an FA deficit of 200, which is paid by one half by funds originating outside the EMU (RoW). RoW has a CA surplus with the EMU (ex D) but prefers to invest their proceeds in Germany. Finally, the EMU has to borrow from Germany by more than their CA deficit with Germany, to finance their imports from the rest of the world. Thus, the total EMU (including D) has a balanced CA and FA with the world and is at the same time building up Balance-of-Payment (BoP) imbalances internally. As Meade (1957) states, it is not a problem per se if countries run bilateral BoP deficits, as long as they maintain an overall equilibrium in their BoP. In this example, the overall BoP of the EMU (ex D) is in balance. They can use their funds from Germany to pay their imports from RoW.

Figure 8: Flows of capital and goods inside and outside the EMU

Source: Authors’ own illustration.

\(^{18}\) All figures in this example are chosen randomly in size.
Table 2 shows how Germany financed Spain and especially Ireland beyond their bilateral CA positions. After 2009, the picture is reverted and we observe capital flight to Germany, especially from Spain.

Table 2: Bilateral CA and FA with Germany, in mio EUR

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<th>Date</th>
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</tr>
<tr>
<td>CA+FA</td>
<td>5.504</td>
<td>27.869</td>
</tr>
<tr>
<td>Spain</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CA</td>
<td>145.842</td>
<td>52.035</td>
</tr>
<tr>
<td>FA</td>
<td>-180.766</td>
<td>57.430</td>
</tr>
<tr>
<td>CA+FA</td>
<td>-34.925</td>
<td>109.465</td>
</tr>
<tr>
<td>Italy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CA</td>
<td>123.598</td>
<td>49.669</td>
</tr>
<tr>
<td>FA</td>
<td>-70.521</td>
<td>-19.685</td>
</tr>
<tr>
<td>CA+FA</td>
<td>53.077</td>
<td>29.984</td>
</tr>
</tbody>
</table>

Data: Bundesbank

Figure 9 demonstrates this graphically. Germany financed Spain and Ireland in the pre-crisis period by more than its bilateral CA surplus. The lines represent the difference of each countries’ CA and FA in million EUR. Since we took the negative of all figures, high values represent an FA that exceeds the amount necessary to finance the bilateral CA.

Figure 9: Bilateral CA plus FA for Germany and the EMU peripherals in EUR mio (negative)

Data: Bundesbank

The bilateral German CA and FA were roughly in line for Greece and Portugal, whilst for Spain and Ireland the bilateral FA exceeds the CA heavily. Italy seemed to have experienced
the opposite phenomenon, which was possible because, as seen before, they in turn received massive capital inflows from France.

As mentioned above, there is no problem if the bilateral FA of two countries exceeds the according CA for a prolonged period, as longs as each countries overall BoP is balanced. A problem does arise if the surplus country accumulates soft currency and wishes to invest in a hard currency country. Those country's exporters would then demand to be paid in the hard currency. It would be difficult for the deficit country to acquire sufficient hard currency for its imports. There would be an over demand for the hard currency and an over supply of the soft currency. In a flexible exchange rate regime, this would lead to an exchange rate adjustment. This would automatically lead to an adjustment of both countries' CA. The procedure of adjustment has been described in standard literature such as Meade (1957) or Frenkel and Mussa (1985).

In the case of the EMU, there is obviously only one currency for both countries, which changes the dynamics substantially. We will show how external investors can make use of that particularity, to avoid both, the exchange and the credit risk. The long-run economic identity that the FA mirrors the CA holds only for currency areas, not for separate countries. In the following we will use a simple model to show how the underlying dynamics depend on the exchange rate system. We will discuss two different scenarios, first for separate currencies then for the EMU.

In our simplified model, the world consists of only three countries: Germany (D), Spain (ES) and the rest of the world (RoW). We chose Spain as a representative for an EMU country experiencing an overfinancing in our example. Germany pays in Deutschmarks (DM), Spain in Pesetas (Pts) and the rest of the world pays in US-dollar (USD). In all four cases we will assume, analogue to our example above, that D has a bilateral CA surplus towards ES and a bilateral FA deficit. RoW has a trade surplus with ES, but a balanced bilateral FA. They prefer to invest their surpluses in D instead, so that the size of the bilateral German FA with Spain exceeds the CA by the amount of the RoW's CA surplus with ES. Germany itself has a CA surplus with RoW and reinvests the proceeds in RoW. Germany and Spain combined have a balanced CA with RoW.

First we assume a scenario where all exchange rates are perfectly flexible. If RoW would prefer to invest their Pts surpluses in Germany, they would need to buy DM and sell Pts (unless they require their exports to be paid in DM directly). In a scenario like that, where everyone wants to buy DM and sell Pts, the value of the DM will go up whilst the value of the Pts will go down. ES eventually will have to reduce its imports whilst competitiveness and the nominal value of exports will rise. The subsequent adjustment of the CAs comes automatically. A divergence of bilateral CA and FA is therefore no stable equilibrium, if currencies of different quality are involved. Also the gradual adjustment of the FA will come automatically, because it will be harder and harder to sell the Pts and buy DM. If RoW wants to run persistent CA surpluses with ES, it will be forced to reinvest their Pts in ES. Given the low interest rate that D would have to pay for its financing in that scenario, it would be less and less attractive to invest in D. ES in turn would face more and more problems to buy DM for its imports. Consequently, in the long-run all CAs would be balanced with their corresponding FAs. Figure 10 describes the long-run equilibrium for this scenario. A country running a CA surplus would acquire assets denominated in the other country's currency.
Even, if we assume pegged exchange rates (similar to the Bretton-Woods system), the mechanism would function in a similar way. Spain would be forced to continuously buy Pts to maintain the parity value and thus, ES will deplete its foreign and gold reserves until the Pts finally has to devalue, and a new exchange rate will be fixed. The shrinking (deficit countries) and piling up (surplus countries) of reserves would also lead to restriction (increase) in domestic supply of money, leading to a deflation (inflation). The subsequent adjustment of prices and wages would improve (worsen) the country’s competitiveness and thus the CA imbalances will close and investors’ confidence will return eventually.

In the scenario described above, one will have to re-invest the currency in the country of a trade surpluses origin and thus face a devaluation risk of assets in that country’s currency, and thus one will have to deal with the solvency risk of that country. If a country loses confidence in another country’s solvency, it will reduce its exports to that country (the US being an exception, as the issuer of the world’s reserve currency).

So far, we could show that in the absence of a currency union, the exchange risk forces a trade partner to keep the bilateral CA and FA in line, whilst the solvency risk forces them to ultimately balance their bilateral CA. In the following we will demonstrate how the EMU allows countries to run persistent CA deficits. Figure 11 below shows how the construction of the EMU allows its trading partners to avoid both, the exchange risk and the credit risk. The main particularity of the EMU is that its external trade partners deal with one currency but individual countries with individual risk profiles. This gives them the opportunity to export to countries with a substantial CA deficit and invest their proceeds in countries with a CA surplus, without having to exchange currency. This means, credit risk towards the peripherals could be pooled in the core countries, which in turn channelled these investments into the peripherals. Since the core countries did not demand a notable risk premium for their intermediary role, they seem to have attributed the same risk profile to these countries that the external investors attributed to the core countries.
The first scenarios contained an automatic adjustment channel. In a separate currency scenario, a country that keeps exporting to another country, despite their negative CA, will accumulate vast amounts of their currency. To avoid the valuation losses, it is forced to keep on re-investing into that country and thus to finance their CA deficit. In the worst case, this could go on for a prolonged period until the surplus country loses confidence in the deficit country and suddenly stops financing its deficits. The debtor country would face a sudden stop of capital inflows and thus would be forced to balance their CA immediately. Figure 11 shows how this mechanism does not work in a currency union. We distinguish between the euro-system up to 2010 (before the “euro crisis”), and since (in the crisis).

In this scenario we have the case that D and ES have the same currency (EUR), so there cannot be an over- or under-supply of one of their currencies. RoW now is free to choose where to invest their proceeds from trading with ES, without facing the negative impact of devaluation. This also means that there is no direct adjustment of the individual CAs via the exchange rate channel. It is almost like the debtor could indebt himself in Pts, whilst the creditor holds a claim in DM. In this scenario, RoW prefers to invest their proceeds in D, which in turn channels them to ES. As described by Meade (1957), a country in a currency union can run a deficit towards RoW, if that is equalised by surpluses with other members of its currency union. In our example, the following system could be established. ES has a BoP deficit with RoW, which is financed by a BoP surplus with D. D in turn finances its BoP deficit with ES via a surplus with RoW. This circulation is sustainable as long as D is willing to finance ES. The problem is that most (risky) Spanish assets are pooled in D.

As mentioned before, D does not demand a notable risk premium for this intermediation. As long as RoW was willing to invest in D, and D had confidence in ES, the system was sustainable, without implying a devaluation of the EUR. D would acquire EUR assets from ES,
whilst Row would acquire EUR assets in D. The problem is that this defers the adjustment mechanisms that are explained above.

When, after the outbreak of the euro crisis, D lost confidence in the solvency of ES and stopped to channel external investments into it, ES faced a severe funding problem. It was a situation as if Spain was running out of its own currency. Since the automatic adjustment via an external devaluation does not take place, the exchange rate of the currency EUR as a whole ends up being somewhere in the middle: Too high for ES (and other peripherals) and too low for D. Since this left the exports of ES remain weak (and the extra-EMU exports of D strong), ES could not finance its imports through exports. Consequently, ES could maintain a high import level only by borrowing the money press. In the case of Spain, Spanish banks drew their capital via the Bank of Spain from the ECB. Ultimately liable for these ECB loans were the other ECB member states, such as France and Germany.

Section 4 will describe in detail how this procedure worked. In this scenario, it would not solve the problem if D and ES had a balanced bilateral CA. Imbalances could still continue to exist in the EMU, as long as external investors attribute different risk profiles to individual countries. The Target2 balances would always diverge, as long as EMU’s member countries’ bilateral CA and FA are not in line. Cecioni and Ferrero (2012) found empirical evidence that only for Greece the Target2 balance is significantly related to the CA deficits, whilst in Portugal, Italy and Spain, the large increase in Target2 liabilities is mostly related to the FA, predominantly since the outbreak of the euro crisis in mid-2010. Internal CA rebalancing is a necessary, but not a sufficient condition for FA rebalancing. The Target2 balances are the equivalent of the gold reserves in a gold-standard system. The main difference to the gold-standard is that deficit countries cannot run out of reserves. Thus, there is no pressure to restrict the domestic money supply. Also in surplus countries it is easier to control inflation and therefore the deficit countries will have to bear an over-proportional share of the adjustment process.

But why did the core countries invest in countries which were avoided by these extra-EMU investors and that, with hindsight, have proofed to be high-risk investments? Why was the market discipline weaker within the EMU than vis-a-vis external investors?

Two possible explanations have been mentioned before. Possibly the German and French banks did not believe in the no bail-out clause, thus assumed some kind of implicit government guarantee that was not available to non-EMU countries. An alternative hypothesis states that German and French banks valued government bonds from other EMU countries higher because they could use them as collateral at the ECB which also was not an option for non-EMU countries, and thus have demanded a lower risk premium. In that case intra-EMU loans would just have crowded out extra-EMU loans in the case of the peripherals.

Starting from the current situation, the EMU might end up in one of the two following equilibria. The first one would be that the peripherals use the euro-system financing, whilst gradually adjusting their CAs, and implement reforms to regain competitiveness and attract sufficient funds from outside the EMU. In the second equilibrium, the major part of financial inflows will keep on going into the surplus countries, which in turn finance the deficit countries indirectly via the euro-system. To achieve the first equilibrium, it is important that

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19 This would only be the case for Greece, Italy and Portugal, where a huge share of the investment took place in the form of government bonds, whilst in Spain and Ireland investments mainly went into bank bonds (Chen, Milesi-Ferretti and Tressel, 2012).

20 The aforementioned exchange risk regulations for German banks work into the same direction.
external investors invest in the peripherals directly, because of an improved competitiveness. The introduction of other instruments of risk pooling, such as euro-bonds, would just be a continuation of the system that was established before. Section 4 will help to understand the mechanisms in depth. We will show that, no matter what the reason for these asymmetric capital flows is, unless investors' confidence in the southern EMU countries returns, there will always be an imbalance inside the EMU.

4. Internal Factors
Section 3 described the financial flows and competitiveness issues. This section will reconcile the actual events that happened in the EMU. We will start by providing a quick overview on the events in Europe since the 1990s, which led to a build-up of intra-EMU imbalances.

Figure 12 shows how after the German reunification boom ended in the mid-1990s, German business sentiment deteriorated. This led to increased (precautionary) savings in the German private sector and to less consumption and less German fixed capital formation (tables 3 and 4). During the second half of the 1990s, these savings were absorbed by the fast growing equity markets (dot.com bubble). After the burst of this bubble, German growth slowed down, whilst growth in the GIIPS accelerated (figure 12). We have already shown how German excess savings were invested in those other, faster growing economies.

*Figure 12: GDP in Germany and GIIPS (1995=1)*

Data: Eurostat (GIIPS data starts in 1995)

At the same time, slow growth in Germany put pressure on real wages and inflation fell in 2002 and 2003 to a level lower than before the euro introduction, and more important, to a level lower than in the southern EMU countries. Table 3 supports Holsinki, Kool and Muysken (2012) in their point that the inflation rate between 2000 and 2007 in southern Europe was 1.5 per cent higher than the one in northern Europe.

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21 The authors define north as Austria, Finland, Germany and the Netherlands, and south as Greece, Ireland, Portugal and Spain.
Table 3: Gross fixed capital formation and inflation

<table>
<thead>
<tr>
<th>GEO/time</th>
<th>Capital formation*</th>
<th>Annual inflation (avg.)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>95-00</td>
<td>01-08</td>
</tr>
<tr>
<td>Germany</td>
<td>21.35</td>
<td>18.26</td>
</tr>
<tr>
<td>GIIPS</td>
<td>22.16</td>
<td>23.95</td>
</tr>
</tbody>
</table>

* for '95-'99, GIIPS data without Greece
Data: Eurostat

Table 4: Annual growth of household consumption and gross household savings rate

<table>
<thead>
<tr>
<th>GEO/time</th>
<th>HH consumption % change (avg.)*</th>
<th>HH savings rate**</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>95-00</td>
<td>01-08</td>
</tr>
<tr>
<td>Germany</td>
<td>1.5</td>
<td>0.5</td>
</tr>
<tr>
<td>GIIPS</td>
<td>4.5</td>
<td>2.8</td>
</tr>
</tbody>
</table>

* Data for GIIPS starts '96, Greek data starts '00, Spain data ends 11
** for '95-'99 only Italy and Portugal, for '00-'01 Spain, Portugal and Italy, from '02 GIIPS data without Greece
Data: Eurostat

Figure 13 displays the convergence of nominal interest rates to a broadly similar level in the whole eurozone. In combination with the higher inflation rates in the peripherals, this let the real interest rate in these countries be too low, which led to a decline in their saving rates (table 4).

The EMU ended up with a saving rate too high for the core EMU countries and too low for the peripherals. Financial liberalisation (which meant lower transaction costs) and easier access to international saving pools put additional pressure on saving rates in the euro peripherals (Jaumotte and Swidriwiboon, 2010). The elimination of exchange rate risks and perceived convergence of sovereign bond default risks in the now integrated European bond markets (all EMU bonds had the same collateral value at the ECB) stimulated intra-EMU capital flows (Chen, Milesi-Feretti and Tressel, 2012) and made it increasingly attractive for German banks to lend to the EMU peripherals.
Figure 14: Foreign claims of German banks in USD million

Figure 14 shows how for Q4-2010 (the first quarter with available data), the funds went into government bonds (in the case of Greece, Portugal and Italy) and bank bonds or other private sectors (Spain, Ireland, Portugal). The financial exposure to Euroland countries was higher than the corresponding levels of trade integration. Germany was more integrated into the EMU financially, than through the real economy, which made it vulnerable to debt problems in the EMU (Bibow, 2012). A financing structure (of CA deficit) biased towards banks intermediation to that extent, left the peripherals being exposed to the unwinding of capital inflows, e.g. in a financial crisis (Merler and Pisani-Ferry, 2012).

Nevertheless, the EMU peripherals borrowed heavily abroad and consequently their (cumulative) CAs turned from being roughly balanced in 94 to a deficit of 10 per cent in 2008. The cheap credits financed government debt (Greece) or borrowing by the financial sector, which in turn fostered credit driven real estate price bubbles (Spain and Ireland). In Italy and Portugal they financed both. This fostered a boom in consumption and (construction) investment. The illusionary prosperity further increased inflation. The higher inflation let their real exchange rate (REER) increase in line with the Unit Labour Costs (ULC) and made the peripheral countries lose competitiveness. This crowded out manufacturing and exports and led to an unsustainable growth of the non-trade sector (Chen, Milesi-Feretti and Tressel, 2012).

Figure 15 shows the boom in domestic demand during the 2000s, displaying the most dramatic increase in Ireland, Spain and Greece.

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22 The contribution of foreign direct investment has been very small.

23 For Greece, Portugal, Italy and Spain (Jaumotte/ Sodriwiboon, 2010).

24 Illusionary because, as mentioned before, it was not matched by improvements in productivity or business environment, thus it was not sustainable (See also Lin and Treichel (2012)).
Figure 15: Domestic demand (2000=100%)

Source: Eurostat

Figure 16 shows the deterioration in unit labour costs (ULC). All peripheral countries followed the same upward trend until the financial crisis. Ireland experienced the highest increase, but managed to readjust its labour costs quickly after the crisis. Unsurprisingly, Figure 1 has shown us that the Irish economy managed to return to a positive CA at about the same time.

When in 2009 the newly elected Greek government had to admit that the deficit figures of the preceding years had been understated and Greece was running deficits persistently over 3 per cent markets stopped ignoring the default risks and confidence in peripheral EMU economies was damped.

Figure 16: Unit Labour Costs, 2000=100%

Source: OECD.Stat

Investors realised that growth by domestic demand, financed abroad was unsustainable (Giavazzi and Spaventa, 2010). The markets charged a higher risk premium, which put
additional pressure on the refinancing of these countries. The governments were confronted with twin imbalances: Regaining competitiveness and correcting the public debt (Benito, 2012).

To deal with the twin imbalances described above, reforms were implemented on the peripherals, aiming at the first of the two equilibria mentioned in section 3. The peripherals are supposed to implement structural reforms to regain competitiveness, whilst the provision of public loans through the EFSF, the ESM and the euro-system are smoothing that process. The idea is that the improved competitiveness will boost exports and close the CAs, whilst the regained investor's confidence will finance the remaining CAs and close the Target2 balances. We will begin by describing the current status quo, aiming at the first equilibrium and which problems might occur.

a) Equilibrium 1: Regaining competitiveness and investor's confidence

In section 2 and 3 we discussed the emergence of CA imbalances and how the euro crisis reversed capital flows from an over financing of the bilateral CAs to an underfinancing. Since the outbreak of the euro crisis the peripherals face severe problems to attract sufficient private funds to finance their CA deficit. They also can't use their central bank to purchase government bonds in an unlimited amount, thus the financial crisis forced them to improve their CAs.

The usual way to rebalance the CA would be a currency depreciation which would immediately reduce the (external) value of a country's demand. This would narrow the CA deficit and improve the country's competitiveness directly which would help to regain shares on the world's export markets via that manipulated exchange rate (Dettmann, Moebert and Weistroffer, 2012). This is not possible for a country in a currency union. Consequently, prices and wages must decline to rebalance the economy (internal devaluation). The increased competitiveness would facilitate the country's exports, and reduce the prices of domestic goods relative to foreign goods and eventually replace them. As a result a country might improve its trade balance significantly in the short run. In the longer run, competitiveness is important to attract (direct) investments and thus expand the industrial base. The process of internal devaluation seems to be a more painful process than an external devaluation, and it has the natural side-effect that the internal devaluation will lower the nominal GDP and make the debt to GDP ratio look less favourable in the short run.

There is some evidence for inflexible labour markets in the peripheral EMU countries that do not allow wages to decline to the extent that would be necessary. For these reasons, the process of an internal devaluation would have to be a gradual one.

To maintain a functioning economy during that process, the use of fiscal policies, transfer payments and a mobile labour force would be necessary (Essl and Stiglbauer, 2011). Since there is hardly any scope left for fiscal policies in a country already facing a debt problem, some kind of adjustment through the labour markets would bring some relief. A transfer

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25 ESFS stands for European Financial Stability Facility and ESM stands for European Stability Mechanism.  
26 The adjustment process of the Baltic States in 2008/2009 provides a recent example (see Lindner, 2011).  
27 Having said that, an external devaluation could make the debt to GDP ratio even worse, if debt is denominated in a foreign currency and the currency devalues beyond the necessary level (overshooting).  
28 Dettmann, Moebert and Weistroffer (2012) name the OECD indicator "strictness of employment protection" to show there is some resistance to rebalancing that prevented lower wages but also led to higher unemployment.
mechanism would further ease the transition until the economies have regained competitiveness.

Given that the mobility of labour seems to be limited within the whole EU and there is no agreement on a transfer union yet, internal devaluation through the wage and price channel will have to be accompanied by some kind of public loans. This happens since 2010 through the European Financial Stability Facility (EFSF) and its predecessor for Greece, Portugal and Ireland. But these public loans could not make up for the whole difference between the CA deficits and the lack of capital inflows in the peripherals. Since the CA has to be matched by a sufficient capital inflow and the core EMU countries stopped to play their role as an intermediary, some other source of financing must have been at work.

As we mentioned above, there is no official agreement on a transfer union in the EMU yet\(^{29}\), but the EMU membership allows countries almost unlimited access to euro funds. These funds help to finance a country\(^{3}\) CA and thus form some kind of indirect transfer mechanism. The (net) capital flows of that mechanism are reflected in the Target2 balances. This means, even if investors lose confidence, the system will not come to a halt.

The idea of that unlimited provision of liquidity is to smooth the rebalancing process in the peripherals, but the danger is that external investors feel more comfortable in this situation, which allows them to maintain the system of separating an EMU countries\(^{2}\) FA from its CA for their bilateral trade with single EMU countries, and thus have no incentive to invest in the peripherals directly. It is like a system in a single currency world that would allow investors to trade with any country, no matter how indebted it is, and as soon as the transaction is completed, the proceeds would turn into some other, harder currency. They might prefer the current situation, which allows them to make business with the whole EMU, whilst risk is pooled in the core EMU countries.

In that case, the provision of liquidity through the euro-system will become a permanent phenomenon, rather than a way to smooth the transition period. The role of the intermediary was taken by the ECB instead of Germany and France. The next section will show how that ultimately puts Germany into the same situation as before, because the euro-system liquidity works as a kind of loan from the surplus to the deficit countries. Even if unlimited liquidity for the peripherals means that they could use this liquidity to repay external investor’s loans\(^{30}\), investors might still prefer to hold claims against the core EMU countries, as long as there is a chance of a (sudden) break-up of the euro.

We have shown that despite all efforts that were made to regain investors\(^{3}\) confidence, the external investors might just prefer a situation that we called the second equilibrium. We will show how the liquidity provision through the euro-system works and if that mechanism might be considered benign, not only for the external investors, but also for the deficit countries.

b) Equilibrium 2: Permanent euro-system lending through Target2

The idea of the restructuring of the peripheral economies implies that investors’ confidence into the peripherals eventually returns. If it doesn’t, we might end up in what we called the second equilibrium. In that case, the provision of public loans via the Target2 system, that was meant to accompany the transition period to equilibrium 1, will turn into a permanent

\(^{29}\) Neglecting the transfers already established in the EU, e.g. agricultural subsidies.

\(^{30}\) In September 2012, the ECB made it also clear that they would buy sufficient bonds of peripheral states to maintain the EMU as whole. This led to a decrease in the Target2 balances. If this is just due to liquidity circulation within multinational banks or a permanent effect is not clear at this moment.
phenomenon. To understand the underlying problems, it is important to understand how the Target2 system works.

The Trans-European Automated Real-Time Gross settlement Express Transfer (Target2) is the euro-system’s operational tool through which national central banks (NCBs) provide payment and settlement services for transactions within the EMU. These transactions are not limited a priori. If a country systematically settles more outward payments than inward payments, its central bank has a deficit position. The country is a net borrower from the euro-system, whilst others are net lenders (Merler and Pisani-Ferry, 2012).

Figure 17 shows the diverging trend of the Target2 balances since the beginning of the global financial crisis in 2007, which accelerated after 2009, when the euro crisis began. One can clearly see the increasing balances of the northern European countries (Germany being the biggest contributor) and the deteriorating balances of the peripheral EMU countries (Italy and Spain contributing the most).

But what caused these imbalances, are they really a result of Germany and France stopping their intermediary role? As Cecioni and Ferrero (2012) stated, an increase in the Target2 liabilities of a country can have three reasons. It can derive from the CA, it can represent a flight of private capital or a deposit run by residents. Comparing figure 17 with figure 1 shows that the widening of the Target2 balances happened at a time when CA imbalances were already shrinking. Whilst before the crisis, there was a CA deficit for all countries but Italy (where the CA was roughly balanced), the CAs improved substantially after the outbreak of the global financial crisis in 2007. Thus, there is hardly any evidence that the CA imbalances are the main driver behind the Target2 imbalances.

Figure 17: Net Balance with the euro-system in bn. EUR/Target2

DNLF = Germany, Netherlands, Luxembourg, Finland
GIIPS = Greece, Italy, Ireland, Portugal, Spain
Data: Euro Crisis Monitor, Osnabrück University

31 In fact, Merler and Pisani-Ferry (2012) have shown that before 2008 the CA imbalances in the EMU have been financed by private capital inflows.
Since bank runs do not seem to be a major problem yet, we will not consider them either (even though there is some evidence for a deposit run in Greece\textsuperscript{32}). That leaves us with the flight of private capital. As already stated in section 3, rising Target2 balances mainly reflect a ceasing of investments from Germany and France, whose banks refused to roll over their investments in the peripherals and repatriated their funds. Private capital flows to Portugal, Spain and Italy deteriorated rapidly since 2009 whilst private capital outflows shrank only slowly, due to a flight of private capital from the peripherals to the core. Thus, we face a combination of external factors (extra-EMU countries prefer to use core countries as an intermediary) and internal factors (banks in the core countries stop their intermediary role and repatriate funds; flight of private capital from peripherals to the core) that explain the surging Target2 balances.

Figure 18 shows what the graphs in figure 9 would look like if adjusted for central bank lending. According to Germany\&rsquo;s liability for ECB claims, we attributed 1/3 of the Target2 liabilities of each central bank to the bilateral FA with Germany. We took the difference of each country\&rsquo;s CA and FA, including the Target loans. Since we took the negative of all values, positive figures represent an FA (including Target loans) that exceeds the CA deficit. The figure shows that the system that seemed to have come to a halt in the years of the crisis is still going on. German bank loans were just replaced by central bank loans. Whilst in Ireland, Greece and Portugal, the European transfer mechanism seemed to have stopped capital flight; values have been skyrocketing for Italy and Spain.

\textit{Figure 18: Bilateral CA plus FA for Germany and the EMU peripherals in mio. EUR (incl. Target2 loans, negative values)}

As we predicted in section 3, the Target2 provisions of liquidity just replaced private foreign investments. When e.g. German banks stopped redirecting capital flows into the peripherals and were cutting back their exposure to the peripherals, these loans were replaced by euro-system transfers and the Bundesbank Target2 surplus rose\textsuperscript{33}.

In our example, bonds are practically repaid via the euro-system, which just shifts the debt from the foreign (private) bond holders\’ balance sheet to foreign CB\’s balance sheet. If we noted in section 3 that Germany does not demand a considerable risk premium for its costs.

\textsuperscript{32} See Whittaker (2011) for a more detailed analysis of the possible impact of deposit runs in the peripherals.

\textsuperscript{33} The build-up of the German Target2 position equals the accumulation of gold reserves in a fixed exchange rates regime such as Bretton-Woods (Bibow, 2012).
intermediary role, it is worth noting that in this situation, the risk premium could even be negative. Germany (and the other surplus countries) would pay a higher interest rate on their debt, than they would receive for their CB credits to the deficit countries.

Figure 19: Net Balance with the euro-system in mio. EUR/ Target 2, separate countries

Apart from the provision of liquidity through Target2, the reversal of private capital inflows did not lead to a Balance-of-Payments crisis because the private capital outflows were compensated by two additional forms of public support: The Troika\(^{35}\) assistance programs and the ECB purchases of sovereign bonds. When the debtor country receives Troika funds, then those funds replace the euro-system loans and the Target2 balance decreases temporarily. Figure 19 shows the Target2 balances for the peripherals separately. One can see e.g. the little upward dent in the curve of Ireland, when the first tranche of payments was settled in early 2011, and the same for Portugal in June 2011. The debt of the peripheral countries does not decrease; it just changes its owner. The set-up of these rescue packages through the ESFS and its successor ESM, helped to calm down the situation a bit for the countries that were subject to it (namely Portugal, Greece and Ireland). In Italy and Spain on the contrary, the countries that did not receive support from the ESFS yet, the acceleration of Target2 deficits was just about to begin (see figure 19). The issuance of the ECB’s longer-term refinancing operation (\textit{LTRO}) in December 2011 and February 2012 went in favour of this development, when Italian and Spanish banks draw big amounts of money from the ECB and placed them in (mainly) German banks. The improvement in the Target2 balances of Spain and Italy since late 2012 might just be a reversal of that (temporary) development.

Following Deutsch Bank Research (2012), figures 20 and 21 display the overall capital account vs. the \textit{private} capital account\(^{36}\) of Spain, Portugal and Italy. The graphs show how for Spain and Italy, their central banks had to transform a negative capital account into a positive one in 2011 (from -7.3 per cent of GDP to +3.3 (Spain) and from -8.1 to +4.7 per cent (Italy)). For Portugal we can see how the situation calmed down, after Portugal became subject to the ESFS in April 2011.

\(^{34}\) Sinn (2012) describes in detail how Target2 balances are the same as a loan from or to other EMU countries.

\(^{35}\) Troika stands for the committee led by the European Commission with the International Monetary Fund and the European Central Bank. The Troika organised loans to the Greek, Irish and Portuguese governments.

\(^{36}\) By \textit{private} capital account we mean the CA, net of central bank lending.
On the one hand this system mitigated the adjustment process of the CA and FA, but on the other hand it facilitated the withdrawal of private investors. It might be exactly this mitigation that will leave the EMU stuck in the second equilibrium. The external trade partners can keep on exporting to the peripherals, without having to invest there, whilst the peripherals do not have to reduce their imports to a level that corresponds to their import of private capital. Since the normal capital inflows from Germany and France ceased, Target2 liquidity allows the peripherals to run persistent CA deficits without depleting the net foreign assets. For Greece we observe a similar picture (not displayed). Greece and Portugal financed almost their entire CA with Target credits from 2008 to 2010 (EEAG, 2013). This works almost similar to the US, who can finance their imports through the money press, because they issue the world reserve currency. The euro membership puts the peripherals in a position where they can finance the net import of their goods via the money press too (Sinn, 2012). Otherwise their currency would lose its value quickly (similar to the mechanism described in section 3).

What we see up to this point is in line with our predictions in section 3. Once a currency union is in a situation where risk is pooled in few countries, those countries have no means to stop this system. If their private investors try to reduce their exposure to deficit countries, the exposure will be transferred to their countries’ public sector. How could a system like this evolve and why was there no way to stop it?
After the collapse of the EMU interbank market, the ECB applied the fixed-rate full allotment procedure. This procedure let a fatal pact between the EMU banks and governments arise. Even if the Troika would cease its payments to troubled countries, their governments could just borrow from their commercial banks, which would borrow from their central banks, which in turn could borrow from the ECB. Consequently a potential end of the Troika lending would not form a binding constraint for any government in the EMU. The government could just replace it by euro-system lending and even save on interest payments, having only to pay the ECB base borrowing rate instead of the higher Troika rate. Even if the ECB would refuse to accept peripheral government bonds as collateral for new credits, they could just extend their Emergency Liquidity Assistance (ELA), which is not subject to collateral. The only way to stop this would be to exclude a debtor country from the euro-system. This theoretical option would further enhance capital flight from that respective country, so that the euro-system had to provide even more liquidity before the final exclusion of that country. That additional liquidity would be lost for the other EMU countries if that country eventually exits the EMU and defaults on its Target2 liabilities. Hence, the ECB is the lender of last resort for all EMU countries, if it likes it or not, unless there is a political agreement to actually kick a country out of the euro (Whittaker, 2011). There is no way to rebalance the Balance-of-Payments of the EMU countries internally to a match of bilateral CAs and FAs, as long as there is no rebalancing with external trade partners. The EMU is in a situation where external investors as well as the peripherals might prefer the status quo.

Could the phenomenon of euro-system lending be considered a benign one? The allocation of capital in a scenario like this is far from efficient and hinders the adjustment process. Nevertheless, this equilibrium offers a variety of risks and chances. If private Investors are not willing to finance banks and government budgets anymore, the central banks step in. The injection of liquidity has protected the peripheral countries from the full negative impact of a sudden stop. On the one hand, this helps to avoid non-performing loans or the bankruptcy of banks and governments. On the other hand, central bank liquidity just replaces existing credits. It will keep the net indebtedness constant, thus there cannot be a

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37 It is also interesting to look at the bank notes issued from the single EMU nations. Technically any EMU member country could just keep on printing bank notes if the ECB refuses to provide any more liquidity. An amount that exceeds the internal allocation for that country forms a liability within the euro-system and thus must be added to the Target2 balance to get a precise picture of the intra EMU balances. In the case of Portugal and Spain this forms a moderate asset that has to be netted with their Target2 deficit, whilst in case of the other peripherals it represents an additional liability. Interesting enough, Germany would have to reduce its Target2 claims by EUR 192bn for September 2012 (according to Bundesbank data). Possible reasons for the overproportional amount of banks notes issued in Germany might be that migrant workers in Germany have carried these bank notes to their countries of origin, where they are used as a parallel currency or that German tourists carry these notes abroad.

38 The first tranches of EFSF loans to Ireland and Portugal had an effective interest rate of about 5 per cent to 6 per cent, whilst the ECB base borrowing rate was only 0.75 per cent at the time (currently 0.25 per cent).

39 The ELA has already been used extensively in Ireland and Greece, according to Merler and Pisani-Ferry (2012).

40 Restricting the euro-system liquidity flows would not solve the euro crisis, but limit the banks' ability to lend to their government, in troubled countries. A government with a debt problem in turn, cannot support its banks with liquidity, the two problems are intertwined. Any attempt to stop this would have to contain a mechanism to stop governments and banks from default and protect member countries from speculative attacks (Merler and Pisani-Ferry, 2012).
new (fiscal or credit driven) stimulus for these economies. Another problem is that the unlimited provision of liquidity hinders a sufficient adjustment of asset prices.

Figure 22: REER, price deflated GDP, 2000=100

The difference between figure 22 and figure 16 illustrates this point. Apart from Ireland, no country seems to have made a notable progress in competitiveness, based on price deflated GDP, whilst the unit labour costs in figure 16 showed a slightly brighter picture. The reason is that in a crisis, the least productive workers are set free first, so unit labour costs decrease. This is a purely statistical effect, which has no implications for an improved productivity (see also Sinn, 2012). For an internal devaluation, which the reforms aim at, a lowering of the price levels would be needed. Apart from Ireland, this has not happened in any of the peripherals. Greece and Spain had even rising price levels until very recently. There is strong evidence that the provision of public loans and liquidity has deferred the adjustment process. Sinn (2012) e.g. states that public loans and euro-system liquidity deferred the structural improvements of the competitiveness in the peripherals (except Ireland) by at least five years.

We will demonstrate this again at the example of Spain, because it has been one of the major destinations of capital flows (if one includes the Target loans). A country that experienced an asset price bubble like Spain has to undergo some asset price adjustment process. As section 3 has shown, the Spanish real estate bubble was mainly fuelled by German and French Banks. We have seen above, that the outbreak of the crisis let these capital flows cease. Without the euro-system replacing these flows, the adjustment process would be more painful for Spain. The nominal value of the stock of assets would shrink substantially and the wealth of Spanish households would decrease in line. A ceasing of the Target2 loans to Spanish banks on the contrary would raise interest rates, households would default on their loans; banks would eventually default too and have to be bailed out by either the Spanish government or the ESM. After the end of that process, the economy

41 Sinn (2012) states that Greece and Portugal would have to reduce their price levels to 60-70 per cent of their 2007 levels to regain competitiveness. Spain would have to reduce to 80 per cent and Italy to 85-90 per cent.
would find itself on a lower level of (asset) prices and wages and eventually start growing again. As Sinn (2013) stated, the financing costs for the Spanish banks are still too low at the moment. This leads to a non-optimal allocation of capital. The necessary adjustment of credit lending is deferred which also defers a possible adjustment of the Spanish economy. In the current situation, Spain is stuck in a triangle of over indebted banks, households and government. The austerity of the government and households depresses growth. Unless the situation adjusts, GDP growth will remain poor.

Since the private capital that flees from the peripherals is likely to be invested in the core EMU countries (safe haven), the price level in the core countries might rise and help to rebalance the price levels in the EMU internally. But, since it is easier to politically control inflation, and Germany has shown in the past that it is willing and capable of doing so, an over proportional share of the adjustment process will be imposed on the deficit countries. The question if their societies are willing to accept that, will decide in which equilibrium the EMU will be stuck in the mid-run.

5. Conclusion
In the present paper we analysed the widening of the intra-EMU imbalances. We addressed the questions if the capital flows inside the EMU were sustainable and what external and internal factors contributed to them and why the Balance-of-Payments should matter at all in a monetary union. Our results were that the EMU has been hit by an external trade shock which worked in favour of some countries’ CA, but challenged other EMU countries’ CAs. The external shock was amplified by the particular structure of the EMU since the peripheral countries did not receive direct capital inflows for their challenged CAs, but their trade partners preferred to use the particular structure of the EMU to invest via German and French banks as intermediaries. This risk pooling in the core EMU countries left them heavily exposed to the peripherals. When the two consecutive crises that hit the EMU led to a repatriating of funds, the euro-system had to step in and provide the peripherals with the necessary funds to finance their CA deficits. This way of financing is benign for the peripherals and external investors, but defers necessary structural adjustments and works as a self-enforcing process which pools the risks and liabilities in the core EMU countries. It will depend on the political pressure to implement necessary adjustments to regain investors’ confidence in the peripheral EMU countries, otherwise the procedure of deficit financing via Target2 will become a permanent phenomenon. An increase in domestic demand of the surplus countries might provide additional help. Otherwise, diverging Target2 balances will remain in the long run.
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