VOLKSWIRTSCHAFTLICHE DISKUSSIONSBEITRÄGE
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WORKING PAPERS IN ECONOMICS

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A Further View on Current Account, Capital Account and Target2 Balances: Assessing the Effect on Capital Structure and Economic Welfare

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Herausgeber / Editors

A Further View on Current Account, Capital Account and Target2 Balances: Assessing the Effects on Capital Structure and Economic Welfare

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September 2011

Abstract

In this paper, we first present the state and the development of the European capital and current account imbalances. We demonstrate how large the heterogeneity among European countries is and that clustering here different types of countries is possible, but that it leads to different groupings than what has been labeled the PIGS or better GIPS countries on the one side and the GLNF countries on the other side. The same applies when it comes to cluster countries according to the debt ratio criterion. Hereafter, we put forward our own description of the mentioned ECB implicit financing scheme(s), among other things extending and complementing the recent base money market (supply and demand) analysis given by H.-W. Sinn and T. Wollmershäuser (2011). The core of the paper consists in a modified model of the New Austrian School of Economics – in the tradition of F. A. v. Hayek (1929, 1931) and in the vein of R. M. Garrison (2002) – which enables us to discuss the current distortions introduced by the Target2 credit channel into the capital markets of selected EMU countries and to detect its most important economic consequences. This part of the paper ends with a static welfare evaluation. Finally, we come up with some conclusions and suggestions for economic policy.

Keywords: Target2 balances, current account deficits, ECB monetary policy, New Austrian Economics

JEL Classification:D61, E52, E58, F32, F34

1 Introduction

Much earlier this year, H.-W. Sinn has opened a widespread discussion on the pitfalls of the so-called "Target2 balances" (Sinn 2011b, Sinn 2011c). The issue was debated in the first place in newspapers and weekly journals and, as a matter of fact, became quite heated. In the meantime, several authors – including Sinn and his co-author Wollmershäuser (2011) – have pinned down their respective ideas in more detailed and extensive working papers. This was and is very helpful for a rationalization of the discussion.

The purpose of our own paper is not to add one more critical comment on H.-W. Sinn's "ECB's stealth bailout" thesis (2011a). It is unnecessary for the simple reason that, by and large, we agree to his view that the Target2 mechanism has initiated since 2008 a new channel of (true and additional) credits to the so-called GIPS (Greece, Ireland, Portugal, Spain) countries (which, by the way is much more adequate, neutral and less discriminative than to talk of PIGS), it has enabled involuntary capital exports from the GLNF (Germany, Luxembourg, Netherlands, Finland) countries to the GIPS countries leaving, ceteris paribus, the total monetary base of the Euro area unchanged.

Until now, both Sinn and his commentators have concentrated their interest on a number of economic effects going along with the Target2 mechanism such as the fiscal nature of the involved money flows, the displacement of credits to the private sector in the "core" countries, the "tacit" role of the ECB, which for the time being has allowed the GIPS countries via Target2 a level of absorption unthinkable without this financing option. Our own interest in the subject has a number of different and additional aspects:

In the second section of the paper, we will first present the state and the development of the European capital and current account imbalances. We will demonstrate how large the heterogeneity among European countries is and that clustering here different types of countries is possible, but that it leads to different groupings than what has been labeled

the PIGS or better GIPS countries on the one side and the GLNF countries on the other side. The same applies when it comes to cluster countries according to the debt ratio criterion.

In the third section, we will present our own description of the mentioned ECB implicit financing scheme(s), among other things extending and complementing the recent base money market (supply and demand) analysis given by Hans-Werner Sinn and Timo Wollmershäuser (2011).

In the fourth section, we will make use of a modified model of the New Austrian School of Economics – in the tradition of Friedrich A. v. Hayek (1929, 1931) and in the vein of Roger M. Garrison (2002) – which enables us to discuss the current distortions introduced by the Target2 credit channel into the capital markets of selected EMU countries and to detect its most important economic consequences. This part of the paper ends with a static welfare evaluation.

The fifth section comes up with some conclusions and suggestions for economic policy.

2 Inter-Eurosystem Capital and Current Account Imbalances

Since the introduction of the common European currency in 2002, the current account imbalances of the Eurosystem member states increased significantly, amongst other things due to the disappearance of any exchange rate risk. Concerning trade, Germany is one of the countries mostly profiting from the Euro, whereas part of the GIPS countries suffer from their loss of monetary policy control and especially from the omission of the possibility of currency depreciation. The divergence of country specific interest rates in the capital market makes another contribution to this misery.

To show the countries' diversification and therefore the European heterogeneity, Figure 1 contrasts the current account imbalances of the Euro countries and their capital account imbalances at the end of 2009 (up-to-date final data is not available). The positive part of the vertical axis shows current account surpluses, the negative part current account deficits. The capital account surpluses can be seen on the right part of the horizontal axis, capital account deficits on the left. Germany, for example, can be found in the northwestern quadrant, meaning it has a current account surplus and a capital account deficit (net capital outflows), whereas Greece (on the bottom right) has a current account deficit and net capital inflows. As we will see below, this is exactly the situation one considers as Target2 liabilities enter the balance of payments as capital import and Target2 claims enter as capital export.

**Figure 1:** Capital and Current Account Imbalances in the Eurosystem, end 2009, % of GDP

Source: IMF (2010), Balance of Payments Statistics, Yearbook, Part I: Country Tables and IMF World Economic Outlook database, own depiction.

Besides, as it is already shown in several recent papers, the current account surpluses of Germany, Luxembourg, Netherlands and – with respect to the capital account imbalance – outlier Finland (GLNF), the countries with the largest Target2 claims, approximately correspond to the accumulated current account deficits of the GIPS countries. Figure 2 pictures this fact.

Figure 2: Current Account Imbalances of GLNF and GIPS
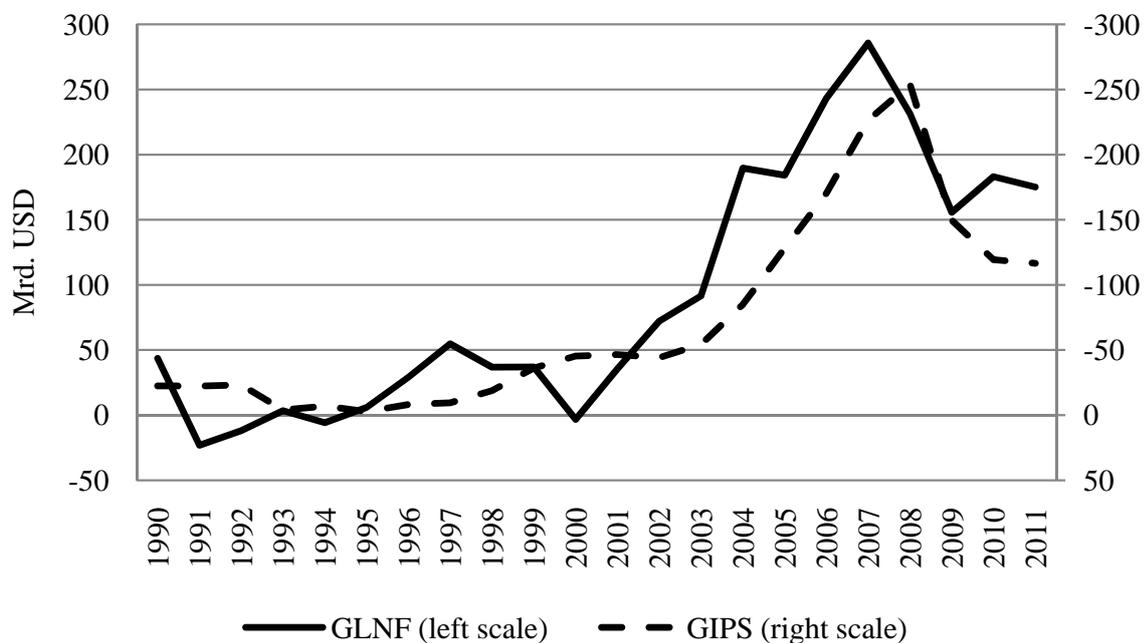
Source: IMF, World Economic Outlook Database, April 2011, own depiction.

One can only identify small deviations between the two curve shapes. But from Figure 1 one has to recognize that the clusters of GIPS and GLNF were built solely on the basis of Target2 balances (see Figure 4). An aggregation on the basis of the capital account imbalances or the current account imbalances would differ. Then one would rather aggregate Germany, Luxembourg, Netherlands, and Estonia as well as Greece, Portugal, Spain, and Cyprus. With respect to the balance of payment positions in Figure 1, the outlier of the GLNF aggregate can be identified as Finland with a capital account surplus; outlier in the GIPS aggregate is Ireland with a capital account deficit. The special case of Ireland can be

explained by the massive capital flight out of Ireland since 2008 and its large banking system compared to the country's size (Sinn and Wollmershäuser 2011, p. 35). Since 2008, it was the other way round in Finland: massive capital inflows by direct investments, loans, deposits, and trade credits (Bank of Finland 2010) as well as repatriation of capital from subsidiaries and foreign portfolio investments due to the financial crisis (Bank of Finland 2007). Even the Finnish employment pension funds reduced their investments in foreign equities and funds (Bank of Finland 2008). The current account balance in both outlier countries (Ireland and Finland) is as one expects it; a deficit in Ireland and a surplus in Finland. Therefore the latter one has a surplus in the current and in the capital account. One would expect that the balance of payments is balanced via reserve assets, but for Finland this is not the case; since October 2008 errors and omissions rose significantly. The Bank of Finland (2008, p. 30) explained this as follows: "Non-financial corporations, banks and investors are increasingly using financial derivatives. Current surveys do not appear to cover this area adequately. Interbank wholesale money markets involve large sums of money, and it is possible that this area is also not wholly covered with traditional statistics. In addition, the BOP statistics have only recently introduced a new method for the compilation of securities data on the basis of new types of information." Ireland is faced with the opposite situation: a current and a capital account deficit; its balance of payments is balanced via large positive errors and omissions. Estonia is a somewhat special case, too: it introduced the Euro only in January 2011, and it changed its current account imbalance from deficit to surplus as well as its capital account imbalance from surplus to deficit at the beginning of 2009. The current account development was mainly driven by the slump of domestic demand after the bankruptcy of Lehman Brothers and the price drop in imported goods (Bank of Estonia 2009, p. 4). This leads to the situation that Estonia became a net external lender due to the change in savings and investment ratios. "The external sector surplus was not fully invested in Estonia and the earlier large capital net inflow was replaced by a net outflow." (Bank of Estonia 2009, p. 10) The

withdrawing of liquidity by parent banks intensified the capital outflows (Bank of Estonia 2009, p. 4). These country examples demonstrate the massive and different effects of the financial crisis on the EMU countries and the varied problems the Eurosystem is now faced with due to the "new fundamentals".

Also the domestic debt rating would show a totally different aggregation of countries (see Figure 3). Lots of countries are located between GIPS (black framed) and GLNF (black). But the consideration of the governmental debt level is not unnecessary, because it is – inter alia – responsible for the yield spreads of government bonds in the capital market and therefore effects the financing options of a country, e.g. the possibilities to pay a current account deficit. And unlike Storbeck (2011) blogged in June, every current account deficit has to be financed by a capital account surplus meaning by net capital inflows, also in a monetary union. This is simply the mechanism of the balance of payments theory.

**Figure 3:** Gross Domestic Debt, end 2010, % of GDP
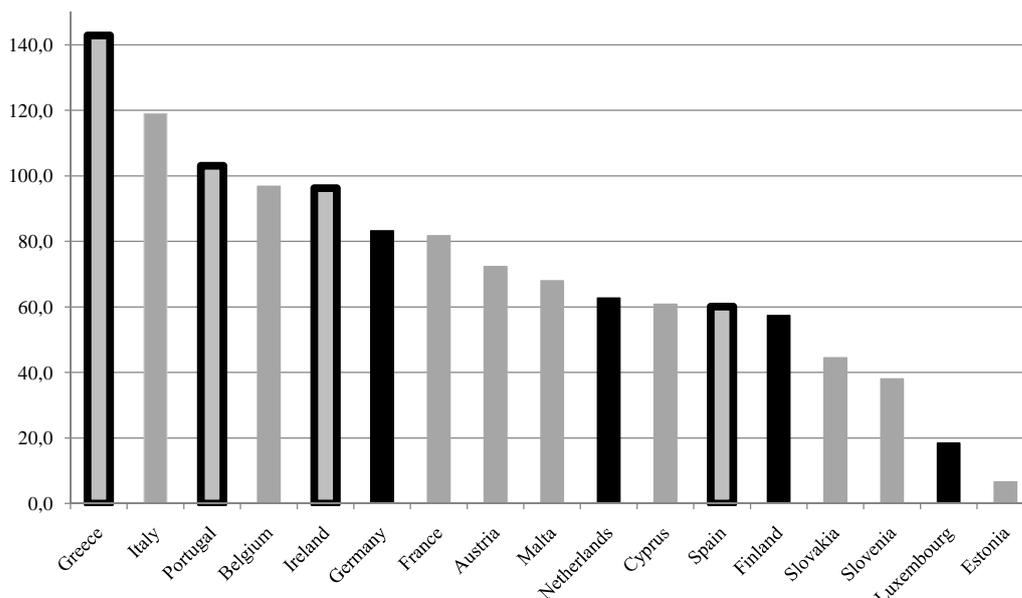
Source: Eurostat, newsrelease euroindicators, April 26th 2011,
http://epp.eurostat.ec.europa.eu/cache/ITY_PUBLIC/2-26042011-AP/EN/2-26042011-AP-EN.PDF
own depiction.

And this is exactly the crucial point where Target2 comes into play as one financing option – as Sinn calls it. Furthermore, that is why the two country clusters were built on the basis of Target2 balances and not on the basis of balance of payments data or debt ratios. The Target2 mechanism and the respective national Target2 balances are the facts we focus on.

3   Target2 and its Importance as "Stealth Bailout"

Similarly to the current account imbalances in the Eurosystem, it is already known what countries record Target2 surpluses and what countries are the beneficiaries of this possibility to finance themselves via the ECB. Figure 4 shows the balances of Target2 as identified at the end of 2010. As expected, Germany is far and away the largest creditor to the system, the GIPS countries are the largest debtors.

Figure 4: Target2 imbalances in the Eurosystem at the end of 2010
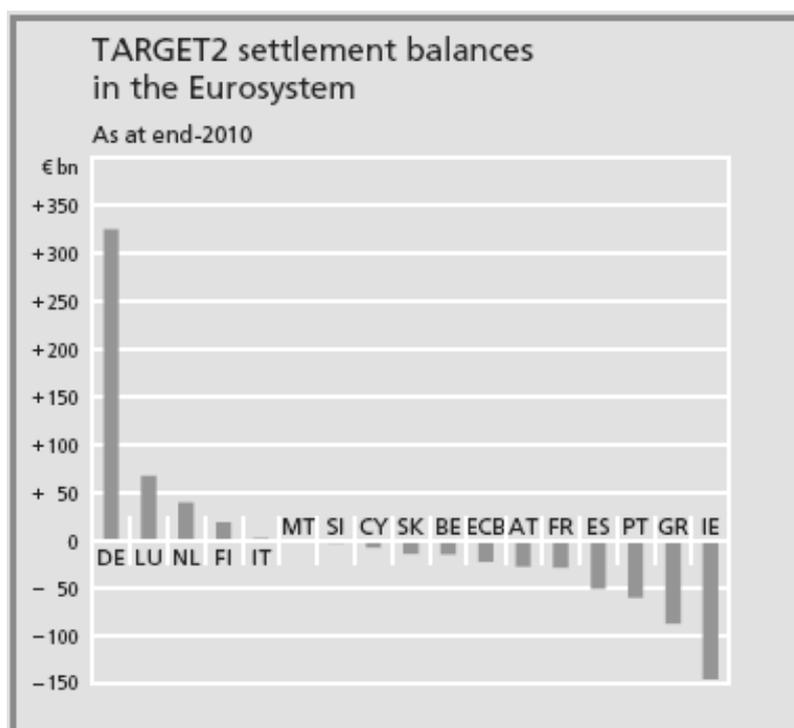
Source: Deutsche Bundesbank, Monthly Report, March 2011, p. 35.

But what are the Target2 balances? Where do they come from, and how does this payment system work? We will give a short overview of the most important facts on this system:

Since the end of 2007, Target2 is the successor mechanism of Target, the original payment system of the Eurosystem, meaning "Trans-European Automated Realtime Gross settlement Express Transfer system" (European Central Bank 2010, p. 5). Nearly all payments between the Euro countries are operated via this mechanism. "Cross-border payments that arise, say, from foreign trade transactions or from securities or lending transactions with non-residents are normally carried out via the banking system." (Deutsche Bundesbank 2011, p. 34) This means, Target2 balances are – in general – not a state of emergency, but usual business between the national central banks of the Eurosystem and the ECB. Every payment between commercial banks in two Euro countries has to be transferred via the national central banks and the ECB. A direct payment transfer from one commercial bank to a foreign commercial bank is not possible.

In April, Ruhkamp (2011) designed an example to illustrate the payment flows from one institution to another. Since then, this example was used several times for argumentation in the discussion on Target2: A foreign company (originally it was an Irish farmer, in Sinn and Wollmershäuser (2011) it is a Greek transport company) buys a German vehicle. We designed the example with an Irish company. The German company delivers the vehicle (here with a value of 100 Euro) to the Irish company. In Figure 5 this transaction is shown at the bottom with the sold arrow from right to left. The foreign commercial bank (Anglo Irish Bank) transfers the payment to the German commercial bank (Commerzbank). But this does not work directly. That is why the respective arrow is dashed. The foreign commercial bank transfers the payment to the foreign central bank (Central Bank of Ireland), which transfers the payment to the ECB. From there the payment flows to the Deutsche Bundesbank, which transfers the payment to the Commerzbank. The Central Bank of Ireland is now a debtor to the ECB (it destroyed base money), the Deutsche Bundesbank is a creditor to the ECB (it created base money), both causing the national

Target2 balances. In the ECB's balance sheet the Target2 balances cancel out, except for the balances via non-Euro countries. This is the ECB's deficit shown in Figure 4. Any realized loss ("... regardless of which national bank records it." (Deutsche Bundesbank 2011, p. 35)) in the Target2 mechanism, e.g. due to a default, "... would be shared among the national banks in line with the capital key." (Deutsche Bundesbank 2011, p. 35) Usually (meaning in non-crisis times), "... temporary TARGET2 positions [are] ... quickly reduced by private capital flows." (Deutsche Bundesbank 2011, p. 35)

Figure 5: Example for Inter-Eurosystem Payment Flows
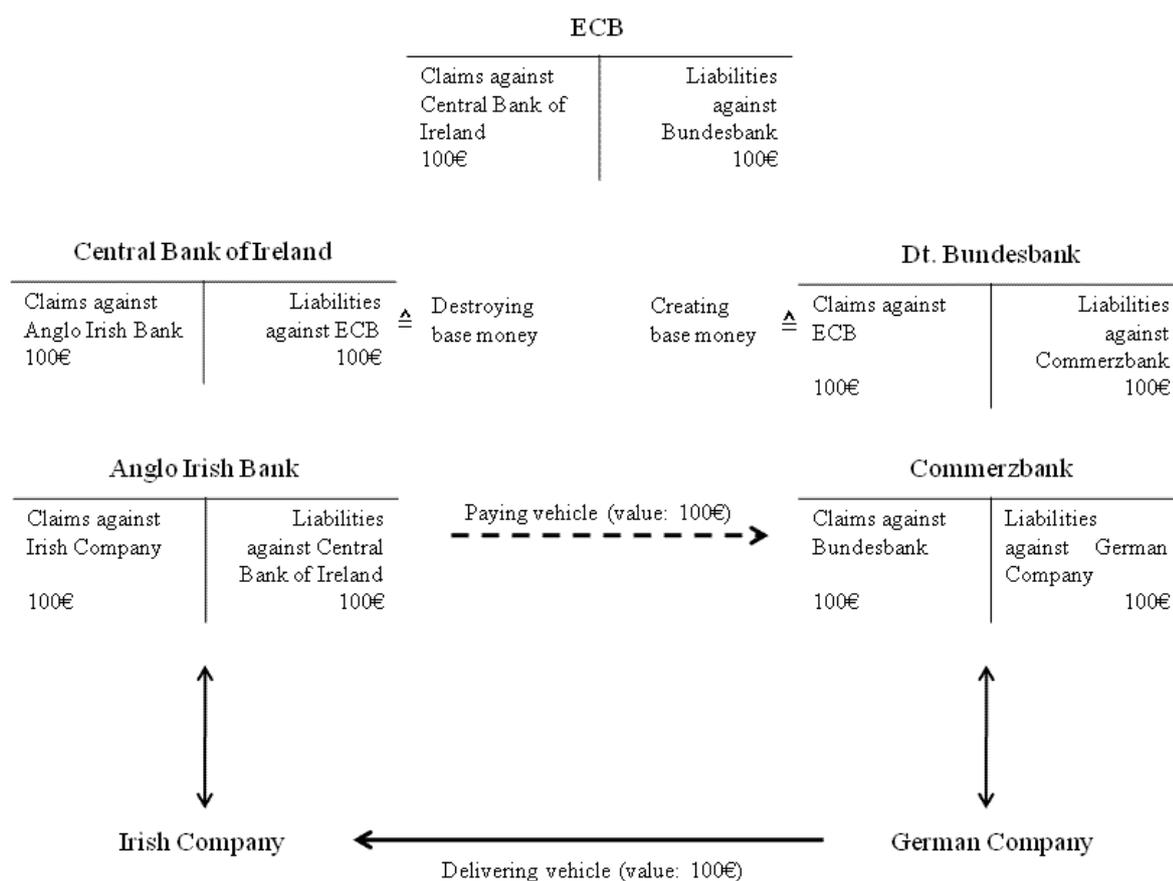
Source: Own depiction.[1]

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[1] We developed our depiction independently and before Abad et al. (2011) published a similar one in their paper.

Since the beginning of the financial crisis in 2007 this compensation via private capital flows no longer worked. "At least initially and in part, funding of weak governments was taken over by the Eurosystem. Government bonds were sold to national banks, which funded these purchases by borrowing from the ES [Eurosystem], with the same bonds used as collateral for the loans." (Hooper et al. 2011, p. 5) This circumstance led Prof. Sinn to call the financing via Target2 a "stealth bailout" (2011a). During the years, Target2 balances began to rise (surpluses grew as well as deficits). The preliminary result is the already shown situation in Figure 4. Bindseil and König (2011, p. 21) pointed out that even before 2007 current account deficits existed and Target2 imbalances would have been possible. In general, this statement is true. But they ignored the fact that prior to the crisis the financial crosscurrents took place on the private capital market, wherefore the Target2 balances were unimportant as they are only one possibility to finance current account deficits (see Buiter et al. 2011, p. 13). Furthermore, Bindseil and König (2011) as well as Buiter et al. (2011) all did the same error in reasoning when arguing that the current account deficit of a single country does not correspond to the respective Target2 liability. Of course it does not: the Target mechanism/argumentation works on the aggregate level.

But what effects do the Target2 balances have on the national money markets? How is it possible to show the rearrangement of base money between the Target2 creditor and the debtor countries, the destroying and creating of base money?

We will describe the effect of Target2 balances on the base money market, in part following Sinn and Wollmershäuser (2011). Figure 6 shows the base money market for countries with Target2 claims against the ECB, here namely the largest claim holders Germany, Luxembourg, Netherlands, and Finland (GLNF). The demand curve is a curve with negative slope due to the fact that the interest rate can be interpreted as opportunity costs of holding money: The higher the interest rate is, the less banks demand money. The monetary base in general consists of the money in circulation and the reserves that com-

mercial banks hold at the central bank. At the given main refinancing rate there exists a kind of natural limit to the base money demand depending on "the economic activity and the payment habits prevailing in the country" (Sinn and Wollmershäuser 2011, p. 18).

Figure 6: Base money market in creditor countries

GLNF
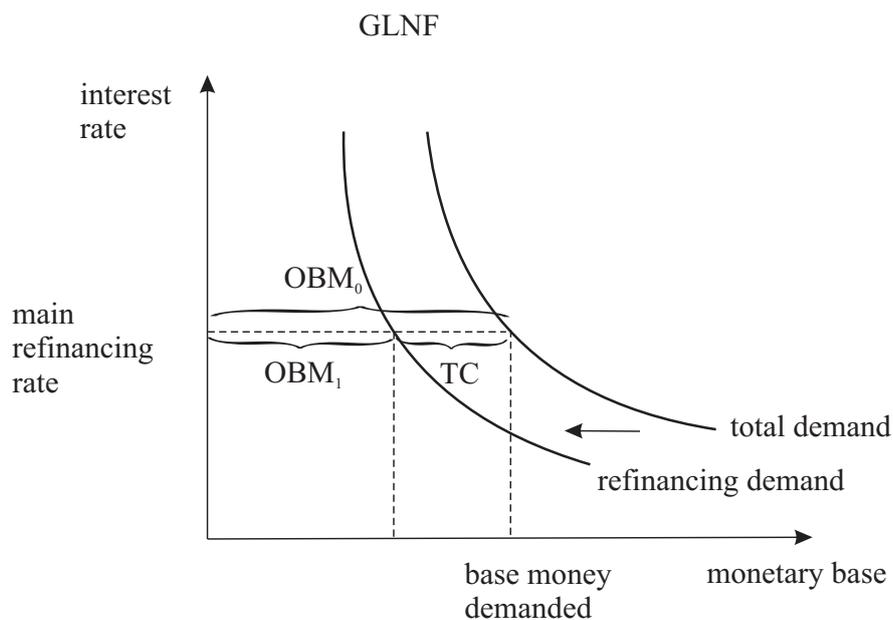
TC = Target2 claims
OBM = original base money

Source: Own depiction following Sinn and Wollmershäuser 2011, p. 18.

Because Target2 claims belong to the monetary base, commercial banks now demand less original base money (OBM) via refinancing instruments, whereas original base money means money that is created via foreign currency and/or gold purchases and refinancing operations (Sinn and Wollmershäuser 2011, p. 9). In Figure 6 this lower demand for base money is shown as a shift of the refinancing demand curve to the left in the extent of the Target2 claims. Without Target2 balances a country would have asked the amount OBM_0 completely via the refinancing instruments of the central bank, with holding Target2 claims TC this amount is reduced to OBM_1. Sinn and Wollmershäuser call this a "crowding out of refinancing credit (Sinn and Wollmershäuser 2011, p. 19). The total demand for base money is constant, only the source of base money changes. In credi-

tor countries, part of the base money is the money created via Target2 as we explained above in Figure 5. Buiter et al. (2011) tried to contradict Sinn's argumentation at this point by stating that this crowding out and the constant base money are just one possible scenario. But effectively they tell the same in different words. In their view, it is the choice of banks in the GLNF countries to demand original base money additionally to their Target2 claims, there does not have to be a crowding out (Buiter et al. 2011, p. 8). Sinn and Wollmershäuser (2011) pose it the other way round, arguing that not the base money supply is restricted, but the decision is about the base money demand at a certain interest rate. In both argumentations the quintessence is: the decision about a possible "crowding out of refinancing credit" is made by the commercial banks in the GLNF countries and therefore on the demand side (endogenously determined); it is not a caused one by the GLNF central banks. Maybe the wording "crowding out" in this situation is a little misleading because usually this term is used for forced action and not for action on own decisions.

Analogously, we can depict the base money market for the GIPS countries. This is done in Figure 7. Target2 liabilities to the ECB can be pictured as "negative base money" since Target2 claims are "positive base money" and Target2 liabilities mean destroying base money. Without the existence of Target2 balances a country asks for the amount of OBM_0 at the given main refinancing rate. If the country holds Target2 liabilities, this amount TL has to be demanded additionally. In our figure, this means a shift of the demand curve to the right (the dashed demand curve) in the extent of the Target2 liabilities. The original base money demand expands to OBM_1 in contrast to the creditor countries, where the original base money demand is reduced, because the additional base money can only be demanded via the central bank's refinancing operations.

Figure 7: Base money market in debtor countries

GIPS

TL= Target2 - liabilities
OBM = original base money
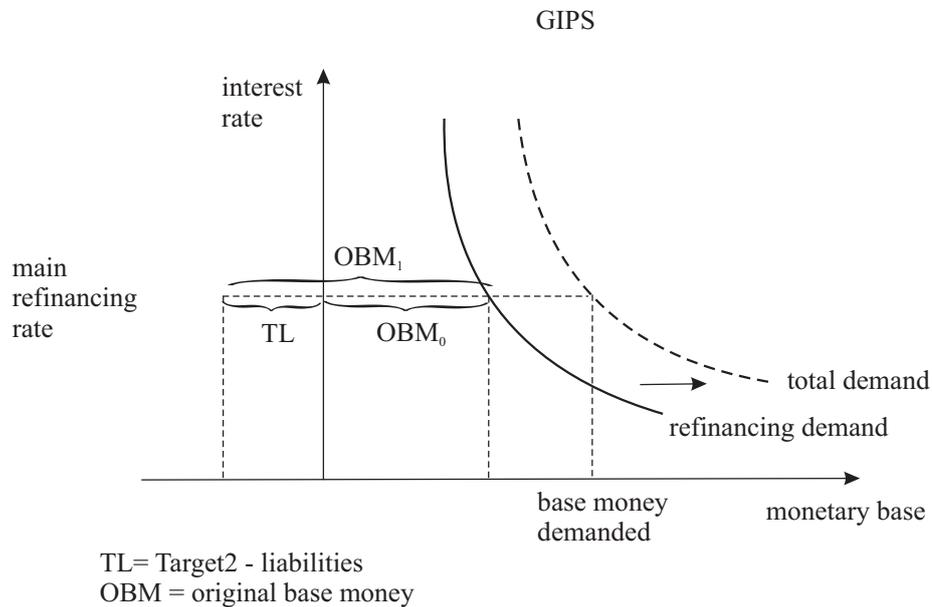
Source: Own depiction.

The ECB is not able to control this re-distribution of base money from one country to another; at best the total amount via refinancing operations could be fixed at some extent. But since October 2008 this is not the case: The ECB decided that "the weekly main refinancing operations will be carried out through a fixed rate tender procedure with full allotment at the inter-est rate on the main refinancing operation" (European Central Bank 2008). In June 2011, the ECB affirms "to continue conducting its main refinancing operations (MROs) as fixed rate tender procedures with full allotment for as long as necessary, and at least until the end of the ninth maintenance period of 2011 on 11 October 2011" (European Central Bank 2011). For the national central banks of Target2 debtor countries the promise of full allotment does not give any incentive to directly care about the Target2 liabilities because financing via the ECB is possible to any scope at nearly any time (depending only on the calendar for tender operations).

In the next part of this paper, we will see how the expanded monetary base of the GIPS countries and the lower demand for base money in the Target2 creditor countries (GLNF) can be integrated into the capital market of the New Austrian Economics Model.

4 The New Austrian Economics Model of the Capital Market and its Application to the European Debt Crisis

4.1 Introduction: The one country equilibrium case

The following three diagrams in Figure 8 depict the situation of a single closed economy in total equilibrium as it follows from the New Austrian approach of economics: at the bottom, we have the classical capital market where the intersection between Savings S(i) and Investment I(i) determines the interest rate in equilibrium, i* (the natural rate of interest). Above this diagram, we find the overall production possibilities curve. Point A denotes the actual division of production between investment goods and consumer goods. The last diagram on the left side represents v. Hayek's famous triangle: The horizontal leg of this triangle measures (read from left to right) "goods in process moving through time from the inception to the completion of the production process" (Garrison 2002, p. 47). It can also be seen to represent "the separate stages of production" (ibid.), starting with the early and ending with the final stages. The vertical leg/axis stands for the output of consumer goods which can be produced, once the beginning of the production process (point A on the horizontal leg) is defined. The surface between the hypotenuse of v. Hayek's triangle, the vertical axis and the horizontal leg measures the output of intermediate goods engaged – together with the original factors of production labor and land – in the production of consumer goods. The angle α is hence a proxy for the productivity of the intermediate goods and equals in equilibrium the natural rate of interest.

Figure 8: The one country equilibrium case
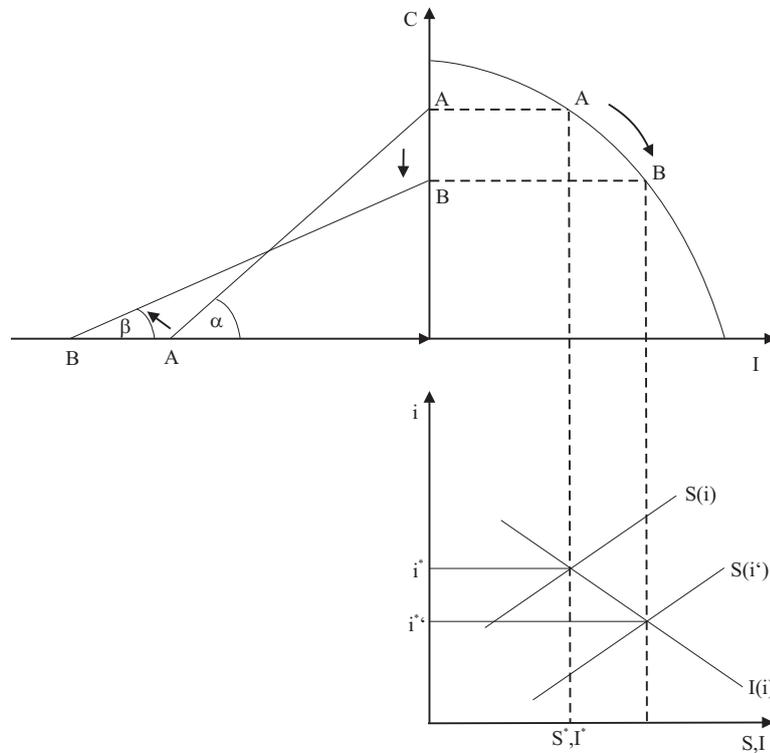
Sources: Garrison 2002, Sell 2010.

The logic of the diagrams has to be understood from the bottom to the top and then from the right to the left: in the first place, the capital market determines the equilibrium size of savings and investment and the equilibrium rate of interest. Given the production possibilities frontier, the amount of available consumer goods is then determined. Given the rate of interest and hence the angle α, the point A is determined in v. Hayek's triangle which stands for the implicit length of the production process. Now let us assume that the original equilibrium is destroyed as a result of a change in the time preference of households: the savings function shifts to the right to its new position S(i'), the equilibrium interest rate comes down to its new level i*', investment raises according to point B on the production possibilities function. The output of consumer goods necessarily falls; the now lower interest rate "favors relatively long-term investment. Resources are bid away from late stages of production, where demand is weak because of the currently low

consumption, and into early stages, where demand is strong because of the lower rate of interest" (Garrison 2002, p. 63). Correspondingly, the new point B on the horizontal leg of the triangle is located to the left of point A and the new angle β is smaller than α. This is about the same statement as recognizing that the natural rate of interest has fallen on the capital market and/or that the productivity of intermediate goods is now lower than it once was before. Notice that the increased saving makes a strengthened future demand for consumption possible and that the growth rate of the economy will be higher after the capital restructuring than it was before (ibid., pp. 63/64).

These "macroeconomics of capital structure" will now be extended in order to analyze the effects of Target2 balances on EMU. To do so, we will create a two countries/two areas framework, a task which, to our knowledge, introduces an innovation into the diagrammatic framework of the New Austrian model of economics.

4.2   The two countries disequilibrium case

There are two areas within EMU, one (on the left hand side of Figure 9) which is characterized by high interest rates, low domestic savings, and a high potential for commercial capital imports and a second one (on the right hand side of Figure 9) with inverse properties (high savings, low interest rates and a high potential for capital exports). In the following, we analyze the three scenarios which are relevant for our subject:

  (i)   The years 1999 through mid-2007
 (ii)   The years mid-2007 through 2011 if Target2 would not have been operative
(iii)   The years mid-2007 through 2011 with Target2 being operative and effective

Figure 9: The two countries disequilibrium case
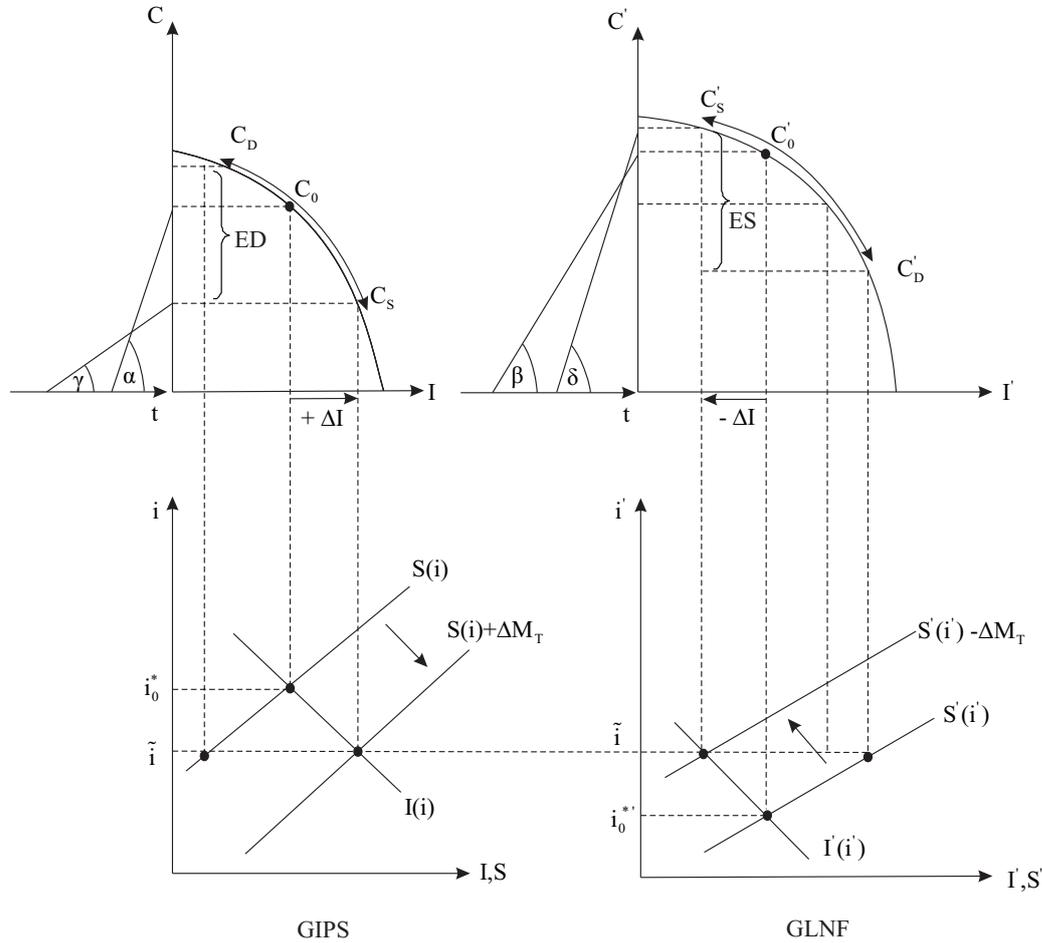
Source: Own depiction.

(i) Initially, as it was the case in the period between 1999 and mid-2007, Target2 (or likewise its predecessor Target) played no significant role for central bank money flows between the two areas. Instead, commercial capital flows satisfied the demand to finance each country's current account deficit/surplus: the excess demand for savings in the left part of the diagram matches the excess supply of savings in the right section. As interest rates tended to converge at $\tilde{i}$ (with interest rates coming down from a higher level i_0^* in the GIPS countries and interest rates rising from a lower level $i_0^{*'}$ in the GLNF countries), the consumption production point, CS (CS'), of the GIPS (GLNF) countries moved downwards (upwards) to the right

(left), the consumption demand point, C_D, of the GIPS (GLNF) countries (C_D')
moved upwards to the left (downwards to the right) as investment was expanded
(reduced). In v. Hayek's triangle, the capital structure was reorganized in favor
of long-term (short-term) investment in the GIPS (GLNF) countries. Intermediate
goods were bid away from late (early) stages of production, where demand was weak
because of the currently low consumption (investment), and into early (late) stages,
where demand was strong because of the lower (higher) rate of interest.

This phase is characterized by a (mal-)investment boom, a lower production of
consumption goods and above average (but unsustainable) growth in the GIPS
countries going along with weak investment, a higher production of consumption
goods and little if any economic growth in the GLNF countries.

(ii) The hypothetical scenario of "autarky" in both regions (where the relevant variables
show a subscript "0") reveals a relatively high (low) natural rate of interest in the
GIPS (GLNF) countries. The equilibrium points on the respective efficient frontiers
are C_0 and C_0', the equilibrium interest rates are i_0^* and i_0^*'. This scenario is not
so much out of sight as one may expect because it also represents quite well the
virtual situation after 2007 if Target2 would not have been operative and effective
(see above). As Sinn and Wollmershäuser (2011) argue, voluntary capital exports
from the GLNF countries to the GIPS countries fell to values close to zero after the
Lehman Brothers collapse. The GIPS countries were, so to say, no longer able to
generate a deficit of their current account financed by commercial capital flows.

They were, however, unable to generate a surplus in their balance of the current
account either (see Sell 2011) for the reason that earlier investment expenditures
were not steered into sectors where the countries involved could hold comparative
advantages, but were concentrated primarily on the sector of Nontradables (such
as housing, local bank services etc.). Notice that under this scenario the capital
structure in both regions would have experienced notable changes vis-à-vis to the

first scenario: the natural rate of interest is now high (low) in the GIPS (GLNF) countries, the production of consumption goods is relatively high (low) in the GIPS (GLNF) countries, whereas investment expenditures are weak (strong). Under this scenario, hence, the GIPS (GLNF) countries could have moved towards later (earlier) stages of investment and towards less external imbalances.

(iii) In sharp contrast, the very much real Target2 scenario after 2008 introduces a wedge between the preferences of consumers and the production decisions of entrepreneurs: In both regions, a new internal and external disequilibrium emerges: "Toward the end of 2010 ... accumulated imports (of the GIPS countries, the authors) amounted to ... 44 billion Euros. This was 12% of the entire capital requirement created by the current account deficit. Fully 88% was evidently financed by the Target balances, i.e. by the money-printing press." (Sinn and Wollmershäuser 2011, p. 32) In our subsequent analysis we simplify things and assume that 100% of the current account deficit was financed by the Target balances.

Due to the expansionary (contractive) effects of Target2 liabilities (claims) on the *original* monetary base in the GIPS (GLNF) area, the effective market rate of interest falls (rises) below (above) the natural rate in the GIPS (GLNF) countries. It is an increased (lowered) supply of loanable funds which causes the interest rate to fall (rise). The newly created central bank money through Target2 (ΔM_T) drives a wedge between saving and investment: consumers in the GIPS (GLNF) countries take their decisions according to their respective savings function, investors analogously according to their respective overall investment function. There is now an excess demand ED (excess supply ES) for consumer goods in the GIPS (GNLF) area. As Figure 9 demonstrates, the concomitant excess demand (supply) of consumer goods in the GIPS (GLNF) countries together with the increase, $+\Delta I$ (drop, $-\Delta I$), in investment expenditures in the GIPS (GLNF) countries matches the increase in Target2 liabilities (claims) respectively. The impact on v. Hayek's

triangle and the structure of capital is about the same as in scenario (i), but quite different to that first scenario, the impact on the capital structure in the GLNF countries is now "involuntary", mildly spoken. Notice also that the productivity of intermediate goods as measured previously by the angle α (β) is now lower (higher) in the GIPS (GLNF) countries as $\gamma < \alpha$ ($\delta > \beta$).

Opposite to the first scenario, the impact of the now functioning Target2 mechanism forces the GLNF countries into an involuntary excess supply in the production of consumer goods going along with a reduction of their domestic investment expenditures. In other words: the GIPS countries are now in the position to enforce in their own economies – via the Target2 operations – an excess demand for consumer goods going along with an increase in investment expenditures.

4.3   A Static welfare evaluation of Target2

In Figure 10, we have now the possibility to compare our three scenarios (with rearranged numbering) in terms of static welfare, i.e. rent units:[2]

(i) The years mid-2007 through 2011 if Target2 would not have been operative are represented by the equilibria "in autarky" G and G'; these solutions serve here forth as a reference for the subsequent welfare evaluation.

(ii) The years 1999 through mid-2007 led to capital inflows (outflows) in the size of FH or H'F' respectively; in *both* economic clusters we record a net welfare gain corresponding to the triangles FGH and H'F'G' (vertically dashed), a result which is very well known from economic textbooks. In the GIPS countries, the gains

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[2] The following analysis differs at least in two aspects from Sinn (2010): first, we model flows of savings/investment instead of flows of capital goods. Second, we disregard from the "overheating effects" which are associated with the financing of investment expenditures by the GLNF countries in the GIPS countries. As Sinn shows, such overshooting of capital outflows creates losses in GDP per capita terms (ibid., p. 13) for the capital exporting countries.

in investors' rent (gray shaded) outweigh the losses in savers' rent (AGFB) while
in the GLNF countries the gains in savers' rent (B'F'G'A') outweigh the losses in
investors' rent (gray shaded, too). We are aware of the fact that this welfare balance
is somewhat optimistic (see footnote 2).

(iii) The years mid-2007 through 2011 with Target2 being operative and effective are
somewhat more complicated to be evaluated: starting with the GIPS countries,
there are gains in investors' rent to an amount of AGHB (gray shaded, identical with
scenario (ii)). At the same time, there are now gains in rent which accrue both to
savers, but also to the Target2 mechanism corresponding to the difference between
the area KFHN (diagonally dashed) and the area AGFB (horizontally dashed).
Overall, we find gains in savers' and Target2 rent so that the Target2 scenario leads
to net welfare gains for the GIPS countries which exceed the gains of the second
scenario.

Figure 10: Static welfare analysis of the two countries disequilibrium case
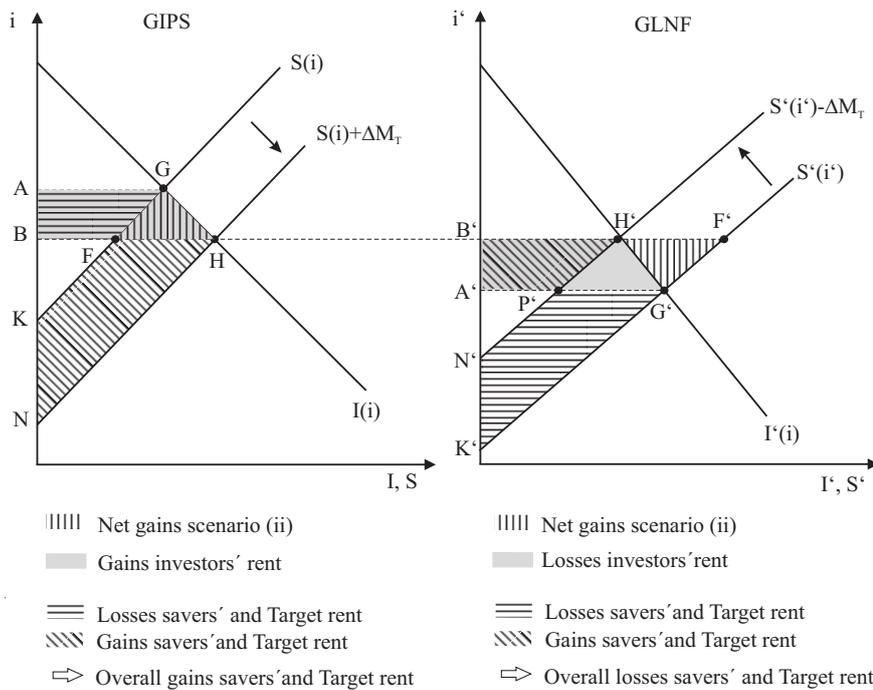
Source: Own depiction inspired by Brakman et al. 2006, p. 192.

In contrast, the GLNF countries suffer from net welfare losses due to the Target2 mechanism: the small area of gains which accrue to savers and Target2 B'H'P'A' (diagonally dashed) are outweighed by the losses of investors' rent B'H'G'A' (gray shaded, identical with scenario (ii)) and the large area of losses which accrue to savers and Target2 N'P'G'K' (horizontally dashed). Notice that the Target2 scenario hence produces a net welfare transfer from the GLNF countries to the GIPS countries where the overall welfare balance for both clusters of countries should converge to zero. This result matches the earlier finding that the aggregate effects of the Target2 balances on the monetary base of the ECB add up to nil.

5   Some Conclusions and Suggestions for Economic Policy

As our paper confirms, Target2 balances tend to make endogenous, if not the size of the monetary base in the Euro area, truly its composition. Notice that – opposite to the theory of the (exogenous) money multiplier – it is the process of credit and book money creation within commercial banks which drives (the composition of) the monetary base via the Target2 mechanism.

Moreover, the initial direction of causation seems to run from the business sector in countries severely affected by the European debt crisis to their local bank and from there to the respective national central bank. If so, then there is a striking similarity – to the best of our knowledge not yet discovered by other authors on this subject – to the theory of inertial inflation (Blejer and Cheasty 1987; Bresser Perreira and Nakano 1987; Sell 1990): here, companies which act on markets with rather imperfect competition have to face a continuous process of cost increase fueled by indexation schemes (of wages, interest rates, the exchange rate, etc.). They intend to pass the cost increase on prices. Also, they

need credit from their local banks to finance working capital and to roll over the firm's debt. These local banks, in turn, push the central bank to enhance the possibilities of refinancing and to provide enough liquidity. Thereby, the money supply becomes fully endogenous and the central bank simply accommodates the price increases on product markets.

Of course, it is true that also capital flight is represented in the Target2 balances. This issue is addressed by Buiter et al. (2011) and more recently by Abad et al. (2011). As interesting as this exercise may be, it does not help too much for the observed excessive absorption of goods and services in the GIPS countries issue. If private capital from the rest of Europe or elsewhere was reluctant to finance such excessive absorption was it possibly a re-import of capital flight which helped? Let's be serious.

But what can be done?

In principle two different approaches to correct the European Payment Settlement System are possible: Either a setup of new institutional arrangements or a change in the rules of existing institutions.

Sinn and Wollmershäuser (2011) favor the first alternative and recommend to follow rules functioning in the US – "the Interdistrict Settlement Accounts demand from each Fed branch that they settle the mutually build-up interdistrict balances in April of each year" (ibid., p. 46). Buiter at al. (2011) have serious doubts whether this arrangement functions in the US at all. Even if this Settlements functions well in the US, one has to consider if it could be successfully transferred and adapted to the European environment, because the Federal Reserve System of the US is not equivalent to the ESCB. Therefore, it may be worthwhile to think also about changes in the stance and/or the behavior of the ECB in order to reduce/cap/eliminate the Target2 balances:

So what about a change in ECB's main refinancing operations to reduce the "ECB's stealth bailout"?

Sinn and Wollmershäuser (2011) think that neither the renunciation of the full allotment policy of the current fixed rate tender nor a change to a variable interest rate tender would help reducing the Target2 imbalances, because "it would not be able to prevent the least solid commercial banks from making the highest interest rate offers because anything they offer is more favourable than the excessively high interest rates they have to offer private lenders. The lion's share of the central bank credit would therefore still be created in the GIPS countries." (Sinn and Wollmershäuser 2011, p. 43) Buiter et al. (2011, p. 4) agree with this statement but use another argumentation: As long as commercial banks have enough eligible assets as collateral they are able to get liquidity at full allotment via the marginal lending facility even if the main refinancing operation volumes were limited. Therefore Target2 imbalances were "independent" of the main refinancing operations' shaping.

Changes in the main refinancing operations do not have any short-run significant effect on the refinancing possibilities of commercial banks. But one has to recognize that financing via the marginal lending facility is much more expensive (even during the acute crisis the interest rate corridor held, meaning the lending rate provides the ceiling for overnight lending) and that it is only an overnight solution for liquidity scarcity. Figure 11 shows the volumes of the main refinancing operations, the marginal lending facility, and the deposit facility since the beginning of the monetary union. Before the financial crisis, the volumes in the deposit facility showed neither fluctuations nor a trend; they were nearly negligible. The volumes in the marginal lending facility fluctuated at the beginning of the Eurosystem but calmed with the change from a fixed rate tender to a variable rate tender.

Figure 11: Volumes of refinancing instruments
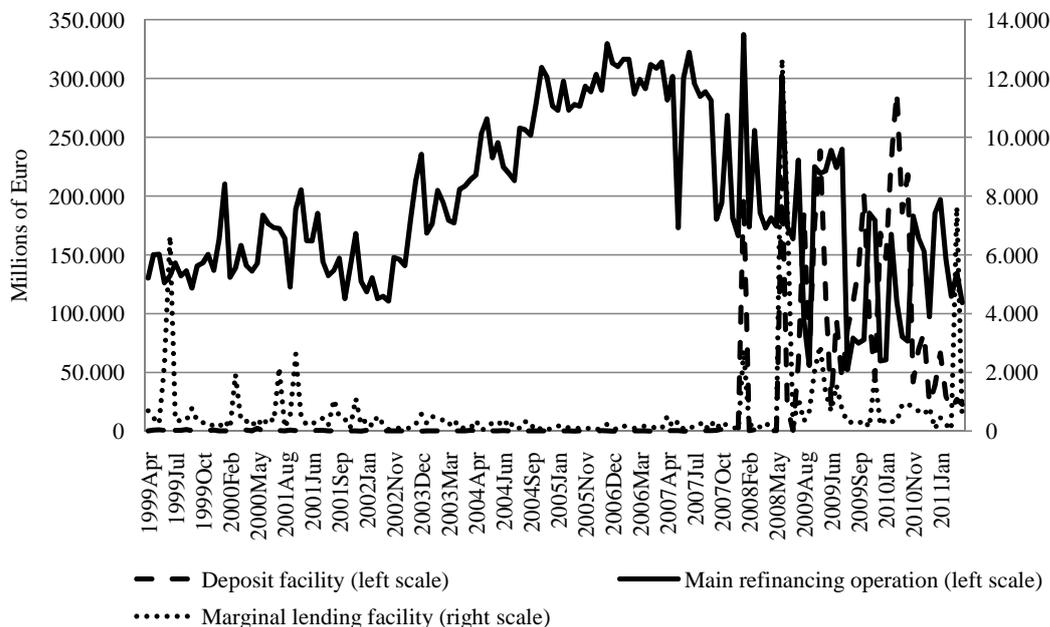
The start of the financial crisis can be identified very easy. The loss in trustworthiness of the interbank market is reflected by the large upward deflections of the volumes of the deposit facility as well as those of the marginal lending facility. The change back to a fixed rate tender (here with full allotment) was implemented in October 2008, after the marginal lending facility peaked. Times of high fluctuations in the marginal lending facility's volumes were only at the beginning of the monetary union and during the financial crisis (during both periods the ECB used a fixed rate tender). When the ECB operated its main refinancing operations via a variable rate tender, the marginal lending facility was less used. Therefore there is no indication that commercial banks use – or will use – the marginal lending facility to get liquidity with "full allotment" even if the ECB limits it via its main refinancing operations, especially not if the interest rates rise again. Nevertheless, the ECB will not be able to reduce its "stealth bailout" by changing the shape of its main refinancing operations.

But the self-servicing attitude among the GIPS countries should be banned by the ECB: a mechanism which favors countries with Target2 claims and penalizes countries with Target2 liabilities should be designed and installed. For instance a penalty could be to temporarily exclude those countries from refinancing operations that are reluctant to balance their Target2 liabilities with the ECB in an appropriate time span.

The ECB itself should be encouraged to publish data on Target2 balances in order to increase the transparency of its monetary policy. But transparency is not enough: In the context of the European debt crisis the ECB should go back to its earlier policy of asking for sufficient quality of the collateral involved in refinancing operations. This goes far beyond the Target2 problem and affects the long-term reputation of the ECB, which has been damaged during the European debt crisis.

For example, the "ECB allowed the Greek state to run a gigantic budget deficit ... by resorting to the European money-printing press" (Sinn and Wollmershäuser 2011, p. 25) via Target2. This construction weakness of the EMU points at the urgent necessity to reformulate and strengthen the European Stability and Growth Pact, whose major intention should be to limit public deficits and to bring down the huge debt to GDP ratios in the European area.

Last, but not least: Following classical economists, any turbulence in the monetary sphere is just a mirror of distortions and malfunctions in the "real" sphere of the economy: If a key problem underlying the Target2 mechanism is the fact that GIPS countries wish to import more goods than they export, it is indispensable that these countries search for new comparative advantages in goods and services. This applies to every exchange rate regime they may choose in the foreseeable future.

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