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Hans-Werner Sinn

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Editors: John Whalley (jwhalley@uwo.ca) and Chang Woon Nam (nam@ifo.de)

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THE EUROPEAN BALANCE OF PAYMENTS CRISIS

THE EUROPEAN BALANCE OF PAYMENTS CRISIS: AN INTRODUCTION

HANS-WERNER SINN*

The European Monetary Union is currently experiencing a serious internal balance of payments crisis that is similar, in many important ways, to the crisis of the Bretton Woods System in the years prior to its demise. In response to the crisis, the eurozone countries have mobilized enormous public rescue funds as of May 2010. However, funding really started some 2½ years prior to that point, in the autumn of 2007, when some eurozone countries began to draw Target loans out of the ECB system which happened to come largely from the German Bundesbank, recently also from the Dutch central bank, and amounted to sums that dwarf these countries' participation in the official rescue packages. The Ifo Institute has published several papers on this topic in recent months¹ and has effectively created the first comprehensive eurozone Target database.²

Today it is the economic interpretation of events, rather than the facts, which is controversial. For this reason we have compiled various opinions in a special issue of the *CESifo Forum*. The authors range from current representatives of the Bundesbank and the ECB, who wish to convey a sense of normality, to Helmut Schlesinger, ex-Bundesbank President and Georg Milbradt, the former Minister President and Finance Minister of Saxony, who express their deep concern regarding the Target balances. Schlesinger explicitly criticises the reassuring statements issued by his former institution. The economists from universities and banks who submitted comments basi-

cally share Schlesinger's view emphasizing, among other things, the parallels to other balance of payments crises.

To facilitate the readers' familiarisation with the topic, the Ifo Institute's views on the facts presented in earlier publications are summarised below. As the contributions and replies published in this issue refer to these views, it makes sense to outline them here.

Borrowing the money printing press

The accumulated balance of payments deficit or surplus of a euro country is measured by its Target liability or claim, as shown on the balance sheet of its central bank. In a currency union money usually criss-crosses country boundaries in either direction, with inflows and outflows balancing out. A balance of payments imbalance arises for a country if there is a net flow of money across its borders paying for an adverse net flow of goods and/or assets.³ To the extent that the net flow of money occurs electronically through the banking system it is recorded in the Target accounts. We speak of a Target deficit and surplus, respectively, to denote the net flow of money crossing a border, and of a Target debt and liability to denote the respective accumulated stocks, which are recorded in the balance sheets of national central banks.

The reason why the Target balances are recorded in the balance sheets of national central banks can perhaps best be understood by seeing the net flows of money as resulting from the attempt of a deficit country to refinance its payment deficit by borrowing a printing press from other central banks. This heuristic interpretation will be explained in greater detail below.

However, before we come to the economics, let us take a closer look at the bare facts. Until the first breakdown of the interbank market in 2007 there were hardly any noticeable balance of payments imbal-



* Ifo Institute.

¹ See, for example, Sinn (2011a, 2011b, 2011c, 2011d and 2011e); Sinn and Wollmershäuser (2011a) and in particular (2011b).

² In principle the Target data stem from the NCB balance sheets. However, as some countries do not publish such data, they have to be reconstructed from IMF statistics. For details see Sinn and Wollmershäuser (2011, and particularly the appendix of the NBER version of that paper). The ECB itself does not possess a comprehensive data set, but reconstructed the data for missing countries in the same way as the Ifo Institute has done. See European Central Bank (2011, 37, footnote 5).

³ The term 'money' is used here always in the sense of 'central bank money' or 'base money'.

ances in the eurozone. But then they increased rapidly, showing huge deficits in the GIPS countries (Greece, Ireland, Portugal, Spain). By the middle of 2011 (June), the sum of the accumulated balance of payments deficits (Target liabilities) of the GIPS countries had risen to 327 billion euros. Its counterpart was the sum of accumulated balance of payments surpluses (Target claims) of Germany, which were 337 billion euros by that time.

Until the summer of 2011, sizeable balance of payments disequilibria in the euro area basically only concerned these countries. Even Italy's balance of payment was in equilibrium. In August 2011, however, things started to change dramatically, with the public finances of Italy and France coming under closer scrutiny. The Italian Target balance, which was – 16 billion euros in July, had skyrocketed to – 191 billion euros by the end of 2011. Similarly, the French Target balance went from + 1 billion euros in July to – 80 billion euros in November. Meanwhile Germany's Target claim increased to 463 billion euros in December 2011 or 5.7 thousand euros per capita. About half of Germany's net foreign wealth is now a Target claim of the Bundesbank against other central banks in Europe.

Not only the Bundesbank accumulated Target claims. The Dutch central bank also was heavily involved. By November 2011, the Dutch central bank had accumulated a claim of 145 billion euros, which amounted to even 8.7 thousand euros per capita.

If a country's money is seeping away to other jurisdictions, the stock of money circulating at home is shrinking. To compensate for this shrinkage, the national central bank usually reprints whatever is needed to keep the liquidity provision of the country intact, and this is what the GIPS countries did. As they ran short of money earned or borrowed abroad, they printed it. To be precise, the national central banks created money electronically by providing credit to their commercial banks, and this money then replaced the money that seeped away electronically via the international Target transactions accounts. The term 'printing', of course, is the commonly used heuristic metaphor for 'money creation', a mere accounting issue.

Contrary to what one may think, there are no quotas tying the money creation of a country's national central bank to its size. A country that runs out of money in its business dealings with foreign countries is allowed to reprint whatever it needs, provided it fol-

lows the ECB rules for lending refinancing credit to commercial banks. The only limit on the creation of money related to country size is the amount of collateral that commercial banks can offer for refinancing the credits that they draw, but the ECB has gradually extended this limit by reducing the safety requirements for the collateral accepted. Nowadays, government bonds of Greece, Ireland and Portugal are acceptable as collateral despite the fact that the rating agencies do not give them investment grade. Moreover, ABS paper created by the banks themselves and non-marketable claims have increasingly been accepted as collateral.

The additional money that was put into circulation by the central banks of the GIPS countries and which then seeped away to other countries of the euro area financed a net inflow of goods and assets. Here, the term 'assets' is being defined broadly. It comprises companies, stocks, bonds or mere promissory notes or 'IOUs' as the counterpart of a loan raised abroad.⁴ Goods, in turn, comprise services (including financial services), merchandise and commodities, as recorded in the current account.

Countries whose balance of payment is in equilibrium have no net flow of goods and assets with foreign countries. The net importers of goods pay their foreign partners with an outflow of assets, and the net exporters of goods buy those foreign assets with their revenues. Only countries whose balance of payment is in disequilibrium have such net flows. The net importers of goods and assets suffer from an outflow of money, and the net exporters of goods and assets enjoy an inflow of money.

Before the crisis, the GIPS countries were also in equilibrium, as they succeeded in financing their net imports of goods with asset sales or, equivalently, by borrowing abroad. They borrowed the euros that they needed to buy the goods. However, as soon as the crisis became international, credit flows (mostly inter-bank credit) dried up and the GIPS countries turned instead to their national central banks to satisfy their borrowing requirements. To be more specific: as soon as a changed risk perception caused banks from other countries to require substantially higher interest for

⁴ Each loan taken out by a debtor includes the ascertainment of the liability *vis-à-vis* the creditor *via* a promissory note. This is meant here by the transfer of an 'IOU' (promissory note, abbreviation of 'I owe you'). The metaphor serves the mental simplification and the argumentative abbreviation by permitting me to denote the taking out of a loan and the sale of securities uniformly as the 'sale of assets'.

the funds they were lending to banks in the GIPS countries, the latter preferred to borrow newly created euros from their central banks instead. These euros were then flowing out to the rest of the eurozone like the privately borrowed euros had been doing before the crisis, creating the net outflow of money measured in the Target or balance of payments statistics.

In Ireland the situation was even more exceptional and extreme than in the other GIPS countries insofar as outright capital flight took place.⁵ The asset (and IOU) sales, with which Irish institutions had hitherto financed the current account deficit, stopped abruptly. What is more, as the outstanding assets lying in foreign portfolios were returned, Ireland had a sudden refinancing need which was covered by the Central Bank of Ireland with fresh refinancing credit. Or, to say it in yet another way, the breakdown of the inter-bank market meant that banks from the core countries stopped providing new credit to Ireland and even repatriated their maturing loans, returning the debt titles which backed those loans to the Irish banks.

In Germany the situation was completely the reverse. Before the crisis, Germany bought assets abroad and paid for them with the money received for its net export of goods, i.e. Germany was lending its export surplus to other countries. During the crisis, German investors lost interest in foreign assets, and so more and more of the money that Germany earned by exporting goods in net terms to other countries, stayed at home.

The net flow of money from the GIPS countries to Germany, which is measured by the Target balances, crowded out the credit that the Bundesbank granted to German commercial banks, as their demand for liquidity was limited. As the German banking system was swimming in liquidity, it tried to get rid of the surplus liquidity resulting from the net inflow of money by lending money to the Bundesbank or taking less refinancing credit. (The situation was effectively similar to that of a normal market, where demand is limited and a new supplier crowds out the incumbent supplier.) This destroyed the extra money that had been created in the periphery, which implied that both the aggregate stock of money balances and its international distribution remained unchanged. Thus, the cross border money flows measured by the Target account were automatically sterilized and involved no direct inflation risk.⁶

To return to the metaphor of physical money once again, one could say that the periphery countries printed the money they could no longer borrow in the markets to finance their purchases of goods and assets abroad, and that the Bundesbank and the Dutch central bank then destroyed the inflowing euros with its shredding machine.

As the additional granting of central bank credit in the GIPS countries for the purpose of buying foreign goods or assets neither changed the trend nor the international distribution of the money supply, it led to a reduction of the stock of net central bank credit in the core countries that exactly matched the extra central bank credit that had been issued in the periphery. Thus, while the Target balances directly measure net money flows across the borders they indirectly also measure an international reallocation of refinancing credit or, more simply, a public credit flow through the ECB system. It is only logical therefore that the official balance of payments statistics call the Target balances ‘capital exports through the central bank system’.⁷ It is also entirely correct to speak of Target credit that the periphery countries were able to draw out of the Eurosystem forcing other euro countries, predominantly Germany, to provide this credit. To take the aforementioned metaphor to its logical conclusion, one could say that the Bundesbank was lending its money printing press to the periphery countries, which is the image referred to at the beginning of this section.

The empirical facts underpinning these developments are unambiguous. During the years 2008–2010 the Target credit provided by Germany to other euro countries was 85 billion euros per year, while in 2011 it totalled about 140 billion euros. As private banks were no longer willing to finance the periphery countries, they drew replacement credit out of the ECB system, effectively out of the Bundesbank. In fact, developments have been so extreme that the Bundesbank’s net refinancing credit (net of time deposits and deposit facilities) turned negative

⁶ There is an indirect inflation risk, however, insofar as there is an incentive for the GIPS countries to remove their Target liabilities by way of voting for a more inflationary policy in the ECB council in the future.

⁷ The credit interpretation is also justified in a direct sense, even if the net flow of central bank money from country A to country B reduces A’s stock of money balances and increases B’s as A’s central bank does not refill the losses and B’s central bank does not sterilize the inflowing liquidity. The reason is that, without the assignment of debts and claims to the central banks, A’s central bank would become richer and B’s central bank poorer, given that the central bank money transferred disappears from the right hand side of A’s central bank balance sheet and reappears on the right-hand side of B’s central bank balance sheet.

⁵ Capital flight means that domestic and/or foreign investors sell domestic assets and buy foreign ones.

in the summer of 2011 and became – 179 billion euros in November 2011.

Displacement of central bank credit by the money flowing in from abroad is reminiscent of the Bretton Woods System. At the time, dollars flowed into Germany and were exchanged into D-marks by the Bundesbank. The stocks of D-marks thus created displaced domestic credit creation by the Bundesbank, which had been the normal way of putting D-marks into circulation. As at that time, the Bundesbank is now exporting a considerable share of German savings to other parts of the world. Back then it was argued that the Bundesbank financed the Vietnam war. Now the Bundesbank is financing the staggering periphery countries. Wilhelm Kohler and other authors examine this topic in greater detail in this issue.

The relocation of credit certainly did not result in a credit squeeze in Germany. After all, the crowding out of refinancing credit resulted from the abundance of liquidity in Germany, as German banks did not dare lending abroad and foreign flight capital came in. As German savings capital preferred to stay in the safe haven, there even was an investment boom in Germany.

Whether good or bad, it is a matter of fact that credit relocation *via* the ECB System meant that part of the German savings capital was flowing out *via* the system of central banks, rather than *via* the interbank markets. This slowed down the adjustment processes in the countries of the periphery, which would otherwise have been enforced by the markets. The economic content of events is more or less the same as that induced by public rescue facilities bringing about a flow of credit from the core to the periphery. Such rescue facilities signal that the rescuers have no financing problems themselves, but they nevertheless involve public capital exports.

As markets would probably have been way too brutal with periphery countries, this was the right policy in the short run when the interbank market broke down in the aftermath of Lehman. Given that parliaments took a long time to come up with rescue programs, it was definitely right for the ECB to step in at the time. However, it is debatable whether this was the right policy in the long run, or indeed whether it should have been pursued once the world economy recovered in the second half of 2009. Emergency policies that are justified in an

acute crisis often have problematic effects if pursued over a longer period of time. The Target policy, in particular, can be criticized for the following reasons:

- As neither the allocation of money across the countries of the eurozone nor the overall stock of money was affected the Target policy, this policy was basically fiscal rather than monetary. The public credit flows should therefore have been sanctioned by the parliaments of the eurozone.
- The Target policy involves high risks for the central banks of the eurozone's cores, as they bear a risk which normally would be borne by private capital markets.
- Cheap access to the euro printing press gave crisis countries an irrefutable argument when they invited the core countries to undertake open rescue activities and may have kept countries in the eurozone that otherwise would have preferred to exit and devalue to restore their competitiveness.
- Requiring equal interest from all commercial banks, regardless of the country risk, is tantamount to subsidizing capital flows (as the mathematically expected interest rates fall the higher the default risk).
- Offering refinancing credit at below market conditions causes capital flight as private interbank credit is unable and unwilling to compete with the printing press, which is an aspect that will be discussed in greater detail below.
- The allocation of capital to the single euro countries is no longer determined by market forces, but by a central planning organization (called the ECB).

On the magnitude of the effects

The Target credits do not involve small amounts that may have some influence over the events at the margin, they account for amounts representing two and a half times the sum of the GIPS country government bonds bought by the central banks of the ECB system. For the Bundesbank, the Target claims are now the biggest asset position on their balance sheet; while for Germany they constitute by far the biggest contribution to rescue operations in the euro area.

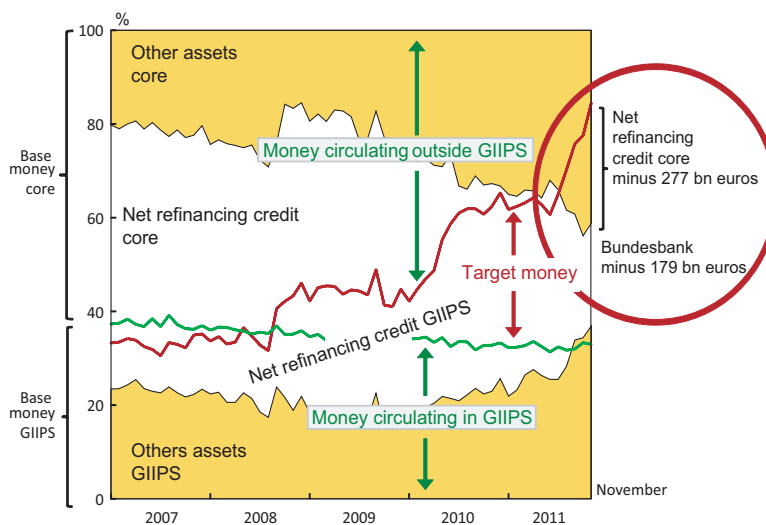
The degree to which money creation and lending in the GIPS countries have exceeded the normal measure is shown by the following numbers:

- The share of GIPS countries in the total stock of net central bank credit given to banks of the Eurosystem amounted to 119 percent in September 2011, although they account for only 18 percent of economic output.
- 91 percent of the current account deficit of Greece over the three years 2008 to 2010 and 94 percent of the current account deficit of Portugal over the same period were not financed by normal capital flows *via* the markets, but by Target credits.
- 96 percent of Germany's current account surplus (255 billion euros of 264 billion euros) with other euro countries in the years 2008 to 2010 was not, as is normally the case, converted into private assets received from foreigners, but to mere Target claims against the ECB system.

Figure 1 shows how the Target money created in the GIPS countries and Italy (I will refer to this group as GIIPS) replaced ordinary money created in the core euro countries by way of the respective central banks buying assets (like gold or government bonds) and providing refinancing credit. The green line shows the composition of the total stock of euro base money actually circulating in the GIIPS countries and the rest of the eurozone, the 'core'. As this total stock is set equal to 100 percent the height of the green line is the share of money circulating in the GIIPS countries and the width of the area above is the share of money circulating in the core.

The graph also details the origins of this money: the width of the white area stands for refinancing operations and that of the two yellow areas for purchases of gold and other assets by the banking sectors of the GIIPS and core countries, respectively. The height of the red line measures the money originating in the periphery from refinancing credit and purchases of gold and other assets, and the distance between the red line and the 100 percent line shows the money originating from similar measures in the core. Accordingly, the vertical distance between the red line and the green line represents the money 'generated' in the periphery and 'circulating' in the core, i.e. the net amount of money that was cabled across the

Figure 1
Origin of the monetary base in the Eurosystem (shares)



Source: Sinn and Wollmershäuser (2011b).

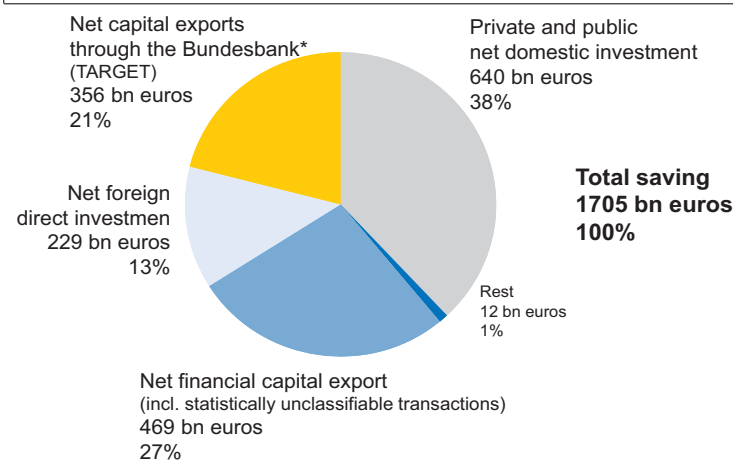
border in exchange for a net purchase of goods and assets. As argued above, this can also be taken as a measure of the official ECB credit given by the core NCBs to the NCBs in the periphery, compensating for missing ordinary imports of capital and money into the periphery or outright capital flight from there to the core.

The figure shows that the process has now absorbed the entire net central bank credit in the core and has even made it negative (– 277 billion euros in November 2011). Obviously, not only the Bundesbank, but the core NCBs in the aggregate have now become net debtors to their respective commercial banking systems, which may pose severe problems in terms of the sustainability of the euro system, as various authors have pointed out.⁸

Figure 2 shows the extent to which credit outflows from Germany enforced by the ECB system have increased since the introduction of the euro by relating these credit flows to other capital movements and the German volume of savings. In the period 2002 to 2010 Germany had total aggregate savings of 1,705 billion euros (households, business and government). This was the amount available for domestic and foreign public and private investment. Only 640 billion euros of this amount were invested in Germany. The remainder, 1,066 billion euros, went abroad as capital exports. 27 percent of total savings were accounted for by net exports of financial capi-

⁸ See, in particular, Tornell and Westermann (2011 and 2012) and Kohler (2012).

Figure 2

**Destination of German savings since introduction of the euro
2002 to 2010**

*The Bundesbank's Target claims was at end of the year 325,6 bn euros and at the end of the year 2001 -30,9 bn euros.

Source: Statistisches Bundesamt, Fachserie 18, Volkswirtschaftliche Gesamtrechnungen, Reihe 1.4, August 2011; Deutsche Bundesbank, Zahlungsbilanzstatistik, October 2011; Calculations by the ifo Institute.

tal, 13 percent by net direct investment and 21 percent by Target credits. Thus, since the introduction of the euro, Target credits issued by the Bundesbank have accounted for one third of Germany's total capital exports. The open rescue credits that were granted to Greece and Ireland in 2010 are not contained in this sum. They are part of the net exports of financial capital.

Since these capital exports *via* the Bundesbank were created almost entirely during the years 2008–2010, the calculation for this period is even more extreme. During this period Germany exported 70 percent of its savings. Of these exported savings, i.e. German capital exports, 59 percent were accounted for by Target credits granted by the Bundesbank.

Relationship to open rescue operations

The financing of the peripheral euro countries by a mere relocation of central bank credit from the core countries obviously has heavily distorted the balance sheets of the national central banks of the Euro-system, raising the question of how far this process can proceed. Whatever the answer to this question, which is raised by some of the authors in this issue, it is clear that the ECB must have been highly alarmed by recent events and must have tried to hold the process in check by asking politicians to step in with the public rescue operations that have been agreed upon since May 2010.

In fact, these public rescue operations have very similar economic implications to those of the rescue activities that have been taking place within the ECB system. In both cases, there is a true credit granted by the German government to the periphery countries, commonly guaranteed by the community of states, which, like any other credit, allows them to buy more goods and assets abroad than would otherwise have been possible. In terms of liability, the international distribution of the money supply, international payment processes, the credit relationships between countries and the true transfer of resources, this is identical to common, proportionately

guaranteed Eurobonds to finance credit for the GIPS countries, sold by a European central entity to the German government, for which the latter borrows in the capital markets. The difference with true Eurobonds that are acquired by the German government is merely that the interest rate is much lower, that the commercial banks of the GIPS countries could draw this credit as they liked if they could offer collateral, and that the Bundesbank could not refuse the purchase of these implicit Eurobonds. Whatever the economic effects of credit relocation on the participating economies and whatever the risks for donor countries, in terms of credit relocation they are largely identical to those inherent in an issue of Eurobonds with proportionate common liability. The reluctant investment capital is now being pushed abroad by the public authorities.

The example of the United States

The ability to take out unlimited Target credits is a design flaw of the euro as a common currency that was mercilessly exposed by the European debt crisis. While the Target system as such, of course, is necessary for international transactions and is a useful self-stabilizing device in the acute phase of a crisis, it has problematic long-term implications insofar as it provides public credit at interest rates that do not reflect the investment risk and undercut market prices. Given that the artificial pre-crisis equalization of interest rates caused excessive capital flows in the eurozone

that led to an overheating of the periphery and caused huge current account deficits, it is a problematic feature of the Target credit system that it offers a similar interest-equating mechanism at the short side of the asset spectrum. This is likely to prolong and extend the current account imbalances that the eurozone is currently suffering from.

Moreover, as mentioned in one of the bullet points above, the availability of cheap Target credit, currently at a rate of only 1 percent, may very well even have caused the capital flight that it is trying to compensate for. Without the availability of such credit as cheap as that banks which can draw out of the Eurosystem, they would have to pay higher interest rates, and at higher interest rates foreign bank credit might not have dried up in the first place. In other words, the self-reinforcing run of investors from which even Italy and France are now suffering might not have taken place. To a considerable large extent the problems the eurozone is facing today may represent a mere portfolio reshuffling resulting from the fact that markets are forced to compete with the printing press, a competition they know they can never win.

In view of these problems it is useful to look at the US Federal Reserve System which, in principle, has to cope with similar problems. In the United States, single states can also draw Target-like credit out of the Federal Reserve System. However, doing so is rather unattractive as it has to occur at market conditions. In the United States, negative balances of the Inter-District Settlement Account, which are analogous to Target debts, must be paid for in April of each year by the transfer of ownership shares in gold-backed securities or other marketable securities that offer risk-specific interest rates. For that purpose the Federal Reserve Bank holds a clearing portfolio of marketable assets whose ownership shares (including the interest income generated by this portfolio) are reallocated among the respective District Central Banks according to the Target-like imbalances. A District Central Bank (of which there are twelve) is only allowed to create more money than is used in its district if this district hands over marketable assets to other districts for the money seeping from it to them for the net purchases of goods or assets.

A district that wants to import more goods than it exports must therefore obtain a private loan in other districts, or its central bank must pay its counterparts in other districts with marketable assets. In the latter case there will still be some lending among the dis-

tricts *via* the central banking system, as in Europe, but this will take place under market conditions.

The European Union could consider adopting the US rules by asking indebted central banks to hand over safe or rather safe marketable assets *via* the ECB to the other central banks who hold Target claims. This would reduce the incentive to draw Target credit out of the ECB system instead of borrowing in the private market, thus ending the capital flight that currently threatens the stability of the Eurosystem. To mitigate the problem for overly indebted states, transition or grandfathering rules could also be established that would permit a gradual reduction of the existing Target debts to other central banks.

The cause of the crisis

The cause of the internal balance of payments crisis in the euro area which the ECB tries to solve with the printing press is that the GIPS countries have become too expensive due to the cheap credits that flowed under the euro in the pre-crisis period. The speculative bubbles financed by cheap credit burst when the American financial crisis swept over to Europe in 2007. In the early years of the euro, capital markets were willing to finance the current account deficits resulting from excessive wages and prices, but as soon as the markets shied away, these bubbles burst. During the first three years that followed these stalling private capital flows, the GIPS countries relied on their printing presses to lower their financial deficits (Spain printed less than its current account deficit. Ireland printed in excess of it, while Greece and Portugal created cash roughly according to their current account deficits), but as the ammunition for such manoeuvres started to run low and the ECB became increasingly nervous, parliaments decided to help out by setting up public rescue facilities that replaced the credit drawn out of the ECB system with public credit.

In the capital markets the continued financing of the deficit countries, which no longer has much to do with fighting a short-term liquidity crisis and compensating for dysfunctional markets, creates a one-sided downward risk for the investors, because it keeps the prices of stocks, bonds or real estate above equilibrium. As everyone knows that prices will fall once the pockets of the rescuers are empty, the incentive to escape the foreseeable wealth loss by reallocating wealth abroad is overwhelming. Thus, the euro area is reeling from one capital market crisis to the next, and

during every crisis there is an attempt to react with a renewed expansion of bail-out packages. In the end, when private capital has largely been replaced with public rescue capital and rich wealth owners have successfully handed over their toxic government bonds to the taxpayers of other states, bankruptcies and hair-cuts will follow, forcing the new owners to accept the inevitable.

In the goods markets on-going rescue operations maintain the artificially high prices and wages that built up during the bubbles. This perpetuates deficits in the current accounts, which are the deeper reason for the balance of payments crisis, by preventing the creation of competitive industrial jobs and keeping incomes and imports high.

It is doubtful whether the strategy of continuing to publicly finance the balance of payments deficits of the periphery countries will ever succeed in creating equilibrium in the euro area. Instead, it seems more likely that the rescue strategy, which was initiated by the ECB and is now to be continued in all openness, will be pursued until the reserves of the more financially stable countries are exhausted. Only at the very end, when even the strongest countries have their backs to the wall and have run out of credit, will real internal devaluation in the crisis-stricken euro countries be agreed upon. Only then will the competitiveness of the GIPS countries be restored and the euro area brought into equilibrium.

For the survival of the euro it will now be decisive to develop a rescue strategy that lies between the extremes of discontinuing the rescue funds immediately and the unlimited financing of current account deficits *via* Eurobonds. For this purpose, a procedure should be developed to promote meaningful use of the available subsidies, which will gradually end the flow of public funds and initiate the real devaluation of the GIPS countries that is required. In its most recent annual report the European Economic Advisory Group at CESifo developed a three-stage crisis procedure with well-defined aid funds provided by replacement bonds.⁹

To date, a real devaluation is still pending in most cases. With the exception of Ireland, the economies of the GIPS countries and Italy show little, if any, indication that their prices are rising more slowly than

those of their trading partners in the euro area. That is one reason why the euro area is still miles away from a solution to its balance of payments crisis.

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THE BALANCE OF PAYMENTS TELLS US THE TRUTH

HELMUT SCHLESINGER*

It is frequently argued that in a currency union the balances of payments of individual member countries are superfluous, as there is only one currency, one exchange rate, and – as was once thought – only one interest rate, and external economic problems would only affect the entire monetary union. In terms of European goals, this concept is understandable but too ideal; in reality there was less ‘convergence’ not more. Of course, the European Monetary Union needs an overall balance of payments, and it is supplied month after month, not without errors and omissions that may already originate in the national figures. In terms of external economic relationships, the individual euro countries are independent units; foreign trade and payments with other member countries constitute as a rule less than 50 percent, the remainder is with the rest of the world. The member countries share the fate of a common exchange rate and common European rules of trade, among other things. The factors that are important for a country’s competitiveness – production costs, distribution services, innovations – are determined at the national level, and in their business dealings with third countries they are largely autonomous. It is interesting that the national central banks also have largely autonomous command over their own, not communitarised stock of gold and foreign exchange. In the German case this implies, for instance, that the Bundesbank has command over about one third of German net foreign assets. The national balances of payments in the Eurosystem should not be disregarded as they reveal the potential and actual tensions in the system that should not be overlooked.

Balance of payments disequilibria within the euro area

The current account of the euro area, viewed in its entirety, appears to be more or less in equilibrium.

With one exception, from 2006 to 2010 (and in early 2011) the annual deficit amounted to only 10 to 30 billion euros. No major problems are discernible; this is confirmed by the stable effective exchange rate. Reports on the balance of payments of the European Monetary Union, like those published in the Monthly Report of the European Central Bank, are not spectacular. This would be different were one to analyse a breakdown by member country – here the economic disequilibrium within the Monetary Union would be clearly revealed. The near balance of payments equilibrium of the total euro area hides the fact that it is the result of large annual surpluses of some countries, especially Germany, and corresponding deficits of the others, especially the Southern member countries. During the period from 2006 to 2010, the annual current account surplus of Germany alone *vis-à-vis* the rest of the world averaged about 150 billion euros; the average deficit of the other euro countries, which are combined here in an overview, was somewhat higher. In these five years, trade with the euro countries accounted for two thirds of the entire German current account surplus, i.e. far more than the corresponding share of the foreign trade volume, which amounts to 40 percent.

The balance of payments, a system of equations, no causal analysis

The balance of payments, like any balance, is constructed as an equation: the balance on current account equals the balance on capital account. In other words, with each surplus in the current account there is a correspondingly high increase in net claims on foreign countries. In the balance of payments statistics, current and capital accounts are disaggregated by merchandise, region, type of capital transactions, etc. in order to permit an in-depth analysis, but by themselves they do not supply an answer to the question of whether capital exports are the cause of current account surpluses or *vice versa*. Further, the attempt to assign certain capital movements, like direct investment, to certain merchandise groups, is controversial. In order to grasp the causal relationship between capital movements and cross-border flows of goods and services, various allocations were made nonetheless. In the past, one relied



* Former President of the Deutsche Bundesbank.

on the distinction between autonomous and adjusting capital flows, in the sense that 'autonomous' capital flows promote exports and hence the current account surplus, whereas 'adjusting' capital flows result as a necessity, as the surplus of capital inflows from abroad must arrive somewhere.

In a system of fixed exchange rates – to the dollar or within the European Monetary System – it is the central bank that ultimately has to absorb the surplus of foreign exchange deriving from the current account surplus and private net capital exports. In a system of flexible exchange rates it is primarily the domestic banking system that acquires short-term claims on foreign countries. These flow to them quasi automatically as part of cross-border payments, provided there are no 'autonomous' capital exports. As the central bank refrains from acting, it is up to the banks to decide whether to keep short-term foreign deposits and claims or exchange them for long-term assets.

In transactions with third countries, the European Monetary Union works in a system of flexible exchange rates, i.e. without interventions in the foreign exchange market. A third form was developed for balance of payments adjustment among member countries. For one, the convergence in terms of current accounts among the member countries has reversed itself. In particular, the surplus position of Germany has increased as have the deficits of many member countries. The financing of these growing balance of payments deficits within the group of EMU member countries was also based on considerable 'autonomous' capital exports, especially purchases of securities by Germany and other countries, although until the outbreak of the financial crisis in 2007 interest rate spreads between the euro countries were small. Furthermore, banks assumed a considerable portion of the adjusting capital flows. Thus, short-term claims and loans of German banks to foreign countries reached 1,001 billion euros at the end of 2007. But the growing distrust of banks regarding partner banks, especially those abroad, after the outbreak of the crisis, led them to reduce these outstanding short-term claims to 720 billion euros by the end of 2010 (all figures refer to worldwide positions).

Available transaction figures for the euro countries show that the focus was primarily on a reduction *vis-à-vis* the euro countries. This was combined with an expansion of credit *via* the Target2 settlement system. The more the payment inflows at the Bundesbank from partner countries fell behind pay-

ments to domestic customers, the more rose the net claims of the Bundesbank on the other member countries, to 338 billion euros by the end of 2010 and 462 billion euros in September 2011 compared to 18.3 billion euros at the end of 2006.

Looking at the German economy by itself, the Bundesbank thus assumed the function of 'balancing' the payments *vis-à-vis* the rest of EMU, similar to the way it did in the Bretton Woods System and the European Monetary System, when the intervention points were reached. But there was a major difference: in the old system of fixed exchange rates, the Bundesbank had to become active as soon as the extent of these inevitable purchases appeared to become indefensible from a monetary policy point of view. It then asked the German government for an appreciation or an exit from the system and did so successfully in the Bretton Woods System in 1961, 1969 and 1973 and in the European Monetary System (most recently in 1986 and 1992).

Looking back, one notes that the inflows of foreign exchange, which happened before the appreciation or the exit from the Bretton Woods System, were large but by far smaller than the increase in net claims in the EMU's Target2 system, as the latter amounted to 148 billion euros in 2010 and 124 billion euros in the first nine month of 2011. In addition, the old fixed exchange rate systems contained in part repayment obligations that led to outflows of foreign exchange resulting in the fact that the foreign exchange reserves of the Bundesbank (excl. gold stocks) never exceeded the D-mark equivalent of 100 billion euros, whereas the net stocks of Target2 claims amounted to 462 billion euros at the end of September 2011.

Another decisive difference to earlier foreign exchange regimes is that the Bundesbank is now part of the Eurosystem without its own decision-making monetary policy authority, and the monetary policy effect of the growing Target2 claims is not comparable to the foreign exchange purchases by the formerly independent Bundesbank. By purchasing foreign exchange, the 'old' Bundesbank expanded the asset side of the balance sheet and thereby also the monetary base (currency in circulation plus deposits of the banks at the Bundesbank); it could try, of course, to offset this by other asset transactions. If today the Bundesbank expands its claims on the other EMU countries (centralised at the European Central Bank), then it also creates central bank money. This is clearly shown in the balance sheet of the Bundesbank, which amounted to

679 billion euros at the end of August 2011; of this the biggest amount was accounted for by net claims from Target2 alone. This is not only the most important position in the Bundesbank balance sheet but is also a major part of the foreign assets of the Federal Republic, and therefore not only 'a statistical position', as it has been mentioned (Deutsche Bundesbank 2011).

But the monetary policy function is different from that in the old Bundesbank system, in that an expansion of Target2 claims more or less automatically involves a reduction of claims arising from normal refinancing transactions. These Bundesbank claims, stemming from monetary policy operations with German commercial banks, declined from 268 billion euros at the end of 2007 – when the stock of Target2 claims was still relatively small – to 37.6 billion euros in August 2011. Whether the German banks were disadvantaged by the reduction of their refinancing at the Bundesbank to one sixth of the past amounts cannot be discerned. During this time, the interest rates on overnight deposits were as a rule below the refinancing rates of the ECB, which is an indication of excess liquidity. However, in the balance sheet of the Bundesbank there was a massive change of debtors.

In place of the normal borrowers of the Bundesbank, the domestic banks, we now find the partner countries in the Eurosystem, primarily Greece, Ireland, Portugal and Spain (the GIPS countries) (Deutsche Bundesbank 2011).¹ Formally, the claims of the Bundesbank are directed at the ECB, which offsets the positive and the negative balances of all member countries in its balance sheet.

Regarding the individual countries, Hans-Werner Sinn and Timo Wollmershäuser (2011, 20) speak of "a relocation of central bank credit from Germany to the respective GIPS country". Credit granted by the Eurosystem as a whole to commercial banks is not limited by this. In lieu of the Bundesbank, the central banks of the GIPS countries grant additional refinancing credits; these can, to the extent to which these funds enter the payment flows with Germany, arrive at the Bundesbank as claims in Target2 clearing transactions. There is no crowding out of credit granted by the Eurosystem, but a considerable change of debtors in

the total system. In place of German banks there are now banks of the GIPS countries, whose creditworthiness is often so poor that they can only solve their liquidity problems with the help of their central banks and this on the basis of a serious downgrading of the demands on collateral. In the balance sheets of the national central banks and in that of the ECB, as well as the accompanying explanations, possible differences in creditworthiness are not accounted for. The principle seems to be 'euro equals euro'.

Keep the overall picture in mind

In addition to considering the relationship of the balance of payments and the intrinsic value of a central bank balance sheet (a special concern of the author, who co-signed the Bundesbank balance sheets for 22 years) it is important to evaluate the effect of this kind of financing of balance of payments deficits on the stability of the financial system. It is evident that for countries with high balance of payments deficits, the need to reduce the disequilibrium is dispensed with to the extent to which the deficit may be automatically financed *via* the Target2 system. In past years, normal capital movements contributed to the financing of the deficits; the government bonds of the GIPS countries were sold abroad, but as soon as the risk involved became obvious, this was only possible at high interest rates and finally hardly at all. And, as discussed above, the private banks withdrew from short-term financing. Yet for some time, being able to finance deficits *via* Target2 allowed the deficit countries to avoid the need of adjustment, which for non-monetary-union countries is enforced by the market. The same applies to the surplus countries, in which the increase of Target2 claims prevents an additional expansion of the money supply through diminishing domestic credit creation and thus additional domestic demand. Both effects suggest limiting the creation of excessive balances in the Target2 System, which originally was only supposed to be a clearing system without lending, and/or introducing a punitive interest rate,² a task that can only be tackled after the current turbulences have abated.

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² Theurl (1995) reports that in the Scandinavian Monetary Union and its clearing system, limitations for the automatic lending finally became necessary and commission fees were introduced (see also the references on settlement rules in the banks in the US Federal Reserve System in Sinn and Wollmershäuser (2011)).



THE EUROSISTEM IN TIMES OF CRISES: GREECE IN THE ROLE OF A RESERVE CURRENCY COUNTRY?

WILHELM KOHLER*

Government debt crises versus balance of payments crises

It must be assumed that Greece's public sector has become insolvent: existing government debt exceeds the present value of achievable primary surpluses of future government budgets. Prior to the EU Summit of 26 October 2011, the European Commission estimated that the Greek general government's consolidated gross debt would stand at 162.8 percent of Greek GDP by the end of 2011, and would further increase to 198.5 percent by the end of 2013. These figures reflect 20 years of government borrowing of around 7.5 percent of GDP on average for the years from 1991 to 1999 and an almost unchanged average of 7.4 percent between 2000 and 2010. The lowest level of Greek government borrowing was achieved in 1999, at 3.1 percent of GDP, and the peak figure was reached ten years later in 2009, at 15.8 percent of GDP. Factoring in the austerity packages that came along with the 2010 bail-out, the Commission estimates that the Greek general government will still have to borrow 8.9 percent, 7 percent and 6.8 percent of Greek GDP, respectively in the years 2011, 2012 and 2013.¹

During the 1990s, the borrowing needs of the Greek government could be met by net lending by the Greek private sector, which averaged at 10.8 percent of GDP between 1991 and 1999. Over the past decade this changed dramatically when the average annual net

lending position of the private sector shrank to a mere 1.5 percent of GDP.² The outcome was an accumulation of net foreign debt which stood at 98.2 percent of Greek GDP at the end of 2010.³ Accumulation of foreign debt does not necessarily mean a balance of payments crisis. Such a crisis does, however, arise if a negative net lending position of the consolidated government and private sector of an economy cannot be financed by private capital imports for several years. In Greece, this has been the case since 2007.

To varying degrees, government budget as well as balance of payments crises have also arisen in Portugal, Spain, Ireland and Italy, although the ingredients of the crisis vary across these countries. For instance, in stark contrast to Greece, in the early 2000s Spain and Ireland had achieved remarkable improvements in their public sector budgets, with government debt ratios below the 60 percent eurozone threshold and on downward trends, until they were hit by severe financial crises in 2008 (mostly caused by the bursting of a speculative bubble in the real-estate market), with subsequent government interventions turning their budgets into large and unsustainable deficits.⁴ However, the 2007/2008 financial crisis was not equally disastrous for government budgets in all countries. The Italian government debt ratio had been on a high level for a long time, exceeding 120 percent as early as the mid-1990s, followed by a moderate downward correction, but remaining above the Greek level until 2006. The financial crisis had a very moderate impact on the Italian government budget, although it did halt the downward trend in 2008. Moreover, while Spain, Portugal and Italy did see reductions in their private sector net lending positions from the 1990s to the 2000s, these reductions were not nearly as strong as that observed in Greece.⁵

Among all of these countries (subsequently referred to as GIPS), only Greece now has a public sector

* University of Tübingen. I am very grateful to Hans-Werner Sinn for several discussions and helpful comments. Thanks also go to Marcel Smolka for reading and commenting on earlier versions of this paper.

¹ Source: European Commission, Directorate General ECFIN, General Government Data, General Government Revenue, Expenditure, Balances and Gross Debt, Part II: Tables by Series, Autumn 2011.

² Source: AMECO data base, Section 3.13, http://ec.europa.eu/economy_finance/ameco/user/serie/SelectSerie.cfm, accessed July 2011.

³ Bank of Greece, Summary of the Annual Report 2010, April 2011, Table 21.

⁴ See again the General Government Data mentioned in footnote 2.

⁵ Spain and Italy saw a reduction from 11 percent to around 5 percent, while in Portugal the net lending position in the 2000s was on a level comparable to that of Greece, but it had been on a much lower level of 7 percent as early as in the 1990s; see the AMECO data base mentioned in footnote 3.

which is undoubtedly insolvent. Yet, over the past 3 years, all of them have run into a balance of payments crisis in that large financing needs of the domestic agents (private and or public) could no longer be met by private capital imports. As pointed out by Sinn and Wollmershäuser (2011a and 2011b), in the case of Ireland and Italy the crisis has partly been one of capital flight. All GIPS countries are members of the eurozone. How did the Eurosystem respond to this multiple internal balance of payments crisis? In the aforementioned papers, Hans-Werner Sinn and Timo Wollmershäuser have shown that it has responded through large and persistent cross-country credit relationships accumulating under the Target2 system.⁶ They argue that this constitutes a dysfunctional use of the system, quite separate from its intended purpose. In this paper, I want to evaluate this crisis response against the backdrop of established theory of balance of payments adjustment. A principal insight will be that the accumulation of Target2 balances may be seen as the GIPS countries playing the role of reserve currency countries within a fixed-rate-system of the Bretton Woods type.

Balance of payments crises with and without national currencies

The public debate during the past couple of years has largely focused on refinancing and restructuring the outstanding *stock* of public debt in troubled countries and the specter of write-downs in creditors' asset positions or, in the extreme case, disorderly default. Admittedly, this aspect must not be ignored because of possible systemic risks, but in the longer term the true underlying problem is one of *flows*, i.e. of the annual deficit in the government budget and the current account. Restructurings, even debt reliefs, provide little lasting help as long as these flows are on unsustainable paths.

As regards the EU, two questions are of great importance. Firstly, will a return to their own currencies help the deficit countries? And secondly, how did the Eurosystem react to balance of payments crises of the kind described? I shall deal primarily with the second question here. However, a brief note on the first question may be permitted. There is one lesson that we should have learnt from history: *nominal* currency devaluations are helpful only in the short run,

if helpful at all. In the medium to long run they are unlikely to help at all, leaving us with higher inflation as the only lasting effect. This holds true, at least, if the underlying problem is one of rigid *real* wages. Furthermore, it is aggravated, if devaluations are undertaken non-cooperatively by many countries. If, on the other hand, nominal prices and wages are fully flexible, then currency devaluations are unnecessary in the first place, as the required adjustments are also feasible without resorting to weakened national currencies. It is a great illusion that the plight of weak economies can be resolved by letting them have weak currencies. This is a recipe for them to remain weak. In addition, it is unclear whether expenditure, particularly public expenditure, on domestic versus foreign goods is sufficiently elastic with respect to relative goods prices for devaluations to deliver the desired short-run effect. These are all familiar arguments that, in my view, should prevent us from viewing the return to currency devaluations as a solution to the present balance of payments crises, not to mention the legal and practical problems connected with a return of Greece or other euro countries to their own currencies.

The second question of how the present practice of Eurosystem tends to respond to emerging balance of payments crises has for a long time remained almost completely ignored. It was not until several media contributions by Hans-Werner Sinn and the two papers by Sinn and Wollmershäuser (2011a and 2011b) that this issue has started receiving broader attention in the public and academic debate about the European sovereign debt crisis. As we know by now, the issue became relevant at the very beginning of the balance of payments crisis in 2007, when the net lending positions of the private and public sectors in the so-called GIPS countries (Greece, Ireland, Portugal and Spain) could no longer be matched by private capital imports.

However, does it make sense at all to talk of a balance of payments crisis *in parts* of a currency area? At least the textbook case of a balance of payments crisis does not seem applicable here, since balance of payments theory typically refers to an *entire* currency area. The implicit assumption, however, is that the currency area coincides with a fiscal and political union – in brief: a country. This, however, is not the case with the eurozone where member countries were allowed, and keen, to retain fiscal and political independence. This is why all euro countries still compile their own national balance of payments statistics. Moreover, as

⁶ Target stands for 'Trans-European Automated Real-time Gross Settlement Express Transfer System'. The system was developed as a multilateral clearing system for intra-European payments in connection with 'big, cross-border' transactions.

we shall see, national central banks within the eurozone continue to be important players in the current balance of payments crises. Complaints about the lack of a political union with a common fiscal policy to support European Monetary Union are unhelpful as long as striving for such a union is unrealistic. Nor should we place much hope in fiscal rules in the form of a reinforced Stability and Growth Pact. The upshot is that, the particularity of a common currency notwithstanding, we need to view the eurozone as a group of countries with a fixed exchange rate system in need of a well-functioning mechanism of member countries' balance of payments. The present crisis reveals that such a mechanism is not in place.

Looking at the eurozone as a fixed-rate system

A fixed-rate currency system needs an adjustment mechanism that corrects balance of payments disequilibria without nominal exchange rate adjustments. One could argue that the balance of payments of any one eurozone country need not be in equilibrium *vis-à-vis* the other member countries, but only *vis-à-vis* the entire rest of the world. After all, exchange rate adjustments are still possible *vis-à-vis* non-member countries. However, this mechanism of adjustment is not available simultaneously and independently to all member countries, according to their diverging needs. We are confronted with the oft-quoted question: *does one size fit all?* The question is rhetorical, of course, and in the present context it implies that eurozone member countries still need a mechanism that aligns their expenditure levels with balance of payments constraints. Moreover, given the common currency, this must be an adjustment mechanism akin to what balance of payments theory envisages for a fixed-rate system.

The ultimate purpose of a balance of payments adjustment mechanism is to ensure that agents within a given area observe their respective inter-temporal budget constraints. If all agents are able to close gaps between their current expenditures (including any obligation from existing debt) and their incomes through lending in private capital markets, then we automatically observe a balance of payments equilibrium, no matter how this area is delineated. Otherwise, there is a balance of payments disequilibrium and, if it persists, the spectre of a crisis.

However, if this area is composed of several countries, each with its own currency, then central banks enter

the picture. They can soften inter-temporal budget constraints for other agents in their countries by buying or selling foreign exchange reserves. Indeed, in a fixed-rate system central banks are typically obliged to provide this type of relief. This, however, can be no more than temporary relief. Hence the crucial question is whether such central bank operations set off an adjustment mechanism that leads agents back to their intertemporal budget constraints. If this is not the case, then the persistence of unsustainable financing positions will eventually lead to crisis. This, in a nutshell, is what has happened in the Eurosystem through the Target2 balances, as described by Sinn and Wollmershäuser (2011a and 2011b).

The textbook mechanism of adjustment for a fixed-rate currency system is a modern version of Hume's price specie flow mechanism. If the central bank of a deficit country sells foreign exchange reserves, then its monetary base (central bank money) shrinks. The opposite occurs if the central bank of a surplus country accumulates foreign exchange reserves. The price specie flow theory asserts that this combination of monetary contraction and monetary expansion brings about a change in relative prices that causes expenditure switching in both countries. Provided that the price elasticity of expenditure is sufficiently high, this eventually restores balance of payments equilibrium.

This mechanism requires two pre-conditions: the existence of a reserve currency and price flexibility. For the deficit country, price flexibility implies 'internal devaluation', which ultimately means a painful reduction in wages. I shall return to this point below. As to the reserve currency, a formal fixed-rate system typically features a specific currency that serves this purpose; in the Bretton Woods system it was the US dollar, in the gold standard it was gold. Importantly, in a fixed-rate system of the Bretton Woods type (BW-type) system there is a basic asymmetry. The reserve currency country has the exclusive privilege of financing its balance of payments deficit by printing money, provided only the other countries accept a build-up of their foreign exchange reserves.⁷ Let us note that

⁷ This does not mean, of course, that the other countries can only accumulate foreign exchange reserves to the extent to which the reserve currency country has a current account deficit. In fact, the US current account showed surpluses during a good part of the BW System. Exceptions were 1953 (War in Korea) and 1959 as well as after 1971. It does mean, however, that the reserve currency country can exchange its bonds with low interest rates, or even its cash, for assets in other currencies with relatively high interest rates. Therefore, the reserve currency country has the privilege of achieving seigniorage comparable to that of a central bank. In 1960, this led the then French president to the meanwhile proverbial statement that the United States as the reserve currency country of the Bretton Woods System had enjoyed an 'exorbitant privilege'— see Eichengreen (2007 and 2011).

although this asymmetry was initially an intended element of the BW System, it led to its collapse in 1973, as the other countries were no longer willing to accept the degree of inflation that would arise in the entire fixed exchange rate system as a result of the US using its printing press to finance its excess of expenditure over income. Interestingly, the United States did not lose its reserve currency status after 1973, but this was no longer based on a formal agreement; see Eichengreen (2011).

The history of Bretton Woods thus illustrates that a fixed-rate system where a certain country has the privilege of printing the reserve currency is likely, sooner or later, to create tension between member countries.⁸ If the reserve currency country runs up a balance of payments deficit, it can simply print fresh money which, through exchange market interventions, will be converted into national currency by the central banks of surplus countries. It thus becomes part of foreign exchange reserves in these countries' central banks. If the surplus countries want to avoid the risk of inflation, they can do so, up to a point at least, by sterilization. This means reducing the domestic component (domestic lending) of their monetary base. To the extent that this type of stabilization occurs, the reserve currency expansion does not inflate the money supply of the entire system. However, in this case it seems questionable, whether the price specie flow mechanism would ever become effective, since there is no monetary expansion in surplus countries. I shall return to this point below. Independently of the price adjustment, however, this mechanism implies 'forced' capital exports from the surplus countries to the deficit country that holds reserve currency status.

The Eurosystem's adjustment mechanism: Target2 balances

How did the Eurosystem react to the present balance of payments crises? In the Eurosystem countries no longer have their own currencies, and there is no national reserve currency within the Eurosystem. Is there, nevertheless, a well-functioning balance-of-payments adjustment mechanism?

The Target2 balances within the Eurosystem, as described by Hans-Werner Sinn and Timo Wollmers-

häuser (2011a and 2011b), reveal a surprising and worrisome finding. Starting in 2007, the Eurosystem has reacted to balance of payments crises by *de facto* letting the troubled deficit countries play a role that in a BW-type fixed-rate system would be the privilege of the country with the reserve currency. However, in contrast to the price-specie-flow-type mechanism of the BW System, there is no correction mechanism here: the unsustainable flows underlying the balance of payments crisis (public budget, current account) remain virtually unaffected. Furthermore, in sharp contrast to the BW System, the surplus countries shoulder a substantial risk by accumulating 'foreign exchange reserves' that are threatened by insolvency of the public sector in deficit countries. We must thus conclude that, instead of a well-functioning adjustment mechanism, the Eurosystem has adopted an automatism of sharing risk emanating from unsustainable debt accumulation.

What is the logic underlying this verdict? As we have seen above, the reserve currency country in a BW-type fixed-rate system can simply finance a balance of payments deficit by printing fresh money that will then become the foreign exchange reserve, and thus part of the monetary base, in the central banks of surplus countries. To put it bluntly: an importer in the reserve country pays his bill with newly created central bank money, while the supplier in the surplus country receives his own country's central bank money from his central bank, with the additional reserve currency ending up in the foreign component of the surplus country's monetary base. Creation of central bank money is always based on lending by the central bank. In this case the importer becomes a debtor to the central bank of the deficit (reserve) country, and the central bank of the surplus country becomes a creditor to the deficit country. The key aspect of this process is that money created by the central bank of the surplus country has its origin in lending by the central bank of the deficit country.

In any currency union with 'regional' central banks, we would not expect the entire stock of central bank money circulating within any one region to have originated in lending by the 'domestic' central bank. Looked at on a very general level, the Target2 system was meant to serve as a 'plumbing system' that facilitates such cross border flows of central bank money.⁹ Taking stock at any point in time, we would not be

⁸ The European monetary system has tried to avoid this asymmetry by abstaining from any notion of a single reserve currency. Instead, exchange market interventions were supposed to take place symmetrically by deficit and surplus countries.

⁹ The Deutsche Bundesbank describes this as follows: "[...] Target2-(net)balances are [...] the result of the cross-border distribution of central bank money within the decentralized structure of the Eurosystem" (Deutsche Bundesbank 2011).

surprised to see positive Target2 balances, representing central bank money stocks circulating in one area that goes back to original central bank lending in some other region. However, we would expect such balances to be relatively small fractions of a region's monetary base, and to follow no systematic trend over time. This is, indeed, what we have witnessed up to 2007. We would, however, be much surprised to see Target2 balances of any one country (or a small group of countries), exploding over time. Yet, this is exactly what Sinn and Wollmershäuser (2011a and 2011b) have shown has happened from 2007 up to the present date. The numbers are astounding. Until 2007 the Target2 liabilities of the GIPS countries at the central banks of the surplus countries within the Eurosystem were largely in the single-digit billion range; since 2007, however, they have increased rapidly to account for over 300 billion euros by the end of 2010. By September 2011, the Deutsche Bundesbank had accumulated a Target2 balance totaling 450 billion euros. A comprehensive presentation of the empirical developments, as well as a detailed description of the mechanics of Target2, is found in Sinn and Wollmershäuser (2011a).¹⁰

The analogy to the reserve currency mechanism in a BW-type system is quite striking. In the recent explosion of Target2 balances, the central banks of deficit countries have financed domestic agents' (say their governments') expenditure by creating euro central bank money, which then became central bank money of the surplus countries *via* the Target2 system. In other words, newly granted GIPS credits (or GIPS bonds) have flown into the foreign component of the monetary base in surplus countries. In this mechanism, although the deficit country does not issue its own currency, it is still true that central bank money is created in that country which – exactly as in the above-mentioned case of the reserve currency country – speedily becomes central bank money in the surplus country. In parallel, the Target2 system moves the claim of the central bank of the deficit country to a claim of the surplus country.¹¹ The central aspect in both cases, the reserve currency mechanism of a BW-type system as well as the Target2 mechanism, is the cross-regional flow of central bank money, and not whether or not different currencies are involved.

¹⁰ This paper also contains an extensive description of the debate on Target2 balances in the media; on more recent developments, see Hans-Werner Sinn, "Italy's Capital Flight", *Project Syndicate*, 2011-10-25.

¹¹ This is done by debiting an account of the central bank of the deficit country at the ECB and crediting an account of the central bank of the surplus country at the ECB.

Interestingly, the calculations by Sinn and Wollmershäuser (2011a) show that up to this point the Target2 balances have not resulted in an overly large expansion of the central bank money supply within the eurozone. In other words, the surplus countries seemingly have sterilized their accumulation of 'GIPS foreign exchange reserves', as surplus countries worrying about inflation in a BW-type fixed-rate system would typically do. As a result, a rapidly growing share of the entire euro monetary base, which is not based on gold and 'true' foreign exchange reserves,¹² can be traced to creation of central bank money within the GIPS countries for the purpose of financing their balance of payments deficits. More specifically, the monetary base of the non-GIPS countries created *via* the 'reserve currency status' of the GIPS countries meanwhile amounts to 64 percent (314 billion euros) of the entire credit-financed monetary base (493 billion euros). No less than 66 percent of the credit-financed money stock in the eurozone was created in the GIPS countries, although their share in the GDP of the Eurosystem amounts to only 18 percent.

There has been some controversy over the appropriate interpretation of Target2 balances. Specifically, it has been argued that they should not be seen as financing of GIPS countries' expenditure on the grounds that in some cases they seem related more to capital flight than to current account deficits. As pointed out by Sinn and Wollmershäuser (2011a and 2011b), this was the case in Ireland and Italy. However, this does not, *per se*, make Target2 financing any less worrisome. What matters is a good match between the maturity of financing and the pattern of expenditure, particularly regarding investment and consumption expenditure in the public sector. It seems a safe bet to say that Target2 balances have not improved the quality of this match. Moreover, Target2 credit should not be seen as the reason why unsustainable borrowing positions (of governments of private agents) arose in the first place; see my introductory remarks above. The issue here is not causality, but the finding that Target2 financing is almost the opposite of a well-functioning adjustment mechanism in that it is a means to perpetuate such positions and to facilitate procrastination of necessary adjustments.

How long can this go on?

Like all sterilization, the practice of sterilizing the accumulation of the 'Target2 GIPS reserves' will

¹² In this context 'true' means simply non-euro assets of the ECB.

come to an end at some point. This point will be reached once the entire monetary base within the surplus countries of the Eurosystem is based on gold, 'true' foreign exchange reserves and Target2 claims. At this point, further financing of GIPS countries' balance of payments deficits through a build-up of further Target2 balances will result in an expansion of the monetary base of the Eurosystem, unless the central banks of the core start selling their gold and foreign exchange reserves or borrow on a large scale from their banking systems. In the June 2011 version of their working paper, Sinn and Wollmershäuser had come to the conclusion that the point of exhaustion of the refinancing credit would be reached by 2013, but in the November NBER-version of their working paper they show that, mainly because of capital flight from Italy, that point has meanwhile already been surpassed: the Bundesbank has now become a net borrower of the German banking system.

A striking parallel can also be observed at the beginning of the present Target2 practice. In a colossal failure of financial markets, the risk premia on public debt of troubled countries that were observed in the 1990s disappeared almost overnight when the Eurosystem was introduced in 1999. There are two possible interpretations. One is that investors were under the illusion that the loss of an autonomous national monetary policy would immediately restore full fiscal discipline. The other, more convincing explanation is that from the start investors were treating the explicit no-bailout commitment as incredible. The result was an unprecedented ease of financing for government deficit in some of the weaker member countries of the eurozone, and a corresponding resurgence of borrowing. However, in the aftermath of the global financial crisis of 2007/08 the implicit bail-out commitment had apparently lost its credibility too, whence risk premia started to return. Unsurprisingly, at least with hindsight, it was around this time that the Target2 system started being used in the way described above; see again Sinn and Wollmershäuser (2011). With private funds drying up or being available only at almost prohibitive risk premia, governments were keen on alternative financing and the Target2 system, although never designed for this purpose, was made available to help. Instead of correcting the underlying flows, troubled countries were happily adopting an 'as-if reserve currency status'. It is a little ironic that, at least if judged by the evolution of yield spreads, the bail-out commitment did not become fully credible even after it had been made

explicit through the country-specific rescue packages and the rescue facility (EFSF) in 2010.

Target2 balances: financing without adjustment

In principle, the above mentioned asymmetry in the monetary base can continue *ad infinitum*, as the monetary base is a *stock variable*. Moreover, even an increase in this asymmetry need not be inflationary, provided the total money supply does not increase relative to output. However, what will come to an end eventually is the *sterilized* expansion of Target2 balances. If the ECB is unwilling to run down its foreign exchange reserves, the end will be reached by 2013. However, once the practice starts being inflationary, we must expect the sort of international tension within the eurozone that has led to the collapse of the Bretton Woods System in the 1970s.

If Target2 financing thus lacks long run viability, the crucial question is whether it involves sufficient, or any, adjustment in the short and medium run to avoid crisis by the time the accounting identities strike. The tragedy with Target2 financing is that there is very little, if any, of the adjustment mechanism that we would normally expect from a price-specie-flow mechanism. On the contrary, the roots of the problem remain untouched by the Target2 balances. This is not to say that no adjustment takes place, but I see no element of corrective adjustment inherent in Target2 financing as such.

Firstly, as I have emphasized above, a key element of a price-specie-flow-type mechanism, i.e. monetary expansion in the surplus countries, has not taken place to date, due to sterilization. Monetary expansion, a vehicle for nominal price changes that might then lead to a mechanism of expenditure switching, is lacking. Those afraid of a surge in inflation will say that this is for good reason. However, the mechanism would bear fruit only if and when the surplus countries were to accept an expansion of the money supply and the ensuing inflationary rise in prices. Let us note, however, that what we would need according to this mechanism is a change in *relative* prices that could help to eliminate the flow disequilibrium (current account deficit, government budget deficit). More specifically, the classic adjustment process in this case requires a real appreciation in surplus countries, meaning an increase in the prices of their tradable goods relative to those of deficit countries, as well as a reduction (increase) of the prices of tradable goods

relative to non-tradable goods in surplus countries (deficit countries). The attendant expenditure switching effect on the flow demand of goods would tend to correct the balance of payments imbalance. Demand for goods (tradable and non-tradable) from the deficit countries would rise, while demand for the goods from the surplus countries would fall. This would be reinforced by mirror-image supply effects, i.e. a real allocation of resources towards non-tradable (tradable) goods in surplus (deficit) countries.¹³

The contribution of this type of adjustment to solving the balance of payments problem depends, of course, on the price elasticities of demand and supply. They must be high enough to let absorption in deficit countries rise less (fall more) than domestic output; and *vice versa* in the surplus countries. If supply is inelastic, there is good reason to believe that restoring external equilibrium would come at the expense of internal equilibrium, so that deficit countries would experience an increase in unemployment; see Corden (1994).

Whatever the details, unless there are huge productivity increases, a true correction of the disequilibrium underlying the balance of payments problem will be accompanied by a decline (increase) of *real* income in deficit (surplus) countries. Naturally, with monetary expansion in the surplus countries, this might be easier to digest for deficit countries in an inflationary environment, since it would then be possible without ‘internal devaluation’ in the deficit countries, meaning a fall in *nominal* incomes. But as pointed out before, monetary expansion from Target2 financing as such has so far been avoided. If worried about the risk of inflation, we might add that this was for good reasons. However, at the same time it deprives the whole process of the price-specie-flow mechanism of adjustment. Hence, merely observing that Target2 financing has not been inflationary to date provides little comfort.

It is all too obvious that a workable solution requires permanent changes in the annual government budgets to generate primary surpluses that bring down debt ratios to sustainable levels. If national governments and the EU rescue packages fail to achieve this, and if the Target2 financing continues, then the euro risks a Krugmanite currency crisis, as I shall detail below. What determines the likelihood of successful and fiscal adjustment? As is well known, the required auster-

ity pain depends significantly on growth prospects. In the calculus of austerity, each percentage point of additional real growth (or lower contraction) has the same effect as a 1 percentage point reduction in the real interest rate. Even under optimistic growth assumptions, the required austerity in GIPS countries is huge; see Darvas *et al.* (2011). This brings us to the uneasy question of whether too much fiscal austerity may hamper real growth, thus causing a vicious circle that makes adjustment even more difficult and painful. Work by Alberto Alesina and others has shown that fiscal consolidation has in many cases contributed to, rather than impeded, real growth. This was true particularly, in cases where consolidation was based on a political consensus and was carried out on the expenditure side of the budget. However, it is highly questionable whether the prerequisites for expansionary austerity are prevailing in the GIPS countries; see Perotti (2011).

Expectations: does the euro face a speculative attack?

The expansionary effect of fiscal consolidation, as well as supply-side reforms in GIPS countries, will not be felt until the longer term. In the short run, their effect is mostly driven by expectations. If such reforms are deemed credible and promising at the time of implementation, the immediate effect will be a lowering of risk premia on government debt, which will ease adjustment. Thus, the success of reform feeds on credibility. Unfortunately, this may generate multiple equilibrium outcomes, particularly regarding government default. If a rescue and reform program is deemed credible by investors, then the low interest that the government has to pay on its debt reduces the incentive for and thus the probability of default or a restructuring of existing debt. If the same program gets implemented, but fails to convince the markets, then the outcome might be a need to restructure debt, or even default; see de Grauwe (2011) and Grossman (2011). Such indeterminacy is not inevitable, however. Conceivably, offering a rescue facility could be a decisive factor for triggering a ‘good equilibrium’ scenario without any sovereign default, instead of a possible ‘bad equilibrium’ scenario with default.

Expectations and credibility play an important role not just for investors and financial markets, but *vis-à-vis* the domestic private sector more generally. It will, for instance, be vital for GIPS countries to attract investment and to avoid the emigration of skilled labor. Moreover, comprehensive reform will almost by

¹³ Note that these changes in relative prices do not require flexible exchange rates and are also conceivable in a monetary union; see Corden (1994 and 2002).

necessity involve several stages of implementation. It is well known that under these circumstances reform might be plagued by time inconsistency. More specifically, if private agents anticipate that the government might *ex post* have an incentive to renege on reform and turn to default, then they will take this into account in their current decisions (consumption, investment, wage setting etc.) and thereby generate conditions that increase the incentive for default in the future. Certain reform policies may simply be impossible to announce in a credible way. Here, too, rescue measures might conceivably provide help in serving as a ‘commitment device’ for a government with weak credibility of its own.

A final point in this context leads me back to Target2 balances. Target2 financing perpetuates conditions that cannot continue forever. Ruling out large scale borrowing of the core countries’ central banks from their commercial banks, a situation may soon arise in which the ECB must decide between two unattractive options: permitting monetary expansion through *non-sterilized* continuation of Target2 financing, or a reduction of the international reserves of the Eurosystem. If government budgets should remain unreformed, there is no third alternative.¹⁴ Let us use T to denote the point in time when the ECB unavoidably faces this decision. Moreover, let us assume that the ECB will not be willing to touch its foreign exchange reserves. Then, other things equal, a process of devaluation of the euro will set in. This is just the mirror image of a stronger monetary expansion in the euro area. It is improbable, however, that forward looking investors would let this point in time approach without guarding themselves against sudden devaluation. Instead, what we should expect in this – admittedly – worst-case scenario is a classic euro currency crisis to arise well before time T . The reasoning behind this statement is as follows.

I simplify by assuming risk neutrality and by focusing on the euro-dollar relationship. In a world with forward-looking expectations and high international capital mobility, capital markets are governed by the uncovered interest parity. This implies that at time T there needs to be a risk premium on euro assets that offsets the expected depreciation. There will be a dis-

crete jump in euro interest rates, as well as a discrete jump in the euro value of the dollar. However, with forward-looking expectations, a discrete jump in the exchange rate that is anticipated by rational investors is not an equilibrium time path. Rational investors will not knowingly and willingly wait for time T and then watch their euro investments suddenly lose dollar value. Instead, they will try to avoid this by betting against the euro well before time T arrives. In doing so, they effectively bring forward the time when the euro starts to depreciate.

This is a relatively straightforward application of the first generation model of currency crises developed by Krugman (1979).¹⁵ In that model a speculative attack occurs after the central bank has embarked on a path of financing recurring budget deficits through monetary expansion. Defending the exchange rate requires running down foreign exchange reserves, which cannot go on forever. Speculation will set in before the policy would have depleted all foreign exchange reserves, thus bringing forward in time the point when the fixed-rate system breaks down. In our case, point T is not the time when foreign exchange reserves would in fact be depleted, but the point at which the ECB is confronted with the decision of whether it wants to embark on a process of losing foreign exchange reserves for the sake of price stability. Currency speculation might bring forward in time that awkward policy choice, and force the central bank to accept inflation and depreciation earlier.

It is more likely, however, that developments will play out in a different way, analogous to the collapse of a BW-type fixed-rate system. In such a system, central banks of surplus countries risk negative wealth shocks through depreciation of their foreign currency reserves, should the system break down. In a sense, that is the price for having chosen the ‘wrong’ reserve currency. The Chinese central bank, with its huge dollar reserves, is currently facing the same risk. With the Target2 balances in the balance sheet of the Bundesbank, an analogous risk exists from a partial or complete write-down of credits or bonds threatened by insolvency of the public sector (or also of private debtors) GIPS countries. However, within the Eurosystem this risk is shared by all member countries in line with their ECB capital shares. Arguably, just as its huge dollar reserves constitute an incentive for China to avoid a devaluation of the US dollar, so the Target2 balances may

¹⁴ Ruling out central bank borrowing from commercial banks, Sinn and Wollmershäuser (2011a) have calculated this point to be reached by 2013, given an unchanged continuation of past developments. However, as they document in Sinn and Wollmershäuser (2011b) the Bundesbank has in fact turned to large-scale borrowing from the German banking system, thus postponing the point in time when a decision has to be made between selling foreign exchange reserves or allowing Target2 financing to be inflationary.

¹⁵ A convenient exposition of this model is found in Obstfeld and Rogoff (1996).

constitute an incentive for the ECB to indulge in procrastination in order to avoid or postpone scenarios that lead to write-downs on GIPS assets present in the non-GIPS monetary base.

Conclusions

How is all of this to be assessed from a monetary policy perspective? In a well-functioning fixed exchange rate system the reserve currency country enjoys its privilege based on trustworthiness. Ideally, the choice of a reserve currency is a basic, deliberate and consensual monetary policy decision, made when designing the currency system. Similarly, in the absence of a formal fixed-rate system, certain currencies may be granted *de facto* reserve currency status, based on a mixture of economic and political strengths of their countries, as with the US dollar after the break down of the Bretton Woods system, and indeed with the euro in more recent times.¹⁶

In stark contrast, there is no deliberate monetary policy decision behind the role that Target2 balances have been playing in the Eurosystem's response to the balance of payments crises that arose after 2007 in the GIPS countries. This role has almost nothing to do with the 'plumbing role' that it was designed for with respect to distributing central bank money across member states. Instead, it came about mainly as a response to fiscal needs, without being subject to institutions and responsibilities pertaining to fiscal policy. Even if the system does not collapse, this contradicts the principles of sound monetary policy. There is also, of course, no special trustworthiness involved in this case of 'quasi reserve currency status'. On top of all the reforms required by GIPS countries retain sustainable fiscal positions, the monetary policy institutions of the Eurosystem need a reform that prevents the Target2 system from being used to address fiscal needs.

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¹⁶ See Eichengreen (2011) for a comprehensive treatment of the history of the US dollar as a reserve currency.

THE EURO IN 2084

CHARLES B. BLANKART*

The Eurosystem stumbles from crisis to crisis as politicians seek to rescue bankrupt countries from their financial distress with huge sums and little success. At the same time economists have proposed constructive solutions and mechanisms for exiting the crisis (EEAG 2011; Plenum der Ökonomen 2011). Yet there is no foreseeable progress in this direction and an end of the crisis is not in sight. Why? It will be shown in this article that the current political decisions are often constrained by decisions taken many years ago: history matters. This paper aims to shed some light on previous decisions that not only shaped the present form of the euro but also constrain today's political action.

An important starting point is the collapse of the system of Bretton Woods in 1973 and the institutions which subsequently emerged. In Europe some countries adopted an 'inflation regime' for their economies with the intention of using inflation as an extra stimulus for promoting economic growth, while others followed a 'stability regime' based on stable prices and a reliable economic framework. The result was that the former lagged in growth behind the latter, inducing the inflation regimes to exert a permanent political pressure towards fiscal equalization. Eventually, however, self-responsibility has proven to be the least common denominator. So the European Monetary System (EMS) has emerged as a viable framework of coexistence between the two antagonistic groups of countries. The succeeding 'euro' system from 1999 up to present, however, has resumed destructive elements of redistribution in its institutions. Therefore, the old struggle over fiscal equalization re-emerged in new forms. It will be shown why the self-correcting macroeconomic mechanisms were paralyzed and did not restore fiscal stability but instead produced huge public debts in some euro

member states. This is why true reform is so difficult today. Those euro states that once pursued stability policies are in a minority today and unable to enforce sound rules of fiscal and monetary policy.

The heirs of Bretton Woods: inflation regimes and stability regimes (1973–1991)

On 14 March 1973 the Bretton Woods currency system collapsed. European countries were no longer willing to finance the American balance of payments deficit and as in the case of Germany to pay 4.00 DM for 1 US dollar. The result was a system of flexible exchange rates among autonomous states. But how did the states utilize this newly won freedom? More precisely: which interest groups prevailed in this power vacuum? Over the course of time, two regimes emerged in Europe: inflation regimes and stability regimes.

Inflation regimes are marked by strong labour unions, weak governments and weak central banks. They may be characterised as follows.

Labour unions put pressure on public and private companies by wage demands as well as political, wildcat strikes. In the case of public companies, often state monopolies, the government is the employer. It usually has no other choice than to meet the wage and job demands and, if tax increases are not possible, to finance them by running a budget deficit. If higher unemployment is to be avoided, it also feels compelled to help private businesses suffering from wage pressure. In order to ensure the survival of the companies, it provides subsidies and public contracts that, if tax increases are precluded, are once more reflected in a rising public debt. To avoid debt-induced increases in interest rates, the government tells the central bank (often a department of the finance ministry) to expand the money supply and purchase government bonds.

As a consequence prices rise, import demand increases, international competitiveness declines and exports fall, the current account moves into deficit and finally



* Humboldt University, Berlin and University of Luzern.

the government must devalue the national currency. The unions feel cheated out of the fought-over wage increases and start the process anew. There will be an up and down of inflation and devaluation, upsetting businesses and impairing long-term growth.

In *stability regimes* the unions like any other interest group are part of a constitutional framework. They may strike for wage demands but may not use strikes to push through political goals. Likewise, the government cannot ask the central bank to accommodate the inflated public debt. The central bank is independent. Therefore wages rise in line with labour productivity and prices remain comparably stable. Stability promotes business investment and economic growth.

After the collapse of Bretton Woods, Germans had the choice of an inflation or a stability regime. They opted for a stability regime. Many had lived through two hyper inflations and lost their savings twice, this was not to happen again. For them an inflation regime was not an option. The Bundesbank was to remain independent of the government budget and was not to be forced to finance it by money creation. This decision proved to be right and was copied in time by Austria and the Benelux countries. From then on, together they formed the so-called DM block. The governments of France and the Mediterranean countries of Spain, Italy, Greece including Portugal had a different view. They gave in to the demands of the labour unions, pursued an inflation regime and accepted the sequence of boom and devaluation that impaired long-term economic growth.¹

The political process leading up to the euro (1992–1998)

The tensions and speculation caused by the co-existence of inflation and stability regimes were detrimental to European integration. In particular the fixed price system of EU agriculture suffered when individual countries with an inflation regime had to suddenly devalue. Some began to see a common currency as a cure for these problems. According to the so-called Werner Plan – named after the then Prime Minister of Luxembourg – the EU countries should pursue a common economic policy out of which a common currency would emerge.² To do this, France and the

Mediterranean countries would have to adopt a German stability regime. But they refused and the plan soon collapsed due to dissimilar inflation rates and exchange rate adjustments.

A new attempt was made by French President Giscard d'Estaing, who in 1978 convinced German Chancellor Helmut Schmidt to set up a European Monetary System (EMS) that would have obligated the Bundesbank to buy up the other currencies of the member countries in order to maintain fixed exchange rates even if the member countries failed to pursue monetary policy discipline. But the Bundesbank recognized the manoeuvre and (then still a powerful institution) vetoed it.

Instead the European Monetary System was agreed under the principle of self-responsibility of each country. The D-mark formed the 'anchor' *vis-à-vis* the two (or more) countries and intervened when the limits of a fixed exchange-rate band were reached. In fact, however, the Bundesbank determined the policy to be followed by the other countries. For example, France had to raise its interest rates in the 1980s in order to keep the exchange rate to the D-mark constant. Understandably, France disliked the dominance of the Deutsche Bundesbank. In 1988 it made a move for taking economic and monetary policy out of the hands of one country – Germany – and putting it into the hands of all EU countries. But how was this to happen? As an answer, the German government together with the Bundesbank proposed the creation of a common currency (the future euro) with a common monetary policy in a common central bank. Membership, however, was to be limited to those member states that beforehand fulfilled the convergence criteria regarding price stability, budget equilibrium, exchange-rate stability and long-term interest rates. Furthermore, the national economic policies were to be harmonized. The Bundesbank wanted to establish the currency union only after a political union with uniform economic policies, i.e. in the distant future. German Chancellor Helmut Kohl initially shared this opinion. But he ultimately gave in and in the Maastricht Treaty of 10 December 1991 agreed, probably as compensation to France (for its support of reunification), to 1 January 1999 as the starting date of the currency union, without any preconditions (Art. 121 Section 4 EC). With this the solidity of the convergence criteria was abandoned. Either way, the currency union had to start on the agreed date and had to have a minimum number of member states in order to function. Concessions to the countries with

¹ Ireland, which is often mentioned in this context, is excluded here as it does not seem comparable to the Mediterranean countries due to its large banking sector.

² The Werner Plan had arisen as soon as 1970, however, i.e. before the collapse of the Bretton Woods System, but then disappeared in its wake.

inflation regimes were therefore inevitable. In this way Italy, Spain and Portugal succeeded in becoming part of the first round of euro countries.

In order to preserve the solidity nonetheless, two convergence criteria, the stock of debt and the deficit criterion, were determined as permanent criteria at the 1996 Dublin Summit upon the initiative of Theo Waigel, the then German finance minister. They were to be adhered to by each country even after its entry into the currency union and in 1997 were added to the Treaty of Amsterdam as the Stability and Growth Pact.

After the currency union had been irrevocably established, however, the Stability and Growth Pact was not able to effect much. It was a still birth. In fact, it was hardly ever seriously applied. When its rules were softened in 2005, the now more generously defined discipline hardly improved. This permitted the Mediterranean countries in fact to maintain inflation regimes. Instead of devaluing now and then and thereby making their economies competitive, they accumulated ever higher public debts, which of course was not sustainable. Although these debts were considered serious violations of the Maastricht rules, nobody really wanted to believe that they would eventually lead to payment defaults and sovereign bankruptcies.

The contribution of the twin-deficits theory

In the inflation regime of a nation state there is a succession of inflation and devaluation because the government cannot state credibly that it will withstand the demands of the unions. Here a system of fixed exchange rates can help. The government can no longer use the exchange rate as a way out. All that remains is the public debt as a possible buffer.

In that case the macroeconomic standard theories in the tradition of Ricardo-Barro and of Keynes apply, according to which in case of a budget deficit self-correcting mechanisms become effective so that the public debt does not grow without limit and the budget returns to equilibrium. For the United States, so-called twin deficits may be observed, i.e. a budget deficit occurring in parallel with a balance of payments deficit. Elmendorf and Mankiw (1998) characterize the relationship between the two deficits as follows:

The private households are subject to a budget constraint, given by the national income

$$(1) Y = C + S + T,$$

or GDP at market prices

$$(2) Y = C + I + G + NX.$$

where

Y = national income or GDP,

C = consumption,

S = savings of the private households,

T = taxes minus government transfers,

I = domestic investment,

G = government expenditures on goods and services,

NX = net exports = (exports – imports).

Combining the two equations (1) and (2) yields:

$$(3) S + (T - G) = I + NX$$

The sum of private savings (S) and public savings ($T - G$) on the left-hand side of equation (3) must equal the sum of investment and net exports on the right-hand side.

To net exports NX correspond net capital imports NKI . It comprises foreign investment at home minus domestic investment abroad. Here:

$$(4) NX = NKI$$

or

$$(5) S + (T - G) = I + NKI$$

following equation (3).

By reducing tax revenues paired with constant government expenditures, a budget deficit is created, i.e. government savings ($T - G$) decline. There are various ways to balance equation (5). According to Ricardian theory, individuals will increase their savings. According to the Keynesian approach, they may also cut back on investment or they may (*via* increased imports) try to reduce net capital imports NKI . The budget deficit is reflected in the balance of payments deficit and hence creates a twin-deficit problem. The ensuing decline in the capital stock will lead to a rise in the marginal product of capital and the interest rate and to a decline in the marginal product of labour and real wages, which will then trigger self-correcting measures in the area of investment.

A mixed model with a change from Keynesian to Ricardian behaviour is also conceivable. For euro countries Nickel and Vansteenkiste (2008) have shown that at a low level of debt, below 80 percent of GDP, individuals will behave in a Keynesian way when the budget deficit increases. The level of debt does not concern them. They utilize the scope created by the tax reduction and reduce their net capital imports, i.e. they increase their imports. Along with the budget deficit, the twin deficit of the balance of payments grows, initially delaying a self-correction. This parallel effect ebbs, however, at a higher public debt. People become concerned; the relationship of the budget deficit to the balance of payments deficit becomes insignificant in the estimates or in part even reverses. Therefore savings S must rise more in order to fulfil equation (5), i.e. individuals start behaving in a Ricardian fashion.

Greece already had an official public debt ratio of about 110 percent at the time of euro accession, i.e. an amount way above the level of 80 percent calculated by Nickel and Vansteenkiste. Therefore, one would have thought, the Greeks should have behaved in Ricardian fashion and should have increased their net capital imports through more savings or more exports. That they failed to do so seems to contradict the twin-deficits theory. What happened? Evidently the Greeks assumed from the time of entry into the euro area that in case of insolvency they would be rescued by the community of euro countries. For them the reference value was not the 110 percent debt to GDP ratio, but the then average of about 70 percent of the euro community. Greece therefore behaved in a Keynesian and not a Ricardian way.

Outwardly, Greece even behaved more virtuously than required by the theory. Its alleged debt ratio reported to Brussels fell from the above-mentioned 110 percent (2004) to 98.4 percent (2008). Therefore, the creditors assumed that Greece was on the right path. Without hesitation they could therefore grant the same interest rate on Greek government bonds as for other euro country bonds. This explains why interest rate spreads of close to zero between the government bonds of Greece and those of other euro countries were observed (as, for example, presented by Sinn 2010).

At this time, Spain and Portugal had government debt ratios that were also way below the 80 percent mentioned by Nickel and Vansteenkiste. They, too, behaved in a Keynesian fashion in conformity with the theory. With rising government deficits they

increased their imports or reduced their own net capital imports.

Over time, however, according to the twin deficits theory, in the above-mentioned countries, but especially in Greece (independent of its 'officially reported data'), self-correcting measures should have set in. With the decline in labour productivity and the rise in the return on capital, individuals there should have saved more. This was not necessary, however, as the high rates of return attracted a large volume of foreign capital. Especially German investors were caught up in the vortex.

At the same time, the actual Greek public debt kept rising. But even after the state bankruptcy had become obvious and the foreign investors stayed away, there was no reason for Greece to change from the inflation regime to the stability regime and to reduce its twin deficits in a Ricardian way. The explanation is that the foreign investors were replaced *quasi* automatically by the Target2 credits of the euro system. The latter were especially favourable for Greece, as the interest rate to be paid was only that of the main refinancing rate of 1 percent (Sinn and Wollmershäuser 2011).

In this way it was possible for Greece as for the other Mediterranean countries to continue living under the soft budget constraints of the inflation regime without having to accept the disagreeable side effects of inflation and loss of purchasing power that normally come in the wake of an inflation regime.

Who is not automatically reminded of the end phase of the Bretton Woods System mentioned at the beginning? At the time Germany refused to continue financing the US twin deficits by purchasing dollars at the fixed exchange rate. Germany exited the Bretton Woods Treaty, caused its collapse and forced the United States to adopt reform measures. In today's Germany, however, this idea is no longer opportune.³

Euro, what now?

Many economists argue for insolvency procedures to overcome the sovereign debt crisis. But politically this solution has no chance of being implemented at present. With the political forces in place today, the future is likely to lie in a transfer union under the

³ Only 'heretics' such as Henkel (2010) dare to demand Germany's exit from the euro system.

direction of a centralistic euro government (*gouvernement économique*). Why is this the case?

1. *Loss of sovereignty*: the days of Bretton Woods, when Germany stood and refused to buy any more dollars, are past. In the EU Germany is no longer a sovereign state. In the council of the heads of state or government of the euro area, Germany has only one single vote. Although the body decides unanimously and Germany could veto every decision, this alone is not decisive. What is important is how decisions are formed in the process of 'decision shaping' preceding the vote which produces a draft that in the end no member can oppose. In this process the number of votes is often less important than the number of opinions. France evidently succeeded in using its standpoint on fiscal equalization to become the spokesman of the recipient states and hence had many opinions behind itself. On the other side there are only Germany and the Netherlands as safe payer states of any financial weight. The remaining countries stand in the middle. With the seriousness of the crisis, the weight of voters behind the heads of state and government is also shifting more and more toward those that need additional rescue programs and thus are in favour of a transfer union.
2. *The role of the banks in the preparation of decisions*: in addition, the decisions of the euro council are influenced by institutions that are independent of the voters: the EU Commission, the European Financial Stability Facility, the European Central Bank and the International Monetary Fund. In their considerations the burden on the taxpayer is not so important. They are dominated by bankers. A banker earns less by ending a crisis than on financing it. That is why he is possibly more interested in extending the crisis than in ending it. As to assessing what happens with the money, bankers are less knowledgeable. That is why bankers are more willing to put together rescue packages than to say how structural reforms are to be implemented on site. On the passage of the Greece-II package, it was typically remarked: what must we do to secure Greece's financing until 2020? Much less was said about how the money was to be used.
A bright spot in the decisions of 22 July 2011 is the voluntary participation of banks. Can this procedure be repeated? I am sceptical. A bank executive can hardly step in front of his shareholders and say: I have made transactions at your expense. He is more in a position to communicate that a loss arising from a bankruptcy of Greece of say fifty billion euros must be accepted. After all, in the past the bank earned good money on Greek bonds.
3. *Transfer union via the European Central Bank*: politically the simplest is a financing of the transfer union via the European Central Bank. Since President Trichet has been ignoring Art. 123 of the Lisbon Treaty, there are no longer any limits here. The ECB can buy government bonds depending on the political pressure and political opportunity, i.e. support the budget of this or the other member state. Or in the words of Prime Minister Berlusconi: "and if today it's our turn, tomorrow it can be Paris's turn".⁴ Today it is Italy and Spain, tomorrow perhaps France and other countries. The actions of the ECB may bring liquidity to the recipient countries, but the different risks and hence different interest rates remain. The inflationary effects will be modest as long as the economies of most euro states produce below their capacity limits. In Germany, however, which already produces more closely to the full employment limit, the inflationary pressure may be greater. In the same vein, the external value of the euro may decline when more euros are offered in the financial markets.
4. *Transfer union via Eurobonds*: Eurobonds are issued by each state in its own name and on its own account. But the repayment is guaranteed by all euro states as a common debtor. Whenever a debtor state declares that it is insolvent, the other euro countries stand in for it, initially according to a key of the euro states to be agreed, and eventually according to the one that is still solvent. If Germany wants to escape these burdens, it must declare that it will not participate in the Eurobond programme. Since the other countries do not want to lose their most solvent partner, it is more likely that Eurobonds will be issued via the European Financial Stability Facility (EFSF), of which Germany is a member.
5. *Economic Governance*: in order to maintain control of the Union's finances, the Brussels bureaucrats are already envisaging a strict economic government (a *gouvernement économique* according to the French model). At present an expenditure plan with a common industrial policy is foreseen. In the longer term, however, a harmonization of the major taxes in terms of tax base and rates is probably aimed for. Only with a strict mercantilistic exploitation of the tax substratum can the voluminous

⁴ Open Europe, 10 August 2011.

expenditures of the transfer union be financed and at the same time indebtedness contained.

In this way everything will be nicely planned. Only our freedom will be lost. George Orwell's (1949) erstwhile projection for 1984 may perhaps become reality one hundred years later in 'Euro 2084'.

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THE REFINANCING OF BANKS DRIVES TARGET DEBT

MANFRED J.M. NEUMANN*

The European Central Bank (ECB) annually reports at length about how wonderfully fast and smoothly its real-time payment system TARGET2 (Trans-European Automated Real-time Gross settlement Express Transfer system) functions (European Central Bank 2010). The ECB does not report, however, that within this payment system huge disequilibria have developed since 2008. Hans-Werner Sinn must be credited for focusing on these disequilibria and interpreting them as balance of payments disequilibria (Sinn 2011; Sinn and Wollmershäuser 2011). This has provoked criticism from academia as well as in the media. These disputes cannot and will not be addressed in detail here. The aim of this paper is to examine the close relationship that exists in several euro member countries between increased refinancing of the banks at their central banks and the build-up of debt between the national central banks *via* the Target system. This will be done with the help of an empirical analysis of the development of the Greek banking system (see Neumann 2011). One conclusion of this analysis is that the Eurosystem ought to agree on regulation that effectively limits the future refinancing possibilities of the banks.

Current account financing *via* Target debt?

First, however, a comment on the contested aspect of the balance of payments interpretation of Target balances. Greece's balance is negative (June 2011: – 96.8 bil-

lion euros). Formally, it represents the net indebtedness of the Bank of Greece to the Eurosystem as operator of the payment system. In economic terms, however, the existence of the Target settlement system cannot be ignored. The Greek Target balance is the sum of net debt owed to the other central banks of the Eurosystem created by payment transactions. In technical terms, the balance is carried in the balance of payments as a liability to foreign countries.¹ This procedure is independent of the question of whether the payments underlying the balance served to settle merchandise transactions or portfolio positions.

In the case of Greece, the net capital imports *via* Target in the period from 2008 to 2010 corresponded, on average, to 90 percent of the capital imports needed to finance the current account deficits. There was, however, considerable volatility. At 50 percent, capital imports *via* Target were considerably lower in 2009 and in 2010 at 160 percent much higher (see Table 1). Nonetheless, these observations suggest *prima facie* that current account deficit have been financed to a considerable extent by Target debt. But this must not necessarily be the case. It could at least in part have served the financing of capital exports. This can be clarified with the help of the general balance of payments equation also used by Sinn und Wollmershäuser (2011):

$$\Delta T = L + K, \text{ while } K = KI - KE.$$

An increase in the Target debt ΔT corresponds to the sum of the balances on current account L and capital account K , where the balance K is defined as the sur-



Table 1
The Greek current account deficit and Target debt

	Current account	Net capital imports <i>via</i> Target	Share	Capital account*
	Billion euros		%	Billion euros
2008–10	– 84.7	76.3	90	0.1
2008	– 34.8	24.6	70	5.3
2009	– 25.8	13.7	53	10.7
2010	– 24.1	38.1	158	– 16.0
* Adjusted by net capital imports <i>via</i> Target.				

Sources: Bank of Greece; calculations of the author.

*University of Bonn.

¹ Analogously, the Bundesbank records its positive Target balance (June 2011: 336.5 billion euros) as 'Other claims (net)' in the International Investment Position of the Deutsche Bundesbank in the European Monetary Union (see Table II.8, *Statistisches Beiheft Zahlungsbilanzstatistik zum Monatsbericht*).

plus of private and public capital imports KI over capital exports KE . The equation holds for the assumption of floating exchange rates *vis-à-vis* third currencies.

For the purpose of illustration two extreme cases are distinguished:

- The current account deficit is completely financed by Target debt: $\Delta T = L < 0$. It follows that the private and public capital account should be balanced: $KI = KE$.
- The Target debt does not serve the financing of the current account deficit but exclusively the financing of capital exports: $\Delta T = -KE < 0$. In this case the sum of private and public capital imports should correspond to the absolute value of the current account deficit: $KI = -L$.

These constructed 'ideal' cases show that basically there must always be an analysis of the capital account to determine whether and to what extent a current account deficit has been financed by the central bank with Target debt at the Eurosystem. That is why the last column of Table 1 reports the balances of the Greek capital account. The data show that in the period 2008–10 net private and public capital movements played in fact a largely insignificant role in the financing of the current account deficits. It can thus be concluded that during the three-year period the Greek current account deficit was financed at least to 90 percent by Target debt of the Bank of Greece. Beyond that, in 2010 the central bank financed in this way net capital exports of around 15 billion euros.

In view of the magnitude that Target debt has meanwhile reached on the balance sheets of the central banks of the Eurosystem, one may expect the ECB to create transparency by reporting in detail, at least in its Annual Report, about the development of the balances between the member banks.²

Refinancing credit and Target debt

The enormous expansion of Target debt by the GIPS countries (Greece, Ireland, Portugal, Spain), rightly deplored by Sinn and others, can only be understood

Table 2
Two waves of debt of the banks and the central bank

Period	Changes in billion euros				
	Refinancing	Reserves	Net claims on the state	Net foreign assets	Target debt
April 2008 – Dec. 2008	+ 34.3	+ 1.6	+ 4.5	+ 32.5	+ 27.9
Nov. 2009 – May 2010	+ 48.5	+ 2.9	+ 11.6	+ 22.3	+ 41.6

Sources: Bank of Greece; calculations of the author.

against the background of the parallel excessive expansion of debt by the commercial banks of these countries at their central banks. It was promoted by the introduction of the essentially more efficient euro payment system Target2 in spring 2008 and by the ECB's shift to a policy of full allocation of tenders and lowering of collateral standards in autumn 2008. The Greek banks, which changed to the Target2 System in spring 2008, used it at once for a credit-financed expansion of their portfolio investment abroad. Within a mere three quarters they increased their debt six-fold at the Bank of Greece. Refinancing credits outstanding increased from 34 to 41 billion euros by the end of 2008 and thus to four times the banks' reserves of central bank money in the form of cash and deposits at the central bank.

It could be the case that in view of the then internationally widespread uncertainty regarding the solvency of big banks, the Greek banks primarily wanted to make sure that they had additional reserves of central bank money as a precaution and to keep them as excess reserves. This well-intended presumption is not confirmed by the data, however. As shown in Table 2, less than two of the newly borrowed 34 billion euros were added to bank reserves. Greek government bonds, too, were purchased in only small volumes. The large volume of borrowing served almost exclusively to finance the purchase of foreign assets. The banks increased their foreign portfolio by a net 32 billion euros, primarily investing in banks on Cyprus.

This first wave of an increased expansion of central bank debt was followed by a second one at the end of 2009. In no more than half a year (from November 2009 to May 2010) the Greek banks expanded their central bank debt by close to 50 billion euros. They used this to finance additional portfolio investment abroad and did so for a net 22 billion euros. In addition they invested 12 billion euros in government bonds after it became clear that there would be a rescue package for Greece. In part this debt also served

² In the ECB Annual Report 2010 only the negative Target balance resulting from the acquisition of GIPS country government bonds (December 2010: – 21.2 billion euros) is recorded without commentary.

as a replacement for the loss of domestic deposits that started in spring 2010.

As the Target balances arise from a multitude of individual payments for merchandise, services and portfolio dispositions, a significant correlation between Target balances on the one hand and the selected partial balances of the balance of payments on the other cannot be expected. This is confirmed by the Greek data. In contrast, the refinancing debt of the banks is almost perfectly correlated with the Target debt of the Bank of Greece, as is directly shown in Figure 1. Since 2008 the chronological movement of both variables follows the same pattern. Waves of steep increases are in each case followed by a consolidation phase on a high level. The logic of the relationship of the two variables is such that the taking on of refinancing debt permits the banks to refinance cross-border merchandise and financial transactions whose execution leads to corresponding payments *via* Target.³ Whether this view is acceptable may be tested by the concept of Granger causality for the first differences of the two variables. The test results reported in Table 3 confirm our suspicion that the changes in the refinancing debt significantly affect ensuing changes in Target debt.⁴ At 4.0, the value of the F test is highly significant (at a 2.5 percent level of significance).

Target balances only reflect the true problem, which is an excessive availability of low-interest central bank credit. If, in the framework of a political union, the euro central banks were integrated as dependent branches of the ECB, the consolidation of the branches would dissolve the Target balances in thin air. Nonetheless, the problem of commercial banks of the GIPS countries, which have become accustomed

Table 3

Granger causality test

Period: May 2008 – May 2011 2 Lags	F statistic	Probability of error
Δ Refinancing non-causal for Δ Target	4.00	0.025
Δ Target non-causal for Δ refinancing	0.14	0.867
Δ = monthly difference.		

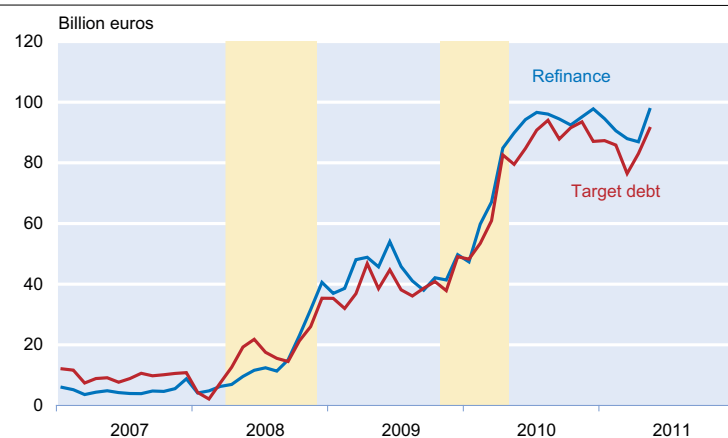
Source: Calculations of the author.

to borrow massively from the Eurosystem, would persist.⁵ Greek banking statistics show a very dangerous development. In 2007 the ratio of refinancing debt to bank reserves amounted to 80 percent. Thereafter, it jumped from year to year, to 200 percent in 2008, 500 percent in 2009, 930 percent in 2010 and to even 1,200 percent, on average, for the first six months of 2011. Alarming is also a comparison with the stock of central bank money or monetary base. In a country with its own currency, the volume of refinancing credit can never be higher than the monetary base. This also applies to a currency union as a whole, but not to each individual region. The focus of the taking on of central bank credit can shift depending on the economic development of the regions between the regional or the national banking systems, respectively. By itself, this is no economic policy problem. If, however, as in Greece, the relationships are thrown out of kilter – the refinancing of the Greek banking system now amounts to four times the Greek monetary base – then the uninhibited access to central bank credit causes systemic risks, and not only for regional banking systems but for the entire euro area. Among the systemic risks is also the fact that the ECB falls under the influence of the banks and the central bank interest rate is kept lower than appropriate.

The central banks of the Eurosystem, but also the bank supervisory authorities, must no longer

Figure 1

Refinance of Greek banks and Target debt



Sources: Bank of Greece; Own calculation.

³ Not all payments are transacted *via* the Target2 system. At 91 percent, the market share of the system is very high, however (see European Central Bank 2010).

⁴ We test the null hypothesis that changes in the refinancing debt are not the cause of ensuing changes in Target debt. This hypothesis is rejected by the data.

⁵ Sinn and Wollmershäuser (2011) report central bank credits of the GIPS countries amounting to 350 billion euros at the end of March 2011. Accordingly, 80 percent of the total refinancing credits of the Eurosystem (424 billion euros) are recorded on the balance sheets of the GIPS central banks.

ignore these risks. It is time for them to deal with the question of how an excessive use of central bank credit by banks may be prevented. The newly founded European Systemic Risk Board (ESRB) could address this issue when the Eurosystem needs advice by the bank supervisors of the member states. In terms of content, at issue is the introduction of an upper limit. In the pre-euro era, when in Germany refinancing credit was still granted by the Bundesbank in the form of discounting commercial drafts, there were rediscounting contingents for the quantitative limitation of the availment that was fixed for each bank depending on the size of its liable funds. A comparable regulation suggests itself for the Eurosystem. The permissible volume of available central bank credit could be determined by a multiplier, identical for all banks, that relates the maximum permissible debt of a bank to the volume of its core capital. That would be a simple regulation that would lend each bank the flexibility to procure additional refinancing capacity by increasing its equity capital. The multiplier should not, however, become a new instrument for fine-tuning monetary policy. Rather, it should be of a size that need not be changed for many years.

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THE CURRENT ACCOUNT DEFICITS OF THE GIPS COUNTRIES AND THEIR TARGET DEBTS AT THE ECB

PETER BERNHOLZ*

It goes without saying that a country's current account deficits must be financed. In the case of a country with its own currency, this means that it needs foreign exchange to pay for the deficit. Its possibilities for paying for a deficit are accordingly limited by its foreign exchange reserves and the willingness of foreign private or public persons or organisations to grant private or public credit.

The same holds with some differences for a member state of the European Monetary Union (EMU), since the central bank of the country that is a member of the EMU does not need foreign exchange reserves for payments within the euro area, as these are transferred *via* the European Central Bank by means of the so-called Target clearing system. If, for example, a Greek buyer of German goods wants to pay for them, his account at a Greek bank will be debited, which in turn has the same amount debited at the Greek central bank that transfers it to the ECB. At the ECB, a corresponding amount is debited to the Greek central bank and credited to the Deutsche Bundesbank (Buba) that subsequently credits the account of the seller's bank. The seller finally receives the amount in question in his account at this bank.

Regarding the financing of a current account deficit in the amount D of a member state of the currency union, apart from negligible presents, the following financing condition holds:

$$(1) D = DKpr + DKpu + DKprf + DKpuf,$$

where $DKpr$ and $DKpu$ are private and public credits granted by other countries of the monetary union; correspondingly, $DKprf$ und $DKpuf$ are private and public credits granted by foreign countries outside the currency union. For the country itself K represents an increase in its liabilities (debts).

As the country's deficit *vis-à-vis* non-EMU countries, Df , is being financed by these *via* lending, the following equation results using equation (1)

$$(2) Df = DKprf + DKpuf = D - DKpr - DKpu,$$

where the country's deficit *vis-à-vis* the other states of the EMU, named Dew , is

$$(3) Dew = D - Df.$$

Let us assume now (assumption 1) that there is no deficit of the country under consideration with countries outside the EMU, e.g. because its insolvency is feared and therefore neither private nor public lenders are willing to grant new loans, i.e. to export more capital to this country. Then

$$(4) DKprf + DKpuf = 0$$

and it follows from equations (2) and (3)

$$(5) D = Dew = DKpr + DKpu$$

This means that, because of assumption 1, the current account deficit only exists *vis-à-vis* the EMU countries and is being financed by them. We now divide public lending $DKpu$ into that of the governments and the European Commission, DKg , and that of the central banks, $DKcb$, of the remaining EMU countries, so that

$$(6) DKpu = DKg + DKcb.$$

It must be noticed that $DKcb$ shows up as a liability of the country in question on the balance sheet of the ECB, and that the latter then credits the central banks of the other member states with the same amount.



* University of Basel.

Thus we obtain

$$(7) DV_{cb} = DK_{cb},$$

where DV_{cb} denotes the increase in the liabilities of the country *vis-à-vis* the ECB.

Let us now use assumption 2, that private entities inside the EMU for similar reasons as those outside are no longer prepared to grant the country any further credit; and further make assumption 3, that governments and the commission have not granted any loans during the period in question, then, because $DK_{pr} = 0$ and $DK_g = 0$ it follows from equations (5) and (6)

$$(8) D = D_{ew} = DK_{cb}.$$

This result follows from the tautology and assumptions 1 to 3. Whether it corresponds to the facts is an empirical question that depends on the countries considered, the period chosen and the correctness of the assumptions.

Let us now test this for the period from 2007 to 2010 for the hypothesis that the deficit country refers to all GIPS, i.e. to Greece, Ireland, Portugal and Spain, whereas Germany and therefore its central bank is the only creditor. Then the assumptions, especially equation (7) can at most be approximately correct. To the extent to which the approximation is close enough, we may consider the hypothesis that mainly the Bundesbank has financed the deficits of the GIPS as by and large confirmed.

Therefore equations (8) and (7) should be confirmed according to their magnitudes, since only then are the three assumptions roughly fulfilled. This means that firstly the combined deficit D of the GIPS should correspond to the change in their Target debt at the ECB, DV_{zb} , and secondly that this should roughly correspond to the change in the Target credit of the Bundesbank, DK_{cb} , at the ECB.

The results for the period from 2007 to 2010 are:

$$D_{ew} = 365 \text{ billion euros};$$

$$DV_{cb} = 340 \text{ billion euros and}$$

$$DK_{cb} = 326 \text{ billion euros.}$$

The highest and the lowest of these figures differ by not more than 7.4 percent or 4.1 percent respectively

from 340 billion euros. Considering our drastic assumptions 1 to 3, these differences do not suffice to refute the hypothesis that the accumulated deficit of the GIPS countries from 2007 to 2010 was essentially financed by the increase of their Target debt at the ECB, which in turn was financed by the creation of a corresponding Target credit of the Bundesbank.

In view of the derived results it is reasonable to ask how long this kind of financing the deficits of the GIPS countries may be continued. In the past, this was possible without damage to the system, as the ECB expanded its monetary base so much after 2007 that it was possible to raise the Target debts all the more without a strong expansion of the monetary base, i.e. the central bank money supply issued by the ECB. The existing scope, however, will be exhausted in the foreseeable future, probably in two years, if the monetary base does not grow further. This would further increase the risk of inflation, however. And it would do so in a situation in which inflation will threaten anyway if the ECB does not succeed in a timely reduction of the excessive central bank money supply and raise its interest rates. This risk posed by Target financing should not surprise anybody, as the increase in the Target debt of the GIPS countries is nothing else than the financing of deficits by monetisation. It therefore comes as no surprise that the ECB is arguing so energetically in favour of an expansion of the rescue funds for these countries and thus for the assumption of their debts by the member states of the euro area, the EU Commission and the International Monetary Fund.

But there may be another possibility for a time for the GIPS countries and thus the ECB instead of expanding the monetary base. Instead of increasing their Target debts at the ECB, these countries would have to finance their deficits by relinquishing their gold reserves to the ECB and thus indirectly to the Bundesbank. This would, of course, only be possible until their gold stocks were exhausted.

MACROECONOMIC IMBALANCES IN EMU AND THE EUROSISTEM

THOMAS MAYER, JOCHEN MÖBERT AND
CHRISTIAN WEISTROFFER*

Before the financial crisis, ECB officials tended to be critical of the lack of fiscal policy discipline in numerous EMU member countries but dismissed concerns about external current account imbalances within the currency union. Why should we be concerned about current account imbalances in EMU when nobody cares about current account imbalances among federal states in the United States, they asked. With hindsight, it is clear that the comparison with the United States was wrong and the complacency misplaced. The euro area lacks the degree of political, economic and financial integration that renders current account imbalances among its member countries benign.

In the United States, larger companies and banks operate nation-wide – much more strongly compared to the case within EMU. In addition, the US federal government softens economic disparities through transfers (notably through the social security system), while such transfer possibilities are strongly limited in Europe. In the rare cases when regional imbalances threaten economic and financial stability a central authority is available to manage the crisis. Thus, when imprudent lending by local savings banks in the state of Texas caused a financial crisis in the early 1980s, the US federal government stepped in and re-structured the sector. Against this, there are hardly any built-in mechanisms in EMU to correct unsustainable current account imbalances, and a permanent crisis mechanism is presently still under construction.

When excessive private and public borrowing from abroad lead to an unsustainable current account deficit, an EMU country is at risk of being suddenly

cut off from funding this deficit. A similar funding risk was discovered during the 1980s and 1990s in emerging market economies that had borrowed in foreign currency; a cut-off from the international capital markets was then dubbed in the economic literature a ‘sudden stop’. There is, however, an important difference between the ‘sudden stop’ of capital inflows experienced by emerging market economies in the past and the ‘sudden stop’ experienced by some EMU member countries today. In the former countries, the ‘sudden stop’ usually led to currency depreciation and, in some cases, to default on the foreign currency liabilities. In the latter, currency devaluation is impossible, but the system of euro-area central banks, the Eurosystem, has been pulled in to provide bridge financing. As a result, sizeable financial imbalances have developed within the Eurosystem. To return to market-based funding structures in EMU these imbalances will have to be unwound in the years ahead. This will require painful private and public sector de-leveraging over several years in a number of countries.

The remainder of this article is structured as follows: the first section describes the emergence of current account imbalances within the euro area during the period of easy private sector credit. The second section illustrates how the Eurosystem has helped to fund public sector deficits, followed by the third section which shows how the Eurosystem has replaced private capital flows to fund current account imbalances. The final section contains our concluding remarks.

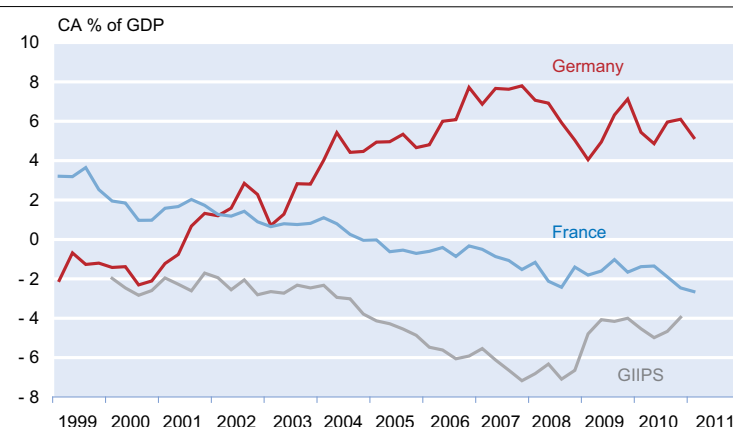
The rise of current account imbalances within EMU

Since the beginning of EMU the external current account of the euro area has been close to balance. The moderate imbalances that emerged from time to time appeared anything but threatening. Yet, below the surface, sizeable imbalances among EMU countries built up. A key driver of deficits was easy credit that allowed some countries to fund private and public saving-investment deficits. Thus, Greece, Ireland, Italy, Portugal and Spain, the so-called GIIPs countries that benefited from record low interest rates after



* Deutsche Bank.

Figure 1
Current account balances in EMU



Sources: Eurostat; Haver Analytics; Deutsche Bank.

the introduction of the euro, ran up a GDP weighted deficit of about 7 percent of GDP at the height of the credit bubble (Figure 1). Germany, on the other hand, which did not benefit from a drop in interest rates embarked on a policy of cost cutting to regain international competitiveness that was lost during the 1990s. At the same time, it ran up a current account surplus of up to 8 percent of GDP, roughly offsetting the deficit of the GIIPS countries (which together have a GDP similar to that of Germany).

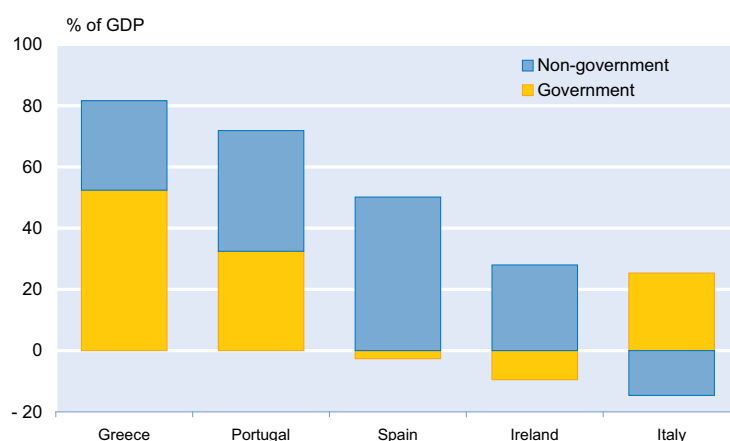
Both private and public sector savings-investment deficits contributed to the current account deficits in the GIIPS countries. Figure 2 shows the cumulated net borrowing of the private and public sector from abroad. Private and public sector net borrowing in principle add up to the current account balance, although in practice some statistical differences remain. The current account deficits of Greece and Portugal were induced by both public and private sector net borrowing. Against this, Spain's deficit was almost entirely the result of private sector borrowing. Ireland ran an external surplus thanks to private sector net lending. Italy ran a small current account deficit due to government borrowing that exceeded somewhat private sector lending.

Before the financial crisis the emergence of internal current account imbalances was not given much attention by many

observers and policy makers, including those at the ECB. It was expected that market forces would operate to smoothly correct these imbalances. However, many observers overlooked that insufficient financial and economic integration across euro-area countries prevented default risk diversification across countries, and that large current account deficits led to the accumulation of idiosyncratic risk on a country basis. To appreciate this point, consider first the case where only big banks operate in the whole of the euro area. The

big banks would manage credit risk across the euro area, and they would aim at eliminating country-specific, idiosyncratic risk through credit portfolio diversification. Moreover, these banks would not be subject to country-specific funding risks. Hence, a country-specific negative funding or credit shock would not lead to systemic risk. Consider now the case where banks operate only on a national basis. Borrowing in the common currency in any one EMU member country then creates roll-over risk. Foreign creditors can afford to refuse to roll maturing debt when they fear default as there is no need for them to reinvest redemptions in the country where they receive them. This is in stark contrast to the case of a country with its debt denominated in its own currency: redemptions there have to be reinvested eventually in the same country, although not necessarily by the same investor or into the same asset class. A 'sudden stop'

Figure 2
Cumulated net borrowing by the public and private sector, 1999–2007



Sources: Eurostat; Deutsche Bank.

of funding of external deficits is therefore virtually impossible (although the currency can crash when investors attempt to sell it in a rush).

Eurosystem funding of government debt

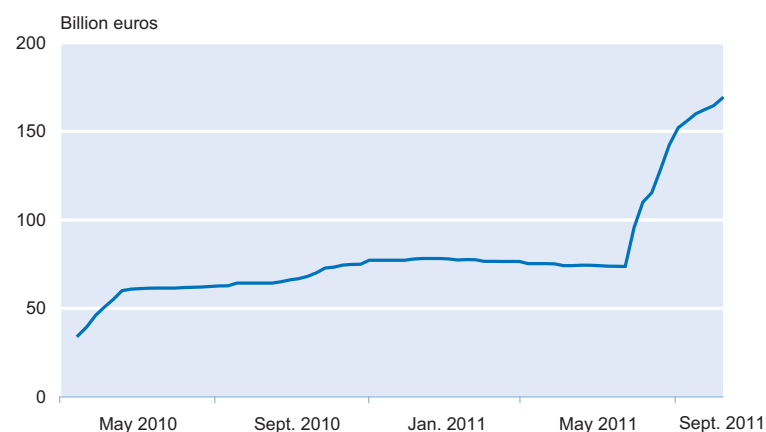
In the previous section we discussed the failure to pay proper attention to the emergence of large current account imbalances in EMU and compared the roll-over risk for foreign debt in EMU countries to the risk of ‘sudden stops’ identified for emerging market economies in the past. In this and the following section we explore the role of the Eurosystem in temporarily reducing the risk of a ‘sudden stop’ by filling the funding gap created by investors’ refusal to roll outstanding debt. Let us first consider the case of government finances.

During most of the first ten years of EMU interest rate convergence was the dominant theme for investors in euro-area sovereign debt. With the risk of sovereign default seen as negligible, investors preferred the initially higher yielding debt of EMU countries with weaker government finances, until yield differentials had almost disappeared. When risk aversion suddenly surged during the financial crisis, investors began to shun the debt of euro-area countries with weak and dubious government

finances. 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 money from the Eurosystem, with the same bonds used as collateral for the loans. As a result, government bond holdings of commercial banks rose substantially as interest from other investors diminished (see Figure 3). In addition, the Eurosystem started to buy bonds of governments in financial difficulties directly in the secondary market in May 2010 when private sector funding dried up for a number of EMU countries (Figure 4). In September 2011, the ECB extended its securities markets programme to include also the purchase of Italian and Spanish government bonds.

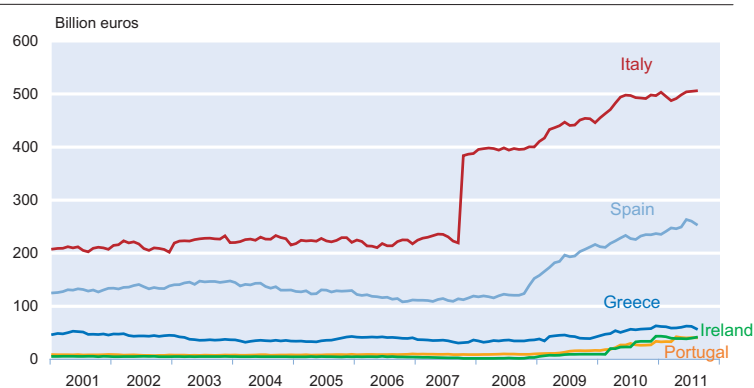
The Eurosystem’s involvement in the funding of government deficits can be defended on two grounds: First, markets may have reacted irrationally, denying solvent governments the roll of their outstanding debt and hence triggering a liquidity crisis. Second, with no other body available for crisis management, the Eurosystem had no other choice than to step in and to provide emergency liquidity support. Of course, the longer the Eurosystem’s involvement in the funding of government deficits lasts, the more difficult becomes its defence and the more obvious become the structural flaws of EMU.

Figure 4
Holding of bonds under the ECB’s Securities Market Programme (SMP)



Sources: ECB; Deutsche Bank.

Figure 3
Bank credit to government



Note on Italian series: since October 2007 the statistics have included the balance sheet data of Cassa Depositi e Prestiti s.p.a, reclassified as a monetary and financial institution (MFI), similarly to what happened in Germany for the KfW (also a MFI).

Sources: WEFA/IFS; Deutsche Bank.

Table 1

Initial balance sheets of national central banks and commercial banks (in euros)

Bank of Greece		Bundesbank	
Assets	Liabilities	Assets	Liabilities
5,000	5,000	5,000	5,000
Loans to Greek bank	Greek bank deposits	Loans to German bank	German bank deposits
0	0	0	0
Claims on Eurosystem	Due to Eurosystem	Claims on Eurosystem	Due to Eurosystem
Greek bank		German bank	
Assets	Liabilities	Assets	Liabilities
10,000	10,000	10,000	10,000
Loans	Deposits	Loans	Deposits
5,000	5,000	5,000	5,000
Central bank liquidity	Due to Bank of Greece	Central bank liquidity	Due to Bundesbank

Source: Deutsche Bank.

Survival of the currency union in the long-term will depend to a significant extent on whether it will be possible to restore the two key principles of EMU: (1) the focus of the Eurosystem on price stability alone, which requires the end of its involvement in propping up governments and banks in financial difficulties; and (2) the full responsibility of national governments for their finances, which requires default as the ultimate sanction for failure to live up to this responsibility.

Eurosystem funding of current account imbalances

In the previous section we discussed the role of the Eurosystem in funding public sector financial imbalances. In this section we turn to its role in funding aggregate external current account imbalances. We first discuss the accounting mechanics of intra-EMU cross-border payments and then turn to recent developments within the Eurosystem's interbank payment system – Target2 (see also Sinn 2011; Sinn and Wollmershäuser 2011).

The accounting mechanics of intra-EMU cross border payments can be best illustrated with an example.

Assume that a Greek customer buys a good from a German supplier costing 5,000 euros. To finance the purchase he takes out a credit from his bank over the same amount. He now advises his bank to transfer the 5,000 euros to the bank of the German supplier. The Greek bank debits the customer's account and requests the Bank of Greece, where it has an account, to transfer 5,000 euros to *via* the ECB and the Bundesbank to the bank account of the German supplier. Following the transfer, the Bank of Greece has a liability of 5,000 euros towards the ECB (see Tables 1 and 2). The ECB passes the funds on to the Bundesbank for further transfer to the bank of the supplier, where they go on his account (it is as if the Bank of Greece had borrowed from the Bundesbank via the ECB to fund the purchase by the Greek customer). Now assume that the German bank of the supplier lends the 5,000 euros back to a Greek bank. In this case, the payment flows among the central banks reverse and their balances with the ECB equilibrate (Table 3). The German bank ends up with a 5,000 euros claim on the Greek bank, which has the same claim on its customer. Assume, alternatively, that the German bank refuses to re-cycle the funds to Greece. In this case, the German bank holds on to the

Table 2

Balance sheets after Greek customer pays 5,000 euros to German supplier (in euros)

Bank of Greece		Bundesbank	
Assets	Liabilities	Assets	Liabilities
10,000	5,000	5,000	10,000
Loans to Greek bank	Greek bank deposits	Loans to German bank	German bank deposits
0	5,000	5,000	0
Claims on Eurosystem	Due to Eurosystem	Claims on Eurosystem	Due to Eurosystem
Greek bank		German bank	
Assets	Liabilities	Assets	Liabilities
15,000	10,000	10,000	15,000
Loans	Deposits	Loans	Deposits
5,000	10,000	10,000	5,000
Central bank liquidity	Due to Bank of Greece	Central bank liquidity	Due to Bundesbank

Source: Deutsche Bank.

Table 3

Balance sheets after German bank lends 5,000 euros to Greek bank (in euros)

Bank of Greece		Bundesbank	
Assets	Liabilities	Assets	Liabilities
5,000	5,000	5,000	5,000
Loans to Greek bank	Greek bank deposits	Loans to German bank	German bank deposits
0	0	0	0
Claims on Eurosystem	Due to Eurosystem	Claims on Eurosystem	Due to Eurosystem
Greek bank		German bank	
Assets	Liabilities	Assets	Liabilities
15,000	15,000	15,000	15,000
Loans	Deposits	Loans	Deposits
5,000	5,000	5,000	5,000
Central bank liquidity	Due to Bank of Greece	Central bank liquidity	Due to Bundesbank

Source: Deutsche Bank.

money (and perhaps reduces its demand for funds from the Bundesbank) and the balances of the two central banks with the ECB don't equilibrate. Note that in latter case the stock of central bank liquidity has increased in the accounts of the German bank (exceeding its liabilities against the Bundesbank). At some point, the German bank may decide no longer to keep this liquidity on account at the Bundesbank and to purchase financial assets or extend credit in its home market. Thus, the funding of current account imbalances *via* the Eurosystem can fuel asset and/or consumer price inflation in the surplus country.

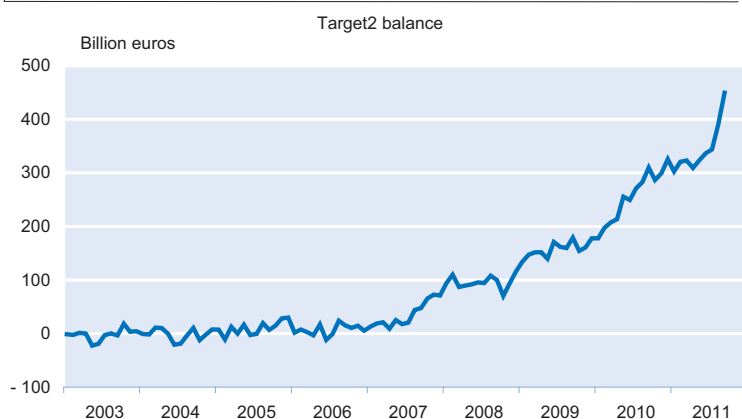
Figure 5 shows the evolution of the Target balances from the Bundesbank's point of view. Until 2008 the Bundesbank's net claims against the ECB were close to zero, indicating that private sector capital flows financed the current account imbalances within EMU. Since then, however, the Bundesbank's net claims have risen sharply as private sector flows dried up due to rising risk aversion in the interbank money

market. When Germany's surplus savings were no longer re-cycled by the private sector, the Eurosystem took over. The corollary to this development has been the increasing reliance of banks in the peripheral countries on the Eurosystem for the funding of their assets. Figure 6 shows the total refinancing operations of the ECB and the share of the five peripheral countries, Greece, Ireland, Italy, Portugal and Spain. In 2007, the five countries absorbed about 17 percent of the funds provided by the ECB under repurchase agreements, broadly in line with the size of their banking sectors relative to the euro area. When an increasing number of banks in these countries were cut off from the market, their share in the ECB's refinancing operations rose to around 75 percent.

In our example above we explained the emergence of imbalances within the Eurosystem as a result of trade flows that were not funded by private sector capital flows. However, imbalances can also emerge as a result of capital movements alone. Suppose a Greek saver decides to move his deposits to Germany. This operation leads to a debt in the Eurosystem account of the central bank of Greece and a surplus in the account of the Bundesbank. *Vice versa* sales of Greek government bonds to foreign investors – e.g. by a Greek bank to a German insurance company – reduce the liability of the Greek bank and the claim of Bundesbank.

Figure 7 compares changes in the Bundesbank's net position *vis-à-vis* the Eurosystem with developments of Germany's current

Figure 5
Claims of the Bundesbank against the ECB



Sources: Bundesbank; Deutsche Bank.

Figure 6
ECB refinancing operations (main and log-term refs)

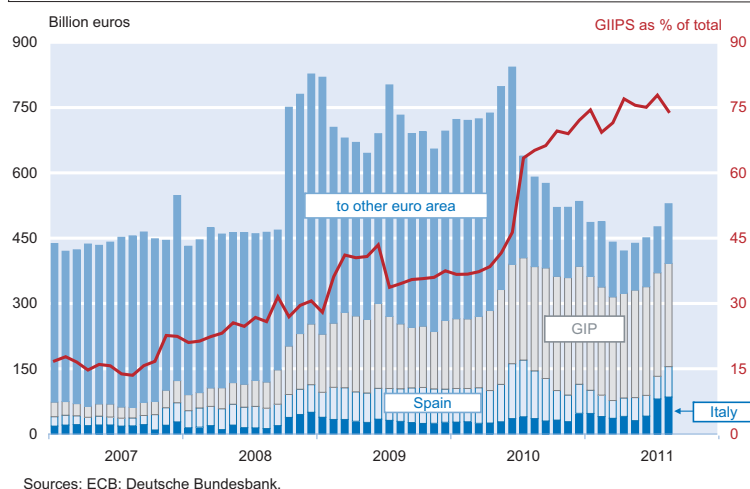
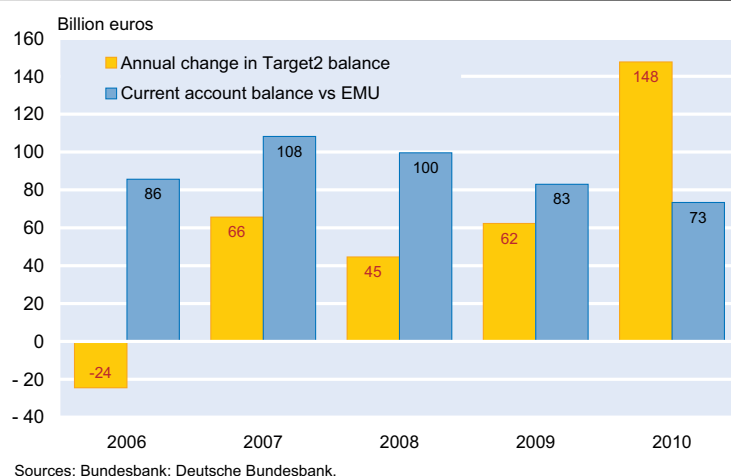


Figure 7
The Bundesbank's claims against the ECB and Germany's current account surplus



account. The fact that the Bundesbank's net claims against the Eurosystem rose faster than Germany's current account surplus suggests that there were also capital movements into Germany. In addition to money inflows from the export of goods and services, the rise in Target2 balances reflects capital inflows into Germany from other EMU countries as well as the repatriation of German investment abroad.

Table 4 shows net claims and liabilities of Eurosystem central banks against the ECB for the end of last year and the latest available observation. Apart from Germany, Luxembourg, Netherlands, and Finland are major creditors while Ireland, Greece and Portugal are the major debtors. The debt of these countries is quite large when compared to the size of their economies. Target2 positions have further increased in the course of 2011. The most significant deterioration occurred

in Italy, where a small net surplus of 3.4 billion euros turned into a large net liability of 103.5 billion euros. With the Italian current account balance *vis-à-vis* the euro area having changed only little during the first half of 2011, the recent deterioration hints at a rising deficit in the capital account.

Following the discovery of these imbalances, a lively debate emerged in Germany on how to interpret them. Some private sector economists suggested that the Bundesbank's net claim on the Eurosystem would add to Germany's exposure to troubled euro-area countries, while officials have downplayed these imbalances as purely technical. However, Garber (1998 and 2010) makes the much more important point that the Eurosystem's inter-bank payment scheme can be used to accommodate capital flight out of one or more EMU member countries into Germany (and other EMU member countries considered to be safe havens). Such a flight could occur if there were fears that a country's banking system could become insolvent.

Garber (2010) warns: "if the fiscal authorities in the EU were tough and pushed for restructuring [of government debt], then the flight would likely proceed to the point where a substantial part of the national balance sheet is intermediated by the ECB. If the ECB were to cease accepting the country's paper as collateral to end the haemorrhage, the outgoing payments could no longer be made and the country's banking system *de facto* would be cut off from the euro. If the country's authorities kept the banking system open for internal payments at least, the bank deposits in the country would float against the euro currency". In other words, the euro would break up.

In the longer-term, a mechanism would seem to be needed that prevents the unlimited rise of imbalances within the Eurosystem. In the United States, imbalances among the district Federal Reserve Banks aris-

Table 4
Net positions of Eurosystem central banks against the ECB (Target2)

	End-2010 billion euros	2011 billion euros	2011 % of GDP	Change since end-2010 billion euros
Germany	325.6	449.6 Sept	18%	+ 124.0
Luxembourg	67.9	72.4 Aug	163%	+ 4.5
Netherlands	40.5	64.8 Sept	11%	+ 24.3
Finland	19.7	43.4 Sept	23%	+ 23.7
Italy	3.4	- 103.5 Sept	- 7%	- 106.9
Malta	- 1.2	- 0.5 Aug	- 8%	+ 0.7
Slovenia	- 2.1	- 2.4 Aug	- 6%	- 0.3
Cyprus	- 6.4	- 7.9 Sept	- 43%	- 1.5
Slovakia	- 13.3			
Belgium	- 13.9	- 24.1 Sept	- 6%	- 10.2
ECB	- 21.2			
Austria	- 27.5	- 35.5 June	- 12%	- 8.0
France	- 28.3	- 33.5 Aug	- 2%	- 5.2
Spain	- 50.9	- 82.8 Sept	- 8%	- 31.9
Portugal	- 59.9	- 59.4 Aug	- 35%	+ 0.5
Greece	- 87.1	- 97.5 Aug	- 44%	- 10.4
Ireland	- 145.2	- 140.6 Aug	- 0.9	+ 4.6

Sources: Bundesbank; National central banks; Eurostat; Deutsche Bank.

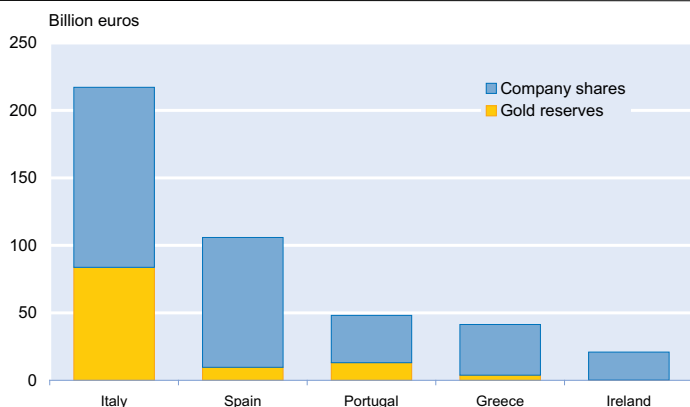
ing from inter-district payments (through Fedwire, the US pendant to Target2) are settled annually (with district Federal Reserve Banks paying in gold certificates). This ensures that regional central banks exert pressure on commercial banks to fund their inter-regional balances (or eliminate them if they can't fund them). The need for annual settlement within the Eurosystem would imply that national central banks would exert pressure on the commercial banks in their countries to look for private external funding of their assets or adjust the asset to the funds available from the market. A settlement could take place through the transfer of gold reserves and shares of

private companies, which belong to the government. As shown by Figure 8 such a transfer would considerably reduce the accumulated deficits *vis-à-vis* the ECB in certain cases.

Moreover, a higher degree of financial integration would be needed to establish a firmer base for the common currency. Financial regulation and supervision, deposit insurance and a bank resolution scheme would need to be established at a euro area level. Banks would have to be encouraged to operate on a euro-area-wide basis so that country specific credit and funding risk could be diversified across the euro area.

What should be done?

Figure 8
Gold reserves and company shares of GIIPS countries in public ownership



Sources: International Financial Statistics; OECD.

As it became more difficult to fund internal and external imbalances in a number of EMU member countries, the Eurosystem stepped in and partly filled the gap. This has exposed the Eurosystem to the risk of sovereign and bank defaults and perhaps stiffened the opposition of ECB members against any sovereign debt restructuring, even when there are very serious doubts about the solvency of a country. In our opinion it would be too shortsighted to transfer a continuing financing of insolvent states and their banks from the Eurosystem to the public sector (as seems to be in the minds of some ECB members). This would let the opposition to EMU grow in the paying countries and could finally lead to a partition or separation of EMU. It is necessary, therefore, to correct the balance of payment deficits by reducing the deficits in the current account and the private capital account.

A correction of the balance of payments deficits can only be expected, however, if domestic goods, services and assets would become markedly cheaper relative to their foreign substitutes. A drop in asset prices should necessitate considerable write-downs of

the granted credits based on these assets. Credits to the state would also have to be written down correspondingly, as they with markedly reduced tax revenues in a nominally shrunken economy could no longer be served completely. To date, such an adjustment process in the private and public sectors are barely visible. But adjustment is urgent. For the willingness of the ‘surplus’ countries to finance deficits in the Eurosystem *via* their national central banks is likely to end when large parts of the population of the ‘deficit’ countries start to withdraw their money from the local banks and transfer it to the safe surplus countries. This would be a clear sign of the people of the deficit countries withdrawing from the liability for questionable bank credits to the private sector and the government and trying to shift possible losses *via* the Eurosystem to the communality of taxpayers in the euro area. If, however, the surplus countries refuse to accept the flight capital from the deficit countries, then the euro will have lost its function as common currency.

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THE DERAILED POLICIES OF THE ECB

GEORG MILBRADT*

Target balances and the euro crisis

The problems revealed a few months ago by Hans-Werner Sinn¹ of the Target balances between the ECB and national central banks (NCBs), especially the Bundesbank, on the one side, and the NCBs of the peripheral countries, Greece, Ireland, Portugal Spain, and recently Italy (GIPS countries), on the other, has made clear that there are serious institutional weaknesses in the Eurosystem and significant negative developments in the euro area that in terms of their scope and dangers go even further than the sovereign debt crisis and the rescue plan constructed by the euro countries, both of which are the subject of public controversy (first Greek rescue plan, EFSM, EFSF).

Triggered by the massive deficit in the Greek state budget that emerged into public view in late 2010, the political and economic interest focused mainly on excessive debt financing in Greece and Portugal, the housing bubble in Ireland and Spain, the associated effects on the banking systems in the euro area and the reaction of the financial markets. The policy measures to avert an alleged second 'Lehman crisis' are well-known: the provision of a rescue plan for Greece, Ireland and Portugal and perhaps for Spain and Italy, with certain requirements for fiscal and economic policy and the assumption of bank risks by taxpayers. The excessive public and private debt, however, is only the tip of the iceberg of a deep-seated balance of payments crisis within the euro area as a result of external economic abuses that were largely unnoticed before the crisis and that had arisen since the introduction of the euro.

The Target balances are a kind of 'missing link' that make apparent the relationship between the publically discussed sovereign debt and banking crisis of the GIPS countries and the external imbalances that have arisen in the form of balance of payments crises in the euro area. European policy-makers do not seem to have fully grasped the actual extent and causes of the crisis, since up to now the measures have not been suitable for solving the real problems. To some extent they are even counterproductive. The massive external imbalances are only mentioned in passing if at all and play no or only a very minor role in the rescue measures taken thus far.

In the public discussion, the term 'euro crisis' is primarily used, which seems to suggest that the euro as a currency is in jeopardy. Fortunately, we have not yet had a crisis that involves excessive inflation or exchange rate depreciation² but a crisis of the currency area and the monetary union, as some countries are not willing or able to shoulder the duties and consequences that come with a monetary union, and since doubts have arisen as to whether this will improve in the foreseeable future. There are also serious construction defects in the monetary union and glaring weaknesses in the implementation of the rules. However, there are inflation risks in the medium term if the monetisation of government debt is not halted.

The failures that led, on the one hand, to massive imbalances between countries within the eurozone in the area of foreign trade, the private capital flows and competitiveness, and, on the other hand, excessive public and private debt in the GIPS countries are a *direct result of European Monetary Union*. They did not occur in the previous system of national currencies with more or less flexible exchange rates, since a policy of exchange rate stabilisation *via* intervention in currency markets would, with the great extent of



* Former Minister-President of Saxony and Technical University of Dresden.

¹ The first public statement dated from the end of February 2011 (Sinn 2011), which triggered a debate among experts in Germany and abroad; the discussion helped allay initial misunderstandings and misinterpretations. For the latest presentation of the Target arguments, see Sinn and Wollmershäuser (2011) and the literature cited there.

² The average inflation of the euro was lower than in the period of the deutschmark (DM), and the euro has become more expensive against the US dollar. However, this assertion must be seen in the proper perspective. It is problematic to compare the DM period with that of the euro, since the global economic challenges were very different. Due to the obvious weakness of the dollar and the US economy, a look at the dollar alone is not sufficiently informative. Comparing the euro with the Swiss *franc*, which has always been regarded as a haven of stability, the performance of the euro is not quite as impressive. The same applies to the comparison with the Nordic currencies outside the euro area.

real economic imbalances, have quickly reached its limits and would have brought about exchange rate realignments.

Today's problems can thus be *causally attributed to the euro*; the global financial crisis of 2007 to 2009 that began in the United States only made them apparent. The constant reference to evil speculators, biased rating agencies and the call for restraining the international financial markets is neither a sufficient explanation of the problems nor a useful strategy. It serves only to divert attention from the real problems of the eurozone and in particular from the design flaws for which policy-makers are responsible and from other wrong policy decisions at the national and European levels. The impression arises that some policy-makers have not taken note of, or are not willing to take note of, the inner mechanics of a monetary union and the potential dangers; instead they look for scapegoats that they can present to the general public.

In retrospect, the first euro years appear idyllic. One can compare it with sailing in fine weather, which is possible with a second-rate boat, inadequate equipment and an inexperienced team. Policy-makers and the ECB were living with a false sense of security, even though the storm was approaching. When it finally broke and the suitability of boat, crew and equipment were put to the test, the inherent weakness and lack of preparation for possible dangers became apparent. A monetary union with strict rules consistently enforced had not been created, and now a heavy price had to be paid. Since then, we have witnessed constantly incoherent and often counterproductive quick fixes that only undermine confidence in politicians and institutions.

Advantages and disadvantages of monetary union

At the latest, since the discussion triggered by the later Nobel laureate Robert Mundell in 1961 on optimal currency areas, the economic advantages but also the disadvantages and weaknesses of monetary unions are widely known. Since the euro was introduced for an economically suboptimal and highly inhomogeneous area and the monetary union was regarded as less an economic than a political project in order to achieve the political unification of Europe or even to force it in through the back door, it was particularly important to be aware of the inherent dangers and mistakes, and counteract them through meaningful institutional safeguards and wise policies.

We know from economic history that all monetary unions between equal partners³ have failed because the centrifugal forces in the emergence of very different economic developments in sub-regions and the institutional disincentives were not gotten under control. The advantages of monetary union are undisputed and were constantly stated even before the start of European Monetary Union and still are today. The main pro-arguments are:

- A monetary union reduces the transaction costs through the elimination of currency risks.
- It eliminates the location disadvantages, particularly for smaller sub-regions.
- It allows these regions to receive better conditions for financing investments *via* a large, common capital market.
- It facilitates economic integration.
- It promotes the division of labour.
- And it can thus lead to higher overall growth and prosperity in the currency area, especially in the smaller sub-regions.

In addition there are specific policy arguments:

- The euro should strengthen a European sense of belonging together.
- It should enable a real political union with a strong European government and an influential parliamentary.⁴
- It should replace the Bundesbank with its dominant influence on monetary policy in Europe with a common central bank on which all euro countries would have equal influence.⁵
- It would irreversibly tie reunited Germany to the European Union.⁶

³ These do not include monetary unions between a dominant partner, who has the undisputed leading role and who dominates the currency area in practice, and one or more subordinate partners who can only adapt but who have no decisive influence on monetary policy in the union as a whole. These include for example the former Belgian-Luxembourg Monetary Union, the still-existing currency union between Switzerland and Lichtenstein and the monetary union between the Federal Republic of Germany and the GDR lasting three months in the summer of 1990, as well as monetary unions with dependent areas, especially colonies or post-colonial countries. It is especially interesting again today to read the one-sided and strict rules of the German-German treaty on economic, monetary and social union of 1990 with regard to the Bundesbank and the economic and fiscal-policy competence of the GDR and to compare these with the Maastricht Treaty of 1991 that was negotiated shortly thereafter.

⁴ The Bundesbank and German policy-makers were of precisely the opposite view in the discussion about the Werner Plan from the late 1960s to 1990. The monetary union was seen as the culmination of the political union and not as an instrument for achieving the same. The historical model was the introduction of the Mark as a common currency in 1873 after German unification in 1871 and not earlier during the period of the *Zollverein*.

⁵ In particular, politicians from the previously soft-currency countries wanted to achieve a monetary policy that was less stability-oriented.

⁶ Some saw in the monetary union a political price that Germany should pay France in return for unification. The danger that a reunified and strengthened Germany might pursue its future outside European integration or might seek to dominate Europe would thus be counteracted.

In the political and to some extent also in the economic discussion, the disadvantages and dangers of a monetary union usually played only a minor role:

- In a monetary union the participating countries lose competency in the area of monetary policy, which is an especially large problem for inhomogeneous sub-regions. For this reason, a high degree of flexibility of prices and wages in particular downwards is needed as well as migration from the depressed to the booming regions and a greater stability-policy orientation of fiscal policy that remains a matter of national competence.
- Debts under a common currency are in fact foreign currency debt, since the participating countries have lost the right to create their own money. This, however, increases the insolvency risk for sovereign debt, a risk which, from an investor's perspective, counteracts the positive effect of an elimination of exchange-rate risks.
- As a last resort to compensate for various developments and maintain a monetary union there remain only transfer payments, which are not oriented on the different wealth or per-capita income of the countries and which could be part of a meaningful financial compensation, but which are paid by the rule-abiding, adaptable and willing countries to those who cannot or do not intend⁷ to meet the economic requirements of the monetary union.⁸

The very measures taken to stabilise the monetary union and the resulting danger of an extensive liability union with uncontrolled transfer flows also poses a significant political risk:

- The moral hazard effect in the recipient countries, the shift of political responsibility to the donor countries and Europe, Europe as a scapegoat for its own mistakes.
- The softening of the conditionality of aid, since under the present constitution of Europe it will not be possible in the long term to treat a member country as a protectorate, in which national parliaments and governments are made subordinate to democratically insufficiently legitimised European

bodies in Brussels.⁹ Greece cannot be governed from Brussels!

- The increasing alienation of European nations that may even extend to open strife and damage to the European idea.

The hopes and promises of German policy-makers at the time of the introduction of the euro were to exclude undesirable developments in the monetary union through institutional arrangements. Here, a key role was played by:

- the stability criteria,
- the mutual exclusion of liability and
- an ECB based on the model of the Bundesbank with far-reaching political independence and a 'depoliticized' currency.¹⁰

The history of the so-called Maastricht criteria and their sanction mechanism is well-known. They were insufficient, were weakened and made subject to political opportunity. The proposed reforms will do nothing to change this in principle. It is not to be expected that the far-reaching domestic and external economic mistakes will be corrected with more stringent and extended rules and that these mistakes will be avoided in future.

The mutual exclusion of liability was stood on its head in the rescue packages. The corrective function of the capital markets to force economic adjustments *via* interest rate differentials will continue to be weakened or even eliminated. The problem of external imbalances will thus not be confronted. The policy of the ECB to bail out countries and banking systems through the purchase of the government bonds of the GIPS countries without quality collateral has the same negative effect. The events of recent months have made this clear. It was not the stability criteria, the sanction mechanisms or even the public pronouncements and decisions of the ECB that brought about the long-postponed measures to consolidate and strengthen competitiveness in Italy or Spain but rising interest rates on the capital markets.

Current account deficits and capital imports after the introduction of the euro

The interest rates on government securities of the euro countries initially converged about to the

⁷ Liable under the rescue plan are even relatively poor countries such as Slovakia and Estonia for the much richer Ireland and the still relatively wealthier Greece and Portugal. Since at least in the case of Greece, sooner or later direct or indirect transfers will be paid, poor countries will be paying to a richer one. This has little to do with the conventional understanding of solidarity and compensation.

⁸ Unsound public finances are not the sole cause. Just as much responsibility is borne by a non-productivity-oriented wage policy, which affects the competitiveness of an economy, and excessive private and public consumption, excessive private debt and an insufficiently regulated banking sector.

⁹ The constitutional quantum leap to a federal Europe, which is needed to solve the problem, with a strong government and a powerful parliament on a democratic basis instead of the current more cooperative structures, seems to me to be an illusion for the foreseeable future.

¹⁰ See the insightful article by Issing (2011).

German level as a result of the euro, because the exchange rate risk disappeared and because the markets undervalued or did not take seriously the increased risk of bankruptcy brought about by the monetary union because they did not believe that the no-bail out clause would be enforced, which in retrospect was not such a wrong assessment. Added to this was the fact that the bank supervisory authorities rated government securities as fundamentally risk-free, thus giving them a competitive advantage so that the banks did not need to take precautions regarding additional capital reserves, which ran contrary to the so often proclaimed financial stability.

Since the markets assessed the risk of bank failures as extremely low, there was a widespread convergence of interest rates in the euro area, which, as H.-W. Sinn has argued, made possible a massive capital inflow to the GIPS countries, especially from Germany, and to a growing current account deficit of these countries.

If the foreign capital had flowed primarily into productivity-enhancing investments, such as direct investments by German companies, no objections could be raised as this would have brought about growth and competitive stimulus in the GIPS countries, which would have allowed these countries to sustainably service the capital that had flowed in; the capital markets in these countries were not very effective before monetary union.

However, policy-makers and the ECB tolerated oversized current account deficits which financed the additional public and private consumption or bad investments and real estate bubbles. This went hand in hand with wage-price increases, which undermined *the competitiveness before the crisis and made an improvement in the current account balance* difficult or even impossible. The economic models of the GIPS states and their above-average growth were based on a continuous import of private capital for unproductive purposes, which was unrealistic.

Lasting and disproportionate external deficits, however, are an existential danger in a monetary union¹¹ since a monetary devaluation to correct such a development is no longer available. Neither national governments nor the bank supervisors took action against such a dangerous development; governments even assisted this development in part through spending programmes financed by an excessive expansion

of national debt, and succumbed to the illusion of lasting prosperity on credit, because this was extremely beneficial for domestic policy and for electoral purposes. From a national perspective, this is understandable but short-sighted.¹²

The European institutions, notably the ECB did little to counter this trend. Although an interest rate policy differentiated by regions is not possible in a monetary union, no direct counter measures were taken, for example *via* fiscal policy, which largely remained a national competency, *via* competition enhancing structural policies or by a stricter banking supervision. Since also no public warnings were issued at European level, we can assume that in general the dangers were underestimated. The creditor countries, in turn, basked in their own export successes.¹³ Even economists did not see the gathering storm. Quite obviously there was an insufficient awareness of the precise interlinkages and the extent of the danger.¹⁴

The beginning balance of payments crisis and the role of the ECB

The global financial crisis changed the behaviour of investors from mid-2007, as the analysis of Sinn and Wollmerhäuser (2011) clearly shows. Risks were examined more closely and critically. The capital inflows to the GIPS countries stopped and were later replaced in part by flows in the opposite direction: repatriation of capital and capital flight. This created a classic balance of payments problem that we are familiar with from countless cases in the past.

In itself such a development in a functioning monetary union would have to lead to an albeit very painful process of normalisation and the disappearance of

¹² It could also have been a well-thought-out strategy of national governments to make subsequent transfer payments necessary.

¹³ The tendency of German politicians and the public to one-sidedly measure the success of economic policies in terms of export surpluses has certainly contributed. This reminds me of the behaviour of some small construction companies in eastern Germany after reunification which tried, without taking the creditworthiness of their clients into consideration, to obtain and fill as many orders as possible, and which later fell into considerable difficulties if the clients did not pay. The sale of goods and services on credit – an export surplus is nothing else – only makes sense for the economy as a whole if you receive valuable claims or profitable assets. Otherwise, one has only produced gifts. Since capital exports and trade surpluses usually occur for different business entities, in microeconomic terms an export surplus is still worthwhile. If the claims from capital exports are not serviced, a microeconomic damage occurs for the capital exporter or the taxpayer if the latter has guaranteed the capital export. The aggregate balance of such a transaction is negative. What has happened is that gifts to foreign countries have been produced, and money and effort spend on this. For the exporter, this has the effect of an export subsidy.

¹⁴ Certainly some of the obvious problems in Greece were seen early on; they could not be overlooked. They were tolerated politically and regarded as insignificant.

¹¹ Unless they are offset by permanent transfers.

current account deficits. In the absence of private capital inflows, a current account deficit can only be financed for a certain time by selling off one's own assets, and then, *ceteris paribus*,¹⁵ central-bank money flows from the deficit countries to the surplus countries. This in turn, as in the case of the gold standard, leads to a contraction of economic activity, in the ideal case to a rapid adjustment downwards of prices and wages, a reduction in imports and an increase in exports. A solution of devaluation, as in the Bretton Woods system, or with flexible exchange rates is not possible, unless a departure from the monetary union and a re-nationalisation of monetary policy is allowed.¹⁶

In this situation the ECB allowed or even actively aimed at the supplying of the private banking systems in the deficit countries with sufficient central bank money (created in these countries) to settle the balance of payments deficits *via* the Target system. This compensated for the lack of private capital inflows as well as capital repatriation and later the capital flight, by which a painful contraction of the economies and, ultimately, a reduction of current account deficits were prevented. The Target balances that arose this way rendered ineffective the last remaining convergence mechanisms in the European Monetary Union.

Whether policy-makers were aware of this at the beginning of the development in autumn 2007 is not known. Perhaps they assumed or hoped that these were only temporary spikes that are not uncommon in the case of settlement balances. The underlying problem seems to have been overlooked initially. After the Lehman crisis in autumn 2008 when economic stabilisation and recovery of the banking systems were correctly given absolute political priority, there was even a certain justification for this approach; it would certainly not have been appropriate to tackle the balance of payments crisis in addition to the global economic and financial crisis at the same time. This facilitated the further increase of the Target balances by means of the expansionary monetary policy utilised by the ECB.

To the extent, however, that the immediate problems such as the Lehman crisis in the banking sector were dealt with and (thanks to shrewd financial and mone-

tary policies) the recession was also overcome, there was no need for a justification of the further growth of the Target balances. However, this was the point at which these balances should have been reduced.

Instead of doing this, the ECB and NCBs continued their policy and financed the balance of payments problems in the GIPS states¹⁷ through central bank money creation.¹⁸ In addition, they lowered the requirements on the quality of the collateral required by banks. Thus the ECB increasingly financed the GIPS banking systems and assumed banking risks on a large scale. As with the beginning of the Greek crisis the solution of the sovereign debt problems become increasingly urgent, the ECB called for rescue packages from the other euro countries, which were indeed granted in May 2011. This pioneering role of the ECB is an indication that at least partially it recognised the problem of its policy. The Target balances were nothing more than unofficial rescue packages for the affected economies and banking systems, a kind of ECB overdraft that was to be replaced by the official rescue packages of the euro countries.

Of course, from the perspective of the deficit countries the loans *via* the Target balances are much more attractive than the loans *via* the official rescue packages, since the latter are granted almost automatically without complicated application procedures and testing, come with no obligations and are provided at a favourable interest rate. Instead of formally borrowing money from the rescue funds in order to undertake the stabilisation of their own banking systems, it was and is much more convenient to let the ECB deal with the problem of bank stabilisation. It has thus not been possible to reduce the Target balances and replace them with measures that make public the liability and the extent of assistance. In addition, government securities of the GIPS states were purchased in violation of treaties and statutes in order to 'reassure' the markets and to avoid alleged defects of monetary policy. This was not about monetary policy in the strict sense but financial market stability and public finance. The interest rate differentials in the eurozone were natural reactions of the markets to mistakes and wrong political

¹⁵ Here a monetary policy is assumed that results in no additional money creation in the deficit countries in comparison to the equilibrium situation.

¹⁶ Through temporary assistance or permanent transfers of the other members of the monetary union, the lacking private capital imports can be replaced by public funds and so the balance of payments problem can be solved in the short term or permanently. The rescue packages now play this role.

¹⁷ The graphs of Sinn and Wollmershäuser (2011, 40) suggest that in the case of Greece and Portugal, the Target balances primarily financed the current account deficits and for Ireland repatriation and capital flight, whereas in Spain private capital inflows were still able to finance in part the current account deficit.

¹⁸ The amount of central-bank money flowing into the surplus countries was neutralised by counter operations there, so that no inflationary effect was touched off in the eurozone. This, however, limited the money creation possibilities there, *ceteris paribus*.

decisions in the affected countries and not defects of monetary policy. The real problems of the ECB's interventions were not solved but only postponed and ultimately made more expensive.

The politicization of the ECB

The monetary policy of the ECB is now far removed from the tradition of the old Bundesbank. The financing of balance of payment problems *via* money creation in exchange for inferior collateral¹⁹ and the financing of sovereign debt through the purchase of securities on the market have little in common with traditional monetary policy. With its rescuing of banks and governments, the ECB, without a mandate, has communitarised national banks and sovereign risk at the expense of the ECB's owners and ultimately, their taxpayers, which is not the task the ECB has been given. The primary task of the ECB, namely, monetary policy, is becoming more and more subordinate to rescuing governments and banking systems and the financing of the external imbalances.

Also, the composition of the ECB's governing bodies does not correspond to this policy. If the ECB is less a monetary institution than a 'bad bank' of threatened national banking systems and a financier of national debt and balance of payments deficits, incurring considerable risks, an adjustment of the voting and distribution of influence of the capital and liability structures is absolutely necessary. Equal voting rights regardless of the size, economic weight and liability are only an invitation to wrong decisions. The moral-hazard problems are obvious!

The public dispute between ECB President Trichet and former Bundesbank President Weber on the purchase of government securities first focused attention on this issue. It is obvious that while the personal independence of the board members of the ECB is legally shored up to a large extent by treaties and statutes, it is hardly possible to speak of political independence since at least the nationally appointed central bank presidents see themselves also as representing the interests of their regions²⁰

¹⁹ Asset-backed securities, which played an inglorious role in the American banking crisis and which now have almost completely disappeared from the markets, are experiencing a renaissance in the euro area. They are deliberately created as a pledge for the ECB. Among other things, the claims from the loans for purchases of players for Spanish football clubs are to be financed *via* ECB securitisation.

²⁰ A publication of the minutes and the voting results of the ECB Governing Council is strongly recommended.

and since the ECB is very much involved in the decisions of EU and euro political bodies.

The ECB's expansion of the purchase programme to Italian and Spanish government bonds is for the moment the final act of a series of mistakes. The purchase is virtually an anticipation of the planned expansion of the powers of the EFSF, which will require the approval of the national parliaments. This has absolutely nothing to do with monetary policy, but is all about saving these countries high interest costs. Thus, the ECB has made itself into a handmaiden of fiscal-policy interests and a front for policy-makers. This is underscored by the implicit request of the French and German government immediately prior to the ECB decision.

The risks assumed by the ECB and the fear of revealing open losses, which would do additional damage to the public reputation of the ECB, also strongly influenced its conduct in the controversial issue of whether and to what extent a debt reduction should be made for Greece and whether the private banks should be protected in whole or in part from the necessary write-downs. The position taken by the ECB was interest-based and highly partisan. At all costs it sought to avoid write-offs and loss statements in its own balance sheet that would reveal the true extent of its involvement in the banking and government rescues. To this day the ECB is not willing to admit that it has participated comprehensively in the financing of balance of payments deficits and denies the problem of the Target balances.

The ECB is thus a prisoner of its own bad decisions and of the politicians that are seeking to rescue Europe, and thus it continues to suffer losses of independence, trust and reputation. For the politicians who opposed a strong and independent central bank and who only accepted this model in the Maastricht Treaty under pressure from Germany, this development is certainly not unwelcome. Especially with the difficulties in which the monetary union has fallen because of political mistakes and failures, a strong and independent central bank patterned after the Bundesbank²¹ is necessary. Otherwise, the ECB's policies will continue to be derailed.

²¹ However, this also entails a European public opinion that backs the ECB and that protects it from the attacks and impositions of policy-makers.

Consequences

To achieve this it is necessary that in future the ECB focus solely on actual monetary policy,²² that it solves the problem of the Target balances, that it abandon its role as the saviour of governments and banks and that it rid its balance sheet of the various associated risks. Such a clear break is only possible with the help of the owners, who must assume the risks and losses incurred either *via* the Luxemburg fund or directly *via* the respective treasuries. That the national parliaments must be involved is obvious. In the past the ECB assumed risks without the consent of the national parliaments that will lead to losses that have to be borne by the taxpayer.

The solution for the Target problem is found in the American Federal Reserve System, as Sinn and Wollmershäuser (2011) point out, i.e. in the annual settlement of balances with assets between the participating central banks. This is feasible for the future new balances although very painful. The junkies in the deficit countries will be deprived of the drug of additional central bank money to finance their external imbalances.

The settlement of the accrued old balances will be much more difficult. At much more than roughly 450 billion euros²³ they are significantly higher than the funds that have been paid by the rescue schemes. Given this astronomical sum, a solution will probably only be possible *via* special measures, such as the inclusion in the rescue plans, if the mobilised assets of the NCBs (e.g. in Ireland) are not sufficient coverage, which cannot be ruled out.

This would once again increase the volume of these funds significantly, which is certainly not without problems but has the advantage that the debt problem as a whole would finally be exposed and a comprehensive solution must be sought. Only then can the fiscal competence of parliaments and public confi-

dence be restored. A clear break and termination, with fear and trembling, is much better than the current never-ending fear and trembling. The fact that the hitherto unsolved problem of the treatment of the balances when a member leaves the monetary union is mentioned only in passing.

Such a turnaround will not be easy to achieve, since the previous beneficiaries of ECB policies will not give up their advantages, especially with the Target balances, without a fight. Germany, during the negotiations for the intrinsically useful Target system, apparently overlooked the abuse possibilities and dangers. On the other hand, Germany as a potential surplus and creditor country in a monetary union cannot accept that such a cheap and automatic way to finance balance of payments deficits continues to its detriment. Otherwise the external imbalances are likely to perpetuate and the collapse of the monetary union is pre-programmed. An improperly designed and managed European Monetary Union does not promote the European idea and further integration but endangers or destroys it. The sooner German policy-makers recognize these problems and act, the greater are the chances of success. This, however, requires knowledge, courage and negotiating skills. Wishful thinking and a falsely understood European solidarity will only extend and further exacerbate the problems. They are the real threat to the euro and Europe!

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²² The return to a normal monetary policy also requires that the ECB and the implementing NCBs again pay strict regard to the credit-worthiness of the submitted collateral and that the emergency measures that lead to an expansion of the money supply, such as the Emergency Liquidity Assistance, be avoided. The extremely high negative Target balances in comparison to GDP show that these have been used to finance the capital withdrawal and capital flight from the completely oversized Irish banking system. Instead of private depositors, the ECB/NCBs have become by far the largest creditors of Irish banks and thus indirectly bear the immense risks of the financing of the real-estate bubble.

²³ Bundesbank's Target balance as of 30 September 2011 (see http://www.bundesbank.de/statistik/statistik_zeitreihen.en.php?func=row&tr=EU8148). The huge increase is due to the fact that the Italian central bank has run a massive Target deficit for the first time. Thereby capital flight and repatriation from Italy are probably financed.



NOTES ON THE TARGET2 DISPUTE

STEFAN HOMBURG*

Abstract: For several months now, a dispute has been raging in the literature and the media on the so-called Target2 balances. Ostensibly, the debate concerns the eurozone settlement system. According to Hans-Werner Sinn, who initiated the debate, the balances that have accumulated in this system resemble billion-euro rescue packages which no parliament drew up or ratified.

Triggered by Garber's (1999 and 2010) and Sinn's (2011) contributions, a debate has arisen over the eurozone settlement system, called Target2, during the last few months. Important parts of this discussion can be found in a recent paper by Sinn and Wollmershäuser (2011), which this paper refers to. The present article elaborates some central points of disagreement and assesses them. The focus of the analysis will be on the settlement system's economic effects. In order to illustrate them as clearly as possible, technical details will be neglected, as will political or normative questions.

What is Target2?

The acronym Target stands for 'Trans-European Automated Real-time Gross Settlement Express Transfer'. Target2 represents the second generation of this eurozone settlement system, controlled by the ECB, in which central banks as well as private institutions participate. Because Target2 was designed as a pure settlement system, the balances of all participants equal zero at any point in time. No ceilings for credits or overdrafts were fixed with respect to the individual Target2 balances, as it was assumed that only insignificant settlement differences would remain in the accounts. This assumption has proven

to be false: as from 2007 on, national central banks' balances, which do not show up in the consolidated balance sheet of the Eurosystem but are to be derived from the national central banks' balance sheets, have in some cases climbed to astronomical amounts. At the end of 2010, the Target2 account of the Deutsche Bundesbank as the major creditor amounted to 326 billion euros, whereas the accounts of the major debtors, i.e. the central banks of Greece, Ireland, Portugal and Spain, showed a total debit of 340 billion euros (Deutsche Bundesbank 2011). The balances of the central banks of the remaining euro countries were smaller, with Luxembourg, at 68 billion euros, being the next biggest creditor and France, at 29 billion euros, the next biggest debtor. The per capita credit of Germany amounts to 4,000 euros and that of Luxembourg to more than 125,000 euros.¹

What is the economic meaning of Target2 balances?

Due to the complexity of monetary policy instruments, which easily hide economic relationships, we would like to start the analysis of Target2 balances with a very simplified model that comprises two economic agents A and B and a bank. In the base case, A supplied B with merchandise worth 10,000 euros on account. There are no other transactions, and there are no other agents besides A and B and the bank. Disturbing details like transaction costs or an equity base of the bank are ignored.

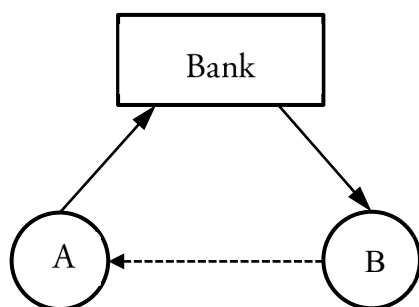
Balances of payments are usually only drawn up for countries but the concept can just as well refer to individuals: by supplying merchandise, agent A achieves a balance of payments surplus of 10,000 euros as he has exported this amount without importing anything. As a mirror image, A's net claims increase by 10,000 euros, which is counted as capital export. Conversely, B's current account shows a deficit of 10,000 euros, combined with a capital import of the same size.

* Director, Institute of Public Finance, Leibniz University of Hannover. The article was also published in *Wirtschaftsdienst* 91(8), 526–530.

¹ The Target2 balance may be accessed online at www.bundesbank.de/statistik as time series EU8148, the entire external position of the Deutsche Bundesbank in the eurozone as time series EU8141. As of 30 June 2011, the German Target2 credit balance has grown to 337 billion euros.

Figure 1

Processing a simple transfer



Source: Author's conception.

After B, in a second step, has transferred the amount of the invoice – the broken line in Figure 1 – he owes the bank this very amount, while A's bank account shows a corresponding credit. These legal debt relationships are represented by solid arrows pointing in the direction of the debtor. The money transfer does not change the net claim positions of A or B, and the bank still has a net claim position of zero.

Two things ought to be noted here. First, A has supplied the merchandise and saved the amount earned because at a later date – perhaps in old age – he hopes to get a corresponding return shipment or a service. If B dies or withdraws for other reasons, A's calculation does not work out, as the bank has no assets left and cannot repay the credit. For A, it is of the utmost importance that the bank only grants B the loan against sufficient collateral.

Second, for each economic agent it is true that the current account (CA) and the capital account (KA) equal zero:

$$CA + KA = 0.$$

A current account surplus is always and inevitably accompanied by a capital account deficit, i.e. a net capital export. This fact is not amenable to an empirical test or economic reasoning but is a conceptual identity. For each economic agent, current account and capital account balances always add up to zero. The same is true for any group of economic agents, like the inhabitants of a country. Hence we can add as many agents as we want to the above model without changing this central aspect.

In the next step we assume – all other model assumption remaining valid – that A and B live in different eurozone countries. In addition, the model is extend-

ed to include another commercial bank, two national central banks and the ECB.² The dashed line in Figure 2 again shows the money flow, while the solid arrows represent the resulting claims and liabilities and point in the direction of the debtor.

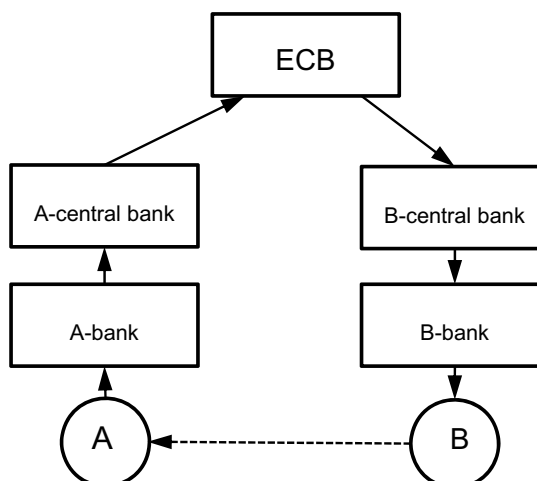
Subsequent to the required rebooking, A and B are in the same positions as in the base case, and all participating commercial and central banks have net assets of zero. In the Target2 system, the account of the A-central bank has a credit of 10,000 euros and the account of the B-central bank a corresponding debit. For lack of other agents, the balance of payments statistics show a surplus for country A and a corresponding deficit for country B. In another important respect, too, nothing changes compared to the base case: if B drops out as debtor, the money assets of A and his hopes for a later return transfer vanish in thin air.

The Target2 balances disappear when B sells A merchandise worth 10,000 euros. In this way the current account and capital account balances are adjusted; both individuals have exported and imported for 10,000 euros. In a parallel fashion, Target2 balances disappear when B issues a bond worth 10,000 euros that A buys: consequently, country B's current account deficit remains in existence but is financed by a private, market-based capital import. In Figure 2, the purchase of the bond by A would trigger a money flow in the opposite direction that cancels all the claims between banks, central banks and the ECB.

² The intermediary position of the two central banks is superfluous if the commercial banks participate directly in Target2.

Figure 2

Processing a transfer in the Target2 system



Source: Author's conception.

To sum up, country B's current account deficit can either be financed by private capital imports or *via* Target2. In the first case, private agents hold a claim against country B; in the second the claim against country B is held by the ECB. In order to distinguish sharply between central bank and private claims, respectively, it seems useful to define the Target2 balance as follows:

$$KA = KA^* + T$$

For every eurozone country, the capital account in the wider sense (KA) consists of the capital account in the narrower sense (KA^*), which is implicitly defined by this equation, and changes in the country's Target2 balance. $T > 0$ represents a payment inflow into the country, which is accompanied by an overdraft of the Target2 account. The capital account in the narrower sense may comprise also public capital movements other than those of the Target2 system; but these will be ignored in the following. The definition above is reminiscent of the differentiation – often used with the gold standard and the Bretton Woods System – between a capital account in the narrower sense and a foreign exchange account. Indeed, there is an analogy between Target2 balances and foreign exchange movements in a fixed exchange rates regime, the important difference being that foreign exchange reserves are finite whereas Target2 accounts may be overdrawn infinitely. Substituting the above definition into the equation of the balance of payments results in:

$$CA + KA^* + T = 0.$$

This equation leads to the economic core of the problem, namely, a statement that is true for purely logical reasons: without Target2, i.e. when T vanishes, current account deficits ($CA < 0$) must be financed by private capital imports ($KA^* > 0$). If the market refuses to grant a country further credit, the country concerned cannot maintain a current account deficit but is only able to import as much as it exports. In contrast to this, Target2 enables a country to finance current account deficits even after complete credit rationing ($KA^* = 0$) by overdrawing its central bank account, $T > 0$. Sinn has shown empirically that this scenario fits the cases of Greece and Portugal. After the outbreak of the crisis, both countries were no longer able to finance their current account deficits *via* private capital imports as creditors had become cautious. Instead, the import sur-

pluses were (and still are) financed *via* Target2. How long this process can go on is unclear, but neither price signals nor foreign exchange reserve scarcities will stop it.³

Target2 not only permits a basically unlimited financing of current account deficits but also the financing of capital flight ($KA^* < 0$) with a balanced current account ($CA = 0$). This scenario fits Spain and even more so Ireland.⁴ In both cases private creditors have vanished and the ECB took their place. Economically this represents a stealthy bailout of yet unknown volume. Since the addition of the three variables CA , KA and T always equals zero, hypotheses about whether changes in T stem from changes in the current account or changes in the capital account, respectively, are not airtight. Yet the basic argument that Target2 debts are always caused by current account deficits *or* capital account deficits *or* a combination of the two remains unaffected. This point was illustrated above using two extreme cases.

In conclusion, Target2 balances reflect real economic claims or liabilities. A Target2 credit represents a net claim position of the respective country behind which are claims of private savers. Conversely, a Target2 liability presents corresponding debts of the respective country, be they public or household or corporate debts. In contrast to net claim positions due to private transactions, credits and debits in the Target2 system are not economically kosher, as they are not based on market signals and hard creditworthiness tests but on the Eurosystem's malpractice to accept all financial instruments whose rating is above D. It is quite simple indeed: if private investors react elastically to risks whereas the Eurosystem reacts inelastically, re-allocations will take place with all bad risks ending up in the books of the central banks. This is exactly what has happened during the last years.

What is the risk for Germany?

As described in the beginning, the Target2 credit of the Deutsche Bundesbank amounted to about 326 billion euros at the end of last year whereas Greece, Ireland, Portugal and Spain together had a

³ If Target2 balances grow without limit, the Bundesbank could in the end become a debtor to the domestic commercial banks (Abad, Loeffler and Zemanek 2011). This is abnormal but not impossible.

⁴ Buiter, Rahbari and Michel (2011) as well as Bindseil and König (2011) have reached similar conclusions. Their nitpicking criticism of Sinn is hardly comprehensible as Sinn emphasized the importance of capital flight in Ireland.

debit of 340 billion euros. What risk the balances imply for Germany depends on the scenario drawn. Let us first look at Greece's return to the *drachma*. If Greece is not able or willing to cancel the remaining euro balance on its Target2 account, the ECB will suffer a corresponding loss. This loss has to be borne by the national central banks of the remaining euro countries according to their capital share, with Germany accounting for 27 percent. Depending on the size of the amount, the Deutsche Bundesbank must be recapitalised by the taxpayer, thereby bringing the loss to light. The fact that Germany bears 'only' 27 percent of the losses is considered comforting by some. However, this ratio is endogenous and rises depending on how many euro countries leave the eurozone, up to 100 percent in the worst case scenario.

It would be different if Germany were to leave the eurozone, not the other countries. In this case the liabilities of the problem countries would not matter, but Germany's credit, as those left behind would hardly be willing to pay out the German Target2 credit in gold or similar assets and at the same time assume the full risk *vis-à-vis* the problem states. At the end of 2010, Germany's stake amounted to the full 326 billion euros.

Secondary issues

There will be few objections to the above remarks, as they reflect simple textbook knowledge. The current debate does not focus on the core aspects but on secondary issues. Let us select two of them to extend our argument. First, the above considerations imply in no way that German exports to Greece are financed by Target2. This may occur accidentally but it is neither necessary nor of importance, as it is not the bilateral balances of payments that count but the corresponding total balances of payments. The economic effect is independent of whether Germany exports to Greece or Germany to China, China to Singapore and Singapore to Greece.

Second, the Target2 system does not in any way limit the German potential to supply credit to its economy – even if we were to assume a constant central bank money supply in the eurozone. To show this and delve into the mechanics of the balances in greater depth, let us look at a Greek asset owner who has a deposit of 1 million euros with his Greek bank. The bank is assumed to have used this deposit to acquire Greek government bonds. If the asset owner closes

his savings account and transfers his money to a newly opened account in Germany, then central bank money flows out of Greece and into Germany. These outflows and inflows are then neutralised *via* Target2, with the Greek bank refinancing itself by pledging its government bonds at the Greek central bank, whereas the German bank reduces its refinancing at the Deutsche Bundesbank. Subsequent to the neutralisation, the money supply of the national central bank is as large as before the capital flight took place. There is no change in the potential credit supply of German banks. The German banks refinance simply by relying more on deposits and less on central bank credit. To be sure, the risk moves from the Greek asset owner to the German taxpayer. And what is more, the continuing flow of funds to the periphery countries made possible by Target2 only diminish Germany's potential to use these funds domestically.

Target2, Eurobonds and the ESM

Last year, the eurozone member states discussed extensively the introduction of so-called Eurobonds, i.e. about securities for which they are liable in proportion to their ECB shares (in another proposal, the states would even bear joint liability). Because of the opposition primarily in Germany to such a liability union, the plan was discarded. It is interesting, however, that Target2 balances are economically equivalent to Eurobonds, as all member states are liable for the debts in the Target2 system according to their ECB shares. This aspect is extraordinarily important and at the same time disquieting because the elected representatives rejected exactly those Eurobonds that in fact already existed behind the scenes.

The same can be said for the ESM. This mechanism which is permanently coping with the crisis is also equivalent to Eurobonds. As a special purpose vehicle, the ESM grants loans to problem countries, for which all members of the eurozone are liable in proportion to their ECB shares. The formal establishment of the ESM is to be voted on soon; *de facto* it has already existed for years.

Only the recognition of the equivalence of Target2, Eurobonds and ESM allows us to interpret the conflict between the governments of the eurozone on the one hand and the ECB on the other: the ECB supports establishing a special purpose vehicle because it secretly hopes to shift its Target2 problem to the

ESM; it does not want to be saddled with these debts. Its hopes will not be fulfilled, however, as the governments for their part are not interested in taking Target2 debts into their remit and make them apparent to taxpayers. European governments prefer to create, with the ESM, a liability union in addition to Target2 in order to promote what they consider their most important right, i.e. the right to accumulate public debts without restraint.

Possible solutions?

The aberrations outlined above could have been avoided if it had been stipulated that Target2 balances be adjusted periodically or at least fully collateralised. This was omitted, however, consciously or unconsciously. After the fact there is not much that can be done. Adjustments in the balances of payments would require the problem countries to build up current account surpluses or capital imports in a three-digit billion euro range, which is unrealistic. It is equally unrealistic to demand from the ECB to return to sound collateral practices. For, what collateral could Greek or Irish banks and central banks offer? Only those that they themselves have accepted, i.e. securities with ratings close to D. The fact that the Eurosystem is accepting junk bonds as collateral is not only an eminent fault of monetary policy which has deeply corrupted the ECB's reputation but is also at the heart of the Target2 problem: balances of this magnitude would not have accumulated if the ECB had only accepted traditional collateral.

In the same way that our agent A has no recourse to his claim if B drops out as debtor, many German savers and pensioners will learn that parts of their assets are imaginary. In this respect, the build-up of fictitious deposits in the Target2 system is reminiscent of Germany's stealthy military financing in the 1930s and during World War II, the famous *geräuschlose Kriegsfinanzierung*.

Conclusion

Hans-Werner Sinn's allusion to the dangers that are brewing in the Target2 system is fully warranted. Economically, Target2 balances are equivalent to Eurobonds and are also equivalent to the ESM. By accepting junk bonds as collateral, the Eurosystem anticipated the establishment of the ESM, created a gigantic liability union, and violated the principle of good central bank policy, according to which mone-

tary policy should not have redistributive effects and is to be sharply separated from fiscal policy. The fact that the ECB's Chief Economist thinks, with a view to Sinn's theses, that several academics are risking their reputation,⁵ is not only absurd in content but is once again reminiscent of war, in which truth is the first to die.

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⁵ See www.handelsblatt.com/politik/deutschland/ezb-chefvolkswirtschaft-stark-teilt-ordentlich-aus/4275716.html.

MONEY, CAPITAL MARKETS AND WELFARE: AN ANALYSIS OF THE EFFECTS OF TARGET2 BALANCES

FRIEDRICH L. SELL AND BEATE SAUER*

As we agree with Hans-Werner Sinn and Timo Wollmershäuser (2011a) on their basic thesis, which says that the mechanism of Target2 balances opens a new and very real channel for additional credit to the GIPS countries (Greece, Ireland, Portugal, Spain), and that it triggers involuntary capital exports of the GLNF countries (Germany, Luxembourg, Netherlands, Finland) without changing the monetary base of the eurozone, we need not engage here in the often heated debate within the scientific community.

In this paper we limit ourselves to three questions: firstly, we intend to supplement the past analysis of demand and supply of the monetary base in the GLNF countries with the corresponding one in the GIPS countries. In this we slightly amend the proposed model of Sinn and Wollmershäuser (2011a). Secondly, we discuss the effects of Target2 balances on the capital markets of the concerned countries in the framework of the New Austrian School of Economics. This model framework stands in the tradition of Friedrich A. v. Hayek's (1929 and 1931) capital theory and was developed principally by Roger M. Garrison (2002). Thirdly and finally we conduct a static welfare analysis of Target2 balances according to Brakman *et al.* (2006).

Target2 balances and the market for central bank money in the concerned countries

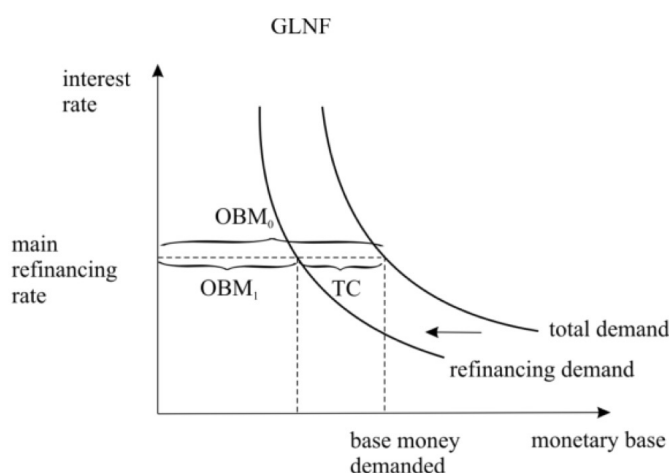
What are the effects of Target2 balances on the national money markets? Like Sinn and Wollmershäuser we assume a full allotment policy of the ECB: the supply of central bank money is unlimited in principle. The true problem variable is the demand for money (Sinn and Wollmershäuser 2011a).

In Figure 1 we present the demand and supply of base money or central bank money as a function of the interest rate. These refer to the countries with Target2 claims against the ECB, i.e. basically the group of Germany, Luxembourg, Netherlands and Finland (GLNF). The demand curve runs as usual from northwest to southeast, as the opportunity cost of holding money rises with an increasing interest rate.

The monetary base, or central bank money, consists of currency in circulation and the deposits of the commercial banks at the central bank. Given the interest rate for main refinancing operations, there is something like a natural ceiling for the demand for



Figure 1
The market for central bank money in the creditor countries (country group with Target2 claims)



TC = Target2 claims
OBM = original base money

Source: Authors' depiction based on Sinn and Wollmershäuser (2011a).

* University of the German Armed Forces Munich.

money that in turn is determined by real income and the payment habits of a country or likewise a country group. As the Target2 claims against the ECB are added to the monetary base – let us call it the secondary monetary base (= Target2 claims TC) – the commercial banks, at a given size of their total money demand, now demand less ‘original’ base money (OBM_1) than before. The secondary monetary base represents new money that the national central banks – due to the payment transactions moving *via* the Target system – are forced to supply to the commercial banks without granting loans (Sinn and Wollmershäuser 2011a). The original monetary base is created *via* the asset side of the central bank by purchases of gold or foreign exchange as well as by the normal refinancing operations (lending) of the central bank with the commercial banks.

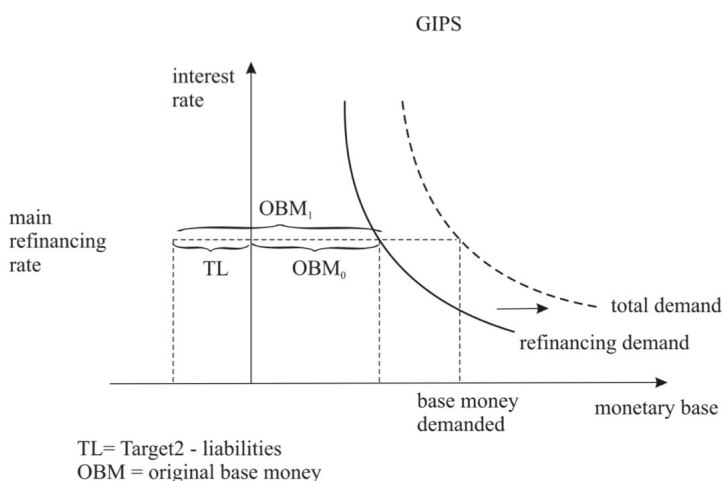
In Figure 1 the demand for ‘true’ refinancing, i.e. original central bank money, shifts to the left exactly by the amount of Target2 claims (TC): without Target2 balances, the affected countries would have demanded the amount OBM_0 of central bank money completely *via* regular refinancing instruments at the central bank, while with existing Target2 claims this demand declines to OBM_1 . This and nothing else is what Sinn and Wollmershäuser – unclear for many – have called “crowding out of refinancing credit” (Sinn und Wollmershäuser 2011b, 19). The total demand for central bank money remains constant, although it is now partly met by the secondary monetary base. The decision regarding a possible ‘crowding out of refinancing credit’ is determined by the commercial banks in the GLNF countries and therefore (endogenously) on the demand side of the market for central bank money; it is not made by the central banks of the GLNF countries. It is possible that the term ‘crowding out’ in this context has fed the above-mentioned misunderstandings, as this term is normally chosen for involuntary rather than voluntary, i.e. self-determined actions.

The market for central bank money in the GIPS countries may be presented analogously (see Figure 2): since we defined Target2 claims as a positive secondary monetary base, we must now present the Target2 liabilities (TL) as a negative secondary

monetary base. Whereas the Target2 claims against the ECB create central bank money, the Target2 liabilities destroy central bank money. Without the existence of Target2 balances, the GIPS countries demand base money – at the current refinancing rate – in the volume of OBM_0 . In contrast, as soon as this country group builds up Target2 liabilities against the ECB, it demands in addition base money in the amount of TL. In Figure 2 this means a shift of the solid demand curve to the right. Now the dashed demand curve represents the entire money demand. The distance between these two demand curves represents exactly the volume of TL. The demand for original base money expands to the distance OBM_1 . In the GIPS countries there is an inverted development to that in the creditor countries (GLNF), where the demand for original base money declines.

The ECB on its part is unable to control this redistribution of the European monetary base from one to the other country group, at best if there is no full allotment of tender operations. Since October 2008, this full allotment has been installed: the ECB decided that the weekly main refinancing operations will be carried out through a fixed rate tender procedure with full allotment at the interest rate on the main refinancing operation (European Central Bank 2008). In October 2011, the ECB confirmed this policy by asserting its intention to continue conducting its MROs (main refinancing operations) as fixed rate tender procedures with full allotment for as long as necessary, and at least until the sixth maintenance period of 2012 ends on 10 July 2012 (European Central Bank

Figure 2
The market for central bank money in the debtor countries (country group with Target2 liabilities)



Source: Authors' depiction.

2011). This promise of full allotments does not induce the national central banks from Target2 debtor countries to reduce their own Target2 liabilities. Such a full allotment permits them practically at any time and in any amount to get original base money from the ECB. Only the European calendar for tender operations represents a (weak) limitation of their demand.

In the next section we shall analyse how the expanded monetary base in the GIPS countries, or the reduced demand for original base money in the GLNF countries, may be integrated into the New Austrian Economics model.

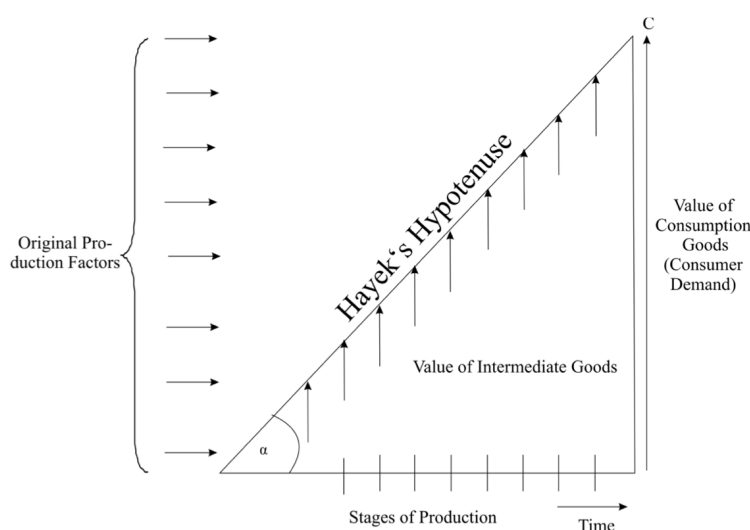
The capital market in the model of the New Austrian Economics and its application to the topic of Target2 balances

Figure 3 demonstrates the core of F.A. v. Hayek's capital theory (1929 and 1931): it shows a right-angled triangle, whose base line symbolises the time axis as well as the consecutive steps of industrial production. Available for this production are the factors labor and land that can be used at any point in time for the production of intermediate goods. The value of the intermediate goods may be measured at any point in time as the area of the triangle above the base line. The more 'active' time passes, the higher is *ceteris paribus* their value and the larger the area of the triangle.

The tangent of the angle α represents the implicit rent of the accumulation and is identical to the market-clearing interest rate on the capital market in equilibrium. The factors of production land, labor and intermediate goods are used for the production of consumer goods. The value of these consumer goods is given by the length of the vertical side of the triangle that, together with the base line forms the right angle. Here the following applies:

- (1) The longer the (continuous) production process, the larger is *ceteris paribus* (i.e. at a given return on the accumulation, see above) the quantity of consumer goods that can be produced from a given

Figure 3
Hayek's Triangle



Sources: v. Hayek (1931); authors' depiction.

quantity of original factors of production at a given point in time.

Accordingly, we could *ceteris paribus* let the output of C_i become 'infinitely' large, provided we were willing to wait long enough for the corresponding consumer good. Another special aspect of Hayek's Triangle is that:

- (2) There is a 'continuous-input/print-output' phenomenon: production of the intermediate goods consumes time, whereas consumption occurs 'timelessly', i.e. at a certain point in time.

Thirdly:

- (3) The larger the time interval between the input of the original factors of production and the completion of the consumer goods, the more capital intensive is *ceteris paribus* the production.

Roger W. Garrison is a present-day representative of the Austrian Economics and is simultaneously one of the most important exegetes and interpreters of the business cycle and capital theoretic contributions of F.A. v. Hayek. His 'total model' comprises – besides Hayek's Triangle – a typical concave production possibility curve (see Figure 4 upper right-hand side), which, in the style of Paul Samuelson's presentation in his legendary textbook *Economics*, does not use two consumer goods but a (representative) consumer good ('butter') and a (representative) investment good ('guns').

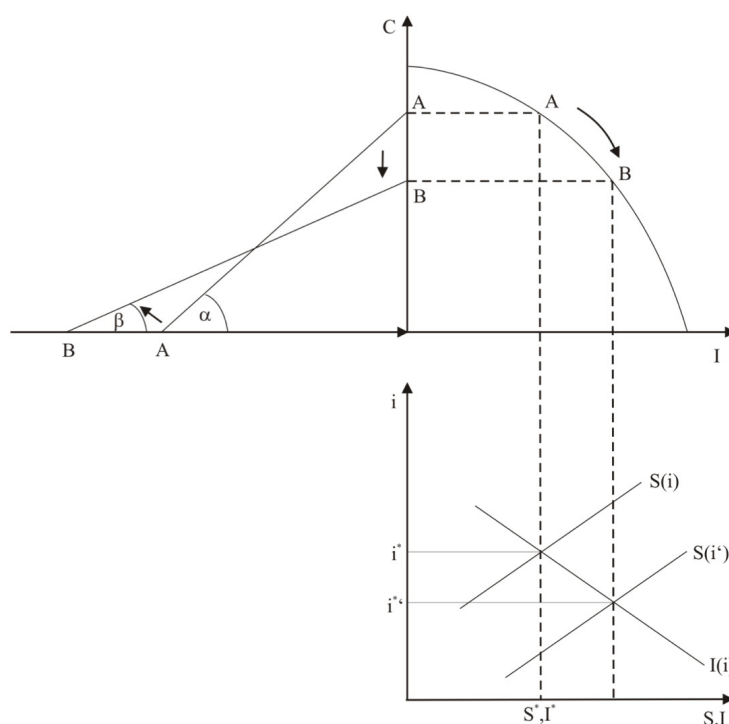
The third building block in Garrison's total model (see Figure 4 lower right-hand side) represents a classical capital market like the one used also by Knut Wicksell for his own overinvestment theory. Here it is important that the equilibrium interest rate corresponds to the natural interest rate, as long as – but only as long as – the equilibrium is determined exclusively by private savings and investment desires. Disturbances to this equilibrium by interventionist measures of monetary or fiscal policy generate a market interest rate that deviates from the natural interest rate. A weakness of the model, which concerns not only Garrison himself but also Wicksell's original from 1898, is the little addressed difference between the money market interest rate and the capital market interest rate. The transmission of a lower money market interest rate occurs over the lower refinancing costs of the commercial banks that are reflected in lower lending rates on the credit market. These induce firms to substitute capital market financing (in part) by credit financing with the result that prices rise on capital markets and interest rates fall. This says nothing, however, about the shape of the yield curve.

If all three building blocks are now put together (see Figure 4), where the total model ought to be read

from the bottom up and then from right to left, the following is derived: equilibrium in the capital market is where $S(i) = I(i)$ and it initially determines the size of investment. It should be noted that we are in a stationary economy ($I^* = I^b$; $I^n = 0$); therefore there is no net investment or an expansion of the capital stock that would shift the production possibility curve outwards. The interest-rate equilibrium determined in the capital market also determines the slope of the angle α in Hayek's Triangle and at the same time corresponds to the natural interest rate. Once the size of the investment is fixed, then that quantity of consumer goods is determined as a residual from the production possibility curve that is planned by the firms and therefore is to be produced. From the size of the equilibrium quantity of consumer goods, on the one hand, and the known angle α , on the other, we can easily determine the length of the base of Hayek's Triangle (because of the consistency condition for right angled or any other triangles that says that the sum of all angles must add up to 180°). At the same time this determines the time length of the production process or the number of production steps.

The equilibrium in Garrison's total model can now, regarding the capital market, be disturbed by various events. Let us assume, for example, that private savings are induced by a change in the time preference of households: in the capital market the supply of savings curve will shift right (see Figure 4) and consequently *ceteris paribus* the (equilibrium) interest rate will decline. This interest rate decline will now further stimulate investment at the expense of the production of (non-durable) consumer goods, i.e. a move from A to B on the production possibility curve. In Hayek's Triangle the value of the consumer goods production declines in accordance with the wishes of consumers. At the same time the rate of return on the accumulation will necessarily decline. As a result, the time axis becomes longer; the early phases of the production process lengthen at the expense of the last phases

Figure 4
Equilibrium in a closed economy without Target2 balances



Sources: Garrison (2002); Sell (2010).

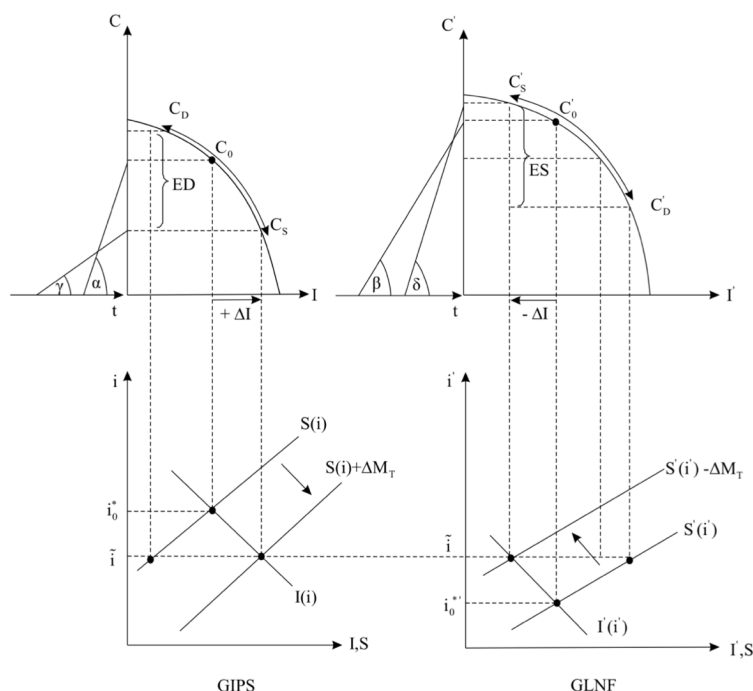
that are directly directed at the production of consumer goods. This result corresponds very well to the wishes of investors and consumers so that a new equilibrium time structure of capital allocation is established.

Let us now extend the macroeconomics of the capital structure in order to be able to analyse the effects of Target2 balances. For this purpose we create a model framework for two countries (country groups).

Assume two regions within the European Monetary Union, one (on the left-hand side of Figure 5) that is characterised by a high level of interest rates, comparatively low domestic savings and a considerable potential for commercial capital imports. The other one (on the right-hand side of Figure 5) is conversely characterised by a comparatively high savings rate, a low level of interest rates and a considerable potential for capital exports. In the following we shall analyse the scenarios below that are relevant for the issue of Target2 balances:

- (i) the period 1999 to mid-2007,
 - (ii) the period from mid-2007 to 2011 in the absence of a functioning Target2 mechanism,
 - (iii) the period from mid-2007 to 2011 with a functioning Target2 mechanism.
- (i) In the beginning, i.e. in the period from 1999 to mid-2007, Target2 (or its predecessor Target) played no significant role in the movement of central bank money between the two regions. Commercial capital flows financed the respective current account balances instead. For purposes of simplification we assume that the rest of the world played a negligible role in this: excess demand (ED) for savings on the left-hand part of Figure 5 therefore corresponds exactly to the excess supply (ES) on its right-hand side.
- As interest rates tended to converge at level \tilde{i} (where the interest rate in the GIPS countries moved down from the higher level i_0^* and that in the GLNF countries moved up from the lower level i_0^{**}), point C_s (C_s') of the consumer goods supply of the

Figure 5
Disequilibria between GIPS and GLNF countries



Source: Authors' depiction.

GIPS countries (GLNF countries) moved down (up) to the right (left), whereas the consumer goods demand point C_D of the GIPS countries (C'_D of the GLNF countries) moved up to the left (down to the right) when investment increased (declined). In Hayek's Triangle there was a reorganisation of capital in favour of longer-term (shorter-term) investments in the GIPS countries (GLNF countries). Intermediate goods were withdrawn from the late (early) stages of production – because here demand weakened due to the currently low demand for consumer goods (investment goods) – and directed to the early (late) stages, as here a strong demand was observable. Responsible for this was a low (high) level of interest rates. This period may be roughly characterised by an investment boom, a low level of production of consumer goods and above-average, but unsustainable economic growth in the GIPS countries, accompanied by low investment, a comparatively high level of production of consumer goods as well as weak and below-average economic growth in the GLNF countries.

- (ii) The hypothetical scenario of 'autarky' in both regions (all relevant variables have now the subscript '0') is accompanied by a relatively high (low) natural interest rate in the GIPS countries

(GLNF countries). The equilibrium points on the respective production possibility curves are now marked C_0 and C_0' , the equilibrium interest rates are marked i_0^* and $i_0^{*'}.$ This scenario is by no means unrealistic or strange as would appear at first glance. After all, it represents quite well the virtual situation after 2007, when no party would have access to the mechanism of Target2 balances. As explained by Sinn and Wollmershäuser (2011b), after the Lehman Brothers bankruptcy voluntary capital exports from the GLNF countries to the GIPS countries fell to almost zero. The GIPS countries were no longer able to generate current account deficits, as no voluntary commercial capital inflows were available.

To be sure, neither were they able to generate surpluses in their current accounts (Sell 2011). Responsible for this was among other things the fact that the earlier investment expenditures had not been directed to those sectors in which comparative advantages were likely, but had been focused primarily on those branches that produce non-tradables (like real estate, local bank services, etc.). Of course, in both regions this scenario shows quite a different capital structure in terms of Hayek/Garrison as (i): the natural interest rate is now high (low) in the GIPS countries (GLNF countries), the production of consumer goods is comparatively strong (weak) in the GIPS countries (GLNF countries), whereas investment is low (high). Under the conditions of this scenario the GIPS countries (GLNF countries) could therefore have focused more on the later (earlier) stages of the investment process and (almost *ex definitione*) therefore could have avoided bigger external disequilibria.

- (iii) In sharp contrast, since mid-2007 but at the latest since 2008 the very real Target2 balances scenario has driven a wedge between the preferences of consumers and the production decisions of entrepreneurs. In both regions a considerable internal as well as external disequilibrium has arisen: “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 Target2 balances, i.e. by the money-printing press” (Sinn und Wollmershäuser 2011b, 32). In our subsequent analysis we further simplify things and assume that 100 percent of the GIPS countries’ current account deficits were financed by Target2 balances.

Due to the expansionary (contractionary) effects of Target2 liabilities (claims) on the original monetary base in the GIPS countries (GLNF countries), the effective capital market interest rate falls (rises) in the GIPS countries (GLNF countries) to a level below (above) the natural interest rate. The newly created (withdrawn) original central bank money (ΔM_T) now drives a wedge between savings and investment: the consumers in GIPS countries (GLNF countries) make their consumption decisions according to their respective savings function, analogously, the investors in both country groups orient themselves on their respective investment function. There now will be an excess demand ED (an excess supply ES) for consumer goods in the region of the GIPS countries (GLNF countries). As demonstrated in Figure 5, the excess demand for (excess supply of) consumer goods in the GIPS countries (GLNF countries) combined with the increase $+\Delta I$ (decline $-\Delta I$) of expenditures on investment goods in the GIPS countries (GLNF countries) corresponds exactly to the increase in Target2 liabilities (claims). The effects on Hayek’s Triangle and on the capital structure in the respective regions may be summarised as follows: they correspond largely to those of scenario (i), but in contrast to those, the effects on the capital structure in the GLNF countries are now at least ‘involuntary’, mildly put. It should further be noted that the productivity of the intermediate goods, which had previously be measured by the angle α (β), now turns out lower (higher) in the GIPS countries (GLNF countries), as $\gamma < \alpha$ ($\delta > \beta$).

In contrast to the first scenario, the mechanism of the Target2 balances now induces the GLNF countries to offer an involuntary excess supply of consumer goods. This is accompanied by a reduction of their own expenditures for investment goods. In other words the Target2 balances enabled the GIPS countries to initiate an excess demand for consumer goods and an increase in investment spending.

A static welfare analysis of Target2 balances

With the help of Figure 6 we can now conduct a static welfare analysis. Here we compare the described three scenarios by presenting the respective investor and savings surplus:

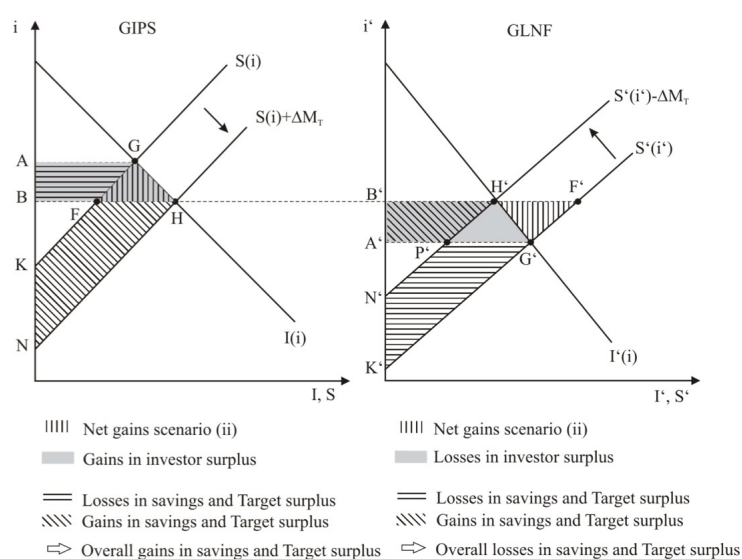
- (i) Let us represent the hypothetical regime ‘Without Target2 balances’ for the period mid-2007 to 2011

by the two equilibrium points at 'autarky' G and G' ; the corresponding solutions serve also as reference solutions for the subsequent assessment of the welfare effects.

- (ii) From 1999 to mid-2007 there were capital inflows (capital outflows) in the magnitude of FH or $H'F'$ respectively; in both economic regions we register a net welfare gain corresponding to the area of the triangles FGH and $H'F'G'$ (vertically dashed), a result that is well known from textbooks. In detail: in the GIPS countries the gains in investor surplus (hatched in grey) exceed the losses in savings surplus (AGFB), whereas in the GLNF countries the gains in savings surplus ($B'F'G'A'$) more than compensate the losses in investor surplus (also hatched in grey). We are very conscious of the fact that this net welfare balance is still too optimistic.

- (iii) The period from mid-2007 to 2011 – taking account of the now effective Target2 balances – is more difficult to assess. Let us start with the GIPS countries: here we find gains in investor surplus in the amount of $AGHB$ (hatched in grey), in agreement with scenario (ii). At the same time, there is also a positive surplus now that on the one hand must be assigned to savings, on the other hand also to the Target2 balances: it corresponds to the difference between the area $KFHN$ (hatched diagonally) and the area $AGFB$ (hatched horizontally). Overall, there are gains in surplus for savings and for the Target2 balances. This means that the scenario (iii), the Target2 scenario, results in net welfare gains for the GIPS countries that exceed those of scenario (ii). In contrast to this, the active existence of the Target2 balances results unambiguously in welfare losses for the GLNF countries: now the modest (hatched diagonally) area $B'H'P'A'$ (gains in surpluses to be assigned to savings and Target2 balances) compares to the considerably bigger sum of the (hatched in grey) area $B'H'G'A'$ (loss in investor surplus, identical to scenario (ii)) and the (hatched horizontally) area $N'P'G'K'$ (losses in surpluses distributed

Figure 6
Static welfare analysis of the Target2 balances



Source: Authors' depiction based on Brakman *et al.* (2006).

between savings and Target2 balances). The chief result of this static welfare analysis is therefore that the Target2 balances cause a net welfare transfer from the GLNF countries to the GIPS countries. For both country groups combined the Target2 balances do not lead to any change in welfare. This result matches the above statement that the aggregate effects of the Target2 balances on the European monetary base add up to zero.

A brief summary

This contribution has produced three results. First, Target2 balances lead to a shift in the original monetary base within the eurozone that cannot be controlled by the ECB. Second, Target2 balances have, at least for the countries with Target2 claims, involuntary and undesirable effects on their capital structure. Third, Target2 balances cause a forced welfare transfer from the countries with Target claims to those with Target liabilities.

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THE DISSOLVING ASSET BACKING OF THE EURO

INGO SAUER*

In the course of the debate on the Target credits of the Eurosystem it has become evident in recent months that an increasingly large share of the credit-created money supply (as much as two-thirds by the end of 2010) was actually issued in the GIPS countries (Greece, Ireland, Portugal and Spain). In this regard, the fear held by numerous Germans when the euro was introduced – that at some point they would be carrying southern European bank notes in their wallets – has largely become reality. But does it matter where the money supply was issued and what the purchase of government bonds by the central banks of the Eurosystem implies about the stability of the currency? This paper will try to answer these questions.

We shall focus on the relationship (or disparity) between the central bank money supply (M0) and the securities of the central banks activated at issue. When we refer to money supply or money we always mean central bank money (M0). It consists of the currency and deposits of the commercial banks at the central bank.¹

The institutional framework: the ECB² – only the torso of a central bank

Of course, the countries participating in the euro have not created the first currency union in history. Even if

conditions change and historical comparisons are only relevant to a limited extent, experience and insight may still be derived from history. Some scholars, who have dealt extensively with the history of currencies, recognized with frightening clarity from the beginning the construction flaws of the ESCB or the Eurosystem that are becoming visible now (Heinsohn and Steiger 2002). Since apparently economics is not (sufficiently) willing to delve into history, it is dammed to relive it anew.

Heinsohn and Steiger (2002) noted already a decade ago that the ECB is only the torso of a central bank and that its lacking competencies are not widely understood. Most (German) economists saw the ECB as a copy of the former Bundesbank or its predecessor, the Bank Deutscher Länder,³ and were apparently not aware of the high degree of decentralization in the Eurosystem. However: “[t]he ECB and the euro area NCBs [national central banks] jointly contribute strategically and operationally, to attending the common goals of the Eurosystem, with due respect to the *principle of decentralization* in accordance with the Statute of the ESCB” (European Central Bank 2011, 191, emphasis added).

Criticism must especially be levied at the lack of control on the part of the ECB over the national central banks’ issuance of currency.

A wish: a true central bank

Based on the experience gained from the Latin and Scandinavian monetary unions Erik Lindahl has propagated a central bank which truly stands above the national central banks for monetary unions of various nation states. While national central banks would still issue the notes for domestic purposes, for



* Johann Wolfgang Goethe University, Frankfurt am Main.

¹ “Nowadays the cash base (monetary base) mostly consists of the liabilities of the central bank, primary notes, but also bankers’ balances at the central bank which the bankers can, if they wish, withdraw in note form to add to their own cash holdings” (Goodhart 1987). Setting deposits equal to notes is questionable in the Eurosystem, however. In contrast to the old Bundesbank and the Fed, in the Eurosystem there is no longer a uniform character of central bank money (notes equal deposits at the central bank), as one of the main characteristics of genuine money, lack of income, is no longer given for deposits. The deposits of commercial banks at their national central banks are interest bearing and treated just like demand deposits at a commercial bank. Correspondingly, the deposits at the national central banks in the Eurosystem should be defined as claims to central bank money and no longer as central bank money *per se* (see Heinsohn and Steiger 2008, 140).

² In accordance with Article 282(1) of the Treaty on European Union, the European Central Bank (ECB) and the national central banks constitute the European System of Central Banks (ESCB). The ECB and the national central banks of the Member States whose currency is the euro constitute the Eurosystem.

³ The Bank Deutscher Länder (BdL), 1948 to 1958, was more decentralized in its decision-making than the Bundesbank. The Council of Governors consisted of the eleven presidents of the state central banks (Landeszentralbanken) and the six Executive Directors of the BdL, but the BdL Directors had decision-making powers without waiting for the Council’s consent. In addition, the BdL had the monopoly of issuing notes. The ECB is therefore not at all comparable to the old BdL.

cross-border transactions they would have to obtain 'international currency' from this central bank of central banks (the 'Main Central Bank' – see also Steiger 2002, 3) – in the same manner that commercial banks refinance with their central bank (Lindahl 1930, 170).

A similar – and still more far-reaching – proposal for a central bank of the national central banks, which carries the submitted good securities of national central banks and thereby strictly controls the issue of notes, has in fact been made for the euro. Here the national central banks could not issue euros independently, but would have to obtain them against their good securities. Carlo Ciampi, the then Italian central bank president, campaigned for such an institution in 1988: "to bring the creation of ECUs [euros] under strict control, the central monetary institution should be given the power to grant member central banks discretionary credit in ECUs, in the same way as a central bank refinances commercial banks through open market or rediscount operations" (Heinson and Steiger 2002, 6).

If such a structure is not given, other measures must be taken to prevent an excessive issue of poorly secured notes by individual central banks (Target problem). A regular settlement of claims and liabilities like that in the Federal Reserve System (see Sinn and Wollmershäuser 2011, 48–50) or an agency that keeps an eye on the respective sums would have been an advantage. The problem that claims and liabilities between note-issuing banks are created – and then the excessive, poorly secured issuance of individual note-issuing banks puts other note-issuing banks at risk – is not really new. The private note-issuing banks of England in the 18th century created the institution of a *clearing house* in 1773 to oversee these amounts. This case is only partly comparable, however, as at the time excessive issuing could result in discounts on the issued notes, whereas today the central banks belonging to the Eurosystem must accept the Greek 'Y euros'⁴ (meant are the Target claims) without any discount.

The facts (1): the ECB – a central bank without notes

"A first glance at its [the ECB's] balance sheet immediately reveals [...] that this bank is in no way whatsoever a 'bank of issue'. [...] The ECB balance sheet as at 31 December 2000 does neither have lending to

financial sector nor central bank money. Thus, the ECB is clearly *not* a bank of issue, *i.e.* it is excluded from the main refinancing operations of the Eurosystem. To have an independent balance sheet, which the ECB indeed has, is not sufficient to meet the requirements of a bank of issue" (Heinsohn and Steiger 2002, 8).

The aforementioned statement refers to the balance sheet of the ECB of December 31, 2001, *i.e.* before the balance sheet of January 1 2002 for the first time carried the position 'lending to financial sector' (asset side) or 'banknotes in circulation' (liability side). To be sure, this applies only to the negligible 8 percent of the entire position 'banknotes in circulation' in the consolidated balance sheet of the Eurosystem. Furthermore, these notes (the aforementioned 8 percent) also continue to be issued by the national central banks and are only booked in the balance sheet of the ECB as ECB notes. The ECB can also issue money itself by means of permitted operations, for example intervening in the foreign currency market. However, the most important monetary policy operations, repurchase agreements and longer-term refinancing operations, are not transacted by the ECB but by the national central banks (European Central Bank 2000, 15; Steiger 2002, 22).

The facts (2): the lack of power of the Executive Board

The members of the Executive Board have only six of 23 votes in the Governing Council and the Executive Board is therefore in no way comparable to the powerful directorate of the former Bundesbank.

In Article 12 Section 1 of the Statute of the European System of Central Banks and the European Central Bank the most important component of the division of tasks between the Governing Council and the Executive Board is laid down: "the Governing Council shall formulate the monetary policy of the Union including, as appropriate, decisions relating to intermediate monetary objectives, key interest rates and the supply of reserves in the ESCB, and shall establish the necessary guidelines for their implementation. The Executive Board shall implement monetary policy in accordance with the guidelines and decisions laid down by the Governing Council".

It is evident that the *decision powers* of the Executive Board are essentially limited to its share of votes (about one quarter). In its Annual Report, the ECB logically notes as a main responsibility of the

⁴ The various euro notes can be identified by a letter in front of the serial number as to which central bank of the Eurosystem issued it. Y stands for the Greek central bank, whereas X, for example, identifies the Bundesbank.

Executive Board ‘to prepare the meetings of the Governing Council’ (European Central Bank 2011, 194). Besides the above-mentioned implementation of monetary policy, the Directorate also manages the current business of the ECB and may assume ‘certain powers delegated to it by the *Governing Council*, including some of a regulatory nature’ (European Central Bank 2011, 194, emphasis added).

It is therefore the Governing Council, in which – in addition to the six members of the Executive Board – each country has an equal vote regardless of its national income or its equity share in the capital of the ECB,⁵ which decides on monetary policy and hence the fate of the euro.

The Bundesbank has no choice

Maintaining the banking rules, i.e. the requirement of appropriate collateral, does not protect the Bundesbank in the Eurosystem from having to enter risky claims against other central banks or the ECB into its books. If the claim is risky, the Bundesbank has to suffer a write-down of its assets. This problem was again alluded to by Heinsohn and Steiger (Heinsohn and Steiger 2003, 12) in their paper under the heading *Virtuousness is no protection* way before this became an issue of concern. But from 2007 on the “Bundesbank was involved inasmuch as most of the money freshly ‘printed’ in the GIPS flowed into its jurisdiction and crowded out its refinancing operations one to one. [...] As a compensation for the credits it could have given to the German commercial banks [...] the Bundesbank did acquire a corresponding claim on the Eurosystem” (Sinn and Wollmershäuser 2011, 3). For the Bundesbank therefore, a (possible and probable) claim on German commercial banks, which would likely have been based on sufficient collateral, changed into a claim⁶ against the ECB. To the extent of the additional risk of this claim German taxpayers’ property was destroyed.

Divergence of decision and liability

Many economic problems and questions, from environmental damage to major causes of the recent financial crisis, may be described by the simple formula of diver-

gence of decision and liability. Whereas the excessive pollutant emission may be traced to the insufficient impact of the individual on environmental damage, the banks have used the low equity ratios (recoverable assets) ‘before’ the crisis to socialize the risk of loss (divided between creditor and taxpayer). It is these externalities – that the damage must be borne not only by the acting party but also by other people – that lead to dysfunctional markets. Functioning markets (without externalities) are merciless and beneficial at the same time. Misconduct of the individual actor is punished mercilessly, which, however, leads to a social optimum as no one has to pay for the costs caused by someone else without being compensated (without compensation money flowing over the market). Important here is not only protection against damage but that – only *via* the market mechanism, as it considers all preferences and brings them into balance – the optimum of the total use of resources or means is achieved. The liability of the individual for his conduct is the most important prerequisite for this system to work.

In the Eurosystem, however, liability is largely socialized: “pursuant to Article 32.4 of the ESCB Statute, all risks from these operations, provided they materialise (sic), are shared among the Eurosystem national central banks in proportion to the prevailing ECB capital shares”.⁷ This fact refers to the two major risk-relevant positions in the balance sheet of the central banks, lending to euro area credit institutions (main refinancing operations, longer-term refinancing operations) and securities that have been purchased as part of the Security Market Program (SMP).

Although decisions on collateral requirements and the purchase of securities are made jointly in the Governing Council, the hoped-for benefit is not shared equally among the electorate. Whereas some understandably worry about the refinancing of their commercial banks and governments and push for a reduction of the quality standards of collateral as well as the purchase of securities (SMP and CBPP⁸), others must assume liability for these measures.

⁷ Bundesbank (2011, 167/168). According to Article 32.4 of the Statute of the European System of Central Banks and the European Central Bank, the ECB Council can decide that the national central banks are compensated for costs connected to the issuance of notes or under extraordinary circumstances for specific losses from monetary policy operations undertaken for the ESCB (Official Journal of the European Union C 115/243, 9 May 2008).

⁸ In addition to the Security Market Program (SMP) the Governing Council has established another program, the Covered Bond Purchase Program (CBPP). As part of this program the ECB and the national central banks have purchased covered bank bonds totaling 60 billion euros on the primary and secondary markets in the course of one year. See *The Impact of the Eurosystem's Covered Bond Purchase Programme on the Primary and Secondary Markets*, Occasional Paper 122, January 2011.

⁵ There are several exceptions. According to Article 10, Section 3 of the Statute of the European System of Central Banks and the European Central Bank, all votes on decisions regarding articles 28, 29, 30, 32 and 33 are weighted with the shares of the national central banks in the capital of the ECB, whereas the votes of the Executive Board are weighted with zero. The articles concerned contain no rules on monetary policy (see Official Journal of the European Union C115/234, 9 May 2008).

⁶ However, if one of the Target debtor countries defaults, the claim must only be borne by the Bundesbank according to its share in the Eurosystem.

The rescue funds set up by the present governments stand in the tradition of socializing the liability by the central bank system. Germany has now officially (and in large volume) agreed to assume liability for other sovereign debts. The major problem from a pan-European point of view – as noted – does not consist in the transfer of creditworthiness or capital in itself, but in the disincentives for the excessive incurrence of debt by the recipients.

Imperative asset backing of the currency

Do existing risk positions in the balance sheet of the ECB and balance sheets of the national central banks constitute a problem for the stability of the currency, even if the monetary base is not to be expanded?

At first this question may seem trivial, as the incurred risk should have a negative effect on the stability of the currency. In most textbooks, however, the key words ‘causes of inflation’ do not apply to risky positions in the assets of the central bank (see e.g. Issing 1998, 200–216). Further, write-downs or losses of the central bank are not cited as possible causes of inflation or a devaluation of the currency in standard textbooks.⁹

The issuer’s power to sterilize the outstanding money supply

Although the asset backing of issued notes, i.e. securing their back flow, is hardly ever found in current textbooks, it played an important role in the *banking-currency debate*. Whereas *currency theoreticians* insisted on the complete metal backing of the notes beyond a given unchangeable amount, perhaps the most important argument of the *Banking School* was the *Real Bills Doctrine* that postulated “that bank notes, which are lend in exchange for *real bills*, i.e. titles to real value or value in the process, cannot be issued in excess” (Green 1987). The argument of the *Banking School* becomes even clearer in the term of the ‘*law of reflux*’, coined by Tooke and Fullarton as a modification of the *Real Bills Doctrine*. Tooke referred to the fact that an excessive issuance of notes was impossible if the issuance of notes is done on the basis of sufficient collateral (see Rieter 1971, 138), as this would guarantee the back flow of the notes.¹⁰ According to

‘the law of reflux [...] overissue was possible only for limited periods because notes would immediately return to the issuer for repayment of loans’ (Schwartz 2008). Therefore, what is decisive is the power of the issuer – to sterilize the issued notes again – and not the form of the assets behind that power, whether these be physical assets (e.g. gold) or pure legal claims (e.g. promissory notes).

Money as (implicit) claim against the assets of the issuer

As a result of the elimination of the exchange obligation and metal backing of currencies – the Australian central bank maintains no precious metals among its assets – the idea of an entirely unsecured paper currency which is accepted as medium of exchange only because of social convention has been put forward by many economists. For example, in one of the most used macroeconomic textbook for beginning students, Mankiw, its author, states: “finally the gold backing becomes irrelevant. If no one ever bothers to redeem the bills for gold, no one cares if the option is abandoned. As long as everyone continues to accept the paper bills in exchange, they will have value and serve as money. ... [In] the end, the use of money in exchange is a social convention: everyone values fiat money because they expect everyone else to value it” (Mankiw 2002, 79).

The money supply issued by modern central banks continues, of course, to be backed by the assets of the central bank, even though physical stocks (precious metals) increasingly had to make way for non-physical assets (claims, foreign exchange or securities). Further, the redeemability continues to be available. In contrast to the early central banks (in the USA even up to 1971), not every note holder has a legal right to redemption, but redemption continues, of course, to take place. It is limited, however, to commercial banks that have been authorized as central bank counterparties. For example, at the end of a security repurchase agreement, the central bank not only has to cancel the claim against the commercial bank that returns notes but, of course, must also return the previously submitted asset (the security). The outright sale of central bank assets (like gold, foreign exchange or government bonds) has the same effect as a redemption, where again only central bank

⁹ In many standard economic books the capital of the central bank is not even mentioned, see e.g. Bofinger (2001) and Blanchard (2003), or it is defined – as by Krugman and Obstfeld (2003, 486f.) or Mishkin (2001, 214–215, 392–394) – as negligible and only relevant for commercial banks.

¹⁰ Tooke is mentioned here because in contrast to the *anti-bullionists* he not only considers trade bills to be sufficient collateral but any kind of security that is solid enough to warrant the reflux of notes (see Rieter 1971, 138).

counterparties have the right to purchase, i.e. to redeem the notes (Heinsohn and Steiger 2008, 150). *Regardless of the limitation of the specific business partners and points in time, the central bank never redeems money (diminishes M0) without, in return, transferring an asset to the submitter of the notes.* Thus money not only has value because it is a social convention but also because it is constantly needed to repay debts to the central bank, to retrieve deposited collateral, and to purchase assets from the central bank. Declaring a currency as legal tender¹¹ and collecting taxes in this currency does not suffice for acceptance by the public. Therefore it is the power of sterilization of the money supply, the backing of the notes, that leads to its acceptance – and thus the stability of the currency. Totally inconvertible fiduciary money, which no one would need to repay loans at the central bank or to redeem his collateral, and for which no one could hope that the central bank would confer assets (gold, foreign exchange, securities) in return for submitting notes – because the central bank, due to the lack of collateralized currency, does not have any – can never attain the acceptance of money that is backed by the assets of the issuer. For money is a legal right to a creditor's assets (Heinsohn and Steiger 2006, 182) or an implicit claim against the assets of the issuer.¹²

We now have the opportunity to finally understand this, as in the course of the disequilibria between the central banks of the Eurosystem economists have noted that in the central banks' balance sheets the money supply is entered as a liability. The Target debt of a country corresponds to the share of its issued notes that are circulating abroad. These represent a claim against the assets of the central bank (the issuer). If the issuer is subject to an exchange obligation, the claim against the issuer is of a real nature; if there is no exchange obligation, the notes only imply such a claim against its assets (nonetheless *via* this implicit claim the notes gain value). The US Treasury describes money as follows: "Federal Reserve notes are claims on the assets of the issuing Federal Reserve bank".¹³ This claim is concrete only for other US Federal Reserve Banks during the annual settlement

in April when each of the twelve Federal Reserve Banks must repay its liabilities (notes issued that are held by one of the other Federal Reserve Banks) with specified marketable assets (see Sinn and Wollmershäuser 2011, 41). For all other holders of the notes the claim against the assets of the issuer is only implicit.

It is important to understand that a central bank, at least if it is subject to a legal exchange obligation (obligation of redemption), cannot avoid insolvency by issuing additional notes, as it creates new claims against itself with these notes.¹⁴

An attempt to dispel this recurring misunderstanding of how a *note-issuing* bank can ever become insolvent was made by James Steuart as early as two and a half centuries ago: "I have dwelt the longer upon this circumstance, because many, who are unacquainted with the nature of banks, have a difficulty to comprehend how they should ever be at a loss of money, as they have a mint of their own, which requires nothing but paper and ink to create millions. But if they consider the principles of banking, they will find that every note issued for value consumed, in place of value received and preserved, is neither more or less, than a partial spending, either of their capital [equity], or profits of the bank" (Steuart 1767 (1993), 151).

But even if the central bank is not subject to a legal exchange obligation (obligation of redemption), it is nevertheless essential that in creating money it effects an implicit safeguarding of its reflux (= activating a valuable asset on the asset side of its balance sheet). A central bank's capability to act is based on these assets. If a central bank, for example, wants to prop up the value of the currency, it is forced to sell assets or foreign exchange. In case of speculation against its currency, the central bank must be able to sterilize the currency sold by the speculators by outright sales of assets or foreign exchange.

If, however, the power of the central bank to sterilize the issued money supply is necessary for the stabilization of the currency, then the loss of this power (= a loss in value of the central bank's assets) implies a destabilization of the currency – in this case the euro. If the later to be derived risks in the central banks bal-

¹¹ The so-called acceptance obligation applies only to cash. Accordingly, a creditor or business partner need not accept payment in foreign currency or claim transfer if this was not legally agreed in the contract. In EMU, euro cash has been the exclusive legal tender (there are restrictions for coins) since 1 January 2002 (see Article 14 Section 1 p. 2 Bundesbank Act).

¹² Such purely inconvertible fiduciary money existed and still exists in socialistic societies. There the notes do not represent a claim against the issuer, but only a 'coupon for merchandise redemption' guaranteed by the state. See the differentiation between 'creditor's money' and 'debtor's money' described in the following. On money in no-property-owning societies see also Stadermann and Steiger (2001).

¹³ US Treasury (2005), quoted from Heinsohn and Steiger (2008, 120).

¹⁴ It is this mechanism that is not understood by Buiter when, in a criticism of Sinn and Wollmershäuser (2011), he refers to the fact that each Fed branch can procure the needed assets for the annual settlement by additionally issued notes (see Sinn and Wollmershäuser 2011, 44–54).

ance sheets of the Eurosystem become overwhelming, the losses must be written down in the banks' capital. If the capital is exhausted or even becomes negative, the countries, as Charles Goodhart emphasized, must as a last resort stand behind the liabilities of the central banks, transfer assets (normally debt certificates) to the central banks and thereby restore the central banks' capability to act and to retire notes in the required and necessary volume.¹⁵ If the states are incapable of doing that because they cannot incur additional debt in the amount needed, the euro will lose acceptance and – with inflationary implications – must depreciate. If the central banks were to suffer massive losses, it remains to be seen whether the aging people of Europe (especially including Germans) would obtain loans from private capital providers to offset the write-downs in the central banks' balance sheets. Of course, the risk is extremely high that if it is difficult to raise loans and/or interest rates are high, the prohibition of monetary financing of the public sector is circumvented and the central banks grant loans directly to the governments. This would surely be the start of a more severe inflationary period.

Capitalization of an asset enabling the issuer to sterilize the money supply

Decisive when considering money creation is not only the quantity of money issued but also, and arguably more important, the way it is created. The difference in money creation becomes especially evident with the outright purchase of government bonds. Serious central banks are not allowed to grant credit directly to the government (prohibition of monetary financing of the public sector),¹⁶ but they may purchase government bonds on the *secondary market*. With the purchase of bonds on the *secondary market* the government can only incur debt if the investors believe it will honor its obligations. Government bonds thus have a value that is verified by the market at a particular point in time. If, however, the central bank monetized the government debt by acquiring government bonds directly from the state and at a price that private investors would never pay, it issues, according to the terminology of ownership economics, unsecured 'debtor's money'.¹⁷ In this case, the central bank is unable to sterilize the created money (to the full amount) by selling the bonds. It is this trivial differ-

ence of how money is created that is ignored by many economists when they simply speak about 'printing money'. But in creating money the question arises whether the central bank activates a valuable asset that enables it to sterilize the money supply again (termed 'creditor's money'¹⁸) or whether it does not activate an asset enabling it to sterilize the money supply (termed 'debtor money'). In connection with the rule that all liquidity creating operations of the Eurosystem must be based on collateral,¹⁹ the prohibition of monetary financing and the privileged access by public institutions²⁰ guarantees as a basic principle the issue of 'creditor's money'.

The various instruments of money creation differ, however, depending on their design, in the solidity of the backing of the money supply issued. With the (normal) issuance of credit-created money, the accepted asset (the collateral) becomes relevant to the central bank only in a second stage, as initially a claim exists against the commercial bank.

With the outright purchase of assets this claim against the commercial bank does not exist and the central bank bears the full risk of market valuation. Thus the central bank incurs high risks with an outright purchase of assets. The central bank should therefore limit the quantity of the positions of outright purchased assets and acquire only such assets that have a low valuation risk.

In perpetuating the purchase of government bonds, there is in principle the problem that the central bank enables the state to have a higher or respectively cheaper debt and market verification of the value is rendered less effective. Once the purchases of the central bank are perpetuated, private investors (commercial banks) are willing to pay higher prices for government bonds as they can expect the central bank to buy (some of) these bonds from them and thereby to stabilize their value. This mechanism, which renders the market correction ineffective, comes close to monetary financing or a decoupling of money from property liability and has been accurately described in 1994 as a central bank deficiency²¹ (Stadermann 1994, 202).

¹⁵ See Goodhart (2002, 234): "what stands behind the liabilities of the CB [central bank] is not the capital of the CB but the strength and taxing power of the State".

¹⁶ See Article 123, Section 1 of the Treaty on the Functioning of the European Union (Official Journal of the European Union C 115/99, 9 May 2008).

¹⁷ See e.g. Stadermann and Steiger (2001, 32).

¹⁸ Property economics uses the term 'creditor's money'. The creditor is namely liable with his property for the issued notes as they imply a right to his property (see Heinsohn and Steiger 2008).

¹⁹ Article 18 of the Statute of the European System of Central Banks and of the European Central Bank (Official Journal of the European Union C 115/238, 9 May 2008).

²⁰ Article 123 Section 1 of the Treaty on the Functioning of the European Union (Official Journal of the European Union C 115/99, 9 May 2008).

²¹ Original: 'Zentralbankdefekt'.

The central banks of the Eurosystem therefore massively jeopardize the value of the currency, according to the decisions of the Governing Council, by lowering the standards²² for central bank eligible collateral and by conducting the outright purchase of risky assets. Not (only) the mere quantity of money issue is important for the stability of the currency, but also the backing of the notes issued, i.e. the risk position of the assets of the central bank balance sheets.²³

When the European Central Bank justified the purchase of bonds of highly indebted states with the argument that it would withdraw the same amount of liquidity from the market elsewhere in the system and therefore the stability of the currency would not be jeopardized, there was massive criticism, but many economists agreed with this purely quantitative logic.²⁴ On the intervention of the ECB, Trichet emphasized constantly that there would be no quantitative easing in the Eurosystem, in contrast to what the Fed and the Bank of England have done. The liquidity provided through the Security Market Program would be absorbed by collections of fixed-term deposits.²⁵

These liquidity operations however, absorb only money in circulation but do not diminish the money supply M0. Even if the risks of bond purchasing are entirely obvious – and cannot be avoided by (weekly) collections of fixed-term deposits – many economists seem to have a preponderantly mechanical understanding of the value of money. But it is not the quantity of the money *in circulation* that is (or would be) worrisome, but the backing accompanying the money supply (M0).

How bad is the asset backing of the euro?²⁶

The two – before mentioned – positions in the central bank balance sheets of the Eurosystem – ‘lending to

euro area credit institutions’ and ‘securities of euro area residents’ – are cause for concern.

The ‘lending to euro area credit institutions’ (main refinancing operations, longer-term refinancing operations, etc.) are troubling because they are distributed in an increasingly asymmetrical manner to the national central banks of the monetary union (Target problem). By the end of 2010, two-thirds of the entire credit-created money supply of the Eurosystem was created by the GIPS central banks (see Sinn and Wollmershäuser 2011, 3) and secured by the activated claims and accepted collateral. In the annual balance sheet of the Bank of Greece, for example, the position ‘lending to euro area credit institutions’ increased twentyfold from 4.8 billion euros (2006) to 97.7 billion euros (2010).²⁷ These amounts reflect the Target claims of the ‘Target creditors’. Whether the Target claims will be met depends on the solidity of the claims of the Greek central bank, i.e. the solvency of its debtors and the accepted collateral, as the power of the Greek central bank to offset losses, its reserves and its equity has not been able to keep up with the expansion of its entire balance sheet. While the total assets increased from 34.9 billion euros (2006) to 138.6 billion euros (2010), the reserves increased only to a total of 2.4 billion euros.²⁸ If the reserves for personnel are deducted,²⁹ however, only 921 million euros remain. With this amount and its equity of 815 million euros (Bank of Greece 2011a, 59) the Greek central bank has to vouch for possible losses from the above-mentioned loans amounting to 97 billion euros and possible losses from securities held-to-maturity (23.9 billion euros).³⁰ Because the Greek government, as is well known, could not offset any deficits, the losses of the Greek central bank are inevitably transferred to the central banks of the Eurosystem holding the 87 billion Target claims against the Bank of Greece. This explains the central bankers’ fear of a default on the part of the Greek government and thus probably also of a majority of Greek banks including its central bank.

As the probability of a repayment of the Greek Target debt depends in the final analysis on the solvency of the Greek commercial banks and the solidity of the collateral deposited at the central bank, it is disquieting to read that, according to an estimate by

²² The ECB decided on 6 May – after collateral requirements had been considerably eased – that in the future the commercial banks of the Eurosystem could offer Greek government bonds as collateral at the central bank, no matter how far the credit rating of the Greek state might fall (Official Journal of the European Union L 117, 11 May 2010).

²³ These risk positions include the claims against commercial banks, and if the commercial bank assumes greater risks – because, for example, the procurement of money at the central bank is simplified – the quality of the backing of the notes issued by the central bank will fall.

²⁴ See Weber (2010), Interview in *Börsenzeitung* of 1 June 2010; and also Häring (2010) reporting that the President of the Deutsche Bundesbank and hence a member of the ECB Council vehemently voiced his criticism of the purchases, however, among monetary experts outside the ECB Weber found little agreement.

²⁵ See Trichet (2010, 27).

²⁶ If not stated otherwise, all figures refer to the financial accounts of 31 December 2010. If an annual date is mentioned, the figures refer to the financial accounts of that year.

²⁷ See Bank of Greece (2008, 54) and (2011a, 58).

²⁸ See Bank of Greece (2008, 54) and (2011a, 58–59).

²⁹ In the summary of the Annual Report 2010 of the Bank of Greece, published in English, the position of provisions is not broken down any further. But in the Greek version the position provisions is broken down. See Bank of Greece (2011b, 33 (appendix)).

³⁰ See Bank of Greece (2011a, 58).

J.P. Morgan, the share of the government bonds in this collateral is expected to amount to 33 percent and the share of government-backed bank bonds to 38 percent (see Sinn and Wollmershäuser 2011, 24–25). Neither is it any comfort to read that almost two-thirds of the government debt of Greece, Ireland and Portugal are held by the banks of each country (Storbeck, Detering und Slodczyk 2011), as in these other ‘Target debtor countries’ a similar situation must be expected. The Target claims against the GIPS countries, which already amounted to 340 billion euros at the end of 2010, are not just a technicality, but a massive, hardly insurmountable risk for the asset backing of the euro.

The securities held are the second position of concern in the balance sheets of the central banks, which are mainly combined in the entry: ‘securities of euro area residents denominated in euros’. In the consolidated balance sheet of the Eurosystem (not to be confused with the balance sheet of the ECB that in 2010 accounted to only 8 percent of this consolidated balance sheet of all participating central banks) this position surged from 77 billion euros (2006) to 457 billion euros (2010).³¹ This sum not only includes government bonds belonging to countries with a risk of default but also other securities. The entire position of government bonds held in the Eurosystem is, however, considerable bigger than the sum of the securities acquired as part of the Security Market Program (SMP), which is published weekly by the ECB and is always critically reviewed by the media (at the end of 2010: 73 billion euros). Thus, the Greek central bank holds 4.3 billion euros of *Greek* government bonds and 8 billion euros of other countries’ government bonds in addition to the position of the SMP (3.3 billion euros).³² The government bonds of the SMP are, of course, not only held by the ECB, but also by national central banks. Thus, at the end of 2010, the ECB held government bonds amounting to 13.1 billion euros (European Central Bank 2011, 223), and the Bundesbank held 15.6 billion euros (Bundesbank 2011, 168). The Bundesbank must therefore also enter the risky positions in its balance sheet, the amount of which is determined by the Governing Council.³³ The default risks of these positions have, however, been socialized in the Eurosystem.

It is also strange that in its Annual Report 2009 the ECB reported with respect to the government bonds (SMP) and the covered bonds (CBPP): “as at 31 December 2009 there was no objective evidence that these assets were impaired” (European Central Bank 2010, 211). In the Annual Report 2010 it states: “as a result of the impairment tests conducted as at 31 December 2010, no impairments *were recorded* for these securities” (European Central Bank 2011, 223, emphasis added). A look at the auditor’s report on the Annual Report 2010 shows that the accounting rules were changed by a decision of the Governing Council of 11 November 2010. Accounting is no longer performed according to the decision ECB/2006/17, but according to ECB/2010/21. Whereas in the earlier decision the accounting rule simply refers to the ‘market price at year-end’,³⁴ the new valuation principles for securities held-to-maturity (for monetary policy purposes) states: ‘cost subject to impairment (cost when the impairment is covered by a provision under liability item 13(b) ‘Provisions’).’³⁵ Although these details seem technical and tedious, they would be of immediate interest if the losses were made public. The ECB traders would have been very lucky if they had not realized marked losses from purchasing securities with default risk in 2010 when these securities were under extreme pressure. It seems the Greek central bankers were that lucky, as the Financial Report of 2010 says: “marketable securities classified as held-to-maturity and non-marketable securities are valued at amortized cost subject to impairment. In financial year 2010 no impairment losses occurred” (Bank of Greece 2011a, 59). This is *unbelievably surprising* as at the end of 2010 the Bank of Greece held total government bonds classified as held-to-maturity of more than 15 billion euros, of which 4.3 billion euros were *Greek* government bonds.³⁶

Of the balance sheet a total of 2,000 billion euros of the Eurosystem’s consolidated balance sheet approximately more than 600 billion euros are not solidly backed (Target problem and risky outright purchased securities). It is hard to say what share of this sum could wind up as loss at the central banks of the Eurosystem and how likely it is for this to happen. That is why these risks should not be assumed. It is a fact, however, that in case of default the citizens will bear the expense. Either the central bank losses will be offset by the governments, which have to incur new debt, or the euro loses accep-

³¹ European Central Bank (2011, 242).

³² This information, too, is not found in the English summary of the Annual Report of the Bank of Greece, but it is in the Greek version of the appendix. See Bank of Greece (2011b, 19–21 (appendix)).

³³ ECB Press release of 10 May 2010 on the introduction of the SMP (excerpt): “the scope of the interventions will be determined by the Governing Council”.

³⁴ ECB/2006/17, Official Journal of the European Union L 348/43, 11 December 2006.

³⁵ ECB/2006/21, Official Journal of the European Union L 35/7, 2 February 2011.

³⁶ The individual positions: 3.3 billion euros (SMP), 4.3 billion euros Greek government bonds and 8 billion euros other government bonds. See Bank of Greece (2011b, 19–21 (appendix)).

tance (not only due to image damage) and depreciates – with inflationary consequences.

A default by Greece would lead to massive write-downs in the balance sheets of the Eurosystem, as the facts about the balance sheets show. It is understandable that the ECB fears this scenario. Thus Mr. Trichet, in an interview shortly before the crisis meeting of the heads of state at the end of July 2011, warned of possible losses that the central banks could incur: ‘if the decision leads to a partial default of Greece or insolvency – of which we, as mentioned, warn loudly and clearly – the governments would have to make sure that the Eurosystem is given collateral it can accept’.³⁷ It is indeed ironic that he, as speaker of the Governing Council, has now pointed to a risk that the Council took on of its own accord and described as ‘moderate’ (to continue to accept Greek government bonds as collateral despite the poorest ranking).

To be sure, politics has responded to the warnings by establishing a new rescue fund and in the process shifted the risks to the public budgets; but because it is not really effective, the Governing Council has again had to decide to purchase additional government bonds in order to defend the artificially high level of these securities. The basic problem of the risky positions in the balance sheets of the central banks was thus further exacerbated. But as Friedrich Schiller once pointed out: ‘this is the curse of an evil deed, that it incites and must bring forth more evil’.

Conclusion: it is already five minutes past midnight

Credit is a magical instrument that makes tomorrow available today. It is only credit that allows us to live beyond our means. The availability, which is shifted from the future to the present, ought to be utilized today in order to warrant repayment plus interest tomorrow.

The risk that credits are not serviced is an intrinsic part of risk, as the future cannot be predicted. Private creditors always try to minimize this risk by granting credits only to trustworthy debtors who they deem capable of repayment plus interest and usually by requiring solid collateral. Because the debtor, if he is unable to repay his debt, fears recourse to his proper-

ty, he will do his best to make the payments. *This compatibility of inducement minimizes excessive granting of credit and ensures that it is employed for real and promising investments.* Of course debtors may err with respect to their investments and creditors may err regarding their debtors, but their motivation implies an efficient use of the credit.

Central bankers, however, are not private creditors who are limited in their actions by purely egoistic considerations such as maintaining and increasing their capital. Social and cyclical reasons can also play in central bankers’ decisions and they can waive interest payments or lower the requirements on collateral. There is disagreement on what restrictions are optimal for lenders especially during a crisis (the central bank’s function of the lender of last resort). Too generous lending bears enormous risks, i.e. that the funds will not be implemented in a way that guarantees later repayment and that the need for write-downs will increase.

At the outbreak of the financial crisis the ECB Governing Council – like many other central banks – acted fast and decisively, largely dispensing with interest payments and also increasingly lowering the requirements on collateral. Whether this step was necessary and correct is arguable, even though, once instituted, it is always difficult to abandon such a policy.

It is gradually becoming apparent that the measures of the Governing Council – flanked by the governmental guarantee programs – have degenerated to an attempt to stabilize asset prices (government bonds) at the wrong level. Acquisition of government bonds and other assets by commercial banks induced, caused and accounted for by the policies of the ECB Governing Council and the guarantees of the (somewhat) more solvent countries – which, however, suffer from the problems of ageing societies – have not led to real investments that will ensure repayment.

The inflated positions in the balance sheets of commercial and central banks (government bonds) must be written down. The write-down may be postponed or rebooked (from the financial sector to the public budgets), but not avoided. The fight against market equilibrium is – as we have learned, for example, from the history of artificially upheld exchange rates – a hopeless fight.

The hidden credits of the Eurosystem (Target balances), which were made possible by its construction flaws add to the other risky positions (government

³⁷ Original: “fällt die Entscheidung zu einem teilweisen Zahlungsausfall [Griechenlands] oder einem Zahlungsausfall führt – vor dem wir, wie gesagt, laut und deutlich warnen –, müssten die Regierungen dafür sorgen, dass dem Euro-System Sicherheiten bereitgestellt werden, die es akzeptieren kann” (Trichet 2011).

bonds) and are almost perfectly correlated with these. The well-founded fear of politicians that the GIPS countries may default – the write-down in the financial sector would be massive for commercial and central banks – drives them to ever new measures and thus to a worsening of the problem.

A solution can now neither be expected from a refusal of guarantees and rescue packages combined with a restrictive monetary policy nor from the offer of additional measures. A look at the debt clock it tells us that for European countries with their ageing population it is already five past midnight.

Even if the delay in filing insolvency by Greece and Portugal is maintained for a few years or forever, the clock cannot be turned back. Because numerous other candidates have to face the dilemma in the medium term of (a) no longer being able to service their debt or (b) attempting to inflate the currency.

It is illusionary to expect the Target balances to be off-set again, not only against this background. Whether the euro will break apart in an inescapable financial and government debt crisis or degenerate to a soft currency – perhaps by circumventing the prohibition of monetary financing – remains to be seen.

Greece, for which the unavoidable default manifests itself most clearly, is known for founding our civilization (*pólis*) and the development of the first monetary economy in antiquity. It would thus also be a worthy grave for the euro.

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BALANCES IN THE TARGET2 PAYMENTS SYSTEM – A PROBLEM?

JENS ULBRICH AND
ALEXANDER LIPPONER*

The public debate over Target2 balances suffers from numerous misunderstandings and wrong conclusions. Because the Target2 balances are seen as the core of a problem and not as an accidental symptom, it obstructs the view of the true challenges for monetary and fiscal policy in order to solve the financial and debt crises. This realisation is the prerequisite, however, for setting the debate on the Target2 balances right again.

Target2¹ is a platform for the payments system that is jointly run by the central banks of the Eurosystem. Payments in central bank money are settled ultimately and in real time. They are primarily payments between banks, payments between banks and ancillary systems (e.g. security settlement systems, mass payments systems) as well as payments as part of open market operations of the Eurosystem. Overall (as of 15 July 2011) 190 entities are participating *via* the Bundesbank in Target2.² These direct participants include, in addition to German banks, German subsidiaries of foreign banks as well as some third country banks whose national central banks are not themselves participating in Target2. In 2010 about 45 million transactions with a total value of around 214 trillion euros were processed by the German Target2 component. Thus, Target2-Bundesbank is the biggest component of the common platform in terms of units (about half of all transactions) as in terms of volume

(with a share of more than a third). About one quarter of all transfers were cross-border in 2010.

The so-called Target2 balances of the national central banks reflect cross-border transactions. On the one hand they are based on transactions of the banks in the money and capital market. On the other hand they may be traced to transfers of the non-bank sector that are carried out by banks. A positive balance at a national central bank means the inflow of central bank money to the respective banking system, whereas a negative balance correspondingly implies an outflow. This can occur when a country's banking system obtains more refinancing at its central bank than corresponds to its calculated liquidity needs (for example for meeting its reserve requirement and for cash). This is the case, for example, if a cross-border payment of a merchandise shipment is not offset by a return flow of capital from abroad.³ The settlement balances against the European Central Bank (ECB), which functions as the central counterparty, generated in the course of the day by cross-border transactions between the participating national central banks are netted at the end of each business day. The Target2 claims balance against the ECB, accumulated by the Bundesbank before 31 July 2011, amounted to roughly 343 billion euros.⁴

Target2 payments are made in central bank money. An additional procurement of liquidity *via* Target2 is not possible. In the Eurosystem, central bank money is primarily provided by monetary refinancing operations that are subject to uniform rules in every country. Risks from these operations are principally distributed among the national central banks according to their respective share in the capital of the ECB, regardless of which national central bank has conducted a monetary refinancing operation. To this extent, the Target2 balances of a national central bank are not an appropriate indicator of its actual risk position resulting from the supply of central bank money. For the Bundesbank a positive Target2 balance represents no other risk than a



* Deutsche Bundesbank. This contribution reflects the personal opinion of the authors. It does not necessarily correspond to the views of the Deutsche Bundesbank.

¹ Target2 stands for Trans-European Automated Real-time Gross Settlement Express Transfer System 2.

² A total of about 4,500 institutes participate directly or indirectly in Target2. If branches and subsidiaries of the direct and indirect participants as well as correspondent banks are included, around 60,000 banks worldwide may be reached *via* Target2 (European Central Bank 2011).

³ A detailed presentation of the process with the help of stylised accounts and a discussion of possible causes for the generation of settlement balances in Target2 is given by Bindseil and König (2011).

⁴ On the development of the Target2 balance, see Deutsche Bundesbank (2011).

positive Target2 balance of the Banque de France. Target2 balances depend largely on the distribution of the bank-treasury activities in the euro area. Thus, a foreign bank could get the needed central bank credit also *via* its legally independent subsidiary or a branch in Germany that then passes these funds to the parent office *via* Target2. This transaction would *ceteris paribus* lower the Target2 balance of the Bundesbank. The risk borne jointly by the Eurosystem would remain unchanged compared to a direct refinancing at with the central bank of the parent institution. This also becomes clear from another vantage point: if the provision of central bank money in the Eurosystem were done centrally by the ECB, there would in principle be no national Target2 balances. Countries/regions of the monetary union with deficits in their payment transaction would increasingly take up refinancing credits at the ECB; other countries/regions would take up less. In the final analysis, Target2 claims against the ECB are generated because of the decentralised construction of the Eurosystem; the absolute size is limited by the total amount of the central bank money supplied.

It is wrong, therefore, to assume that original risks of the national central banks in the Eurosystem result from Target2 balances. It is, however, correct that the development of the Target2 balances since the start of the financial crisis in mid-2007 has revealed problems in the European banking and financial system. In the crisis, the Eurosystem consciously assumed a larger intermediation function in view of the massive disruptions in the interbank market by extending its liquidity control instruments. With this greater role in the provision of central bank money – essentially by changing to a full allotment procedure in refinancing operations and the extension of longer-term refinancing operations – the total volume of refinancing credits provided has increased (temporarily even markedly). At the same time, the quality requirements for the underlying collateral were reduced in the crisis. The higher risk was accepted in order to maintain the functioning of the financial system under more difficult conditions.

The need for additional liquidity has occurred especially in the periphery countries, whose banks in order to refinance have been relying to an ever increasing extent on the central banks there, as they can obtain no or hardly any funds in the capital market. Thus, banks from the countries most affected by the sovereign debt crisis (Greece, Ireland and Portugal) now account for about half of the entire refinancing volume of the Eurosystem. Shifts in regional demand for

central bank liquidity have significantly contributed to the generation of Target2 balances. In the course of this development, the overall risk of the monetary refinancing operations has risen markedly for the Eurosystem. To a certain extent this was the unavoidable consequence of responding to the crisis. The generally accepted role of the central banks as lender of last resort for the banking system must remain temporary, however. In a monetary union, the risks can be distributed widely to the taxpayers of the member countries *via* the balance sheet of the central bank. Since it cannot be the responsibility of an independent monetary policy to redistribute the solvency risks of banking systems or even countries to the taxpayers of the monetary union, high demands are placed, as a matter of principle, on the collateral. Banks that are cut off permanently from the capital market and are therefore potentially confronted by solvency rather than liquidity problems should not be financed primarily *via* central bank credit in the medium to long term. Such risk assumptions and decisions on their distribution are the responsibility of the democratically legitimised political institutions. The central banks should thus keep extraordinary crisis measures within strict bounds and then quickly reduce them. This applies regardless of the development of Target2 balances.

The public discussion has identified other problems associated with the rising Target2 balances. It is feared, for example, that the shift in the refinancing behaviour has crowded out investment in Germany. German banks have indeed reduced Eurosystem refinancing, as funds flowed in from abroad and because they were able to obtain liquidity at favourable terms in the interbank market. Consequently, the share of German banks involved in the refinancing operations of the Eurosystem, which amounted to about 250 billion euros in early 2007 – more than half of the total volume – most recently declined to about one tenth. However, this decline of the refinancing volume was – no least due to the full allotment policy of the Eurosystem – a *voluntary decision* of the German banks. As a consequence of the liquidity inflow from abroad, the German banks – given corresponding demand – were able to do more lending. This mechanism has thus not led to a crowding out of domestic investment. A possible ‘resource competition’ does not exist either in real economic terms or with respect to the central banks. As long as banks in the core countries have central-bank eligible collateral, their refinancing possibilities via the central bank are not constrained.

Furthermore, some argue that a continuation of recent developments would inhibit monetary policy, as the surplus liquidity at individual banks in core countries, especially in Germany, would impair the Eurosystem's interest-rate control. These fears are not convincing. If liquidity is plentiful, the deposit facility puts a floor on the lending interest rates of the commercial banks. For the commercial banks the interest rate of the deposit facility constitutes opportunity costs for any other form of deposit and lending. If the key interest rate is raised – as a rule the interest rates of the deposit facility are raised by the same amount – the opportunity costs of the commercial banks also rise. Consequently, a plentiful supply of liquidity cannot in itself disrupt monetary policy transmission. The empirical finding concerning the interest rate pass-through, also in a crisis, confirms that in this respect there has not been a structural change in the euro area. Beyond this, the Eurosystem can withdraw liquidity from the market at any time by absorbing operations (e.g. repurchase operations) if the abundant surplus liquidity of the commercial banks in the core countries is likely to jeopardise price stability. Reliance on gold and foreign exchange reserves considered necessary by some critics of Target2 balances (Sinn and Wollmershäuser 2011) is not necessary. Decisive for the monetary policy of the Eurosystem are basically not the Target2 balances but the total supply of liquidity – no matter which national central bank is the primary provider. A differentiation between central bank money that is created by a central bank of the Eurosystem in refinancing operations with domestic banks and that which is supplied in other countries and flows to the banks *via* Target2 is irrelevant in a monetary union. A euro is a euro, independent of which of the national central banks puts it into circulation.

Finally, there is the argument that the current account deficits of the peripheral countries were and are financed by Target2 balances. In fact, the relationship, purely based on the mechanism of net balances between the current account balances on the one hand and Target2 positions on the other, which has been observed lately, may have led to the conclusion that by accepting Target2 balances the Eurosystem made current account disequilibria all too easy. This accusation is not justified, however. It is true that in a monetary union diverging current account balances may be generated and that these were generated after the establishment of the European Monetary Union (EMU). In a common financial market with a common currency they can be financed more easily *via* private capital

movements. In this respect, a monetary union may also facilitate the maintenance of such disequilibria if no adequate pricing of risks takes place with the provision of capital and credit. A direct financing of current account deficits by the central banks has not occurred and will not take place in the future. This is also shown by Bindseil and König (2011) as well as Buiter *et al.* (2011), by comparing current account balances and changes in Target2 positions of individual countries over time. The example of Ireland, whose current account turned from a large deficit into a surplus, also confirms that this need not be accompanied by a corresponding reduction of Target2 balances; the Irish negative balances even rose sharply during this period. This makes clear that the problems with the Target2 balances lie primarily in the banking systems of the peripheral countries of the EMU. It is the voluminous supply of liquidity by the Eurosystem that supports the banking systems with limited access to market financing. This prevents extremely short-term adjustment processes, not least also of current account deficits, and instead allows for a somewhat extended but orderly process of the necessary adjustments in the peripheral countries. Such a gradual adjustment without serious distortions in the financial systems of these and potentially also other countries can keep the total economic costs markedly lower. This does not mean, however, that the correction of the disequilibria can be avoided or should be postponed.

A more accurate look at the relationships and backgrounds of the Target2 balances has thus shown that the idea of a direct limitation or the demand for a regular settlement of the Target2 balances is not appropriate. This applies also to proposals for Europe to adopt the annual settlement of the Interdistrict Settlement Accounts (ISA) of the US Federal Reserve System (see Board of Governors of the Federal Reserve System 2010). They fail to recognise the form and purpose of the US settlement system: the settlement that is practiced – as a rule only partly – in the Fed system is done with securities received by the regional Federal Reserve banks from open market operations of the system. A limitation of the balances or a constraint of payment transactions among the districts has never been intended. The mechanism is not capable of eliminating disequilibria among the districts or preventing them permanently. It only serves to exchange non-interest bearing ISA balances into interest-bearing positions. In contrast, the Target2 balances in the Eurosystem *a priori* bear interest at the marginal allotment rate for main refinancing operations, due to the present full allotment

currently at the minimum bid rate. This is based on the view that such assets in the central bank balance sheet should in principle bear appropriate interest rates. As the interest rates on Target2 settlement balances enter the profit distribution of the Eurosystem in the end, no additional interest income is generated for the participating national central banks.

A decline of Target2 balances is expected as soon as foreign banks no longer seek or are able to procure excessive liquidity from the Eurosystem and the liquidity then is indirectly distributed throughout the system. This should happen as soon as the tensions abate in the financial markets and not least the euro-inter-bank money market has regained its full functionality so that the liquidity balancing among commercial banks (also international) will function once again. This would require that the confidence in the banking sector in the euro area and in the individual banks is restored and the problem banks are rehabilitated or exit the market. For the Eurosystem it is decisive in this context that the corresponding responsibilities between monetary policy and fiscal policy are preserved. In concrete terms this means that the short-term special liquidity measures of the Eurosystem aimed at containing the acute crisis-like developments must not delay the necessary restructuring process or even replace it. For this reason alone a timely reduction of the special measures is a must.

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A WAY TO SOLVE THE EUROPEAN BALANCE OF PAYMENTS CRISIS? TAKE A CHANCE ON MARKET SOLUTIONS!

CHRISTIAN FAHRHOLZ AND
ANDREAS FREYTAG*

For a good two years now, balance of payments disequilibria and government debts have grown into a European balance of payments crisis. This means that payment obligations entered before, i.e. the debts of an individual member state or a group of members, respectively, of the European Economic and Monetary Union (EMU) have proven to be prohibitive. The crisis has deepened further following the Euro Summit at the end of July and end of October 2011 respectively and is still awaiting an effective and sustainable solution.

To elucidate: it is important to emphasise that neither government debt nor balance of payments imbalances as such must generally present a problem. Quite the contrary, under certain circumstances it is economically entirely rational for businesses or government to incur debt. This is in particular the case if the debts are used for investment, i.e. if governments invest in education, health and infrastructure – to mention only some cases – or if private businesses modernise or expand their production facilities. The theory of the debt cycle shows very clearly that it is often imperative to incur debt in order to use the income from the investments that are made with the help of this debt, to repay the debt including interest and to raise one's own welfare. Unfortunately, however, today we are not talking about debt that is used in this way; the governments concerned have used their debts primarily for consumption because it was politically rewarding to impart short-term impetus. The theory of time inconsistency explains this behaviour quite well.

This paper will deal briefly with the causes of the balance of payments crisis in the euro area, as only knowledge of the causes can bring about a solution of the problem with political means. We then look at the issue of direct price and quantity effects in the course of continuing economic integration of European core and periphery countries that triggered the debt dynamics in the euro area. In particular, we shall deal with institutional flaws of EMU that promote the debt dynamics and impede a solution of the European balance of payments crisis. In the course of discussing institutional weaknesses, the shortcomings of the past European crisis management will become clear. We conclude our discussion by suggesting that alternative approaches be taken to solve the European balance of payments crisis effectively and in a sustained way. In contrast to some arguments in the public debate, our approach is to 'take a chance on market solutions!'

Causes of the European balance of payments crisis 1: price and quantity effects

The causes of the debt dynamics in the euro area that have led to a European balance of payments crisis are complex. In economic terms, price and quantity effects can be seen to play a major role.

The fact that the European balance of payments crisis has primarily become visible at the periphery of the euro area can be traced in particular to the initially observable price effects of economic integration. The establishment of a common monetary area led to an extraordinary decline in the risk premiums in the periphery. Such a price effect resulted quasi automatically in an expansion of the credit volume in these countries. In the case of a small open economy in a common currency area, the subsequent excess demand in the goods markets leads to a purely quantitative economic adjustment in the form of current account deficits that in a common currency area cannot be offset by an exchange-rate price adjustment mechanism. The credit-induced increase of purchasing power results in a demand increase even for so-called non-tradable goods, of which prices then rise. These are partly intermediate prod-



* University of Jena.

ucts of the producers of internationally tradable goods that cannot become more expensive because of the law of one price in international trade. If such cost pressures on domestic suppliers of tradable goods cannot be offset by productivity gains, the corresponding real appreciation will result in declining competitiveness of the firms in the peripheral countries of the euro area and thus in a long-term rising risk of a balance of payments crisis. This risk would be smaller under flexible exchange rates, as a depreciation of the currencies of net debtor countries would stop the capital inflows and would restore, at least in part, price competitiveness.

Under competitive conditions an inefficient expansion of credit may also result. This occurs if, for example, no account is taken of the pro-cyclicality of asset price changes in the context of the collateralisation of borrowing agreements. In such a case a pecuniary externality in the aggregate credit volume exists, which is not internalised on a microeconomic level within the private financial sector (Lorenzoni 2008). Borrowing agreements are incomplete agreements. Especially for the financing of investment projects some form of collateralisation is demanded to counteract the problem of uncertain future repayments. As the future is uncertain *per se*, a real investment may turn out to be insufficiently profitable, so that the borrower's ability to repay the loan diminishes or credit claims may even become uncollectible. Because of the excess demand generated by credit, the asset value of the collateral may increase so that endogenous credit cycles are started. If, because of an exogenous shock, a sufficiently large volume of credits become bad, a problem in the macroeconomic aggregate may ensue, thus, turning the credit cycle into a deflationary phase. The effect of each individual borrowing agreement on aggregate income is of course marginal; that is why under certain conditions the beneficiaries of the contract cannot appropriately price in any economies of scale, resulting in the mentioned pecuniary externality, i.e. an excessive volume of credit. The result is a trend to an excessive degree of indebtedness in the economy: market failure is the result.

Excessive growth of the credit volume and corresponding debt dynamics in the euro area are frequently accompanied by a qualitative deterioration of credit portfolios from a macroeconomic point of view. This may be traced e.g. to behavioural risks (too high a preference for the present, moral hazard). Thus, excessive credit demand may be explained by deman-

ders – be they households, businesses or public authorities – rating present consumption too high. Time-inconsistent behaviour may be responsible for this. Governments choose and publish an optimal level of future debt. After the debt is incurred, the chosen level is no longer optimal, as the market agents react to the announcement. For example, before an election it may then be optimal for the government at a later point in time to incur more debt in order e.g. to increase social spending and to draw the mostly myopic electorate onto their side. Furthermore, it may be possible for governments, against the background of an expected bailout, to assent to a non-sustainable indebtedness. This applies all the more if there are already examples in the euro area or if rules to prevent moral hazard have proven too weak.

Most notably, it were the price and quantity effects in credit transactions that set in train the debt dynamics upon the introduction of the common currency which are currently manifesting themselves in a European balance of payments crisis. Of course, with the no-bail out clause and the Stability and Growth Pact there were also institutional precautions that were meant to inhibit such developments. But the mechanisms turned out to be non-credible and ineffective. Additional institutional flaws have even promoted the current development.

Causes of the European balance of payments crisis 2: institutional flaws

Aside from the described price and quantity effects, the debt dynamic in the euro area is due to specifics of the common currency area. The special characteristics of EMU resulting in the European balance of payments crisis comprise, first, lacking institutional safeguards of the credibility of promises to pay especially of demand deposits in the banking sector on the European level. Second, construction flaws in the common monetary transaction system and, third, lacking institutional precautionary measures for the case of a threatening insolvency of individual euro members.

The first aspect concerns the institutional safeguard of promises to pay. From our point of view, a Europeanised financial sector, i.e. especially the banking sector and its deposits, is comparatively more fragile than would be the case in a national framework. The reason is that on the national level – if deposit insurance funds and similar measures should be used up – the safeguard of all promises to pay in the form

of deposits can be guaranteed by the liability of the taxpayer, so that a bank run can be averted. Before the introduction of the euro, there were always the respective central banks as direct lender of last resort (LLR) on the national level. The institutional safeguard of deposits *via* central banks as well as especially that *via* taxpayers, functions only indirectly on the European level or in relatively unreliable ways (Congdon 1998). Admittedly, in a Europeanised or globalised financial sector, it is always more difficult to fulfil the functions of a lender of last resort. Yet, within the euro area there should have been at least more political interest in and serious analyses of this issue. For example, Neumann (2011) has pointed out that the probability of a run on the banks of a euro member is high. His argument is based, however, on the European monetary payment mechanism Target2 offering ideal prerequisites for capital flight into other EMU member states, raising the probability of a bank run. If this problem had been considered early on, a second construction flaw could possibly have been avoided.

From our point of view, the Target2 system consequently represents the second institutional fault of EMU. In the Target2 debate, initiated by Hans-Werner Sinn, Fahrholz and Freytag (2011) have shown that the common payment system *inter alia* permits continued financing of merchandise imports. Thus, the Target2 system indeed represents a kind of ‘credit replacement policy’ (Sinn 2011; Sinn and Wollmershäuser 2011) for *de facto* insolvent euro members. In general, a transfer of resources transmitted by the private financial sector leads to an efficient allocation of capital between core and periphery countries in Europe; in that case, a current account deficit is, as mentioned, no problem. The Target2 system also permits inefficient and unplanned current account transactions. Prior to the European balance of payments crisis the lack of a price adjustment mechanism could not prevent the build-up of excessive debt. In the crisis private capital flows stopped, but the existing Target2 system permits further financing of non-competitive or non-sustainable production structures, even after a failure of the private financial sector. As a consequence total indebtedness in the euro area will continue to increase. Promises to pay or claims will now be increasingly kept in the form of central bank money in the Eurosystem. That corresponding changes in net asset positions will become even more improbable, given that the additional debt generated by the Target2 system even adds to unsustainable debt levels. Therefore this additional debt only leads

to an aggravation of the European balance of payments crisis.

The above-mentioned capital flight within the euro area points to a third flaw. The institutional provisions for a functioning EMU lack credible rules for dealing with balance of payments crises, i.e. especially bankruptcy or exit rules for insolvent euro members. Fahrholz und Wójcik (2010) have pointed out that clearly defined rules for an (even conditional or temporary) exit from the euro area would clarify the opportunity costs of excessive indebtedness or excessive credit growth. Put differently: a future balance of payments crisis could then be prevented as only efficient current account balances would be generated. At the same time, such an institutional provision would ensure that latently insolvent euro members could not play off the still prevailing institutional uncertainty in the euro area against other EMU members. In contrast to the present design of EMU, with clearly defined insolvency or exit rules the build-up of excessive stocks of debt would be made more expensive by the private financial sector and thus prevented. The more credible the institutional provisions for an orderly exit from a common currency area, the less is the potential for a European balance of payments crisis. But also after the event – i.e. without corresponding exit rules today – an exit may be worth considering: for the country concerned, an exit would have the disadvantage of the debts likely becoming much more expensive in domestic currency, assuming that the exit would result in a depreciation of the new (old) currency. But it would have the advantage of the depreciation increasing the competitiveness of the domestic industry.

Past attempts at solving the problem: too weak and not directed at the causes

This short analysis in our short paper shows that a solution of the European balance of payments crisis cannot consist of giving and mutually guaranteeing more and more payment promises, i.e. debts. But this is where the past rescue program having been introduced bit by bit since the spring of 2010 is leading. All rescue operations, based on this approach, have only aggravated the European balance of payments crisis. Let us first take a brief look at the proposed solution presently under discussion, to be followed by an alternative approach to effective and more efficient solutions.

The debate following the Euro Summit of 21 July 2011 is dominated by the topics of ‘debt restructuring’

and ‘leverage of the rescue package’, i.e. the present European Financial Stabilisation Facility (EFSF) and the European Stability Mechanism (ESM) from 2013. What has been created with the new mandate of the EFSF, which possibly even provides for preventive credit lines for potentially insolvent euro members, is the fiscal policy counterpart of a monetary policy LLR function. Whereas, however, according to the Bagehot rule, interventions ought to be unlimited in size, the funds of the ESFS are limited in volume. As desirable as a limitation of the solidarity liability in the euro area appears to be, so precarious is the effect of an explicit ceiling on the behaviour of the private financial sector. Because this will only lead to a run on the funds of the rescue package, as within the private financial sector there is competition for shifting ‘toxic’ government bonds to the public sector, so that the new mandate of the EFSF intensifies the European balance of payments crisis. The result may be a vicious circle: an expansion of the rescue packages – as planned in the October 2011 package – will encourage the banks to transfer ever bigger amounts of government bonds to the periphery. This crisis then perpetuates itself, as the peripheral countries cannot permanently restructure their debts on the markets, but will be dependent on the payments of the other euro members. This phase will not last for long, as a renewed expansion of the rescue packages could soon lead to a downgrading of the creditworthiness of some guaranteeing euro members.

The idea of the EFSF and the ESM, created on the European level, was to raise a guarantee volume that is so big that the private financial sector would never lose confidence in the ability of individual euro members to repay their financial obligations.¹ Of course, there is no such thing as a hundred percent credibility and this applies especially to the European level. But on the national level, i.e. in the case of a legislature legitimised by elections, such guarantees are politically easy to get accepted and therefore largely credible. To be sure, the guarantees given to date on the European level also imply a corresponding liability of the taxpayers. But to warrant an equivalent measure of credibility as in the national framework, the individual euro members would not only have to have the right to take hold of the taxpayers in other member states; all of them would also have to be allowed to actually raise the corresponding tax revenue from the other EMU members. This would turn the European

state federation into an economically synchronised federal state with a strongly centralised budget law. Aside from the question whether such a unified state would be politically desirable, this form of political integration of Europe would be an aberration in terms of a market economy.²

The aggravation of the European balance of payments crisis has also provided an argument in favour of debt restructuring, as this would seem to relieve the rescue packages. Because of the ‘toxic’ government bonds still existing in the private financial sector, in the wake of such credit event there still remains a risk of contagion that could exacerbate the European balance of payments crisis to an unfathomable extent. In particular, debt restructuring imparts the wrong inducements for new debts, which – as explained above – can neither be internalised nor effectively constrained in the euro area. In the current debt restructuring the financial sector should be involved as much as possible in order to avoid future moral hazard; the envisaged sums in Greece appear small. This is less a question of punishing financial investors than of dealing normally with nonperforming loans and now worthless assets, for which the creditor is liable. In a market economy, this should be a matter of course. Furthermore, debt restructuring could at least have the effect that in the future borrowers and lenders will have a closer look.

Our discussion shows that neither rescue packages nor debt restructuring minimise the risk of European balance of payments crises. Neither can a collectivisation of debt, as is being considered, in the form of collective debt instruments, the so-called Eurobonds, solve the problem of debt. Although the individual burdens are shifted (i.e. the periphery can shift part of the liabilities to the core countries), this will not raise the willingness of the creditors to grant loans at affordable interest rates to the countries of the euro area. One should not forget that the creditors are still, to a large extent, institutional investors. These will want to save their assets in any case. The bigger the potential burden for the core countries, the bigger will also be the risk premium. It is an illusion to believe that the peripheral countries will be able to borrow with Eurobonds at German interest rates. It is rather likely that in the future Germany itself will have to pay exorbitant interest rates for its refinancing.

¹ It is clear that the currently planned volume of the EFSF will not be sufficient to create this confidence – only a few days after the Summit decisions of 26 October, the markets were putting pressure on Italian government bonds again.

² The same is the case for purchases of government bonds by the ECB, which is not in accord with the independence of a central bank.

A few remarks on debt monetization at this stage seem adequate. It has been suggested by some American economists and by the financial industry to use the ECB as provider of an endless 'firewall' by buying unlimited government bonds on the secondary market. This is not only a fundamental shift away from price stability; it also destroys the market for European government bonds for the years to come. Thus, we still assume that it is not an option for European policymakers.

An alternative approach to solving the European balance of payments crisis

Ever bigger rescue funds at possibly recurring difficulties regarding imminent debt restructurings of individual euro members are not a permanent solution of the European balance of payments crisis. All past approaches to solve the problems seem rather to have the effect of increasing the frequency and extent of acute balance of payments crises in the euro area. Alternative and sustained approaches should at least comprise the following components: first, a restoration of market-compliant price adjustment mechanisms as well as the abolition of inefficient credit replacement policies; second, understanding about and enforcement of exit and insolvency rules in the euro area; and third, implementation of the currently demanded structural reforms, and the latter not only in the periphery. Today's European balance of payments crisis and the risk of additional crises may in practice probably only be tackled effectively with a catalogue of measures. The focus should remain on dealing with the debt, i.e. the amount of shaky promises to pay in the future.

- Regarding appropriate measures to restore the price adjustment mechanisms – e.g. in the form of significant interest rate differentials on bond markets – one should be aware that an exclusive focus on the public debt will not lead to the desired result, as in the course of a balance of payments crisis private sector debt will be quickly socialised (see e.g. the experience in Ireland or Spain). From the perspective of economic order, far-reaching market-based approaches should be preferred. The theory of market failure presents various instruments regarding an effective reduction of externality problems, here e.g. the problem of excessive debt. Thus, political decision-makers could exogenously fix a preferred rate of credit growth analogous to Friedman's money supply rule, so that a market could be created for debt instruments for

the purpose of efficient allocation of debt in the euro area (see Casella 1999).

- In addition, clearly defined exit and insolvency rules could help to reduce the imponderabilities and uncertainties that otherwise may occur in the private financial sector in the course of an emerging European balance of payments crisis. Interventions as in the form of rescue operations (bailouts) and insolvency procedures of the public authorities should occur explicitly and in conformance with rules. The establishment of explicit rules for the orderly exit from the euro area could help to restore the constitutive principle of liability in the euro area. If such rules could be instituted in a credible way, all agents would see clearly in advance the opportunity costs of an 'misguided' discount rates and according moral hazard risks. Furthermore, with corresponding rules, the scope of some euro members could be limited to play off their self-made debt problems against other members in the euro area (Fahrholz und Wójcik 2010).
- Furthermore, existing instruments may be used to permit fiscal solidity to return to the euro area. The European heads of governments could meet at a special summit that focuses on a reactivation and considerable tightening of the Stability and Growth Pact in connection with an also intensified no-bailout clause. The debt brake is a possibility for enforcing a credible commitment, from the point of view of the financial markets, of political decision-makers. The consequence could be a number of structural reforms on the national level in order to improve the competitiveness of industry and to let capital flows be controlled again more by long-term profit considerations. Besides the earlier mentioned fiscal aspects, these comprise re-regulation, reduction of subsidies and tax reforms, so that additional debt will not lead to problems but to future welfare gains.

In this way, the European balance of payments crisis and its worsening in early November 2011 could have at least the positive effect of permitting 'pathological learning' (Karl Deutsch). In history, crises have frequently been the cause of welfare raising reforms, so, for instance, in England the so-called Glorious Revolution (Pincus and Robinson 2011). Other examples of the more recent past are Great Britain, New Zealand and Australia in the 1980s. These reforms shared a stronger commitment to rules and limitation of short-term scopes of action. The weakness of the present approaches to solving the crisis is the insuffi-

cient strategic commitment of political decision makers. Past measures arose mostly from a situational political will. If, in fact, we do not follow an alternative course in Europe in which political control capacities are revoked in favour of market-compliant decision mechanisms, then past solutions will prove more and more part of the problem of European balance of payments crises. The past approach to solving the European balance of payments crisis leads to a dead end, when interest rate differentials of government bonds decline so much that even the last euro member can no longer get refinancing on private financial markets. This would not only simply be the end of the euro as a currency but a climactic event in European history. It is likely, in any case, that the markets will force a solution of the European balance of payments crisis. It is still in the control of policy-makers to let this solution play out positively.

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TARGET2 AND CROSS-BORDER INTERBANK PAYMENTS DURING THE FINANCIAL CRISIS

ULRICH BINDSEIL*,
PHILIPPINE COUR-THIMANN* AND
PHILIPP KÖNIG**

1. Introduction

In several papers, Hans-Werner Sinn has discussed the change in Target2 (T2) balances in the euro area (see, among others, Sinn 2011a; Sinn and Wollmershäuser 2011). The debate he has triggered has certainly contributed to a better understanding of the functioning of monetary policy in the euro area. However, several of his conclusions and the policy recommendations he has drawn have not remained without objection. In particular the following hypotheses, which we have extracted from Sinn's writings, have provoked controversy.

a) Non-necessity hypothesis

According to this hypothesis, the expansion of the liquidity provision by central banks was unnecessary as of a certain point in time, as it no longer constituted a proper measure to support the banking sector. Sinn argues that the central bank measures, as far as they also targeted sovereign debtors, exacerbated the real problems and benefited only a few asset owners, *inter alia* because they were not discontinued in time: "surely, there would have been many bankruptcies, but a bankruptcy does not mean that the assets disappear, only that they move to other people. Beneficiaries of the ECB policy were primarily the rich asset owners of the GIPS countries who succeeded in rescuing their assets abroad" (Sinn and Wollmershäuser 2011, 41) Sinn and Wollmershäuser acknowledge that the measures

were justified during the acute peak of the banking crisis in 2008/2009.

In our opinion, this argument underestimates the role of the negative externalities of sovereign funding stress or sovereign default, and the fact that sovereign stability is a precondition for financial stability in general.¹ A sovereign default, and implied corporate and bank defaults are not tantamount to a mere reallocation of assets (as suggested by the above quote), but entail considerable economic costs. As long as destructive funding stress and defaults are merely due to illiquidity (rather than insolvency), these costs can and should be prevented by appropriate central bank interventions. An example of the disaster that can be caused by systemic liquidity crises and the ensuing collapse of banks is the German banking crisis of 1931.

b) Fiscal character hypothesis

According to the fiscal character hypothesis, the T2 balances are not a proper monetary policy measure, but rather a fiscal policy measure: "[...] the Target credits clearly [had] no monetary character [...] they are a purely fiscal measure that would have had to be financed out of the budgets of the euro countries by consulting the parliaments" (Sinn and Wollmershäuser 2011, 33).

Here we may point out that the development of the T2 balances is an automatic reflex that mirrors cross-border payment flows between banks in the euro area (corresponding to transactions which are initiated by private entities in most cases) and does not represent a separate policy measure. Furthermore, according to the Treaty on the Functioning of the European Union, the ECB and the European System of Central Banks are responsible for promoting the smooth operation of payment systems in the European currency area (see Section 2.1). Therefore, all developments regarding the T2 system

¹ These comprise, for example, job losses, increase in depreciation of the accumulated human and social capital, costs of liquidation in the case of a sale of assets, costs of bank customers searching for a new institution (especially in the banking business these costs can be considerable due to the information intensity of the contracts in question).



* European Central Bank.

** Technical University of Berlin.

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are the responsibility of monetary policy, and not of fiscal policy.

c) Credit replacement hypothesis

The credit replacement hypothesis can be divided into two parts. The first part basically states that the payment flows reflected in the T2 balances reduce the recourse to central bank refinancing operations of those banks in countries with large T2 claims, whereas they increase banks' recourse in countries with large T2 liabilities. This part of the hypothesis can be easily verified (Sinn and Wollmershäuser 2011).

The second part is more difficult to test because it is purely *counterfactual*. It states that the reduction of the participation in the refinancing operations leads to a reduction in commercial banks granting credit to private customers in the countries in question. Our view is that this part of the hypothesis cannot be substantiated from an economic point of view (Sinn and Wollmershäuser 2011).

In Section 2.3 we deal with the first part of the credit crowding-out hypothesis. Section 3 discusses the second part of the hypothesis.

d) Recommendation to limit the T2 positions

According to this recommendation, the limitation of the T2 positions or a regular, annual settlement by the transfer of gold or foreign exchange would induce the countries with T2 liabilities to reduce their current account deficits. The 'role model' for Sinn and Wollmershäuser (2011) are the supposedly stricter rules of the settlement system between the individual Reserve Banks of the twelve districts of the Federal Reserve System in the United States: "in our opinion, the Eurosystem ought to adopt the rule of the United States, according to which the Target debts are to be serviced annually with marketable assets" (Sinn and Wollmershäuser 2011, 50).

In our view, a limitation of T2 positions would call into question the monetary union. A regular settlement has the same effect as a limitation and would basically transform the monetary union into a system of fixed exchange rates in which the solvency of a country would be limited by its stocks of gold and foreign exchange (on this see Bindseil and König 2011). Furthermore, in our view, the description of the Federal Reserve System in this context is not quite correct. The annual settlement of the

Interdistrict balances in the Federal Reserve System does not lead to a neutralizing capital flow. The settlement consists essentially of an adjustment of the relative shares of the twelve Reserve Banks² in the stocks of securities booked in the System Open Market Account of the Federal Reserve System. This accounting operation results only in a reallocation of profits and losses between the Reserve Banks. If the Eurosystem were to adopt the rules of the Federal Reserve System, this would indeed reduce the T2 positions in the balance sheets of the central banks, but only as a mere accounting operation and without a reduction of the actual net capital flows *via* the T2 system. This is clearly shown by the data of the Interdistrict balances in the Federal Reserve System. The balances also rose considerably during the financial crisis, and in some cases have reached magnitudes similar to the T2 balances despite the annual offset.³

e) Risk hypothesis

This hypothesis implies that the T2 positions represent a source of risk independent from the risks borne by the central bank when it conducts refinancing operations. According to Sinn (2011b), risks related to Target2 liabilities to the GIPS countries do not account for the source of risk related to "the central bank credits in the context of the normal refinancing operations" (translated from "Dabei sind die Kredite der Zentralbank im Rahmen der normalen Geldschöpfungspolitik noch nicht eingerechnet".) The risk hypothesis regarding Target2 balances was convincingly refuted by the Bundesbank. We shall discuss this hypothesis in Section 4 and deal more extensively with the trade-off for a central bank between providing liquidity and taking more risk on its balance-sheet during a crisis.

f) 'Five-minutes to midnight' hypothesis

According to this view (exposed in Sinn and Wollmershäuser 2011, 37–40), the ECB would run out of ammunition at some stage in its rescue measures, because the transfer of Eurosystem credit operations from the core to the periphery would at some stage hit a ceiling, namely when Eurosystem credit to Germany would be zero. At this time, some fundamental further

² The payment flows between the various Federal Reserve districts result naturally in individual districts having deficit or surplus balances. These balances flow into the Interdistrict Settlement Account that is offset once a year in April (Board of Governors of the Federal Reserve System 2010).

³ See the time series for the Interdistrict Settlement Accounts under <http://alfred.stlouisfed.org>.

deterioration and regime shift would occur, with particular inflation dangers.

This paper deals in depth with the credit replacement hypothesis (Section 3) and the risk hypothesis (Section 4), as these concern core aspects of central banking (monetary policy implementation and the lender of last resort function for solvent banks). Section 2 explains the functioning and the economic logic behind the T2 positions by means of a stylized system of financial accounts (for an extensive and more detailed presentation of the balance-sheet logic, see Bindseil und König 2011). Finally, the ‘five minutes to midnight’ hypothesis is reviewed, also in the light of more recent developments.

2. Target 2

2.1 Background and significance of T2

According to Article 105(2) of the Treaty on the Functioning of the European Union, it is the responsibility of the European Central Bank (ECB) and the European System of Central Banks (ESCB) ‘to promote the smooth operation of payment systems’. A smooth functioning of payment flows within the Monetary Union is especially important as it (a) contributes to the stability of the financial system, (b) maintains confidence in the common currency and (c) allows the implementation of a common monetary policy (Bank for International Settlements 2003).

To this end the Eurosystem runs the T2 payments system.⁴ T2 permits the business partners of the Eurosystem to conduct payments in unlimited volume as well as to raise intraday credit against eligible collateral. Furthermore, the central banks of the Eurosystem settle their monetary policy operations *via* T2.

All payments *via* T2 are effected in central bank money that the business partners must borrow directly from the central bank against central-bank eligible collateral or in the interbank market. Accordingly, payments and transactions within the currency area are exclusively limited by the private stock of collateral eligible for obtaining central bank liquidity and not as would be the case in a system of fixed exchange

rates, by the stock of foreign exchange of the respective central banks. In this way, T2 makes an essential contribution to the maintenance of the currency union. It provides the tool, as explained by Peter Garber (2010), that irrevocably welds the former national currencies into a common currency.

2.2 The functioning of T2

In order to understand how the changes in T2 positions in the balance sheets of the national central banks come about, it helps to look first at the payment transactions between two banks within one individual country. Payments between banks are brought about either by underlying real transactions or by a mere reallocation of financial instruments. If, for example, a buyer of a good transfers the purchase amount to the seller, then his deposit at his bank is reduced whereas that of the seller increases. If the buyer’s bank executes the transfer *via* T2, the bank’s reserve deposit at the central bank is reduced, whereas the reserve deposit of the seller’s bank is increased. A mere reallocation of financial instruments that also involves a transfer between the accounts of two banks, leads to the same accounting operations in the reserve accounts of the banks at the central bank. None of these transactions lead to a change in the central bank balance sheet, as the banks have merely exchanged reserve deposits among themselves without however changing the total size of the reserve account (a liability of the central bank). What happens now if a comparable transaction takes place between banks from different countries in a common currency area? The following system of financial accounts illustrates this case.

A number of assumptions are made for the sake of simplicity. The system of financial accounts reflects the case of a currency area without a minimum reserve requirement so that we can assume that reserve holdings of the banks at the central bank are zero. Private households in the currency area own equity of amount E that they hold in the form of real assets, banknotes as well as sight deposits with the commercial bank. We also assume that both countries are identical so that banknotes and bank balance-sheets are equally large.

The example shows a reallocation of deposits of amount z from banks in country 2 to banks in country 1. If, for example due to a financial crisis, the interbank markets collapse or become segmented to such an extent that the banks in country 2 no longer have

⁴ TARGET is the acronym for Trans-European Automated Real-time Gross settlement Express Transfer (with Target2 being the second version now in use for this payment system). All national central banks are connected to Target2 (T2). Beyond that, all central banks in the European Economic Area, which are not members of the euro area, may also become part of T2.

Household				
Assets	$E - D^{Bank1}$	$D^{Bank2} - B$	Equity	E
Banknotes		B		
Deposits in bank 1	D^{Bank1}	$+ z$		
Deposits in bank 2	D^{Bank2}	$- z$		

Firm			
Assets	$D^{Bank1} + D^{Bank2} + B$	Credits of banks	$D^{Bank1} + D^{Bank2} + B$

Bank 1 (country 1)			
Credits to firm	$D^{Bank1} + B/2$	Deposits of household	$D^{Bank1} + z$
		CB credits	$B/2 - z$

Bank 2 (country 2)			
Credits to firm	$D^{Bank1} + B/2$	Deposits of household	$D^{Bank2} - z$
		CB credits	$B/2 + z$

Consolidated central bank balance sheet (National central banks 1 & 2)			
Credits to banks	B	Banknotes	B

National central bank 1			
Credits to bank 1	$B/2 - z$	Banknotes	$B/2$
T2 claim	z		

National central bank 2			
Credits to bank 2	$B/2 + z$	Banknotes	$B/2$
		T2 liability	z

access, then the corresponding liquidity outflows can only be compensated by taking recourse to the central bank refinancing operations. This, however, does not change the consolidated central bank balance-sheet of the currency area, similarly to the above-mentioned case of a purely national transaction (as long as $z < B/2$, which is assumed here).

Let us now split the central bank's balance sheet in two separate balance-sheets of the countries' respective national central banks. We further assume that the national central banks are responsible for their respective banking systems, as is the case in the euro area (European Central Bank 2011a, Ch. 2). In order to balance the national central bank balance sheets, an intra-central-bank position must be introduced for accounting purposes. In our simple model, these positions are synonymous with the T2 positions in the balances of the national central banks of the Eurosystem.

T2 balances are thus created by the settlement of cross-border financial transactions between banks of the euro area (see also European Central Bank 2011b). In the balance sheets of the national central banks the T2 positions are consistently booked as 'intra-Eurosystem liabilities'. At the end of each business day these positions are aggregated (Eurosystem-

wide) and consolidated. Correspondingly, each national central bank has either a claim (a positive T2 balance) or a liability (a negative T2 balance) *vis-à-vis* the ECB as the central counterparty.

2.3 Increase in T2 positions and open market operations during the crisis

During the present crisis, considerable changes have occurred in the euro area in the T2 positions in the balance sheets of the national central banks of different countries. In particular, in the balance sheet of the Deutsche Bundesbank a significant claim of several hundreds of billion euros has built up, whereas the central banks in countries threatened by a sovereign debt crisis are showing considerable T2 liabilities. At the same time, the share of the latter in the refinancing operations of the Eurosystem rose from an average 13.5 percent in the period before the crisis to about 60 percent at the end of 2010. These developments form the core of the first part of the credit replacement hypothesis mentioned in Section 1. Yet, what triggered these developments?

At the start of the crisis there were disruptions, and subsequently a complete drying up of the money supply and capital markets in the euro area. Increased uncertainty regarding the future liquidity demand

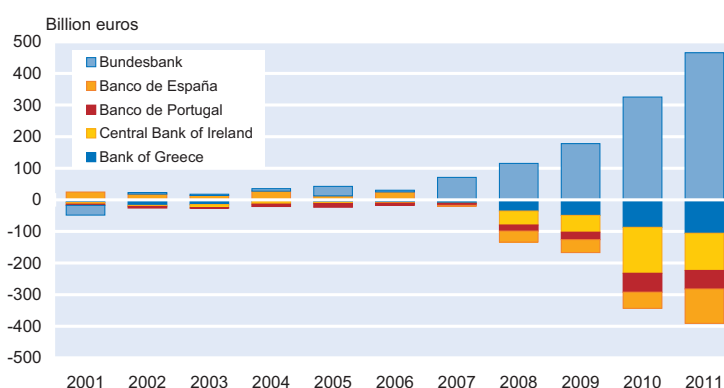
and an increased risk of default led to rising liquidity and risk premia along the entire yield curve and to a reduction of the transaction volumes in the interbank market. Banks began to hoard liquidity instead of offering their surpluses in the market (Holthausen and Pill 2010). This exacerbated the smooth reallocation of liquidity among the banks. As both the banks' liquidity demand and the liquidity supply of the central bank are relatively interest-inelastic, liquidity hoarding leads, for a given liquidity supply, to sharp fluctuations in short-term interest rates and thus to strong fluctuations around the central bank's main refinancing rate (usually the mid-point of the interest corridor).⁵ In such a situation, the central bank can rely on special measures to counteract a systemic liquidity crisis and a self-fulfilling confidence crisis in the entire banking sector by decisively reducing the probability that individual banks become illiquid.⁶ In particular, the Eurosystem has temporarily allowed unlimited access to central bank liquidity against eligible collateral. This effectively led to a reduction of uncertainty regarding the future demand for liquidity and reduced interest premia in money markets. This implies that from the point at which the liquidity deficiency of the banking sector could no longer be reallocated *via* the market, the Eurosystem assumed the role of the interbank market maker: when the banks with liquidity surpluses deemed the difference between market rates and the ECB's deposit facility rate no longer sufficient to offset the expected counterparty default risk, they deposited their excess liquidity with the deposit facility. By way of the deposit facility, the Eurosystem thus automatically substituted for the loss of a sufficiently creditworthy demand side.⁷ On the other hand, the Eurosystem substituted for the supply side shortfall by providing additional liquidity to banks with a liquidity deficit

within the scope of its special measures and *via* the main refinancing operations. In this way the Eurosystem acted as an 'interbank market maker'.

When, in the course of the crisis, financial markets became increasingly segmented along national borders, the intermediation activity of the central bank began to exert an effect on the T2 positions in the national central bank balance sheets. The banks in countries threatened by sovereign debt crises started to lose the confidence of investors and thus access to private refinancing possibilities. This resulted in strong net outflows of private capital and deposits. Private depositors, lenders and capital providers started to withdraw funds from the banks in crisis-hit parts of the currency area or decided not to renew loans in order to invest the funds at banks in less affected parts of the euro area. Investors prefer banks in those countries, whose banking systems are considered trustworthy and whose fiscal situation seems to give their governments sufficient leeway for possible interventions and recapitalisations of the banking sector. Therefore, during the crisis financial capital flowed in net in the direction of banks in the safe havens of the European currency area, thereby leading to the creation of considerable T2 balances. Figure 1 shows that since 2008 there has been a massive increase in the T2 claims of the Bundesbank, while in the most affected countries, large T2 liabilities have emerged in the books.

To prevent liquidity-caused bank breakdowns and thereby ensure a proper transmission of the ECB interest-rate decisions with a view to maintaining price stability, the Eurosystem had to close the emerging refinancing gap of the solvent banks in these

Figure 1
T2 liabilities of selected national central banks in the euro area



Note: End-of-period data. Latest observation: October 2011. For the Central Bank of Ireland the monthly data are for a somewhat broader item than the T2 balance reported annually in its Annual Report (the difference of about 17 billion euros was subtracted to obtain the data shown at end-October 2011).

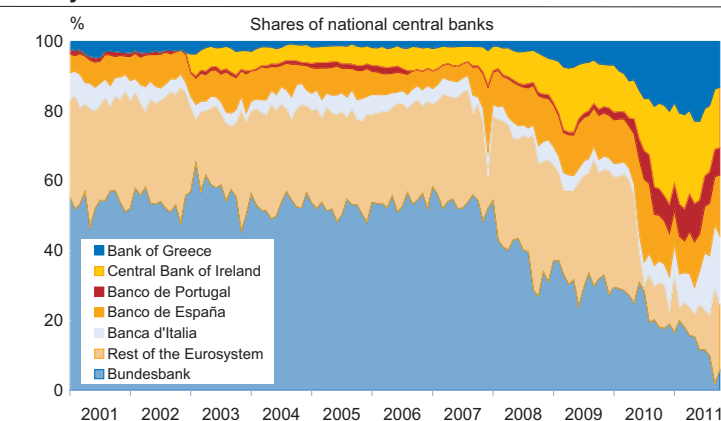
Sources: National central banks.

⁵ In this case, the control of the market interest rate will become increasingly difficult. As the risk and liquidity premia increase significantly along the yield curve, the transmission of interest-rate decisions of the central bank to the aggregate economy of the euro area will be limited by the banking system as a whole, and will thereby also threaten the maintenance of price stability over the medium term.

⁶ After the interbank market had dried up in August 2007 and in the wake of the collapse of Lehman Brothers in September 2008, the ECB took temporary non-standard measures (European Central Bank 2010).

⁷ Alternatively, the central bank can also actively absorb excessive liquidity, by auctioning fixed-term deposits, for example, or by issuing debt instruments. The corresponding instruments of the ESCB are described in European Central Bank (2011, Ch. 2).

Figure 2
Liquidity provision in monetary policy operations throughout the Eurosystem



Note: End-of-month data. Latest observation: October 2011.

Sources: National central banks and ECB.

countries. Figure 2 shows this very clearly. The share of the BuBa (which was traditionally the largest) in the refinancing operations of the Eurosystem has significantly declined since the start of the sovereign debt crisis. In the meantime, the shares of the national central banks of Greece, Ireland and Portugal have increased considerably.

The balance sheets of the national central banks of Greece, Ireland and Portugal show a higher supply of liquidity on the asset side, whereas on the liability side they display reduced reserve accounts of the commercial banks as well as larger T2 liabilities *vis-à-vis* the ECB. As the outflows from those countries induce increases in the reserve accounts of the banks in the recipient countries, they thus reduce the need for those banks to participate in the refinancing operations of the Eurosystem. Minimum reserves and factors of liquidity needs can be met to a large extent out of the inflows *via* the T2 system. The balance sheets of the respective national central banks in the target countries show a markedly reduced liquidity supply on the asset side and a T2 claim *vis-à-vis* the ECB.

3. Credit crowding-out hypothesis

Whereas the last Section 2.3 described the empirical part of the credit replacement hypothesis, this section will deal with the second part of this hypothesis. As already mentioned in Section 1, the second part basically deals with a *Gedankenexperiment* (*thought experiment*), since the question of whether lending to private customers would have been larger or smaller if there had not been any T2 balances cannot be

answered. In our opinion, Sinn fails to provide a theoretical explanation in his papers as to why a bank's participation in the refinancing operations of the central bank constitutes the decisive determinant of lending to private customers and why there is crowding out of credit when the participation in these operations is reduced due to T2 inflows.⁸

As explained above, T2 balances are created by cross-border payment flows between banks in the euro area. These affect, of course, the allocation of central bank liquidity between individual national

central banks of the euro area. This does not imply, however, that T2 liabilities, resulting from a relatively large supply of liquidity to banks in some countries, have a negative effect on lending to private households and businesses in other countries.⁹ Lending by commercial banks to private customers is not limited by central bank credit, but depends on internal risk management, the creditworthiness of the customer, the present state of the economy, etc. In addition, commercial banks need a certain amount of liquidity to accommodate autonomous factors of liquidity needs, to settle financial transactions and to meet their minimum reserves. If a commercial bank experiences inflows through financial transactions, it will need less central bank credit to maintain its business activity and for its liquidity management, and therefore can reduce its participation in the open market operations of the Eurosystem. It is not evident why inflows *via* the T2 system will result in fewer loans to commercial customers being made in the corresponding recipient countries. On the contrary, banks in countries with net capital inflows (i.e. in countries whose central banks have T2 claims) will *ceteris paribus* have a greater tendency to grant credit than banks in countries suffering from net capital outflows. Banks that receive inflows are in a much more comfortable financing situation since they receive deposits, have wide access to capital markets and do

⁸ See e.g. Sinn and Wollmershäuser (2011). The assumption of a relationship between T2 balances and lending was also refuted by other authors (see e.g. Buitier, Michels and Rahbari 2011; Whelan 2011).

⁹ It is a fact that before the financial crisis the BuBa had total intra-Eurosystem liabilities of a two-digit billion figure. Besides the T2 balance, these resulted primarily from a higher-than-proportionate (as compared with the BuBa's share in the ECB's capital) demand for paper money by the business partners of the BuBa. At this time nobody imagined that such intra-Eurosystem liabilities could have a negative effect on lending in other countries (Jobst 2011).

not need to pledge their collateral to obtain central-bank liquidity. For such banks, the likelihood of becoming illiquid is almost zero, so that in terms of liquidity risk management, lending to the private sector can be expanded. The situation is completely different for banks in countries suffering from capital and deposit outflows. Since banks in these countries have impaired access to the capital market and since central-bank refinancing is difficult to expand given a limited pool of available eligible collateral, it becomes difficult, from a liquidity and risk management perspective to extend credit to the private sector.

4. Risk hypothesis

4.1 Trade-off between liquidity provision and risk assumption

Liquidity provision during financial crises is always risky. The BuBa already correctly pointed out that T2 balances do not represent an independent source of risk, but rather constitute an effect of risks created for the Eurosystem by monetary policy operations and other, notably private, transactions (Deutsche Bundesbank 2011). In this section we shall therefore restrict the discussion to the general role of the central bank in financial crises and the associated risks.

The trade-off between containing a systemic liquidity crisis and an increased risk-exposure by the central bank was already discussed by 19th century authors. Jeremiah Harman (Governor of the Bank of England 1816–1818), so frequently quoted since Walter Bagehot, argued that the extraordinary assistance granted by the Bank of England during the financial crisis of 1825 was always given under the accompanying condition that the financial security of the central bank was guaranteed: “we lent [...] by every possible means consistent with the safety of the Bank” (cited in Bagehot 1999, 193).

Bagehot himself was of the opinion that an increased provision of liquidity by central banks during a financial crisis would be necessary and useful to minimise the financial risks of the central banks. Only in this way could a financial meltdown and the accompanying massive losses of the central bank be prevented. To this extent, social motives and positive externalities of central bank policy would not be necessary conditions for an active provision of liquidity by central banks during financial crises.

Bagehot (1999, 199) went on to state: “making no loans as we have seen will ruin it [Bank of England]; making large loans and stopping, as we have also seen, will ruin it. The only safe plan for the Bank [of England] is the brave plan, to lend in a panic on every kind of current security, or every sort on which money is ordinarily and usually lent. This policy may not save the Bank; but if it does not, nothing will save it”.

More recent presentations also argue that the assumption of financial risks by state authorities in a financial crisis is unavoidable and useful. For example, Buiter and Sibert (2007) write: “dealing with a liquidity crisis and credit crunch is hard. Inevitably, it exposes the central bank to significant financial and reputational risk. The central banks will be asked to take credit risk (of unknown) magnitude onto their balance sheets and they will have to make explicit judgments about the creditworthiness of various counterparties. But without taking these risks the central banks will be financially and reputationally safe, but poor servants of the public interest”.

One must note here, however, that the principal willingness to assume financial risks does not mean that this should not be done with the greatest caution and continuously optimised risk control measures. Here we must contradict Buiter und Sibert (2007) decisively when they say that credit risks of ‘unknown magnitude’ ought to be taken.

4.2 Conceptual relationship

The trade-off discussed in the previous section can be formalised in a simple partial model (for a more thorough presentation, see Bindseil 2011). The ability to refinance (funding liquidity) of the banking sector may be represented by the following well defined function

$$L = L(M, X),$$

where $L_M > 0$ and $L_X > 0$. Let M be an index describing central bank policy and X a measure for the exogenous factors that determine the individual and systemic stability of the financial system. Assume that the stability is the greater the bigger X and that X_1 is the value before the crisis and X_2 the value that triggers a crisis, i.e. $X_1 > X_2$.

Further, let R be a measure for the risks taken by the central bank (e.g. the Value at Risk to a given confi-

dence interval for a given time horizon). We assume that R is a well-defined function of X and M ,

$$R = R(M, X),$$

where $R_M > 0$ and $R_X > 0$. Let the objective function of the central bank be given by

$$U = U(R, L)$$

where we assume that $U_R < 0$ and $U_L > 0$.

Let us write the optimal central bank policy for a given value of X as $\tilde{M}(X)$. The line $EF1$ in Figure 3 represents the efficient frontier for all combinations of L and R for value X_1 (before the crisis), where point A denotes the optimum, i.e. the point

$$(L(\tilde{M}(X_1), X_1), R(\tilde{M}(X_1), X_1)),$$

for a given objective function of the central bank. Consider an exogenous shock, so that $X = X_2$, which shifts the 'efficient frontier' to $EF2$. The important question now regards the position of point

$$(L(\tilde{M}(X_1), X_2), R(\tilde{M}(X_1), X_2)),$$

i.e. the point after eruption of the crisis, but before the reaction of the central bank. Let us assume that the efficient point, which the central bank wants to reach in the crisis, corresponds to point B.

The following four cases may now be distinguished, depending on the measures that are required to reach the efficient point B:

- Point B: no need to adjust, i.e.

$$(L(\tilde{M}(X_1), X_2), R(\tilde{M}(X_1), X_2)) = (L(\tilde{M}(X_2), X_2), R(\tilde{M}(X_2), X_2))$$

This case seems rather implausible. In fact, there is hardly a central bank that, after the eruption of a serious financial crisis, would not adjust its financial market transactions and its risk management.

- Point C: adjustment of measures to provide additional liquidity (increase of L) and simultaneously assume greater risks (increase of R):

$$L(\tilde{M}(X_1), X_2) < L(\tilde{M}(X_2), X_2)$$

and

$$R(\tilde{M}(X_1), X_2) < R(\tilde{M}(X_2), X_2)$$

This is probably the case that e.g. Buiter und Sibert (2007) consider normal.

- Point D: adjustment of measures to provide more liquidity, but assume fewer risks:

$$L(\tilde{M}(X_1), X_2) < L(\tilde{M}(X_2), X_2) \quad \text{and}$$

$$R(\tilde{M}(X_1), X_2) > R(\tilde{M}(X_2), X_2)$$

This case may also be plausible. Here the central bank takes measures that improve the supply of liquidity, and at the same time it succeeds in reducing the total risk by special protective measures.

- Point E: adjustment of measures so that less liquidity is provided and fewer risks are taken:

$$(L(\tilde{M}(X_1), X_2) > L(\tilde{M}(X_2), X_2) \quad \text{and}$$

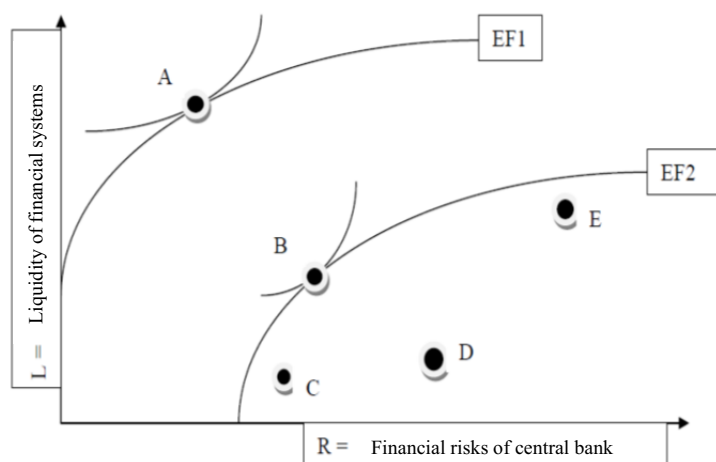
$$R(\tilde{M}(X_1), X_2) > R(\tilde{M}(X_2), X_2)$$

This corresponds to the case of a conservative central bank that lowers its risks at the expense of a further deterioration of bank liquidity.

It is not clear beyond doubt at which of the above points the central bank is located after the outbreak of a crisis and consequently which measures must be taken in order to reach the efficient point. Therefore, the answer to this question also depends on the respective perception of the role of the central bank, i.e. on the concrete form given to the objective function above. The T2 debate shows that in the euro area no consensus has been reached to date on this question.

Whether the financial risks taken by the governments and the central bank in the present crisis are indeed appropriate and optimally solve the trade-off between the support of financial market stability and the assumption of financial risks is therefore not easy to assess. There is no basis, however, for claiming that the ECB has acted without full awareness of the relevant trade-offs, and especially in terms of responsible and conservative risk management.

Figure 3
Liquidity provision and risk assumptions



Source: Author's conception.

In our view, the comparison between the ECB's current euro area – internal measures with the Bank of England's measures in 1992, or for that matter, any central bank measure that aims at defending a currency peg, is far-fetched. The crucial point is that maintenance of the common currency does not depend on the central bank's stock of foreign exchange reserves. As some of us have stated elsewhere (Bindseil and König 2011), comparing monetary policy in a currency union with monetary policy under a pegged exchange rate regime is not correct.

5. Five minutes to midnight?

Sinn and Wollmershäuser (2011, 37–40) go so far as to compare the shift in Eurosystem credit operations from the euro area core countries to the periphery countries with foreign exchange interventions that central banks undertake to prevent their own currency from devaluing. Today's ECB reminds them of the Bank of England in 1992 when the latter failed to defend the pound and as a consequence England left the ERM. Sinn and Wollmershäuser claim that the ECB's "[...] stock of ammunition is also limited" (p. 37). In their view, extrapolating the trend in Eurosystem credit operations and Target2 balances "[...] confirms the statement that if this trend continues, crowding out will lead to the end of the credit replacement business of the ECB in about two years, i.e. in 2013, as there will be no more central bank credit in Germany or the other euro countries that could be shifted to the GIPS [...] the ECB is under enormous pressure to prevent this from happening" as "the automatic sterilisation of the increase in the money supply coming from the GIPS by reducing the refinancing operations in the core countries would no longer be possible" (p. 38). For Sinn and Wollmershäuser, the core problem is then that "[t]he main refinancing rate would just be a short-term rate for risky banks with dubious collateral, and apart from that there would be a well-functioning interbank market between safe banks with a correspondingly lower interest rate. This would be a disaster for the functioning of the ECB and its ability to carry out the policies to which it is legally obliged, in particular the ability to keep inflation under control" (p. 39).

For the sake of exposition, we can replicate Sinn and Wollmershäuser's scenario in the system of financial accounts that was already used above. What they call 'midnight' is then tantamount to an increase of z above $B/2$. In this case, the cash-rich Bank 1 will no longer need to borrow from the central bank. Rather, it will put its excess funds $z - B/2$ into the central bank's deposit facility. Indeed, the interest rate in the inter-bank market that has previously taken place between cash-rich banks (those in the country perceived as safe haven) drops to the deposit facility rate (it should be noted that in this case, market volumes will be rather small because all banks in the safe haven country will have excess funds and hence there will be in principle no gains from trade). While one may lament the state of the money market in this case, it is not correct to claim that the central bank would no longer be able to implement its desired monetary policy and to keep inflation in check. For example, in order to tighten its monetary policy stance, it just needs to raise the deposit facility rate. Moreover, the central bank can also rely on other tools in order to absorb liquidity and to control the overnight rate: (i) issue debt certificates; (ii) collect term deposits, (iii) remunerate excess reserves, or (iv) raise the minimum reserve requirements. All these tools are fairly standard today and have long been part of central bank's tool boxes all over the world. Currently, almost all large central banks (be it the Federal Reserve, the Bank of England, the Bank of Japan, the Riksbank, the Swiss National Bank, etc.) operate in such a scenario and face a banking system with a considerable liquidity surplus (often due to so-called 'Large Scale Asset Purchase Programmes' or large foreign reserves).

None of these central banks has had any problems in controlling inflation (i.e. no problems relating to this particular way of implementing monetary policy).

While Sinn and Wollmershäuser (2011) forecasted ‘midnight’ (i.e. our ‘ $z = B/2$ ’) to arise in 2013, Sinn noted later¹⁰ that “[...] in September 2011, the Bundesbank’s stock of refinancing loans, net of its deposit facilities *vis-à-vis* German banks, turned negative for the first time in history. The ECB’s shifting of refinancing credit *via* the Target system has therefore already hit the limit, three years earlier than the trend of the past three years would have suggested”. Sinn argues further that “with this, the eurozone has entered dangerous territory. Deposit facilities count as central bank money and have inflationary potential, given that the German banks could withdraw those funds at any time. If they do, more than the Target balances could be exploding in Europe”. It is not clear to us, how German banks can actually withdraw these funds at any time, and why they should do so. The overall level of excess funds deposited with the Bundesbank is not under the control of German banks. It is a mere result of the intra-euro area cross border capital flight and of the other positions in the Bundesbank balance sheet. The only possibilities to reduce these excess funds would be either to withdraw them in the form of banknotes and then to keep these banknotes in vaults, or to ship them back to the crisis-hit countries by lending to their banks, respectively by purchasing assets there. From an economic point of view, the former does not make sense. The latter should be seen as a positive development as it would revert the excess liquidity flows and would contribute to boosting confidence in the euro area’s crisis-hit countries.

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¹⁰ See “Italy’s Capital Flight”, 25 October 2011 on www.project syndicate.org.

WAYS OUT OF THE EUROPEAN SOVEREIGN DEBT CRISIS AFTER THE DECISIONS OF THE JULY 2011 SUMMIT

FRANZ-CHRISTOPH ZEITLER*

The current sovereign debt and balance of payments crisis of some European countries, contrary to many public impressions, is not a ‘child of the Monetary Union’. There have been similar crises in Europe, most recently the 1992/93 crisis of the former European Monetary System (EMS), which also imposed significant financial and economic burdens on Germany.¹ Past crises, however, had an impact primarily on the exchange rates; in the Monetary Union with its fixed exchange rates, the crisis affects interest rates and interest rate spreads on government bonds. Regardless of these different symptoms, however, the root causes of these crises are very similar: it was and is basically a *crisis of confidence* – confidence in the fiscal-policy competence of a country, and ultimately its *competitiveness*. Because only a regained competitiveness can lay the foundation for a recovery of government finances and the private financing of the current account deficit, which currently in the case in Greece and other peripheral states is being publicly financed *via* the refinancing facilities of the banks of these countries in the Eurosystem and which is reflected in the so-called Target2 balances. These balances are accordingly not the ‘fire’ but the ‘smoke’, not the cause but a consequence of deep-seated imbalances.

The ‘classic way’ to restore competitiveness in a system of flexible or at least variable exchange rates is currency devaluation. Accordingly, this path is often

proposed as a solution for the current sovereign debt crisis in Greece, resulting in Greece being excluded from, or more politely put, leaving the monetary union. Regardless of the legal and political implications of such a move, and in particular the risk of a negative impact on the European unification process in the form of increasing disintegration and political strife, as observed also in previous currency crises, in a regime of flexible exchange rates with a currency depreciation we would ultimately only be ‘buying time’; a devaluation would not resolve the deeper-seated problem of the competitiveness of a country – the investment environment, labour-market regulations, efficiency of the civil service and the administrative infrastructure, ultimately the ‘business model’ of a country. There is even a risk that with the price reduction effect of a devaluation, fundamental problems will be seen as less urgent and their solution will be postponed and that devaluations will lead, *via* import prices, to spurts of inflation (price-wage spirals) that have a harmful effect on growth.

When fixed exchange rates are in effect, i.e. in a monetary union, the adjustment process proceeds, as many pointed out before the monetary union was created, *via* the ‘real exchange rates’, i.e. *via* an adjustment of the total wage and price structure and the other factors on which the competitiveness of a country depends. This reform path *via* the ‘fundamentals’ is certainly more painful than an adjustment of the nominal exchange rate (which leaves the internal price relationships initially unchanged), but it addresses the structural roots of a currency or balance of payments crisis and therefore offers the chance of a sustainable solution.

The treaties of the European Union in principal offer the advantage of being able to develop and deploy an *institutional framework* that triggers and ensures the required deep structural reform measures as well as structural reforms that must occur in addition to the necessary adjustment of wages and prices (in the case of Greece, sweeping reforms of the administrative infrastructure, privatisation and the efficiency of public services). This institutional framework, that needs to be developed further, was damaged by the



* Former Vice President of the Deutsche Bundesbank and University of Augsburg. This article is completed on 1 August 2011.

¹ This also includes the increase in the money supply in Germany as a result of the monetary-policy assistance but also the interest-rate increases in Germany that were necessary in terms of stability policy but that went beyond what was necessary in terms of the domestic economy.

2004/2005 decision to weaken the Stability and Growth Pact, a historic mistake that was labelled a 'reform' at the time. With a functioning Stability Pact, the Greek deficit in 2009 would not have been the 3.6 percent reported to the EU Commission that then turned out to be 15.4 percent, which ultimately was the trigger for the crisis of confidence and rising spreads on government bonds. With the 'ex ante safeguarding' of the Stability Pact having been decisively weakened in 2005, the heads of state and government decided in 2010 to implement the temporary solution of EFSF (European Financial Stability Facility) and from 2013 the permanent solution of ESM (European Stability Mechanism), an 'ex post adjustment mechanism' that is based on two major C's (credit + conditions). These legal pillars of the new institutional framework will only be successful, however, if they are supported by concomitant economic incentive mechanisms.

Following the decisions of the Summit of 21 July 2011, a sense of relief was felt not only politically but also in the markets, which was noticeable in the declining spreads on Greek government bonds. After a prolonged period of uncertainty, which was fuelled almost every day by new debt restructuring models (and for which the solution was often proposed without the most important partners, namely the central banks of the Eurosystem that are responsible for the inclusion of Greece in the European money market), the summit decisions demonstrated the ability of the eurozone to take action and averted at least for the immediate future the danger of negative political dynamics in the euro area. After the experience with the decisions of May 2010, however, there are doubts as to whether the positive market reaction will last.

The positive aspects of the Summit decisions, in addition to avoiding a (further) mixing of central bank functions and fiscal policy, are above all the avoidance of false solutions such as the introduction of new taxes, the prevention of (explicit) Eurobonds and thus a communitarisation of debt without a simultaneous communitarisation of spending decisions (i.e. a political union),² as well as the promise to strengthen the Stability and Growth Pact and the further involvement of the IMF in the volume and control of the programmes.

² Such a political union would also have to include decision-making processes that are fully in accord with democratic principles, including a largely equal weighting of votes for elections to the European Parliament and European MPs elected directly in the voting districts.

The agreement in principle on an additional credit and structural adjustment programme for Greece with the impressive volume of an additional 109 billion euros is realistically the only way to achieve a broad-based improvement in the competitiveness of the country and to influence decisions regarding a greater efficiency of the public sector, a reform of the administrative infrastructure, a sweeping privatisation, a reduction of bureaucracy and an improvement of the investment environment, and not least finding a way to curb widespread corruption. In contrast to no longer reversible one-off measures such as debt cancellation, debt assumption or debt guarantees, the method of a gradual issuing of credit (in tranches) will permit a continuous and credible monitoring of progress on reforms.

The decision to involve the private sector, which policy-makers underscored so much, is ambivalent, in my opinion, since this was bought at the price of considerable public securities *vis-à-vis* the investors (and thus was more of a 'bail-out' than a 'bail-in'); but still, the foreseeable negative side effects of a strict restructuring were limited through the avoidance of a 'credit event' for the credit default swaps (CDS) as well as a recapitalisation assurance for the Greek banking system. Also the key requirement for confidence in the European monetary policy of 'adequate security' (Article 18 ESCB Statute) by means of the pledges (which still need to be concretised) of additional collateral for Greek bonds was largely respected.

The *longer-term assessment* of the decisions and their impact on public confidence in the markets, however, depends largely on the extent to which the newly designed *institutional framework* creates the right incentives. As experience shows, well-intentioned regulations and monitoring process are mostly in vain if false incentives within the institutional framework lead to a weakening of the specifications and requirements.

In this connection, the policy decisions – the details of which are still open – on *secondary market purchases* by the European funds EFSF and ESM give cause for concern as well as the granting of a 'precautionary principle' of the European funds. Also the (further) reduction in interest rates for the programme loans to come 'close to the financing costs of EFSF' (Section III of the Summit Declaration of 21 July 2011) are not aimed at increasing pressure in the direction of a country's own capital market viability and repayment of the European credits by the peripheral states.

Purchases on the secondary market also entail the temptation to battle the ‘smoke’ (higher interest rates) instead of the fire and the fire sources (inefficiencies of fiscal and economic policy). And unlike purchases in the primary market, which is equivalent to the granting of a loan, it is also difficult to connect secondary market purchases with the criterion of conditionality.

The link with due conditionality is also the main problem of the planned precautionary credit line, since the flexible credit line (FCL) of the IMF, which is used as a model, is only based on a general assessment of the financial soundness of a country and not on actual conditions. But a strict conditionality of aid is also anchored in Article 136(3) TFEU, which is to be the legal basis of the future ESM as of 2013. The (few) content specifications of the planned addition of the institutional framework must not be eroded before they even take effect.

In the detailed working out of the decisions, which will take place under the Polish Council presidency, the principle of *individual fiscal responsibility* of each member state of the monetary union should be given the greatest possible weight and in particular the principles of *conditionality* and *market discipline* should be consistently implemented. This could, for example, consist of embedding the ‘precautionary credit line’ in a similarly ‘precautionary’, but binding adjustment programme and to concentrate secondary market purchases on an offer to the Eurosystem to take over the accumulated government bonds (SMP). In terms of the agreed interest rate cuts for the programme loans, it should at least be assured that the mistakes are not repeated that were made in the phase of interest rate convergence of the monetary union after 1998; i.e. the relief effect of low interest rates should be used to the full to reduce budget deficits and not be used for other objectives.

The ultimate litmus test for the credibility of the decisions is likely to be the promised strengthening of the *Stability and Growth Pact*. Key elements here are the experience of the past, the introduction of a reverse majority and not only in the ‘preventive part’ but especially in the corrective part of the pact, in other words in the determination of an increased deficit and the start of an ‘excessive deficit procedure’ (EDP). Also necessary are credible sanctions, including the retention of European funds ‘at source’ and the suspension of a country’s voting rights in fiscal and budget-related decisions of the European bodies. Also the

possibility of ‘procedural loops’ that were introduced during the weakening of the Pact in 2005 and largely neglected by the public, i.e., the endless repetition of the ‘prelude to sanctioning’ (such as recommendations and their publication) should be eliminated to the benefit of a credible escalation mechanism.

The important goal of preventing contagion to other countries of the currency area can be best achieved – as with the medical risk of infection – by the *immunisation* of those who are likely to become infected. In terms of the sovereign debt crisis and the balance of payments crisis, this means concretely implementing fiscal responsibility as an incentive to increase competitiveness and thereby the confidence in the respective countries. This includes clear *ex ante*-rules of an ‘orderly insolvency’ of a member state of the EMU in case this state is definitely not capable or not willing to come along with the necessary adjustment. These rules should not only address the problem of recapitalization of banks but also how an insolvent state can get access to the money market (after the default of a state the ECB/Eurosystem can no longer accept government bonds as collateral – see Article 18 ESCB-statute). The media often refers to the insistence on this point of fiscal responsibility as a ‘lack of solidarity’ of the core European countries, especially Germany and other European countries. True solidarity, however, is reflected in sustainability, in the creation of a long-term stable basis for the monetary union. Solidarity presupposes solidity.



BALANCE OF PAYMENTS ADJUSTMENT IN THE MONETARY UNION: CURRENT EVENTS HELP SHED NEW LIGHT ON AN OLD QUESTION

KLAUS REEH*

Remarks on the use of Target balances

Recently Hans-Werner Sinn has quite forcefully drawn attention to the fact that the Greek balance of payments deficit has been and still must be (re-)financed to a considerable extent via the Target system of the ESCB. This has touched off a discussion that could and should have been held already well before finally implementing monetary union in 1999, as the possibility and questionability of central banks participating in the financing processes within the European Monetary Union had already been brought up at the time (Reeh 1999). As welcome as the present debate is, unfortunately it – and debates on European Monetary Union in general – is conducted almost exclusively in concepts of economics instead of those of business economics or more precisely banking economics. Concepts in economics have always been relatively vague and in globalised and especially highly Europeanised economies can only become even vaguer in their national delimitation. They will also not become more concrete by being based on data from national accounts or various national economic statistics. Such very nationally shaped perception patterns are not only overestimated regarding their cognitive capacity but are also responsible for discussions that revert to dangerous generalisations and revivals of old *clichés* once believed to have been overcome. And this is not only limited to pub talk and articles in the yellow press but is also found in debates at the highest political and academic levels.

* Former civil servant at the European Commission and in his last position adviser to the Director-General of Eurostat, the Statistical Office of the European Union. His paper reflects his own opinions and not those of the European Commission.

That is why in this article Target balances will not be put into the context of traditional economics and correlated with the usual time series of national accountants and official statisticians for shedding light on all sorts of macroeconomic relationships. Rather, only the political and financial or banking handling of Target balances will be looked at.

What does the existence of permanent Target balances imply?

Durable surpluses and deficits among ESCB members are a clear indication that EMU-internal cross-border financing has not taken place at market-based commercial conditions. In the normal case, economic actors in surplus finance those in deficit without having to resort to central bank refinancing. However, if this happens permanently, it foremost reflects a distortion of competition. As such, this process contradicts the avowed monetary union objective to assure terms of financing that are as uniform as possible. In short, durable surpluses and deficits among ESCB members are an indication of a privileged access to credit being granted within monetary union. It is not that there is not and should not be any privileged access to financial funds in the European Union. To the contrary, it is exactly this end that the European Investment Bank and the EU budget¹ serve, each of which democratically legitimises privileged access in its own way. Systematic financing of deficits through the ESCB, however, was not at all and is not even now intended, not least because there is no legitimising procedure for it.

Whenever there are such surpluses and deficits, this is also a strong indication of lacking financial solidity. Here an often long-term financial need is being financed regularly in the short-term. With rising volumes, the nervousness on financial markets – on which refinanced bonds are first issued, later replaced and traded permanently – can only rise so that interest rates on new issues will increase rapidly and, at

¹ This is also the purpose to be served by the rescue fund, on whose final design, especially regarding its democratic legitimisation, work is ongoing.

least if checked accurately, additional collateral for ongoing refinancing will have to be provided.

Permanent and permanently rising surpluses and deficits are thus proof that a hidden as well as slowly extending monetary transfer union has been established. However, such a transfer union cannot be concealed forever, especially as the costs of concealment will rise considerably because of the participation of commercial banks (or more generally of Monetary and Financial Institutions, in Euro-speak of MFIs) that have to acquire the corresponding debt instruments. Therefore, a hidden monetary transfer union will sooner or later be replaced by an open fiscal transfer union or an open monetary transfer union or a combination of the two. This is precisely what is happening now. This can be done; this may even have to be done, as it is surely better than to continue as at present. However, it would have been better if it had been done earlier when accumulated surpluses and deficits were still quite smaller. Or better yet, if such durable surpluses and deficits had not been allowed to come into existence in the first place. However, for that to happen, one would have had to pay attention to the balances, which, at least until recently, no one has done.

Why does the ESCB ignore ESCB-internal surpluses and deficits?

For one, the ESCB has not been given the explicit task of preventing ESCB-internal imbalances or at least of seeing to it that such imbalances do not become permanent. It is also not one of the publicly expressed convictions of the ESCB that the absence of such imbalances is an indication of market-based commercial relations between debtors and creditors, and, conversely, that durable and thus structural ESCB-internal imbalances suggest that privileged access to credit is granted (see Reeh 1999). As these surpluses and deficits are not part of the otherwise quite comprehensive statistical publication programme of the ECB, as they should be, some cumbersome research is necessary to derive them from the balance sheets of the ESCB central banks.² However, some uncertainties have to be taken into account, not least because the implicitly assumed relationship that economic actors get their deficits financed through 'their' national commercial bank that in turn gets refinance from 'its' national central bank, is no longer so close due to

financial integration. Even public deficits are today increasingly financed through foreign financial institutions. Therefore, the original financing and subsequent refinancing may diverge in their national attribution. Nonetheless, solely on the basis of the magnitude of the currently calculated surpluses and deficits, we have every reason, with due caution, to believe that a correction would not significantly change the result, as difficult as this correction may be in reality.

The statistical eye of the ESCB has obviously a kind of blind spot here, and supplementing it from outside the ESCB is not a trivial matter. Worse, it is not at all considered to be a problem for and by the ESCB management, because the ESCB is supposed to focus, in accordance with its legal obligations, only on inflation as measured by the HCPI for the euro area as a whole. Consequently, the data set on which the ESCB management bases its decisions only consists of statistics for the euro area as a whole, and this limitation is meant to underline that the ESCB policy, according to both the law and its self-understanding, is obligated to the whole and does not take account of the general state of the economy or the states of individual member countries.

National data – and this is probably the most important exception – only play a role for the ESCB in so far as they serve to shed light on the fiscal situation of the individual member countries. This fiscal focus ultimately shows that in the self-understanding of the ESCB the monetary union can only be threatened by public sector deficits. That the ESCB possibly promotes excessive borrowing by its own business practices and conversely, as refinancing institution, could make a contribution to reducing excessive public borrowing (and also would want and be in a position to do so) is neither part of the basic convictions of the ESCB management nor those of the EMU's founding fathers or the EMU's current political masters.³ The ESCB was always understood – and itself wanted to be seen – as an independent and competent administration that keeps the money supply sufficiently tight and utters well-chosen statements on the basis of elaborate models about the general state of the economy and especially of inflation. At best, it sees itself, without saying it out loud, as part of a cartel for set-

² On the calculation of the surpluses and deficits, see Sinn and Wollmershäuser (2011)

³ Whereas before accession to the Monetary Union, central banks granted loans to each other only under very restrictive conditions (we are reminded of the haggling over terms, especially the provision of collateral), it was believed at the time of entering the Monetary Union and still seems to be believed that the unrestricted granting of credit must belong to the constitutional parts of a monetary union or equivalently that there can be no credit relationships between participating national central banks.

ting refinance conditions and distributing profits, but without any latitude for discriminating between public debtors. In short, the ESCB embodies an understanding of the business of EMU central banks that has little to do with the banking business. Accordingly, it is largely irrelevant that EMU central bank are banks in public ownership, with assets and liabilities, especially with equity, with an investment policy and finally with duties of accountability to their owners.⁴ The public-law mission of the ESCB determines its self-understanding much more than the constitutive nature of its member institutions and the techniques with which they implement their tasks.

On the other hand, the ESCB does pay some attention to the Target balances. Within its CCBM, the joint management of collateral from issuances, collateral is transferred as of recently from deficit to surplus central banks in accordance with respective surpluses and deficits. These balances may perhaps be (at least tacitly also in the perception of the ESCB) claims of surplus central banks and liabilities of deficit central banks, and ultimately interest-free loans.⁵ With some good will, this arrangement may even reflect a very weak form of balance adjustment, as surplus central banks now own some corresponding collateral deriving from the emission of deficit central banks. This guards at least somewhat against a direct plundering of surplus by deficit central banks.

But all of this is rightfully treated as a purely technical arrangement, as it means nothing in the every-day business of the ESCB. It does not cost anybody anything and neither does it benefit anybody. It neither constricts the scope of deficit countries and their central banks, nor does it expand the scope of surplus countries and their central banks. The fact remains that surplus central banks have lost control over their balance sheets, even it is acknowledged that they were allotted collateral that is admissible throughout the ESCB. And if this arrangement were to take on importance, as in the case of an EMU exit of a country in deficit and thus an ESCB exit of its central bank, then the collateral from the issuing activity of this central bank is probably not so safe either.

⁴ Central bank presidents are rarely true bankers. Today they are former advisors of their heads of government, former state secretaries of relevant ministries, sometimes even former ministers. Among the nine presidents, Karl Klasen was the only true banker at the head of the Deutsche Bundesbank.

⁵ Interest-free loans may be justifiable, as central banks share the interest income from their emission. But it is in no way imperative. Thus, it could be argued that central banks in deficit ought to relinquish at least part of their seigniorage, especially if their deficits are permanent. It is not so much a question of principle than one of weighing advantages and disadvantages; maybe also of one of fairness and justice.

Nonetheless, it is a good thing that this arrangement exists, as it may serve as starting point for further considerations.

What has happened in and because of Greece (and elsewhere)?

Evidently central bank refinancing has been very attractive due to the large interest rate differential between government bonds (of Greece and other countries) used as collateral and central bank credit. In addition, the 'haircut' to be applied, dependent on the debt instrument, was – if at all relevant because significant – more distant from the market, at least for the debt instruments of public debtors. And nothing is to be learnt either about providing additional collateral because of a margin call. However, here not only a national finance minister has pushed 'his' national debt instruments into the balance sheets of 'his' national commercial banks in order to have them refinanced by 'his' national ESCB central bank. Rather, once it had been started, this form of privilege expanded on its own, as financial institutions from other member states with access to central bank finance sensed a simple and profitable business deal here. With little operative expense, much could be earned. As in a gearbox, it was enough to move a large wheel, which is especially easy to turn in times of crisis when central bank rates are close to zero. That is why the bonds did not have to be pushed; they were simply sucked in by commercial banks (more precisely by all sorts of MFIs with access to EMU central bank finance) almost everywhere in the euro area.

In this context it should not be overlooked that delays in debt restructuring (of Greece and other countries) widens interest rate differentials without substantially increasing the risk (or what is believed to be the risk). The commercial banks were and still are 'too big to fail', and although sovereign default (of Greece and other countries) was always conceivable, in the final analysis it is considered to be 'unrealistic'.⁶ An always present moral hazard, afflicting the supply as well as the demand side of credit, has therefore at least

⁶ After all, the Stability and Growth Pact has the objective of rendering improbable a sovereign bankruptcy made conceivable by monetary union. But at the same time it undermines the 'no-bail-out' rule, for, if despite the Pact, sovereign bankruptcy threatens, this also implies a collective failure of the institutions carrying the Pact, which should entail co-responsibility. This applies all the more as the Pact places conditions on member state threatened by bankruptcy that restrict its scope of fiscal action and thus its dealing with the threatening bankruptcy. One could therefore also speak of a system with too many controls. Double is not always more durable, and certainly not in this case.

delayed market price adjustments, if not suspended them, and thus permitted or possibly even promoted an excessive public (in the case of Greece) or private (in the case of Ireland) indebtedness.

Because of the automatic if not forced lending, there is a deterioration of the balance sheet quality not just of surplus central banks but of the entire ESCB. Roughly following Gresham's Law, good collateral is driven out by bad collateral: the good collateral is kept for the normal business, the bad collateral for the business with the ESCB's central banks that have accepted, since 2007, an especially wide and uniform range of collateral. Even if for Axel Weber the related flexibility permitted the ESCB to act effectively in the crisis without the need to extend its monetary tool kit quickly,⁷ the price to be paid for it in terms of the declining overall quality of the collateral accepted for emission must at least be acknowledged.⁸ Collateral quality represents, after all, the basis of a currency and determines the inflation potential: the worse the collateral quality, the bigger the inflation potential and the more volatile the exchange rate in the up and downs of speculation. With collateral quality declining it becomes ever more improbable if not impossible that the central bank would be able to withdraw all its money issued.⁹ And this not only leads eventually to inflation, this is ultimately inflation.

We should further not overlook that the cheap refinancing of recent months, if not years, is accompanied by considerable profit losses of the ESCB. We could even speak of a partial privatisation of seigniorage *via* a subsidised refinancing of commercial banks by near-zero interest rates. Commercial banks are princely rewarded for holding as long as possible the debt instruments primarily of public debtors, and the longer the princelier until there is ultimately a debt restructuring.

And a last aspect must at least be mentioned, which is also expressly pointed out by Hans-Werner Sinn. As a result of the subsidised refinancing of debtors, the ESCB's special refinancing business increases so much relative to the normal refinancing business that at the

end of this process the ESCB may be largely unable to conduct a monetary policy

What now? How could and should things continue?

A hidden monetary transfer union is not sustainable in the long run. Even policy-makers seem by now to be convinced of this, despite the fact that a hidden transfer union has some charm for them since, as it is hidden, they do not have to defend it in public. Therefore they are taking action these days, quite late to be sure, but action nonetheless as they are launching a large and enlargeable rescue fund in order to extend maturities and reduce refinancing costs for public debtors in trouble through a collective EMU liability. Whether EMU policy-makers are allowed to do this is controversial and will probably remain so, but it has by now created facts and that is as important as imperative. The ESCB management has taken actions as well by outright buying government bonds of crisis-ridden countries. This way it has not only assumed (or better absorbed) risks but also has stabilised bond prices. However, whether this is permissible is particularly controversial. Nevertheless, the question must be permitted whether in the present situation these bonds are really better placed in commercial bank balance sheets than in central bank balance sheets.

In this way, the hidden, purely monetary transfer union is about to be replaced by a more open transfer union that combines monetary and fiscal transfers; how complete and how open remains to be seen. With the fiscal transfer union that is emerging, as is constantly emphasised, there is at least hope that in the end it will be only a fiscal liability union. And with the open monetary transfer union it can also be hoped that the outright purchase of government bonds in the end will not have been such a bad deal. Such a combination is certainly elegant and flexible, but in order to work the mix must be right.

Policy-makers and the ESCB management are thus trying to put out the fire with a hastily cobbled-together EMU fire sprinkler; whether they will be successful is an open question as are the costs of the operation. It may well result in a smouldering fire and the fire may flare up time and again. Then, too, they may not be able to distribute the extinguishing water as well as can be done in normal times with their usual monetary and fiscal combi-sprinkler that is meant to irrigate the economy and optimise inflation-free eco-

⁷ Axel Weber on 6 June 2008 in his lecture on Financial Market Stability at the London School of Economics.

⁸ For more on the importance of collateral, see the various writings of Gunnar Heinsohn and Otto Steiger, but also by Hans-Joachim Stadermann.

⁹ For sure, this will never be done in practice, but it is a useful thought experiment that has the advantage of establishing a fairly direct link between central bank policy and inflation, at least much more direct than the usual theorisations about transmission mechanisms.

nomic growth. Some collateral damage in the form of inflation and recession must also be expected. However, putting out the fire is one thing. Preventing fire in the future is another. That is why the question should be raised of how a new and continued march into a new, hidden monetary transfer union may be avoided.

An answer was already given by Wolfgang Stützel in the 1970s. For him it would have been important for a European monetary constitution (or at least a widely respected European central bank practice) to force central banks to act like commercial banks, ensuring, like old-fashioned bankers, the maintenance of solvency with bankers' methods (see Stützel 1975; Reeh 1999). It is well-known, of course, that with the collapse of the Bretton Woods System and the introduction of flexible exchange rates, the bankruptcy of central banks in their own currency was abolished. Since the euro, like other currencies of this world, is just definitive paper money that is in forced circulation, the ESCB central bankers can no longer have any liquidity or solvency problems in euros that they would then have to solve with bankers' methods. However, that is only true of the ESCB as a whole, not for its parts. And here one could and should start.

Instead of, within the ESCB, keeping to an inconsequential transfer of collateral corresponding to the Target balances, measures ought to be taken that would impose more or less painful constraints that are meant to prevent the accumulation of both deficits and surpluses and assure a sufficient emission lock-step among national central banks within the ESCB. This would make an excessive indebtedness across EMU-internal borders more difficult. First, the payment of interest on deficit balances could be agreed so that surplus central banks could benefit from part of the seigniorage of deficit central banks. Something like this could easily be agreed internally among ESCB managers. The provision of high-quality collateral could also be prescribed within the ESCB. Here, fixing a standard portfolio would be an obvious solution; in this case one would not be far from Wolfram Engels' ideas for a solid monetary constitution (Engels 1996). Then there could still be an internal ESCB agreement that balances would have to be settled at regular (at least at annual) intervals by introducing a redemption duty (Reeh 1999 and 2001). Finally, a kind of Cook ratio for ESCB central banks could be conceived that would then lead to a limitation of refinancing activities of central banks of countries with excessive deficits or require a recapital-

isation of the central bank. For an arrangement like this, however, not only the ESCB but also the European Commission, the ECOFIN Council of Ministers, the European Parliament and finally the European Council would have to agree. If in the end also mergers and acquisitions of national central banks were imaginable and permitted, only then would the European monetary union be so far denationalised that a merger of all ESCB central banks would be conceivable, through which the balances would rightfully receive the importance that they are unfortunately already getting today, however on false assumptions, i.e. none at all.

Seen this way, the ESCB itself indeed has options of initiating a more solid and conflict-free, because truly denationalised, monetary integration process within the presently prescribed legal framework. To this end, the ESCB central bankers would have to start with themselves and besides their usual roles as 'techno' and 'psycho' central bankers could also credibly assume the straightforward role of 'banko' central bankers (Reeh 2001). A redemption obligation within the ESCB, however designed, would facilitate the practice needed for this role. This is certainly but not impossible; it is doubtlessly bold but very promising.

The question arises, however, whether the members of the ESCB have the courage to implement such a communication strategy, especially now that the image of bankers has been tarnished. The public, after all, has come to accept the current discourse on bankers, not least because it is largely propagated by the academic community and the media.

It might be worth pointing out that the ESCB could become more effective in its communication. There is no good central bank technique without a good communication technique. And since central bankers must credibly communicate that they are not creating too much money, with such an approach they would have even more arguments as to why they cannot but limit the money supply.

It is also evident that doubts about the ability to control the financial system with traditional technocratic and psychological means have increased. As early as 1975, Wolfgang Stützel foresaw and hoped that monetary engineers and monetary bureaucrats (and also the monetary psychologists, largely unknown at the time) would step aside to make room for true bankers and businessmen (Stützel 1975). The ESCB-

internal transformation of national central banks into real banks would give rise to an alternative control mechanism, for which it would pay to give some thought.

It would certainly help to tell central bankers that if they played this additional role well, they could be on the golf course by early afternoon, instead of having to study the complicated papers of their scientific staff, sit hours on end in meetings with worried colleagues or calm the nerves of financial market actors at evening receptions with reassuring small talk. If national central bankers were, within the ESCB, to become solid, old-fangled bankers instead of seemingly smart new-fangled types that ride every wave, their lives would become simpler since it would be enough to focus on balances and balance sheets. Some among them might find such a job a bit boring, but society would definitely benefit because it would then be somewhat clearer what central bankers do and why.

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GREECE: THE SUDDEN STOP THAT WASN'T

AARON TORNELL* AND
FRANK WESTERMANN**



Now that economists' eyes are fixed squarely on Greece, a puzzle has emerged that this article attempts to solve. Since 2008, tens of billions of euros have fled Greek bank accounts. Yet somehow the country still has a current account deficit. Where has this money come from?

Normally, things do not work like this for nations in crisis. Greece has experienced severe capital flight yet its current account deficit has remained almost unchanged; its international reserves have barely changed. On net, 24 billion euros of private capital left the country between 2008 and 2010, but Greece still managed to accumulate a current account deficit of 85 billion euros, i.e. 12 percent of GDP.

Where has the money come from? The answer can be found by looking at the balance of payments statistics – primarily from fresh loans provided by eurozone central banks to the Greek central bank. Between 2008 and 2010 these loans amounted to 76 billion euros. This figure is almost 90 percent of the cumulative current account deficit during this period and it has been increasing rapidly: it reached 110 billion euros in June 2011.

Although these Eurosystem loans are channelled *via* the ECB, the funds involved are over and beyond those used in the ECB's government bond purchase programme – a programme opposed by Jürgen Stark, Germany's top

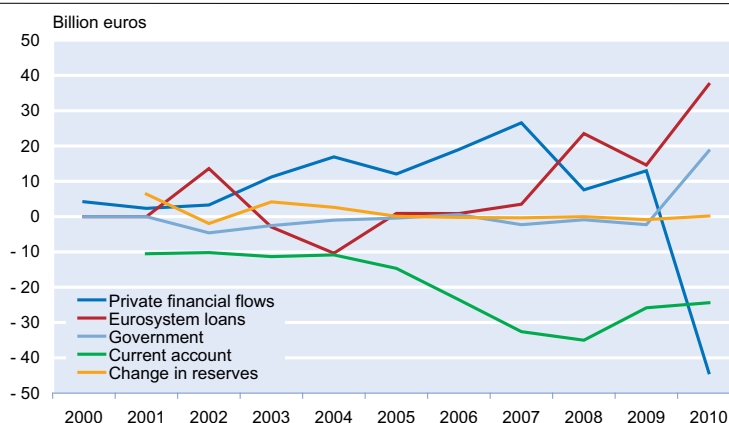
representative at the ECB, who has recently resigned. Furthermore, they are different from those provided by the EU rescue package to Greece, which was ratified by the German parliament on 29 September.

While tough public spending cuts are attached to the EU rescue package, the Eurosystem loans have no such restrictions. They have already been disbursed and spent by Greece. Moreover, they do not need parliamentary ratification.

The Eurosystem loans to Greece were small until 2007. Since then, however, their total sum has increased enormously, as shown in Figure 1. Together with the large increase in official inflows from the IMF and the EU, these loans have allowed Greece to avoid the extensive expenditure cut – both public and private – that typically occurs in countries experiencing a sharp reversal in private capital inflows. As demonstrated in Figure 1, the current account deficit, the excess of national expenditure – including interest payments – over national income has hardly improved in the face of the rapid drop in private capital flows.

In theory, Eurosystem loans should not be counted as long-term debt because they only represent transitory debits and credits across central banks that allow for a smooth settlement of trades in goods and services. Thus, the Eurosystem loans line in Figure 1 should in theory not be far away from zero for an extended peri-

Figure 1
Components of the balance of payments



Source: IMF International Financial Statistics.

* University of California, Los Angeles.
** University of Osnabrück.

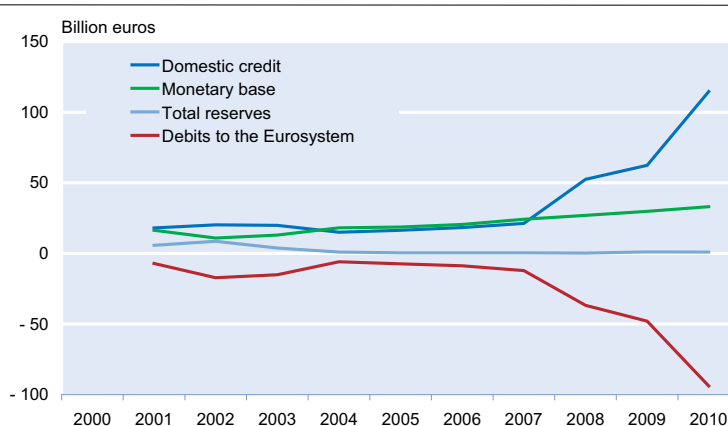
od of time. Starting in 2008, however, this has not been the case for Greece. In fact, the Eurosystem loans to Greece have taken on a magnitude which makes them anything but transitory. In other words, it looks like this line is not going to revert zero anytime soon.

The data on official inflows and Eurosystem loans are buried in two obscure lines in the balance of payments statistics of the IMF. Official inflows are captured by ‘other investments – government’, while the Eurosystem loans are captured by ‘other investments – monetary authorities’. In the national central banks’ accounts, the Eurosystem loans correspond to the so-called Target balances, which Hans-Werner Sinn and Timo Wollmershäuser (2011) have investigated.¹

The mechanism by which Eurosystem loans have led Greece to avoid the sharp adjustment in its current account has enabled the Greek central bank to increase domestic credit in the face of a massive capital flight. In fact, as shown in Figure 2, starting in 2008 the strong increase in domestic credit provided by the Greek central bank mirrors the cumulative Greek liabilities to the Eurosystem that resulted largely from the Eurosystem loans illustrated in Figure 1. Interestingly enough, both the monetary base and international reserves remained practically unchanged.

This lack of expenditure adjustment contrasts with Mexico in the wake of the Tequila Crisis: from a current account deficit of 7 percent of GDP in the year prior to the crisis, Mexico was forced to practically balance its current account during the crisis year (– 0.5 percent in 1995 and – 0.7 percent in 1996).² In 1995 Mexico experienced a sharp real depreciation and a deep recession. By 1996, however, net exports rebounded and economic growth resumed. At the time it was argued that Mexico could have avoided the severe crisis by adjusting in early 1994. Unfortunately, like Greece today, the authorities chose to increase domestic credit to delay a recession. The difference between Mexico and Greece is that, while Mexico had to run down its international reserves, Greece has

Figure 2
Components of the monetary base



Sources: IMF International Financial Statistics; central bank survey.

been able to keep them practically unchanged. Instead Greece has used the EU rescue package and the Eurosystem loans to increase domestic credit. Had Greece been a typical small economy with no access to rescue packages, it would have had to close its massive current account deficit by now. Its ability to maintain such massive current account deficit in the face of a sharp reversal in private capital inflows will be recorded in the annals of financial crises as a remarkably rare feat.

It is time to address Greece’s economic policy options in a holistic manner and stop the emergency measures that only provide Greece with another life-line. Greece’s fresh financing needs are much larger than those considered in the Greek rescue package. The financing gap has been covered with *de jure* revolving loans from European central banks to the Greek central bank that *de facto* have become long-term debt. This backdoor financing, however, cannot go on indefinitely. Jürgen Stark’s resignation should help concentrate minds in finding a long-lasting solution.

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¹ The Target balances are also discussed in Garber (1998).

² Sachs, Tornell and Velasco (1996) discuss Mexico’s balance of payments crisis in detail.

EDITOR'S COMMENTS

HANS-WERNER SINN*

Reply to Bindseil, Cour-Thimann and König

I am grateful for the comments of these authors and would like to offer this very brief reply.

a) Non-necessity hypothesis

Timo Wollmershäuser and I have argued that the ECB was right to provide generous refinancing credit in 2008/2009, but was wrong to continue this policy when the world economy recovered in the second half of 2009, because the public international credit flow it organized undermined the functioning of the capital market. This does not mean that I am willing to accept defaults by major banks. On the contrary, I elaborated on this topic extensively in the last chapter of my book *Casino Capitalism* (Oxford University Press, 2010), which argues that insolvent banks need to be recapitalized with public funds in exchange for shares. My point is merely that it is not the ECB's job to act as a lender of last resort by endowing banks with more equity capital by providing them with cheap credit below market levels. This is a fiscal function that should be controlled by parliaments.

b) Fiscal character hypothesis

Target credits are purely fiscal as they neither imply an increase in the stock of aggregate base money nor a change in its international allocation. As such, they should be controlled by parliaments. The smooth operation of the payment system is essential, but it does not require unlimited Target credits at below market conditions, as shown by the US system. In the United States Target credits have to be redeemed once a year with marketable assets at market conditions. One of the reasons for the explosion in Target credits and capital flight within Europe is that the ECB is trying to undercut market prices by offering credit at rates below those required by the market. This policy

risks destroying the eurozone, as no system can survive the kind of capital flight we are currently experiencing within our currency area.

c) Credit replacement hypothesis

I agree that the second part of the hypothesis is more difficult to test, but our emphasis has always been on the first part. My point has often been interpreted and misunderstood as a credit squeeze. Any such interpretation is absurd. The argument is simply that the abundance of inflowing liquidity is crowding out refinancing credit in Germany. I am glad that the authors share this view.

References to the second part of the hypothesis were never meant to be much more than an accounting statement. To understand this part, it is important to realize that the Target credit virtually amounts to a public rescue credit provided by Germany. I believe that we are in agreement up to this point. So the whole question boils down to whether or not such rescue credit implies that less capital is available for other internal investment in Germany or for foreign investment in third countries than would otherwise have been the case. Views can differ on this point, depending on whether one argues in a world of neoclassical resource constraints or in a Keynesian setting, where the credit given to other countries to support their consumption and investment generates itself through multiplier processes. These two opposing views are discussed in the June version of my working paper with Timo Wollmershäuser.

d) Recommendation to limit T2 positions

Here I strongly disagree. The US system reallocates the ownership shares in a common portfolio of assets, as well as the interest income generated by that portfolio. This implies that the Target-like credit can only be drawn at market conditions and thus loses its attraction. The capital flight measured by the Target balances would not occur if the refinancing credit were not available at conditions that undercut market conditions. I fail to see where the institutional description of the US system differs from the description we

*Ifo Institute.

have given. This is the most important point. If we mimic the United States, the capital flight will come to an end.

e) Risk hypothesis

This seems to be a misunderstanding. The authors write: “according to Sinn (2011b), risks related to Target2 liabilities to the GIPS countries do not account for the source of risk related to the central bank credits in the context of the normal refinancing operations”. This quote stemming from a short remark in previous article I wrote for the *Süddeutsche Zeitung* is not meant to imply that the Target credit does not result from a refinancing credit, but from a refinancing credit that goes beyond the provision of money balances for national transactions purposes. The Target positions mean that money has been seeping away to other states in net terms because a greater amount of refinancing credit than normal has been provided. This poses an extra risk to the community of states, should the national central bank and its collateral default. It even poses an additional risk to the Bundesbank, which is the main accumulator of Target claims, if the euro falls apart, because the Bundesbank will then have a claim against a system that no longer exists. (I am not aware, by the way, that the Bundesbank ever objected to the risk interpretation I have given. It argued against a phantom position that I never took, and did not even claim that I took it. So I do not understand this remark.)

f) ‘Five-minutes to midnight’ hypothesis

This hypothesis was not meant to signify the end of the world, but refers to a situation whereby German net refinancing credit would be eliminated and whereby the Bundesbank would be forced to become a net borrower of the banking system to sterilize the inflowing money created in the periphery. The authors try to counter the argument made in my June CESifo working paper with Timo Wollmershäuser by pointing out that the ECB could easily perform this sterilization by, for example, issuing debt certificates and collecting time deposits. Yes, of course, but that is our argument! Otherwise, I agree that defining the territory in which the ECB will operate once total net refinancing credit in the periphery has become negative, as it has indeed (compare Figure 1 in my introductory statement), is a difficult task and I welcome the fact that the authors have offered a formal model capturing this. We need more discussion of this model than I can provide in this short reply. Kohler, as well

as Tornell and Westermann, also speculate on what this could mean for the viability of the eurozone. They are less optimistic.

Reply to Ulbrich and Lipponer

These authors misrepresent the working paper by Timo Wollmershäuser and myself when they claim that we argue that gold and foreign exchange reserves are necessary to absorb the excess liquidity seeping in from countries relying heavily on refinancing credit. They forget to mention that we also argue that the extra liquidity can be re-absorbed from the banking system *via* the Bundesbank’s borrowing funds.

The authors also misrepresent the current account problem, although without citing us explicitly. A current account deficit needs to be financed either by an ordinary capital import or by refinancing credit and money creation (Target). I am more than surprised to read this statement: “a direct financing of current account deficits by the central banks has not occurred and will not take place in the future”. Unless the authors want to hide behind the word ‘direct’ this is utterly wrong. It is a matter of fact that the ECB financed nearly the entire current account deficit of Greece in the years 2008–2010 by allowing the Greek central bank to create and lend out the necessary money. Greece’s current account deficit for this period was 83.6 billion euros and its Target liability increased by 76.2 billion euros or 91 percent. Logically, this implies that only the remainder, 7.4 billion euros or 9 percent was financed by other net capital imports (private capital and public rescue funds).

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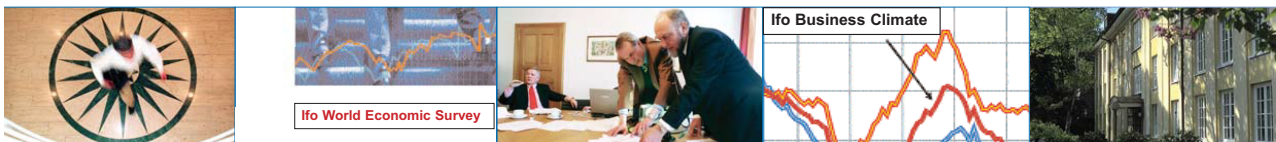


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Poschingerstr. 5
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