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**Will TARGET2-Balances  
be Reduced again after  
an End of the Crisis?**

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## Will TARGET2-Balances be Reduced again after an End of the Crisis?

### Abstract:

This article deals with the macro-economics of the Trans-European Automated Real-time Gross Settlement Express Transfer System (TARGET2). Originally, the TARGET2 was in-tended to solely function as a monetary arrangement for liquidity issues. It is shown that the TARGET2 contributes to a substantial misallocation of real resources within the Eurozone (EZ). The discussion highlights that there are no tendencies for rebalancing TARGET2-claims and liabilities, but rather a dynamic towards infinite and prolonged TARGET2-imbalances in the form of hysteresis.

### 1. Introduction

The formation of the *Trans-European Automated Real-time Gross Settlement Express Transfer System* (TARGET2) is subject to a fierce academic debate. This dispute gains momentum as TARGET2-imbalances between the National Central Banks (NCBs) within the European System of Central Banks (ESCB) are gradually approaching the 1 trillion Euro edge.<sup>1</sup> First, the debate deals with liquidity, cross-border payment and similar monetary issues (e.g., Abad et al. 2011, Bindseil and König 2011, Buiters et al. 2011). Second, the discussion centres on the NCBs' balance-sheet risks and costs arising from of a potential break-up of the Euro (cf. Wheelan 2012). This rather macro-economic discussion also touches inadequate provision of and stipulations on financing of current account transactions within the Eurozone (EZ) (Sinn 2011, Sinn and Wollmershäuser 2011). Other contributions address issues of TARGET2-imbalances in context of a misallocation within context of the real economic integration of EZ members (Fahrholz and Freytag 2011). In a similar manner, this contribution tackles issues related to the TARGET2 from the vantage point of the balance-of-payments. This perspective, which stretches out

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<sup>1</sup> Please refer, e.g., to the Euro Crisis Monitor, which provides continuously updated figures for TARGET2-imbalances (Westermann and Steinkamp 2012).

beyond payment and liquidity affairs, helps comprehend the macro-economic implications of TARGET2. In this regard, the particular focus is on the question of whether already accumulated TARGET2-imbalances are likely to be automatically brought down to zero again after resolving the balance-of-payments crisis within the EZ.

In this contribution, we set forth theoretical arguments which demonstrate that ‘irregular’ TARGET2-balances will not disappear but will partly linger on. The hysteresis effect pertains to the TARGET2-balances which are used for financing current account transactions during ‘crisis times’. A key insight is that these TARGET2-imbalances will eventually demand a political solution for the netting of TARGET2-claims and liabilities subject to a hysteresis effect. The according claims will possibly turn out to be irrecoverable as soon as the private financial sector takes up the lead again in financing net capital flows within the EZ.

This paper consists of six sections. Following the introduction, we briefly overview the macro-economic basics of TARGET2 in section 2. In section 3 we explain the temporary occurrence of regular TARGET2-balances. We present this issue in context of the run-up to the European balance-of-payments crisis. In doing so, we distinguish core and periphery economies. Then, in section 4, we discuss key characteristics of irregular TARGET2-balances and highlight the way in which such a monetary arrangement aggravates the real misallocation within the EZ. The ongoing magnification and the danger of hysteresis of these imbalances are subject to section 5. Finally, concluding remarks concerning the TARGET2 policy debate round off the contribution.

## **2. Some Macro-economic Basics of TARGET2**

The TARGET2 is an electronic payment and settlement system used for cross-border financial transactions among participating Monetary Financial Institutions (MFI) and NCBs within the ESCB. The host of this Real Time Gross Settlement System (RTGS) is the Eurosystem, which consists of the European Central Bank

(ECB) and those NCBs which have introduced the Euro as legal tender. In general, member of the Eurosystem may infinitely accumulate credits and debits within the TARGET2 (Garber 1999:206f.). The size of TARGET2-imbalances is solely limited by eligible collateral requirements and the actual Eurosystem's balance sheet. This is different to conventional cross-border RTGS, at which negative balances (i.e., debits) may be temporally financed by the public or private operator of the RTGS. This can be done using several different instruments, for instance, intraday repurchasing operations (e.g., Switzerland and Liechtenstein) or collateralized intraday credits (e.g., France and Monaco). Another possibility is, for example, to accumulate transactions on a clearing account and process them in small tranches. This means to put cross-border payments in a waiting loop and deleting them in the case of insufficient coverage (e.g., within the former Italian Lira-zone with San Marino and the Vatican). Apart from members of the Eurosystem, the TARGET2 is also accessible for NCBs belonging to the ESCB, though, without using the Euro as a currency. In contrast to the so-called 'In-NCBs', these particular 'Out-NCBs' can only use the TARGET2 if they run positive TARGET2-balances. On this basis currently Bulgaria, Denmark, Latvia, Lithuania, Poland and Romania are participating in the TARGET2. Other economies running an own RTGS may also connect to the TARGET2 via an 'interlink mechanism'. Such agreements have also been used to connect national RTGS of the current ESCB members within the forerunner TARGET. Since the end of 2007 this network of national RTGS was gradually replaced by a 'single shared platform'. The Banque de France, the Banca d'Italia and the Deutsche Bundesbank run the technical infrastructure on behalf of the Eurosystem. Cross-border financial transactions via the TARGET2 and conducted by MFIs are usually executed directly or via corresponding NCBs. Payments via the TARGET2-account for more than 90% of all cross-border large value payments in systems settling Euro-denominated transactions.<sup>2</sup> Cross-border financial transactions between ESCB members and countries which neither have introduced the Euro, nor are connected to the TARGET2 (Sweden, the Czech Republic, Hungary and the UK) may

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<sup>2</sup> See ECB (2011) for further detailed information.

also affect TARGET2-balances, if the involved MFIs draw on their TARGET2-accounts at NCBs within the Eurosystem (ECB 2011:105). Apart from this, cross-border payments affect the foreign exchange account and are, thus, of no further interest in the remainder of our analysis.

On the level of ESCB members, 23 NCBs and the ECB are currently participating in the TARGET2. All bilateral balances are cleared and netted out per day, so that each NCB records a single net bilateral position vis-à-vis the Eurosystem. This is to say that the TARGET2 does not record member-specific credit and debit positions between individual ESCB members, but between an individual member and the entire Eurosystem. This implies that the ECB may also run its ‘individual’ TARGET2-balance. This ECB balance sheet item does comprise of TARGET2-liabilities reflecting the corresponding claims of the NCBs of ESCB members that are not using the Euro but are participating in the TARGET2 (ECB 2011:219). Furthermore, TARGET2-balances of the ECB are affected, for example, by temporary swap agreements with ‘foreign’ NCBs such as the US Federal Reserve (Bundesbank 2012:144, further, ECB 2012:90) and by contributions to the ECB’s capital (Bundesbank 2012:145).<sup>3</sup> Notwithstanding these particular characteristics of the ECB’s TARGET2-balance, TARGET2-positions adhere to every ESCB members’ net external position. Changes to TARGET2-positions affect members’ credits (e.g., a positive TARGET2-balance) or debits (e.g., a negative TARGET2-balance) vis-à-vis the rest of the world. Legally, a non-balanced TARGET2-position does not represent a loan agreement. Nevertheless, TARGET2-imbalances involve current and capital account transactions that do bear on the real economy and affect overall macro-economic risks. A peculiarity about TARGET2 credit and debit settlements is that the accounting happens automatically and without any direct approval by the counter-party NCB. This is to say that the Eurosystem simply carries out the cross-border payment orders of the conducting NCB respectively of the connected MFI.

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<sup>3</sup> Besides, TARGET2-balances are remunerated at the marginal rate for the Eurosystem’s main refinancing operations and are subject to the interim profit distribution, which may bear on other intra-Eurosystem balances. See ECB (2012:16f.), EU (2011), and Sinn and Wollmershäuser (2011:6) for further details.

### 3. The Formation of Regular TARGET2-balances

A frictionless European cross-border payment and settlement system is important for the stability of the financial system, which is a prerequisite for reaping the efficiency gains of real economic integration within the EZ. We argue that a monetary arrangement such as the TARGET2 may exert considerable influence on the formation of the real economy. The subsequent analysis will be focusing on balance-of-payments issues.<sup>4</sup> The current and capital account transactions ensuing temporary TARGET2-balances within the EZ may also be illustrated by distinguishing between core and periphery economies. In this respect, core economies – here: Germany, Finland, Luxembourg, and the Netherlands – are characterized by current account surpluses (i.e., net capital exporters or net creditors). The group of core economies can be extended by those countries which are participating in the TARGET2 on the basis of compulsory positive TARGET2-balances (see above). The faction of periphery economies is generally characterized by current account deficits (i.e., net capital importers or net debtors).

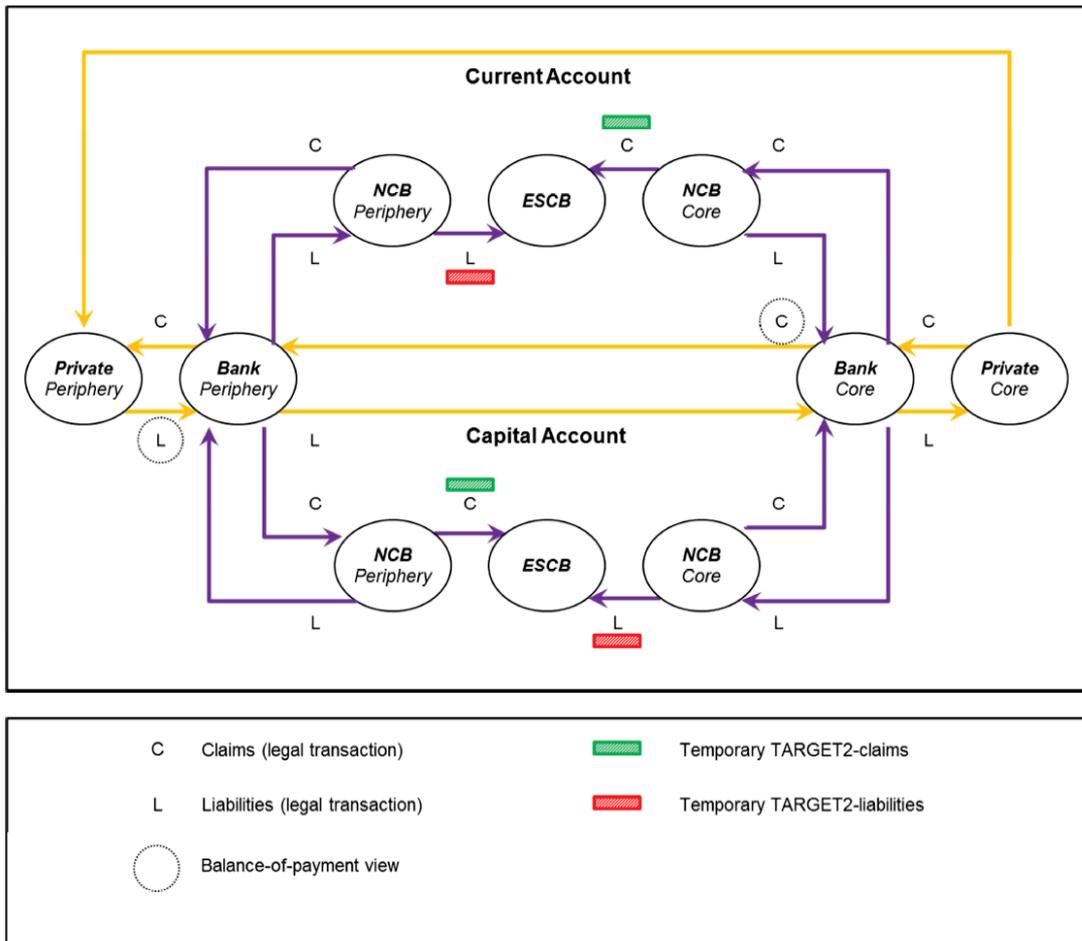
Consider the case of a periphery economy importing of real resources from the core via the current account. Here, the periphery issuing a cross-border payment via the TARGET2 accrues a negative TARGET2-balance. On the same token, the Eurosystem will enter a TARGET2-claim into the account of the counter-party NCB within the core. As long as this process is eventually financed by the private financial sector within the core, a core economy's TARGET2-liability stemming from a payment for the purchase of periphery financial assets (i.e., the net capital export) re-balance its previously recorded TARGET2-claim. At the same time, the periphery economy – having previously been incurred with a TARGET2-liability for initiating the cross-border payment for the real resource imports from the core – now acts as the payee and records a re-balancing TARGET2-claim in return for the core's net capital export. The evolving TARGET2-balances are, hence, only of temporary nature.

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<sup>4</sup> For this reason, an explicit distinction between MFIs and NCBs will, henceforth, not be made unless necessary.

The details of regular TARGET2-balances pertaining to current account transactions are depicted in figure 1.

Figure 1: Regular TARGET2-balances Stemming from Current Account Transactions



Source: own design

The illustration highlights the legal transactions and balance-of-payments relations between the core and the periphery of the EZ. It shows a situation in which a private agent from a periphery economy purchases real resources produced in the core. The private agent from the periphery (*private periphery*) finances this transaction, for example, by a loan from a commercial bank in the periphery (*bank periphery*), which creates a liability of the private agent towards the commercial bank. In turn,

the commercial bank holds a claim on the private agent within the periphery. A current account deficit occurs in the periphery and an equivalent surplus in the core. As long as the current account transfer is refinanced by the private financial sector, i.e., a commercial bank in a core economy (*bank core*), the core actually finances the real transfer in a regular way in the form of net capital exports. The simplified scenario in figure 1 assumes that the payment for the delivery of the resources is made to the account of the commercial bank (*bank core*) associated with the private agent (*private core*) in the core economy. In this case the commercial bank has liability towards the private agent in the core economy, while the private agent has a claim towards the bank. Thus, a private creditor in the core economy faces a private debtor in the periphery. This debtor has committed to deliver equivalent resources – i.e., in terms of value – in exchange for the advanced delivery of real resources from the core at some future point in time.

The TARGET2 has lent support to the inter-temporal exchange of real resources between different economies within the EZ. In doing so, it has accommodated the catch-up process of periphery economies. Such a real convergence process in terms of narrowing income levels, interest and price level differentials between the periphery and the core has characterized the first decade of the Euro.

#### **4. The Rise of Irregular TARGET2-balances**

However, the current European balance-of-payments crisis reveals the untenable nature of the catch-up process of the periphery of EZ. There are about three genuine economic grounds and one political-economic reason for the emergence of unsustainable real misalignments and subsequent TARGET2-imbalances between the core and periphery of EZ. First, relatively higher productivity growth in periphery economies has come along with increasing wages. The rising level of wages, however, could not be exclusively restricted to the sector of tradable resources but has spilled over into the sector of non-tradable resources, i.e., the Balassa-Samuelson effect occurred. Ultimately, this phenomenon has triggered a real appreciation trend and has contributed to real economic imbalances within the EZ. Second, the afore-

mentioned inclination towards real appreciation and excessive indebtedness within periphery economies has been topped by a private sector convergence play. This is to say that capital markets participants have believed in a successful economic convergence process at the outset of EZ membership. For this reason, there has been a fall in risk premia from the perspective of the private financial sector at the commencement of the Euro. In this regard, the financing costs of the periphery have fallen relatively more compared to the EZ core. The convergence play has further contributed to excessive provision of private sector financing for indebtedness. Assuming, third, that due to existing financial constraints in periphery economies credit demand was substantially constrained, admittance to the EZ has largely alleviated these constraints. Both the private and the public sector have seized the opportunity to increase borrowing. This has also built grounds for enhanced risk taking in these economies (cf. Korinek 2011, Lorenzoni 2008). Equipped with these new credit funds, enhanced demand side pressures led to increased domestic supply of goods and services in combination with a rapid increase in imports. Although this situation of excess demand would imply an upward trend in the price level, in the case of small open economies in a currency union, the leeway for diverging price levels has been low but translated into mounting real economic imbalances.

For all these genuine economic reasons, real misalignments have emerged between the EZ core and periphery. At the same time, it has turned out that there are hardly any incentives for cushioning against potential adversities of untenable catch-up processes within the periphery. Indebtedness usually gives policymakers front-loaded benefits in terms of stimulating production and employment in the short run and only delayed costs in terms of putting the long-term financial stability of the entire EZ at risk. The political moral-hazard behaviour has been aggravated by the ‘irrevocability’ of EZ membership, which represents an implicit guarantee that EZ economies will eventually bail out each other (Fahrholz and Wójcik 2012). It was exactly this implicit guarantee why the private financial sector has been rather oblivious during the fast catch-up process to increasing indebtedness, which has rendered the economic situation within the EZ unbearable. In general, a situation of

real misalignments becomes visible once financing conditions for on-going indebtedness worsen. As immoderate real appreciation and over-indebtedness ensued the real catch-up slowed down and has turned into a full-fledged European balance-of-payments crisis. The root causes of the unsustainable catch-up process of EZ periphery do certainly not pertain to the TARGET2. However, a dysfunctional TARGET2 still exacerbates real misalignments and, most notably, supports the magnification of irregular and possibly irrecoverable TARGET2-balances within the EZ.

The emergence of TARGET2-imbalances, reflecting real misalignments, do not stem from the monetary arrangement itself, but from economic agents' basic transactions. These movements pertain to current and capital account transactions translating into cross-border financial transactions. Whether cross-border financial transactions take place or not is normally a matter of liquidity and eligible collateral within the private financial sector. When lacking a sufficient amount of individual deposits the private financial sector may borrow liquidity from the corresponding NCB and/or the ECB. It is worth-noting that the TARGET2 is no procurement of liquidity, but that this monetary arrangement indicates shifts in EZ members' demand for central bank liquidity when falling short of interbank market access. The retrieval of central bank liquidity is subject to the general Eurosystem eligibility for credit claims. During the current balance-of-payments crisis, there is a concomitant drop in collateral requirements within the Eurosystem. Recently, the ECB has also granted decision making power concerning eligible collateral requirements to selected NCBs. This fragmentation process of the ECB monetary policy has been labelled "balkanization" (Buiters 2012). Apart from imposed, though relaxed, restrictions on collateral holdings, the total amount of central bank liquidity, i.e., the Eurosystem's balance sheet, shapes and limits the formation of TARGET2-balances. Voluminous supply of liquidity within the EZ has supported ailing MFIs, which lack re-financing opportunities within the private financial sector (Ulbrich and Lipponer 2012:75). Both the ECB and NCB may fill the void that the dried-up interbank market has left within the private financial sector. The ECB, for instance,

has injected liquidity via its Long-Term Refinancing Operation (LTRO). Individual NCBs may also provide liquidity by drawing on the Emergency Liquidity Assistance (ELA).<sup>5</sup> When NCBs unilaterally deviate from the general Eurosystem eligible collateral requirements, especially ELA enables MFIs to initiate cross-border financial transactions even if no collateralized lending at the ECB were possible. Although gains and losses from ELA and related collateral operations are seemingly not pooled but nation-specific, the TARGET2 allows for transferring according credit claims and related macro-economic risks to the entire EZ. Not the risks for the European monetary policies stemming from softened collateral requirements and excessive liquidity provisions, but the macro-economic implications of a dysfunctional monetary arrangement for cross-border payment and settlement will be the centre-piece of the following elaborations on the rise of irregular TARGET2-balances.

It is a commonplace that the balances of the current account and the capital account, which includes TARGET2-balances, eventually offset each other. An economy, from which a cross-border financial transaction is initiated, will have a TARGET2-liability, while the recipient will have a TARGET2-claim. Also in context of the European balance-of-payments crisis, pointing to an unsustainable catch-up process of periphery members within the EZ, there are two different kinds of basic transactions that stir irregular TARGET2-balances. First, basic transactions refer to current account movements, which are at the heart of our analysis. Second, portfolio dispositions immediately bear on the capital account. Regarding the conjectured hysteresis effect, only basic transactions pertaining to the current account will possibly result in irrecoverable TARGET2-claims. Basic transactions predominantly tracing in capital movements and portfolio reshufflings do very much contribute to the troublesome extent of TARGET2 balances. Most notably, however, this portion of irregular TARGET2-balances will be reduced naturally when the current European

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<sup>5</sup> Every NCB of the Eurosystem is legally allowed to provide ELA facilities unless the ECB Governing Council vetoes such an operation by a majority of two thirds. To our knowledge, information on frequency, size, collateral holdings and other terms of the ELA facilities is not publically available.

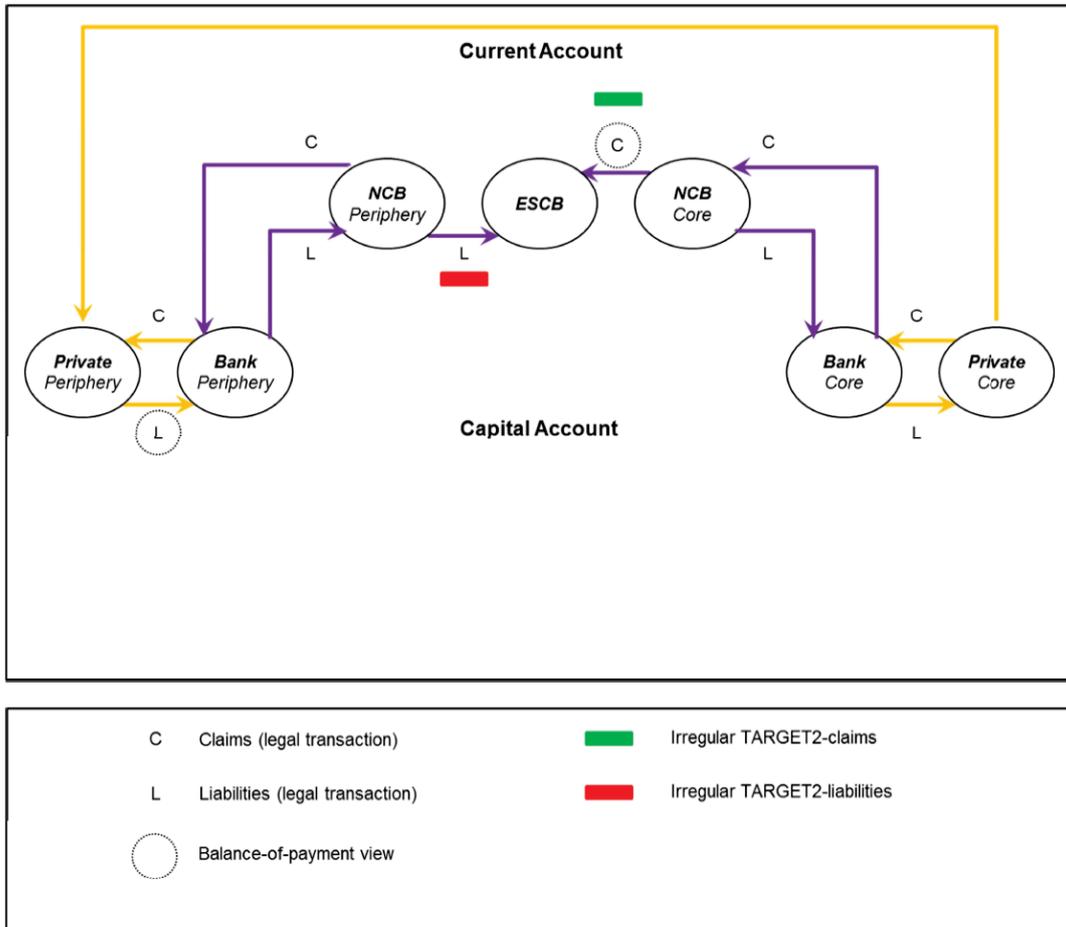
balance-of-payments crisis subsides and when the private financial sector resumes the accommodation of real catch-up processes within the EZ periphery. We subsequently expound the key feature of irregular TARGET2-balances stemming from current account transactions by distinguishing the very same from the TARGET2-balances resulting primarily from capital movements respectively portfolio dispositions.

A discussion of capital account transactions may help comprehend the peculiarities of TARGET2-balances tracing in current account transactions. Capital account transactions in the form of both financial consolidation and particularly capital flight may trigger irregular TARGET2-balances. In the case of financial consolidation, for example, agents in a core economy may liquidate and repatriate foreign assets within the periphery. As cross-border payments are initiated within the periphery, this economy consequently exhibit additional TARGET2-liabilities, while the core economy piles up TARGET2-claims. Basically, the same kind of irregular TARGET2-balances evolve in the course of capital flight from the periphery to the core. In the case of capital flight private agents in either the periphery or the core transfer financial assets held in the periphery to the core economies, which seemingly represents a ‘safe haven’. As the periphery commercial banks in both cases are no longer able to refinance themselves with loans from the private financial sector, they will seek refinancing via their NCB instead. The resulting payments lead to TARGET2-liabilities for the periphery NCB, while the operator of TARGET2 will enter the corresponding TARGET2-claims to the accounts of the effected NCBs in the core. Therefore, the capital flight from the periphery leads to an exceptional increase of the TARGET2-claims of a core economy in comparison to what the economies’ current accounts may suggest. All irregular TARGET2-balances pertaining to immediate capital account transactions exacerbate the European balance-of-payments crisis.

When the private financial sector stops financing current account deficits of the EZ periphery, then the TARGET2 steps in, thus, forming a quasi-public financial sector.

In the case of dried-up interbank markets (see figure 2), the periphery bank (*bank periphery*), which needs to refinance its loan to a private agent (*private periphery*), will take a loan from its NCB (*NCB periphery*).

Figure 2: Irregular TARGET2-balances Stemming from Current Account Transactions



Source: own design

For this purpose the commercial bank will have to provide collateral to its NCB.<sup>6</sup> The periphery NCB has a claim against the commercial bank. At the same time, a TARGET2-liability is created for the NCB in the periphery due to the initiated

<sup>6</sup> Besides, the collateralization of the central bank loan remains with the periphery NCB. This implies that the TARGET2-claim of the NCB in the core economy vis-à-vis the Eurosystem is not directly collateralized by the debtor within the EZ periphery.

cross-border financial payment in exchange for the import of real resources via the current account. The Eurosystem automatically books the corresponding TARGET2-claim into the account of the NCB in the core economy (*NCB core*). At the same time, this NCB receives a deposit from a commercial bank (*bank core*), which in this simplified example of figure 2 has transferred the payment of the payee (*private core*) to its NCB. The financing of this transfer of real resources from the core to the periphery is very much akin to a central bank loan. Similar short-term credits always arise within context of cross-border financial transactions (see above). Opposed to the normal case with temporary balances, however, we are here dealing with a situation in which the according creditor is a public agent (*NCB core*) instead of being private as is the case with the commercial bank (*bank core*) in figure 1. The circular flows that eventually clear temporary TARGET2-balances as depicted in the previous figure 1 do not occur in figure 2. This is to say that the off-setting private capital account transactions bringing down regular (temporary) TARGET2-balances stemming from previous current account transactions do not arise in crisis times. Interestingly, irregular TARGET2-balances imply that private agents as net debtors within the EZ periphery now encounter public entities – i.e., NCBs in the core – as their corresponding creditors. This is a key characteristic of TARGET2-claims and liabilities, primarily resulting from an ancillary but inadequate provision of financing for current account transactions in crisis times, which are subject to the conjectured hysteresis effect.

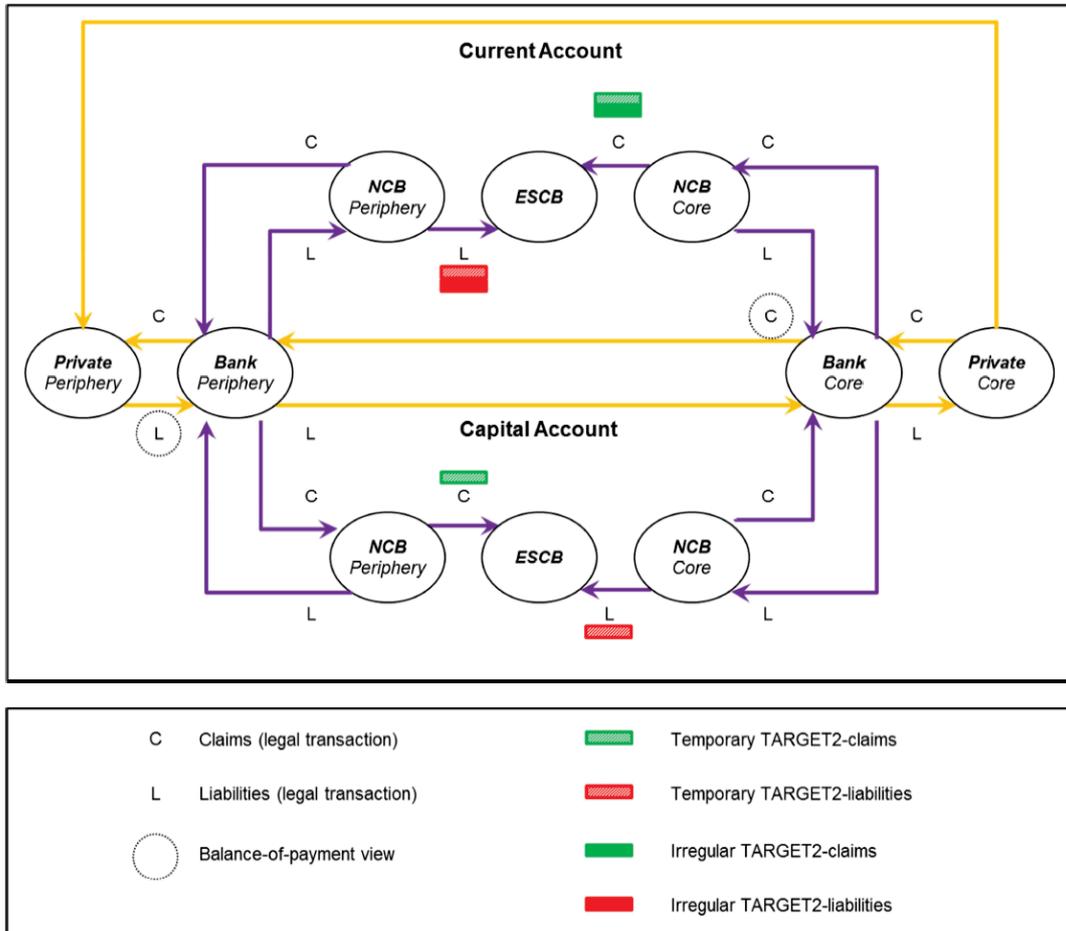
### **5. The Hysteresis of Irregular TARGET2-balances**

The EZ currently experiences a balance-of-payments crisis as the private financial sector doubts the ability of the periphery to fulfil its future obligations. For this reason the private financial sector does not supply any further credit but resorts to financial consolidation and capital flight from the periphery. The rising TARGET2-imbalances reflect changing positions of net creditors and debtors within the EZ. A bulk of remedies exist in other rather private RTGS (see above) for mitigating market distortions stemming from excessive imbalances in cross-border financial RTGS. However, the TARGET2 does not comprise of any restriction except for

eligible collateral requirements. There are seemingly no upward boundaries on TARGET2-imbalances. The reason for the exceptional rise in TARGET2-balances lies within the present balance-of-payments crisis, which acts upon the mechanisms of TARGET2 like an exogenous shock. In this context the question arises, whether the rise of irregular TARGET2-balances will ever come to a turning point, possibly even disappear, or whether a hysteresis effect will prevail and freeze these balances.

Figure 3 depicts a hypothetical situation, in which the Euro has made it through the current balance-of-payments crisis fully intact. In such a situation, most of the flow of financial assets and according TARGET2-imbalances in the course of particular capital account movements – i.e., financial consolidation and capital flight – during crisis times will be reversed. The reason is simply that all relevant contractual obligations refer to legal transactions between private entities. However, this is different from the case of irregular TARGET2-balances stemming from current account transactions, at which public NCBs in the core hold TARGET2-claims against private agents within the periphery. This monetary arrangement, however, does not foresee that the due positions, in form of negative and positive TARGET2-balances, have to be settled in the future. This might eventually be done by supplying securities in the form of gold or foreign-exchange reserves or last but not least with produced resources. Figure 3 illustrates that irregular TARGET2-balances pertaining to current account transactions during crisis times will not decrease, even if the periphery managed to outgrow its accumulated debts.

Figure 3: A Hysteresis Effect in the Case of Irregular TARGET2-balances



Source: own design

The reason for this hysteresis effect is that new regular (temporary!) TARGET2-claims and liabilities would evolve within the revamped EZ. Resurrected private financial sector activities will again make allowance for private net capital exports from the core to the periphery refinancing the periphery's purchase of real resource imports from the core. The accruing TARGET2-liabilities for the cross-border payment towards the core economy is offset by TARGET2-claims stemming from the core's privately financed net capital export towards the periphery and vice versa. Analogous, but reverse flows occur when the agents in the periphery repay their debt with the core.

However, the irregular TARGET2-balances stemming from current account transactions during crisis times remain untouched. TARGET2-liabilities do not represent ordinary debt as these positions have been built up without the approval of the net creditor, i.e., the EZ core. The EZ periphery may feel only bound by legally arranged loan agreements and similar contracts and will only repay the ordinary debt based on such contracts. They may feel less inclined towards repaying debt originating from a clearing item at an NCB's balance sheet. Therefore, some portion of irregular TARGET2-claims or liabilities accumulated during crisis times will remain at exceptional levels due to the hysteresis effect. This hysteresis effect displays contract abiding behaviour. The questions arise whether there is a need for reconciling TARGET2-imbalances, incentives for melting down 'frozen' TARGET2-claims and liabilities, and if appropriate instruments are available for doing so.

## 6. Conclusions

In this contribution, we have argued that some irregular TARGET2-balances will prevail even after tensions of the current European balance-of-payments crisis abate. While the policy debate on TARGET2 mainly identifies only limited risks related to a potential break-up of the EZ, we highlight balance sheet risks and macro-economic costs arising even in case of the Eurosystem weathering this crisis. Our discussion shows that the TARGET2 undermines necessary structural economic adjustments in the short run and, thus, worsens the balance-of-payments crisis in the long run. In this manner, quasi-public sector financing via the TARGET2 steps into the gap that occurred in the course of the private financial sector stalemate, when the real catch-up of the EZ periphery turned out to be unsustainable. In doing so, the TARGET2 does not only contribute to a transfer of originally private risks to the public sector, but undermines the necessary structural economic adjustments. This means that the TARGET2 is a disguised market-distorting subsidy of whole economies in the periphery of the Eurosystem. On the same token, the real exports financed via the TARGET2 act as automatic stabilizers upon the production of the core economies; most notably, excessive liquidity operations in conjunction with

the TARGET2 stoke private sector balance sheets and, thus, exert upward pressure on the EZ core. At the same time, however, there is no sufficient downward pressure on the real economy of the EZ periphery emanating from this monetary arrangement. In this regard, the TARGET2 impedes the necessary deleveraging in a balance-of-payment crisis and the according imbalances reflect a prolonged misallocation within the real economy of the entire EZ.

The specific problem with the TARGET2 is the hysteresis effect, which means that there are no tendencies for a reversal of all TARGET2-imbalances which have been piled up and are still swelling in the current balance-of-payment crisis. The hysteresis effect particularly pertains to irregular TARGET2-claims and liabilities, which have been built up in the course of inadequate current account transactions. The first question arises, how to melt down – if at all – TARGET2-imbalances. The second question is whether it may be in the interest of a periphery NCB to reduce TARGET2-liabilities in general. While at first glance it may sound implausible, the situation of Ireland in March 2012 is a good example in place: The Irish government repaid about 3 of 35 bn. Euro that the Irish NCB had lent to two Irish commercial banks, which later went bankrupt. This endeavor has not only resulted in a contraction of the Irish NCB's balance sheet but may help restore the creditworthiness of the Irish government as a future debtor. Basically, the very same applies to an entire economy, which needs to restore its credibility respectively creditworthiness. Hence, we argue that there exist even some incentives, though a matter of political discount rates, for repaying debt accumulated in the form of TARGET2-liabilities that are subject to a hysteresis effect. Such measure would help reducing the macroeconomic costs of future production from the viewpoint of the EZ periphery. In order to make credibility an important aspect of governmental or central banks' behavior, the market forces must not be too much deferred by monetary liquidity operations and fiscal rescue funding programs further increasing the TARGET2-imbalances. In other words, the cure that increases credibility reduces imbalances.

## References

- Abad, J.M. / Loeffler, A. / Zemanek, H.* (2011): "TARGET2 Unlimited: Monetary Policy Implications of Asymmetric Liquidity Management within the Euro Area," MPRA Paper, No. 31937, 1 July 2011.
- Bindseil, U. / König, P.J.* (2011): "The economics of TARGET2-balances," SFB 649 Discussion Papers, No. 2011-035, 14 June 2011.
- Buiter, W.* (2012): "Is the Eurozone at Risk of turning into the Rouble Zone?" Global Economics View (Citigroup Global Markets), 13 February 2012.
- Buiter, W. / Rahbari, E. / Michels, J.* (2011): "The implications of intra-euro area imbalances in credit flows," CEPR Policy Insight, No. 57, August 2011.
- Bundesbank* (2012): Annual Report 2011 of the Deutsche Bundesbank.
- ECB* (2012): Monthly Bulletin of the European Central Bank, April 2012.
- ECB* (2011): Annual Report 2010 of the European Central Bank.
- EU* (2011): "Decisions of the European Central Bank of 11 November 2010 on the Annual Accounts of the European Central Bank," Official Journal of the European Union, Vol. 54, 9 February 2011.
- Fahrholz, C. / Wójcik, C.* (2012): "The Eurozone Needs Exit Rules," CESifo Area Conference on Macro, Money and International Finance, Munich, 23-24 March 2012.
- Fahrholz, C. / Freytag, A.* (2011): "Whither the TARGET2-System? Taking a Glance at the Real Economic Facets of the Euro Area Debt Crisis," Applied Economics Quarterly 57:1, 15-25.
- Garber, P.* (1999): "1999. "The target mechanism: will it propagate or stifle a stage III crisis?" Carnegie-Rochester Conference Series on Public Policy, 51:1, 195-220.
- Korinek, A.* (2011): "Systemic risk-taking: amplification effects, externalities, and regulatory responses," ECB Working Paper Series, No. 1345, June 2011.
- Lorenzoni, G.* (2008): "Inefficient credit booms," Review of Economic Studies 75:3, 809-833.
- Sinn, H.-W.* (2011): "The ECB' stealth bailout," VoxEU.org, 1 June 2011.

- Sinn, H.-W. / Wollmershäuser, T.* (2011): “Target loans, current account balances and capital flows: the ECB’s rescue facility,” CESifo Working Paper, No. 3500, 24 June 2011.
- Ulbrich, J. / Lipponer, A.* (2012): “Balances in the TARGET2 Payments System – A Problem?” CESifo Forum 13 (Special Issue January 2012), 73-76.
- Westermann, F. / Steinkamp, S.* (2012): “Euro Crisis Monitor,” University of Osnabrück; URL: <http://www.iew.uni-osnabrueck.de/en/8959.htm>.
- Wheelan, K.* (2012): “TARGET2: Not why Germans should fear a euro breakup,” VoxEU.org, 29 April 2012.

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