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TARGET BALANCES AND THE CRISIS IN THE EURO AREA

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PREFACE

When the US crisis spilled over to the eurozone and the banks of the northern countries balked at further lending to the south and to Ireland, the ECB stepped in by adopting policy measures that allowed its stock of refinancing credit to be shifted from the north to the crisis-stricken countries to fill the gap. As shown by the Ifo Institute in various writings over the past two years, this shifting of refinancing credit is measured by the Target balances, and it amounts to a public capital flow that the southern countries have used to finance their current account deficits and offset outright capital flight. There has been much debate over whether the steps taken by the ECB primarily constitute a fiscal rescue operation for the crisis countries or are merely part of normal monetary policy, and whether they have corrected a market failure or undermined the self-correction process of the markets after years of excessive capital flows to the south. Some argue that these policy measures lie within the legitimate remit of the ECB as a lender of last resort; while others condemn them as a bail-out policy that helps investors to cut and run by unloading their toxic assets onto the shoulders of the eurozone's taxpayers.

The Ifo Institute has led the debate on the Target issue, publishing several articles by both advocates and critics of ECB policies alike, including pieces by ECB staff and central bankers. The present study follows in this tradition. It has been published as a special issue of the CESifo Forum by virtue of its outstanding scholarly care and rigour.

The report was written by the ECB specialist on the Target system, Philippine Cour-Thimann. While the author emphasises that the views expressed in her report do not represent the ECB's official position on the issue, her policy assessment clearly does not stand for a dissenting view either.

This paper offers a meticulous description and analysis of the development of the Target balances, with a rich set of new data and detailed information that specialists will treasure and the general public will find illuminating.

The last part of the paper, in which the author discusses measures to prevent Target balances from ballooning in the future and includes a comparison of settlement possibilities, is particularly thought-provoking and useful. In the US system, balance-of-payment imbalances between commercial banks and, much later, district Feds, were settled for two hundred years using gold and gold certificates; and the US system only recently adopted settlement with marketable securities. In Europe no settlement procedure for Target balances has been introduced to-date. Target balances are merely carried forward on the balance sheets of national central banks from year to year, with interest added to the debt and liability positions that have accumulated between the national central banks. This could imply risks that limit the policy choices of member countries. After all, Moody's decided to consider downgrading the Netherlands and Germany because of their huge outstanding Target claims. It is high time for the Eurosystem partners to discuss the settlement issue more seriously.

Munich, 22 April 2012

Hans-Werner Sinn

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TARGET BALANCES AND THE CRISIS IN THE EURO AREA

PHILIPPINE COUR-THIMANN*

I. Introduction

“Let China sleep because when the dragon awakes, it will shake the world”, said Napoleon in 1803. In the euro area, the ‘dragon’ of Target balances awoke in 2008 and it has been shaking political and economic discussions in Europe ever since. Initially, the issue only caused a stir in a few restricted circles, centred on the German media. Since then, the dragon has stood tall and has increasingly influenced debates about the functioning of Economic and Monetary Union (EMU). Just as with dragons, size is one aspect that makes the topic so intriguing. Target balances are very large cross-border financial positions by international standards, even if they are exceeded in aggregate size by China’s financial claims on the United States.

Target balances each represent one single balance sheet item: a claim or a liability *vis-à-vis* a single institution, the European Central Bank (ECB). Target balances are the largest item on over half of the balance sheets of the euro area’s national central banks (NCBs), either on the asset side or the liability side. In mid-2012, they had peaked at 1 trillion euros in combined deficits or combined surpluses, equivalent to roughly 10 percent of euro area GDP.

Aggregating NCBs’ balance sheets into their national accounts, Target balances are among the largest items in countries’ net international investment positions.

Moreover, these cross-border claims have risen in an environment where national borders should no longer matter – Europe’s monetary union. These positions are positive in the more resilient countries of the euro area and negative in the countries under strain. There are triple-digit billion claims for the Deutsche Bundesbank, the Dutch National Bank and the Banque Centrale du Luxembourg; triple-digit billion liabilities for the Banco de España and the Banca d’Italia; two-digit billion liabilities for the Bank of Greece, the Central Bank of Ireland and the Banco de Portugal; and a relatively large liability for the Central Bank of Cyprus.

Making sense of these Target claims and liabilities is clearly essential for understanding the dynamics of the crisis in the euro area. It is also essential to address several myths about what the Target balances represent. For example, Target balances have sometimes been seen as an easy way to offer countries under strain financial support without going to the trouble of arranging bailout agreements. They can be seen as the necessary adjustment mechanism for stabilising the monetary union. Alternatively, they can be seen as providing time for governments to address flaws in the institutional foundations of EMU.

There is some truth underlying each of these statements, but uncovering that truth requires careful analysis. There are a variety of technical, economic, legal and political dimensions to Target balances. This makes it all the more relevant to understand the core built-in element of monetary union that ensures that one euro equals one euro throughout the union.

The six perspectives in this paper are related to six themes emerging from the recent literature on Target balances. The first three themes, which are closely interrelated, are the relationships between Target balances and: (i) the financial and sovereign debt crises and the ensuing stresses in certain banking systems; (ii) central bank operations; and (iii) the balance of payments. The fourth theme discusses the nature of financial risks related to Target balances. The fifth and sixth themes concern the lessons from the US Federal Reserve System and the issue of a possible treatment of Target balances.

The literature on Target balances often deals with several themes at once, but some authors focus on



* European Central Bank. The views expressed here are those of the author and not necessarily those of the European Central Bank. I am grateful to Hans-Werner Sinn for many stimulating bilateral discussions and very helpful comments on this paper. I gratefully acknowledge outstanding research assistance by Eric Persson and helpful comments from, and discussions with, Ulrich Bindseil, Vincent Brousseau, Niels Bünnemann, Sylvain Debeaumont, Francesco Drudi, Philippe Moutot, Panagiotis Papapaschalis and Christian Thimann. I am also grateful for useful feedback from seminar participants at the ECB, especially Christos Androvitsaneas, Kostas Apostolou, Claus Brand, Niall Merriman and Petra Senkovic; to Jens Ulbrich and Alexander Lipponer at the Deutsche Bundesbank; Philipp König at TU Berlin; Frank Westermann at Osnabrück University; Romesh Vaitilingam; Seth Carpenter, Gregory Evans, Steven Kamin, Jeffrey Marquardt and Lawrence Mize at the US Federal Reserve Board and Olivier Blanchard at the International Monetary Fund. Finally, the editorial quality of this publication owes much to Chang Woon Nam, Andrea Rapi and the editorial team at CESifo.

selective aspects, sometimes yielding selective conclusions. This literature has its roots in early works on optimal currency areas and EMU. Kenen (1995) anticipated that imbalances in cross-border transfers within the payment system of the single currency area could raise tensions among its constituent countries. Garber (1999) analysed the propagation of a hypothetical banking crisis through the Target payment system. He later described the mechanics of a capital flight in the euro area and the emergence of Target balances (Garber 2010).

Hans-Werner Sinn pioneered the discussion of Target balances in the context of the euro area crisis. In February 2011, he published an article in *Wirtschaftswoche* (Sinn 2011a), warning about risks for German taxpayers stemming from the Target claims of the Deutsche Bundesbank and related to the provision of central bank liquidity in countries for which markets perceived a risk of sovereign default. In April 2011, he estimated Germany's potential loss in the case of a sovereign default in the euro area in the *Süddeutsche Zeitung* (Sinn 2011b), arguing that it amounted to about one third of their respective Target liabilities, due to the Bundesbank's share in the ECB's capital.

In his numerous writings, Sinn has focused on presenting Target balances as the reflection of a balance-of-payments crisis in the euro area, which he believes is similar to the crisis in the Bretton Woods regime of fixed exchange rates prior to its demise (see in particular Sinn 2011c, 2011d and 2011e, as well as 2012c). Buiter *et al.* (2011a) and Whelan (2011 and 2012) argue against Sinn's conclusions. Tornell and Westermann (2011) draw a parallel with Mexico's exchange rate peg *vis-à-vis* the US dollar, which broke up in 1994. Bindseil and König (2011 and 2012) show how Target balances emerge mechanically within a set of financial accounts, and downplay their link with current account imbalances. Auer (2012) and Cecchetti, McCauley and McGuire (2012) use an econometric approach to analyse the link between Target balances and the balance of payments.

Sinn and Wollmershäuser (2011 and 2012a) focus on presenting Target balances as the ECB's rescue facility for countries under strain. They show how Target balances relate to current and financial accounts, they interpret Target balances as an international shift in refinancing credit and they disentangle the roles of capital flight and current account deficits. They also counter the arguments of Buiter and Whelan in an appendix of their CESifo working paper (2011).

Bindseil, Cour-Thimann and König (2011) list what they perceive as misinterpretations by Sinn and argue that Target balances are not a public rescue facility. Sinn and Wollmershäuser (2012b) disentangle the influence of various kinds of private capital flows on Target balances.

The Deutsche Bundesbank (2011a and 2011b) and ECB (2011 and 2012a) both analyse the growth in Target balances and provide conclusions similar to Bindseil, Cour-Thimann and König (2011). Jobst (2011) shows how German residents can smoothly repatriate their funds in Target, arguing that restrictions on Target balances would hit them first. Other contributions review the whole issue (for example, Jobst *et al.* 2012). The specific relationship between Target balances and the balance of payments was the subject of a special issue of the CESifo Forum (2012), which includes articles from academics, as well as from central bankers such as Bindseil, Cour-Thimann and König (2012), Lippuner and Ulbrich (2012) and Schlesinger (2012).

The issue of the relationship between Target balances and the balance of payments has also been treated by bank analysts at Citigroup and Goldman Sachs and by think tanks. In particular, Merler and Pisani-Ferry (2012) confirm the analysis of Sinn and Wollmershäuser (2011) that the sovereign debt crisis in the euro area was marked by sudden stops in private capital flows, which have been offset by Target balances. On financial risk, earlier misinterpretations that Target balances would represent risks for individual NCBs have been corrected. The topic is also widely covered by bank analysts who are interested in understanding and pricing this risk in financial contracts and assessing its implications for the future economic outlook.

The perceived risk associated with Target balances – and arguments that they offset the incentives for governments to make the necessary efforts to reverse private capital outflows – have led some authors to argue in favour of addressing Target balances. Sinn and Wollmershäuser (2011) propose that the euro area should adopt an arrangement similar to that used in the Federal Reserve System where the internal balances are settled annually. Schlesinger (2012) proposes applying interest surcharges to Target balances. A similar proposal is discussed (but not specifically advocated) by Bindseil and Winkler (2012).

In October 2012, Sinn published an entire book devoted to Target balances, called *Die Target Falle (The Target Trap)* (Sinn 2012a). The main claim of the

book is that the functioning of the monetary union – with Target at its centre – is a trap because, the author argues, it requires one rescue operation after another, with the ultimate implication that all bad assets move from private to public ownership. The book further argues that the Target system diverts financial resources away from an efficient allocation of resources and represents a massive financial risk for taxpayers of countries such as Germany. The book concludes that indirect constraints like those in the Federal Reserve System would need to be established to limit the growth of Target balances and their associated financial risks for taxpayers.

Understanding the driving factors behind Target balances is essential to assess whether the proposals of Sinn and others are well founded and could be implemented. This paper combines the various perspectives on funding stress in banking systems, the Eurosystem operations and the balance of payments crisis and seeks to offer a coherent framework for analysing Target balances. Those various perspectives each offer a declination of the main thesis of this paper, that Target balances are a reflection of the need to ensure that one euro equals one euro throughout the monetary union. In turn, a better understanding of the emergence of Target balances allows a comparison with similar internal balances in the Federal Reserve System and an informed view of the meaning of their annual settlement.

It also allows for a more informed analysis of the potential financial risks associated with Target balances and their possible treatment. Such an understanding will also help in the analysis of shortcomings in the institutional arrangements of the EMU and the identification of ways of addressing them.

The paper is organised as follows. After describing a number of key facts on the emergence of Target balances from cross-border payments in relation to bank funding stress (Chapter II), the paper puts Target balances in perspective with Eurosystem operations (Chapter III) and macroeconomic imbalances (Chapter IV). The potential financial risk associated with Target balances is then assessed (Chapter V). The Target balances are also compared with the internal balances within the Federal Reserve System (Chapter VI), before reviewing the options put forward in the public debate to address the balances (Chapter VII). The paper ends with some conclusions on the economic and policy relevance of Target balances (Chapter VIII).

II. Target balances, cross-border payments and bank funding

This chapter explains how payment transactions in the payment system Target can lead to Target balances and shows how their upsurge during the crisis relates to funding stress in certain national banking systems and the accommodation of bank liquidity needs by the Eurosystem.

II.1. The mechanism linking bank payments and central bank balances

Each currency area has a system that allows the settlement of payment transactions in central bank money; in most cases the system also operates in real time. In the case of the euro area, this system is Target, which stands for ‘Trans-European Automated Real-time Gross settlement Express Transfer’.¹ With Target, the Eurosystem contributes ‘to promoting the smooth operation of payment systems’, which is one of the basic tasks conferred on it by the Treaty on the Functioning of the European Union (henceforth called ‘Treaty’).

Target allows commercial banks to conduct their payment transactions in euros on a shared platform and is also used to settle central bank operations in the euro area. The settlement of cross-border payments between banks in the euro area in Target results in intra-Eurosystem balances – that is, positions on the balance sheets of the respective central banks. When a bank makes a payment to another bank through Target, the current account of the payer at its NCB is debited and the current account of the recipient bank at its NCB is credited. If the transaction is domestic, it has no impact on the *aggregate* current account of banks at that NCB and thus will not lead to any change in the NCB’s Target balance.

If the transaction is cross-border – that is, if it involves banks that are connected to Target at two different NCBs – it affects the banks’ current account balances at those NCBs. The NCB of the payee sees a reduction in its current account, while the NCB of the recipient bank sees an increase in its current account. At the end of each day, the central banks’ balance sheets

¹ TARGET is the Eurosystem’s real-time gross settlement system. It was replaced by TARGET2 in November 2007, with a transition period up to May 2008 during which all national platforms could be replaced by a single platform – see Kokkola (2010). For simplicity, TARGET and TARGET2 are referred to as ‘Target’ in this paper.

are adjusted by accounting for the central banks with a reduction in their current accounts a corresponding liability in Target, and for those with an increase in their current accounts a corresponding claim in Target. The constellation of bilateral flows between the Eurosystem central banks are then aggregated and netted out throughout the Eurosystem, so that each NCB remains with a single net position *vis-à-vis* the ECB.

The net sum of all cross-border payments with banks in other euro area countries during the day that have been settled at that central bank result in daily changes in the Target balances of the individual NCBs, as illustrated in equation (1).

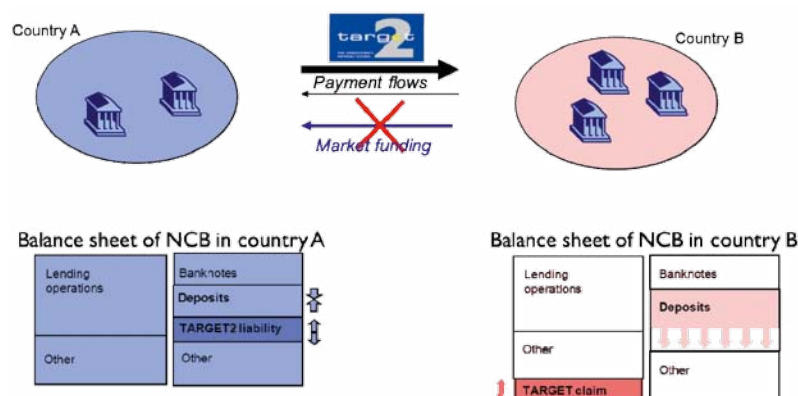
$$(1) \Delta \text{Target balance} = \text{Target inflows} - \text{Target outflows}$$

The resulting new balance in Target is reported on the central bank's balance sheet on the asset side if it is positive, or on the liability side if it is negative. As a result, some NCBs have a Target claim and others have a Target liability *vis-à-vis* the ECB.²

The mechanism behind the emergence of Target claims and liabilities is illustrated in Figure 1. It considers a transfer of funds between banks in two different euro area countries – for example, related to a payment for imports of goods or services, the acquisition of an asset abroad or a capital outflow – which is conducted through Target. As an immediate effect, the transfer of funds implies a reduction in the deposits in the cur-

Figure 1

How Target balances emerge (Step 1 – imbalanced cross-border payment flows)



Notes: The balance sheets represented in the figure are stylised and do not correspond to actual data.

Source: ECB and author's conception.

rent account of the commercial bank with its NCB (say the Central Bank of Ireland) and an increase in those of the recipient commercial bank with its NCB (say the Deutsche Bundesbank for illustration purposes, but those could be any other euro area NCBs). Unless the bank compensates for the initial transfer of funds with fresh money from Germany in this simple two-country setting,³ at the end of the day, the Central Bank of Ireland displays a negative Target balance and the Deutsche Bundesbank a positive balance, each *vis-à-vis* the ECB as the central counterparty.

The bank facing a reduction in its deposits in country A may borrow from its NCB (implying an increase in 'lending operations' on the balance sheet), while the bank recipient of the inflows in country B can reduce its borrowing at its NCB. If further payment outflows from the bank in country A to banks in country B are compensated in this way, Target balances can continue to increase. This is the case illustrated in Figure 2.

II.2. Target balances, market segmentation and central bank intermediation

The mechanism described above for a cross-border payment between two banks actually takes place on a larger scale between entire national banking systems in the euro area.⁴ For every euro (in net terms) that leaves a banking system during the day for a bank in

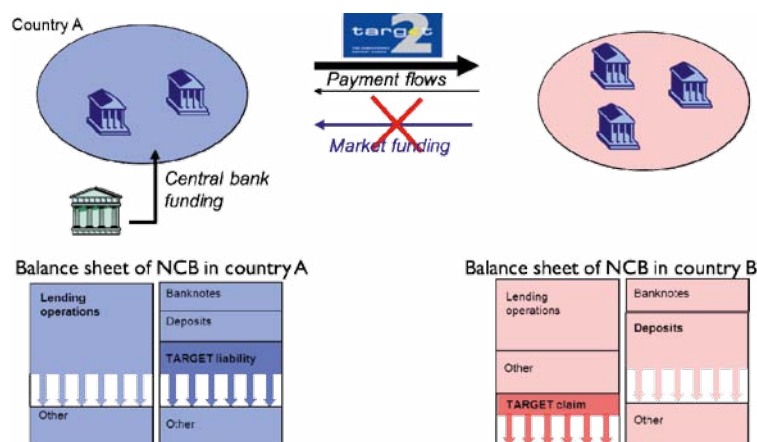
² The Governing Council of the ECB decided in 1999 that the bilateral balances should be netted on a daily basis by novation (that is, substituting them to the ECB), as the registration of growing gross bilateral positions among the euro area central banks was difficult to manage. Such an arrangement was also considered to be in line with the principle of an integrated area. With effect from 30 November 2000, the claims and liabilities related to Target in the European System of Central Banks are netted by novation at the end of each day – see the Guideline on a Trans-European Automated Real-time Gross settlement Express Transfer system (TARGET) (ECB/2012/27). Article 6 stipulates that "any settlement of payments between participants in TARGET2 in different TARGET2 component systems shall automatically give rise to an intra-Eurosystem obligation of the Eurosystem CB of the payer towards the Eurosystem CB of the payee". Furthermore, this same article foresees that "any intra-Eurosystem obligation shall automatically be aggregated and form part of a single obligation" and that "such single obligation shall be subject to a multilateral netting procedure resulting in each participating NCB's obligation or claim towards the ECB".

³ This is a simplified illustration, which ignores possible triangular arrangements involving other domestic commercial banks and other countries.

⁴ The national banking system designates the group of credit institutions that have a Target account at a given NCB. Credit institutions can be subsidiaries of foreign banks.

Figure 2

How Target balances emerge (Step 2 – accommodation of liquidity needs by the Eurosystem and continued imbalanced cross-border payment flows)



Notes: The balance sheets represented in the figure are stylised and do not correspond to actual data.

Source: ECB and author's conception.

another euro area country – thus leading to a Target liability for the respective NCB –, there must be a compensating euro in the banks' reserves or newly entering the banking system. A useful analogy is with a bucket of water: water can continue to be poured out only if the bucket is not yet empty, or is being refilled with fresh water at the same time.⁵

Before the financial and sovereign debt crisis, banks could fund themselves domestically or cross-border at very similar conditions across the euro area. The creation of the euro and the single monetary policy had contributed to integration in financial markets; notably in the interbank market cross-border funding was highly developed. Thus, at the aggregate country level, banks could largely compensate payment outflows with funding inflows, so that the overall cross-border payment flows of a national banking system tended to be broadly balanced. As a result, NCBs' Target claims and liabilities were small and stable.

Following the onset of the crisis, the banks lost confidence in the financial health of one another and preferred to hoard liquidity in a context of uncertainty about their future liquidity needs and of perceived credit risk and thus fears that borrowers may not be able to reimburse funds received on loan. Thus, lending in the interbank market and other market funding became impaired. For some national banking systems the

payment outflows could no longer be compensated for with sufficient inflows. As a result, Target liabilities increased for their NCBs.

The ECB decided to accommodate the banks' liquidity needs to ensure that solvent banks were not liquidity-constrained in their funding and thereby the maintenance of price stability over the medium term.⁶ Given that the ECB's measures are implemented in a decentralised manner throughout the NCBs in the Eurosystem, solvent banks in the euro area were allowed to borrow all the liquidity that

they needed from their NCBs at a fixed policy interest rate, against collateral.⁷ In this way, the Eurosystem countered the adverse effect of excessive market premia on the transmission of policy interest rates to the wider economy. This supported the provision of credit by banks to households and firms in the euro area. In consistency with the assessment of the ECB that the situation in some financial market segments was dysfunctional, this also meant that the Eurosystem replaced the market in the intermediation of bank funding to some extent.

When the global financial crisis turned into a sovereign debt crisis in certain euro area countries in May 2010, the lack of confidence in banks became increasingly related to a lack of confidence in certain sovereigns, creating a vicious spiral between public finances and the financial health of the national banking systems. Access to the cross-border interbank money market became impaired and cross-border loans dried

⁶ This also avoided disorderly developments in the banking sector. *A priori*, banks could obtain liquidity by selling assets as an alternative to borrowing from their NCBs. However, deleveraging in a period of falling asset prices can exacerbate price spirals, and not all banks can deleverage at the same time if no one is buying the assets.

⁷ To date, and even if such a measure is, by nature, temporary and related to the crisis, the ECB has been providing liquidity with a fixed rate full allotment tender procedure for most of its liquidity-providing monetary policy operations since October 2008. This is in contrast with the variable rate tender procedure pre-crisis where the ECB pre-set an amount of liquidity in an auction where banks could make bids at a rate above the ECB's key interest rate in main refinancing operations. If the ECB had maintained such variable rate tender procedure, the entire banking systems of some countries would have been effectively cut off from access to central bank liquidity; or would have sought to obtain liquidity at the penalty interest rate (the marginal lending facility rate) and monetary policy transmission would have become dysfunctional.

⁵ Unlike water, however, central bank money does not need to pre-exit and can be newly issued.

up, while existing loans needed to be repaid and debt securities needed to be redeemed.⁸ In addition, bank deposits were eroded by capital flight, either from domestic investors or from non-residents shifting their financial investments to other euro area countries. The crisis led to a reversal of financial integration and a re-emergence of fragmentation in financial markets along national borders.⁹

The banking systems in the countries affected by the sovereign debt crisis faced increased net payment outflows, which they compensated for in particular through increasing borrowing at the central bank: their NCBs displayed increasing lending operations together with a widening Target liability. Banking systems in other countries were net recipients of the payment flows: their NCBs displayed increasing deposits together with a rising Target claim.¹⁰ This is the situation depicted originally for two banks in two countries in Figure 2, which also applies at the aggregate level of two national banking systems.

In sum, Target balances emerged from imbalances in payment flows in Target between national banking systems under conditions of financial market fragmentation. Target balances thus tend to reflect the segmentation in market funding along national borders and can become very large when the Eurosystem replaces the intermediation function of the market.

However, Target balances reflect the funding needs of the individual economies only very imperfectly. (Recognising this fact is particularly important for the discussion of the policy proposals to address Target balances, see Chapter VII). This is for three reasons, which are explained in more detail in Annex A.

Firstly, Target balances do not capture all cross-border transactions – particularly conducted in cash. Secondly, transactions in a foreign currency may inflate Target balances. Thirdly, and most importantly, Target balances also reflect transactions that one would not necessarily qualify as ‘cross-border’ between the respective economies of the NCBs involved. This is the case of transactions within multi-country banking groups or involving non-euro area banks.

⁸ For evidence that foreign banks reduced the credit previously extended to borrower in crisis-hit countries – see for instance Cecchetti, McCauley and McGuire (2012), who use international banking data from the Bank for International Settlements.

⁹ See ECB (2012c) for an ample discussion on the disintegration tendencies in the euro area.

¹⁰ In particular, a Target claim is not a sign that the provision of liquidity to the respective banking system is constrained. It is instead a sign of ample availability of bank liquidity in this banking system, which faces net payment inflows from the other euro area countries.

The geographical location of a payer/payee bank sometimes has more to do with the bank’s internal organisation than with economic realities. In fact, in value terms, one in four transactions in Target takes place within a banking group. In particular, Target allows multi-country banks to carry out their payments activity and to manage their euro liquidity from one single account. This centralisation of liquidity management gives rise to cross-border flows, which do not necessarily correspond to the location of the underlying economic activities. Transactions of non-euro area banks also affect Target balances. For instance, the Target balances of some NCBs such as the Deutsche Bundesbank and De Nederlandsche Bank are influenced by the activity of US- and UK-based banking groups, which decided to carry out their Target payments from their subsidiaries in those countries.

In sum, caution is needed in interpreting Target balances as reflecting the funding needs of the individual economies.

II.3. The growth of Target balances during the crisis

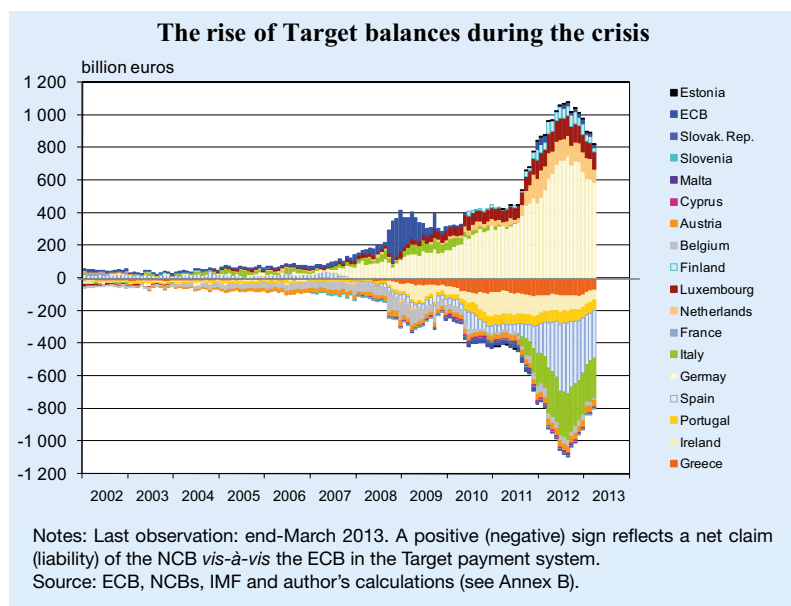
The Target balances in the Eurosystem are shown in Figure 3 with end-of-month data since 2002,¹¹ in a staggered presentation: the sum of positive balances (or the sum of negative balances) provides an aggregate measure of imbalances in Target. Target balances rose to a combined 1 trillion euros by August 2012. Four stages can be distinguished in this upsurge, followed by a more recent decline.

The phases can be described as follows.

- August 2007: the emergence of tensions in the interbank money market – this first phase saw a regular increase in Target balances, notably in the largest euro area countries.
- October 2008: the outbreak of the financial crisis – in this second phase, smaller countries, such as Ireland and Greece, started to contribute significantly to overall imbalances as the credit provision of the Eurosystem expanded considerably. The second phase was marked by a temporary upsurge in the ECB’s Target balance, which corresponds to the temporary provision of liquidity in foreign currency that is subsequently reversed.
- May 2010: the emergence of the sovereign debt

¹¹ Annex B explains how to calculate Target balances using public statistics.

Figure 3



crisis in the euro area – in this third phase, the liabilities in Greece, Ireland and Portugal, where the sovereigns are in debt crisis, and by contagion, Spain, saw a renewed and marked increase, while the claims in Italy diminished. At the same time, the claims for Germany, the Netherlands and Luxembourg increased further.

- July 2011: the extension to Italy and Spain of tensions in sovereign debt markets – in this fourth phase, the upsurge in Target balances gained a new momentum as two large countries, Spain and Italy, faced serious difficulties in accessing external finance. The developments in Target balances accelerated between May and July 2012. In part, capital flight related to fears about the integrity of the monetary union or the reversibility of the euro started to add to bank funding stress in certain euro area countries. A number of banks, particularly outside the euro area, decided to replace funding from the subsidiaries in resilient euro area countries for their subsidiaries in financially stressed jurisdictions with local funding.¹² This meant that borrowing from the Eurosystem replaced intra-banking group funding from resilient countries.
- August 2012: a gradual decline in Target balances – the ECB took action to address concerns about the integrity of the monetary union, tangible pro-

gress was made in country reforms and European heads of state decided on steps towards a ‘genuine economic union’. The ECB President declared on 26 July 2012 that “within its mandate, the ECB is ready to do whatever it takes to preserve the euro”¹³ and the Governing Council subsequently decided on a scheme for Outright Monetary Transactions as a ‘fully effective backstop to prevent destructive scenarios from materialising’, the modalities of which were announced on 6 September. A decline in Target balances followed, which was sustained over the second half of

2012 and until early 2013, when this paper was finalised. The early repayments in the context of the three-year longer-term refinancing operations as from January 2013 also contributed to a decline in the outstanding amount of Eurosystem liquidity provided to banks in the euro area and thereby a decline in Target balances.

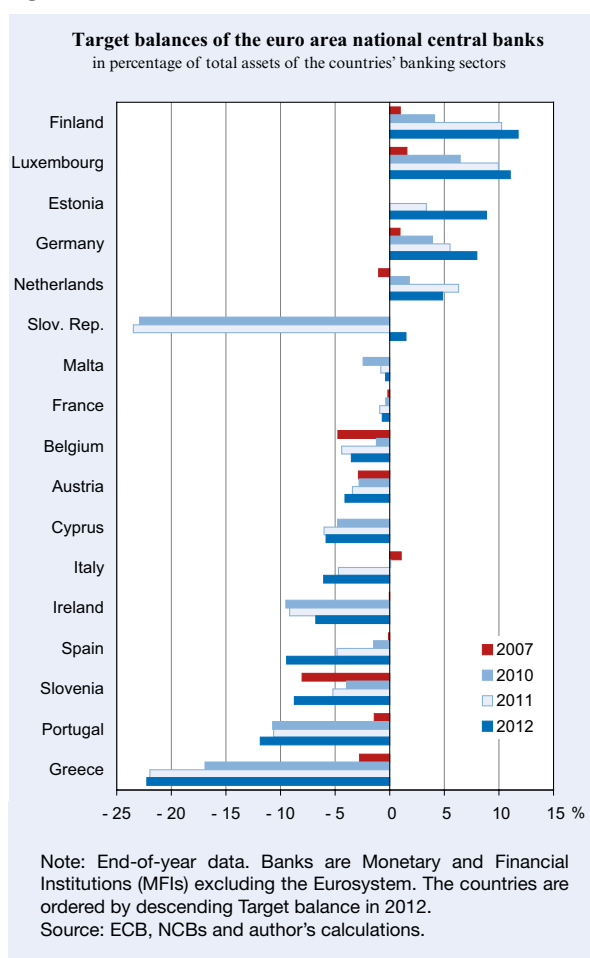
In relation to their home countries’ GDP, NCBs’ Target balances were particularly large at the end of 2012 for Luxembourg (+243 percent of GDP), Ireland and Greece (around -50 percent of GDP), Portugal and Cyprus (around -40 percent of GDP), but also Finland (+36 percent of GDP), Spain (-32 percent of GDP), Germany (+25 percent of GDP), the Netherlands (+20 percent), and Italy (+16 percent).

Given their origin in payment flows between banks, another useful metric for comparing Target balances is the size of the banking sector, as measured by their total assets (see Figure 4). At the end of 2012, the positive balances amounted to around 10 percent of the countries’ bank assets in Luxembourg and Finland, 8 percent in Germany and 5 percent in the Netherlands. The negative balances amounted to over 20 percent of the countries’ bank assets in Greece, and above 5 percent in Italy, Spain, Ireland, Portugal, Slovenia and Cyprus.

¹² See for instance Cecchetti, McCauley and McGuire (2012) for a description of the link between changes in Target balances and hedging redenomination risk during this period. Some bank analysts also monitor redenomination risks using Target balances and show their correlation with sovereign bond spreads.

¹³ In his opening remarks at the Global Investment Conference in London on 26 July 2012, Mario Draghi noted: “within our mandate, the ECB is ready to do whatever it takes to preserve the euro. And believe me, it will be enough”.

Figure 4



III. Target balances and Eurosystem operations

This chapter takes the perspective of the Eurosystem to illustrate in more detail how large Target balances resulted from the accommodation of banks' liquidity needs by the Eurosystem during the crisis.¹⁴ This accommodation was marked by an increase in the volume of liquidity provision combined with a geographic shift in its distribution by NCBs across the euro area.

III.1. Increase and geographical shift in Eurosystem liquidity provision

Prior to the crisis, intermediation was entirely in the hands of the market and banks requiring liquidity could borrow in the market from cash-rich banks at any time. As a result, Eurosystem liquidity provision corresponded in volume to the euro area banks' aggregate

needs in central bank money. Those aggregate needs are equivalent to the reserve requirements¹⁵ for banks plus the so-called autonomous factors, which include banknotes in circulation, government deposits at some Eurosystem NCBs and the central banks' investment portfolios. The aggregate needs are represented by the green line in Figure 5. They remained broadly unchanged during the crisis.¹⁶

During the crisis, liquidity provision increased through monetary policy operations (as illustrated in the positive area of Figure 5), essentially lending operations and, for a smaller part, outright purchases.¹⁷ The presence of Target balances is thus strongly connected to the non-standard measures taken by the Eurosystem (fixed rate, full allotment, expanded collateral framework, long-term refinancing operations). Other Eurosystem operations, which are not part of the implementation of the single monetary policy, also contributed to the increase in liquidity provision, such as emergency liquidity assistance.

Any surplus in liquidity provision relative to the banks' aggregate needs – the amounts above the green line – is in excess. As mentioned, instead of lending to the banks needing liquidity, the cash-rich banks preferred to deposit their excess liquidity in the Eurosystem. This includes the use of the deposit facility, as well as liquidity-absorbing operations, illustrated in the negative area of Figure 5.

Before the global financial crisis became combined with a euro area sovereign debt crisis in the spring of 2010, increased Eurosystem liquidity provision could occur without necessarily leading to a simultaneous increase in Target balances. This was a situation where interbank market segmentation applied *within* a national banking system, and not specifically across banking systems. In each country, banks with higher liquidity needs could turn to their NCB as the other domestic cash-rich banks were not lending to them.

¹⁴ For a review of the ECB's measures during the financial crisis and their motivation – see Cour-Thimann and Winkler (2012).

¹⁵ Credit institutions are required to keep a certain amount of deposits in their current account on average over a maintenance period (of around 30 days), which is in proportion to their retail deposits (1 percent since December 2011).

¹⁶ In December 2011, the ECB decided to lower its reserve requirements from 2 percent to 1 percent of the banks' deposits to increase collateral availability for banks, which accordingly also lowered aggregate liquidity needs by around 100 billion euros.

¹⁷ Those include the Securities Markets Programme (SMP) and the Covered Bonds Purchase Programme (CBPPs).

Figure 5

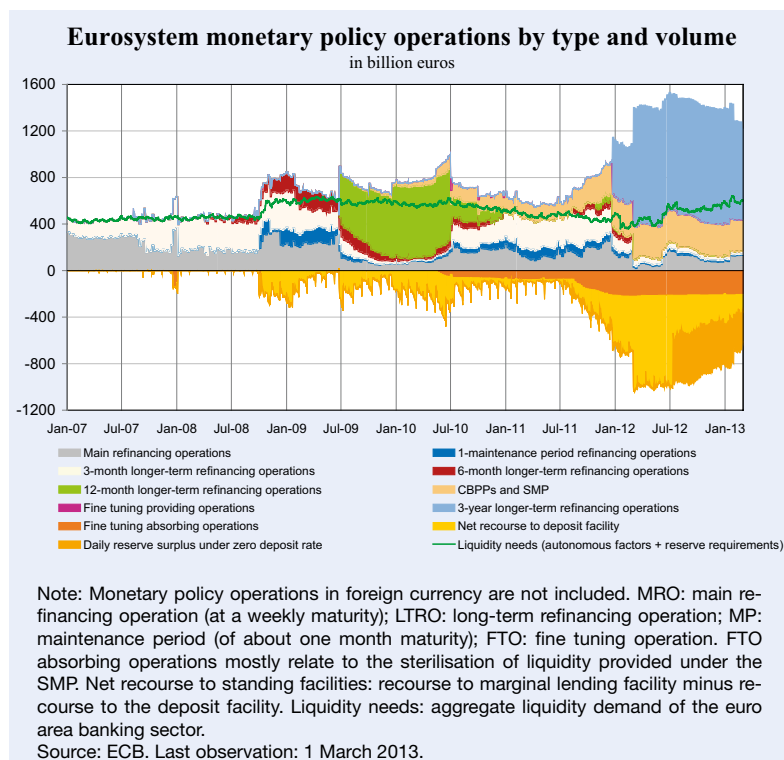
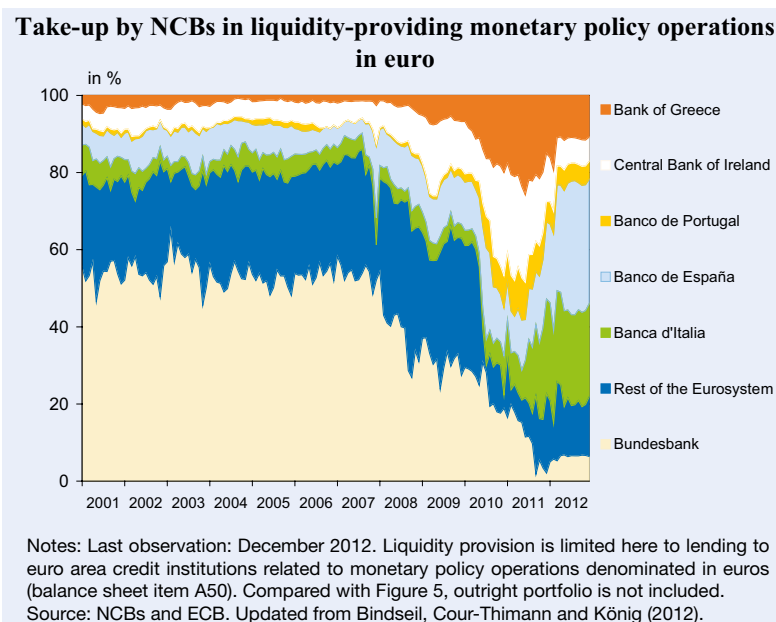


Figure 6



Target balances arose as liquidity provision not only increased, but its distribution also shifted across NCBs, following the mechanism illustrated in the two-country setting of Figure 2.

There is no country-specific quota in the provision of central bank liquidity, as this would be incompatible

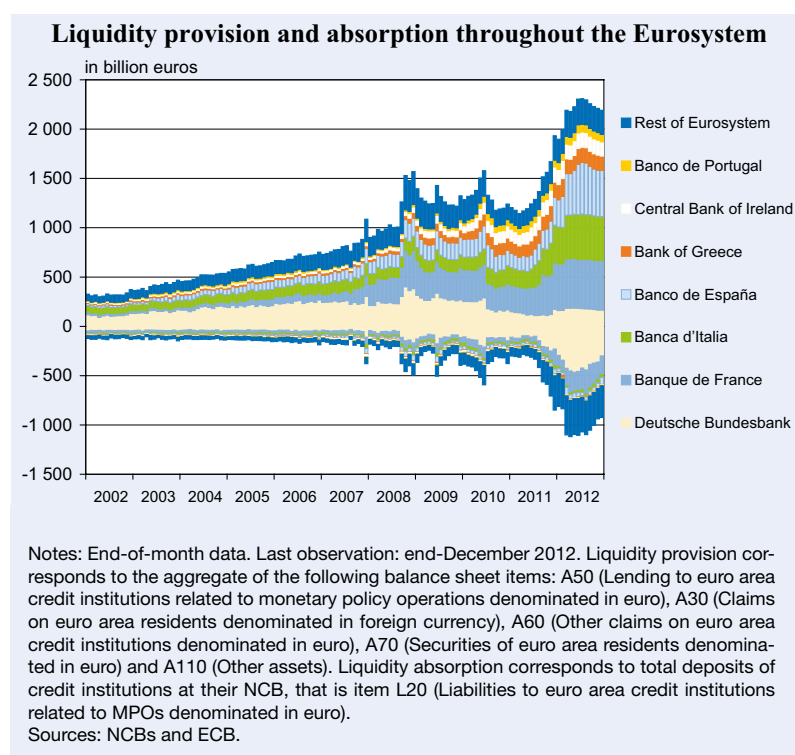
with the equal treatment of banks for a single monetary policy. Therefore, there is no reason for the distribution of liquidity provision throughout the Eurosystem to be even, in crisis times or in normal times.¹⁸ In fact, the German banking system used to account for around 50 percent of monetary policy operations before the crisis, which is larger than its weight in the euro area economy (see Figure 6).¹⁹

As a result of market segmentation across national borders and continued payment outflows during the crisis, the banking systems in countries under strain made larger refinancing demands of their NCBs, while banking systems in countries recipient of those flows had less of a need to resort to central bank liquidity. Figure 6 illustrates the resulting shift in the distribution of Eurosystem liquidity provision among NCBs. The shift occurred in several phases, which broadly correspond to the phases identified for the evolution of Target balances in Figure 3. At the end of 2012, the Eurosystem provided 80 percent of its liquidity to euro area banks via the NCBs of Spain, Italy, Greece, Ireland and Portugal. In comparison, the corresponding share before the financial crisis was 20 percent.

¹⁸ One cannot expect (nor impose as will be discussed in Chapter VII) that NCBs provide liquidity to their banking systems to fully cover their 'national' funding needs.

¹⁹ This may partly reflect the large size of the German banking system relative to the size of its economy, with a relatively large amount of banks and the fact that many non-euro area banks have chosen Germany as a location for their subsidiaries to conduct business in the euro area. In addition, part of the liquidity provision served the relatively larger demand for banknotes in Germany, part of which were used by tourists for payments abroad.

Figure 7



III.2. The correlation between Target balances and Eurosystem liquidity

In the intense phases of the crisis, the liquidity provided to banking systems in countries under strain then migrated in large part to banks in other euro area countries through the payment transactions of the private sector, and the excess amount of liquidity was deposited at the NCBs of Germany, Luxembourg, the Netherlands and Finland. Such was the situation after the intensification of the sovereign debt crisis in July 2011. Some NCBs became net absorbers of liquidity, for example, the Deutsche Bundesbank after the end of 2011.

This is shown in Figure 7, which includes the breakdown of the Eurosystem liquidity-provision and liquidity-absorption at NCB level. The aggregate used here for liquidity provision includes not only the monetary policy lending operations in euro and in foreign currency, but also all other forms of provision of central bank money, which end up in bank deposits at the central bank in the first place and thus can also allow a banking system to fund net payment outflows.²⁰ This

²⁰ The asset purchases related to the SMP and CBPP are part of the balance sheet item 'Securities held for monetary policy purposes' which is covered in the aggregate. The associated liquidity provision ends up probably for a large part – albeit not necessarily – in the national banking systems of the respective NCBs.

is also the case of operations outside the framework²¹ of the single monetary policy such as emergency liquidity assistance and purchases of financial assets.

Accounting for all forms of liquidity provision is important to capture the relationship between Target balances and liquidity provision, both at the Eurosystem level and at the individual NCB level. The same holds for liquidity absorption. Thus, Figure 7 resembles the illustration of Target balances in Figure 3.²² Those NCBs that provide more liquidity than in normal times in net terms are also those that have Target liabilities *vis-à-vis* the ECB – and the opposite holds for the other NCBs.

A similar pattern emerges between gross liquidity provision and the overall Target balances (upper diagram in Figure 8). The parallel is more striking in the phase where the segmentation in bank funding markets is predominantly along national borders, as is the case since July 2011, for example. This suggests that the surplus in central bank liquidity during this period essentially allowed some banking systems to fund cross-border outflows to other euro area countries.

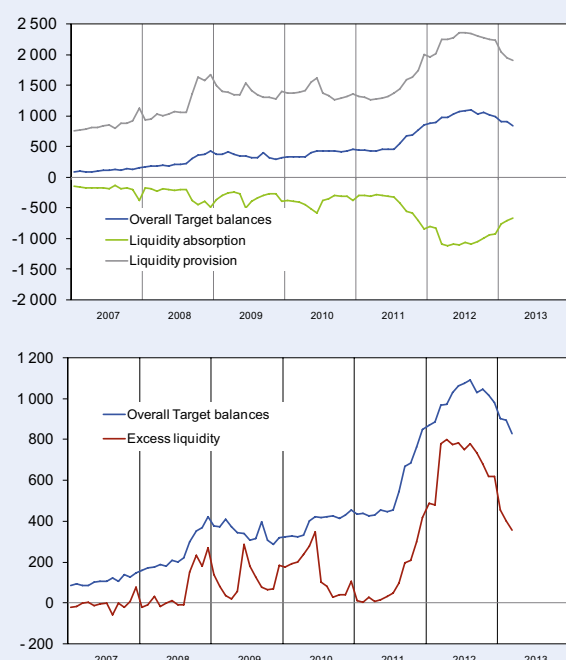
Such a pattern particularly applies during the periods surrounding the two 3-year long-term refinancing operations (LTROs) settled in December 2011 and March 2012. In addition, since the outflows are also the inflows in banking systems whose NCBs have Target claims, there was also a parallel increase between the overall Target balances (the sum of claims) and the overall liquidity absorption (upper diagram in Figure 8) as well as overall

²¹ Those operations are captured by the balance sheet item 'Other claims on euro area credit institutions denominated in euro' (following some data harmonisation across NCBs in April 2012, before which purchases of financial assets were in some countries included in part in the item 'Other assets', which is also covered in the aggregate considered).

²² The difference between the scales in Figures 3 and 7 corresponds to the aggregate liquidity needs of the euro area banking system on the positive side, and the current account on the negative side. As illustrated with the green line in Figure 5, the aggregate liquidity needs have amounted to around half a trillion euros since 2007.

Figure 8

Target balances versus overall liquidity provision and absorption
in billion euros



Note: Last observations: end-March 2013. Liquidity provision and liquidity absorption are defined as in Figure 7. Excess liquidity is defined as the overall deposits of credit institutions (that is, liquidity absorption in Figure 7) net of deposits at the current accounts for reserve requirements and net of the recourse to the marginal lending facility.

Source: NCBs and ECB.

excess liquidity deposited at the NCBs (lower diagram in Figure 8).

The receding fragmentation in financial markets after mid-2012 translated into a decline in the outstanding liquidity provision and liquidity absorption by the Eurosystem, and a commensurate decline in Target imbalances. Just as the non-standard monetary policy measures are by design temporary, the concurrent Target balances can be expected to decline to lower levels as financial market conditions improve.

III.3. The NCB's net liquidity provision and its Target balance

The fact that, at the level of each national banking system, a euro that leaves the system in net terms needs to be compensated for by central bank money at the NCB, can be formalised using an accounting equation. Drawing on the stylised representation of a central bank's balance sheet in Figures 1 and 2, such

an equation relates the net outflow in Target (that is, the opposite of the change in the Target balance) with the provision of new central bank liquidity and the change in the banks' reserves at the central bank.²³ Those reserves include the current accounts and other forms of liquidity absorption (at the deposit facility or in short-term deposits).

(2)

$$\Delta \text{Target balance} + \Delta \text{Liq. provision} \approx \Delta \text{Liq. absorption}$$

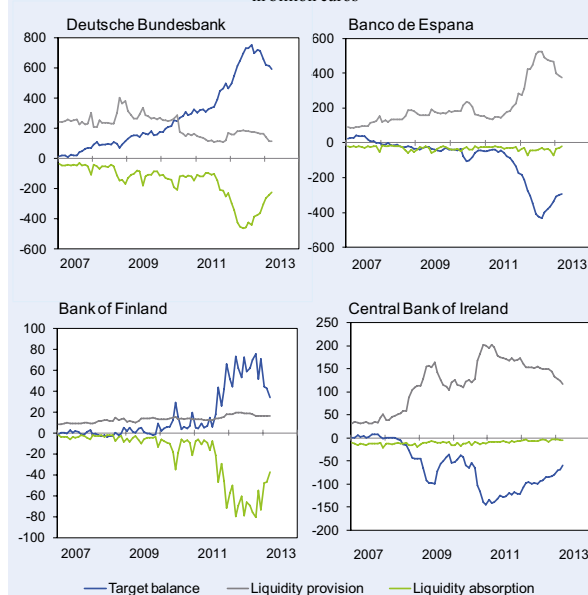
(3)

$$\Delta \text{Target balance} \approx - \Delta \text{Net Liquidity provision}$$

The relationship in equation (2) (and equivalently equation (3) using liquidity provision expressed in net terms) is not exact: it only includes the elements of a NCB's balance sheet that are most relevant for movements in Target balances.²⁴

Figure 9

Target balance, liquidity provision and absorption for selected NCBs
in billion euros



Note: Last observation: end-March 2013. Liquidity provision and liquidity absorption are defined in Figure 7.
Source: NCBs.

²³ The aggregates are defined as in Figure 7 above: 'Liquidity provision' includes, but not only, lending operations; 'Liquidity absorption' corresponds to 'Deposits' depicted in Figures 1 and 2.

²⁴ The other elements are omitted, such as reserves (gold holdings and receivables and investments in securities) and claims on non-euro area residents on the asset side; and, on the liability side: banknotes, liabilities to non-euro area residents, counterpart of special drawing rights allocated by the IMF, revaluation accounts and capital and reserves.

In addition, some forms of liquidity provision by a given central bank may, in fact, not be attributed to a specific banking system. This is the case with outright purchases, for example, under the SMP and the CBPPs. They involve a provision of central bank liquidity to the banks from which the assets are purchased, but those banks are not necessarily domestic.

Notwithstanding those limitations, equation (2) broadly holds, as illustrated in Figure 9. In the case of NCBs with Target claims, equation (2) reflects an approximate relationship between the widening of the Target claim and the increase in liquidity absorption over time. For NCBs with large Target liabilities, there is relatively little excess liquidity deposited at the central bank, and the relationship is essentially between the widening of the Target liability and the increase in liquidity provision.

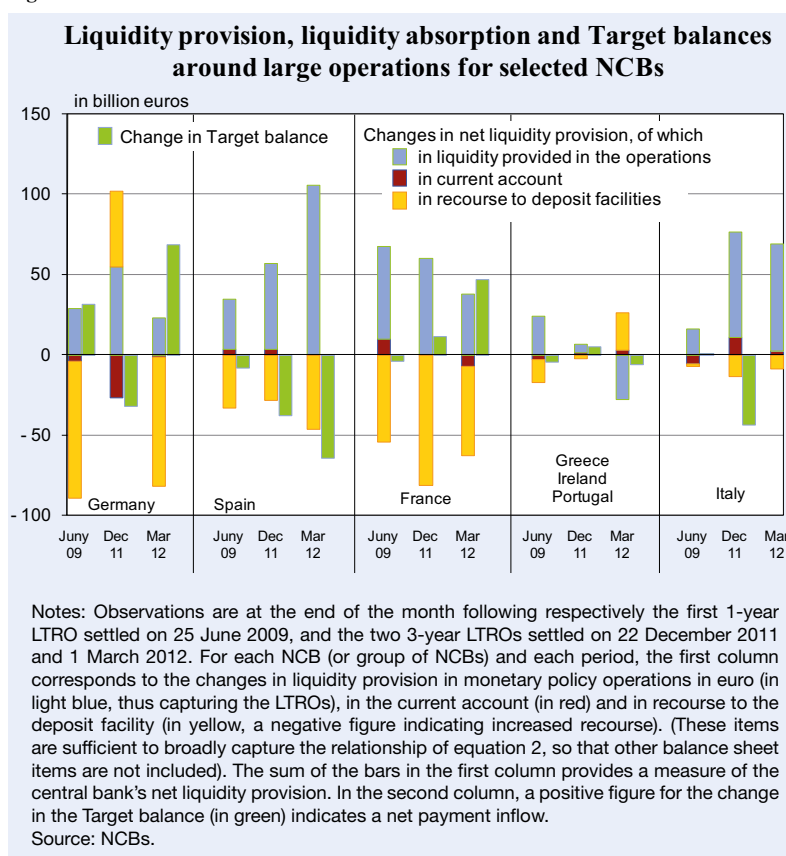
Thus, for each NCB, there is an opposite relationship between the change in the Target balance and the change in net liquidity provision – equation (3).

Equation (2) can also be applied to trace the use of the liquidity obtained by the national banking systems in specific monetary policy operations over the subsequent months. For this purpose, equation (2) is written as:

$$(4) \quad \Delta \text{Target balance} \approx -\Delta \text{Liq. provision} + \Delta \text{Current Account} + \Delta \text{Deposit facility}$$

These four components are illustrated in Figure 10 for selected NCBs: namely the changes in Target balances (in green), in liquidity provision (light blue), in the current account (in red) and in the deposit facility (in yellow). On the horizontal axis, the three large-scale operations are presented for each NCB: the first 1-year LTRO settled on 25 June 2009 and the two 3-year LTROs settled on 22 December 2011 and on 1 March

Figure 10



2012.²⁵ The figure can be read as follows: for example for Spain, the liquidity provided to banks (light blue) was increasingly found at the end of the month to have flown out in Target.

In June 2009, the overall liquidity take-ups by the banking systems in France, Spain and Germany were the largest and led to an increase in the respective NCB's current account and deposit facility, without (significant) Target outflows. This reflects a situation where the domestic banking system as a whole has market access. In the absence of market segmentation along national borders, the large recourse to the operation could indicate opportunism (the banks taking advantage of relatively favourable conditions, even if they are charged for depositing the resulting excess liquidity at the NCBs) and/or segmentation within the domestic banking system. In Greece, Ireland and Portugal the banking systems on aggregate also participated in the

²⁵ The tracking of what happens with the liquidity provided in specific operations would, in principle, require daily data. The daily movements in the current accounts and the deposit facility are likely to be larger than the movements observed on the basis of financial statements whose frequency is lower. In particular, liquidity can be parked temporarily at the current account and the deposit facility before flowing for example, to banks in other euro area countries, and there can also be reverse flows from banks abroad.

liquidity-providing operations and deposited part of the funds at the deposit facilities.

The situation changed at the end of 2011. In the months of the two 3-year operations, the picture for Spain and Italy predominantly reflected a situation of challenged market access. Their large liquidity take-up largely made it possible to compensate for net outflows in Target, although there was still significant recourse to the deposit facility in Spain.

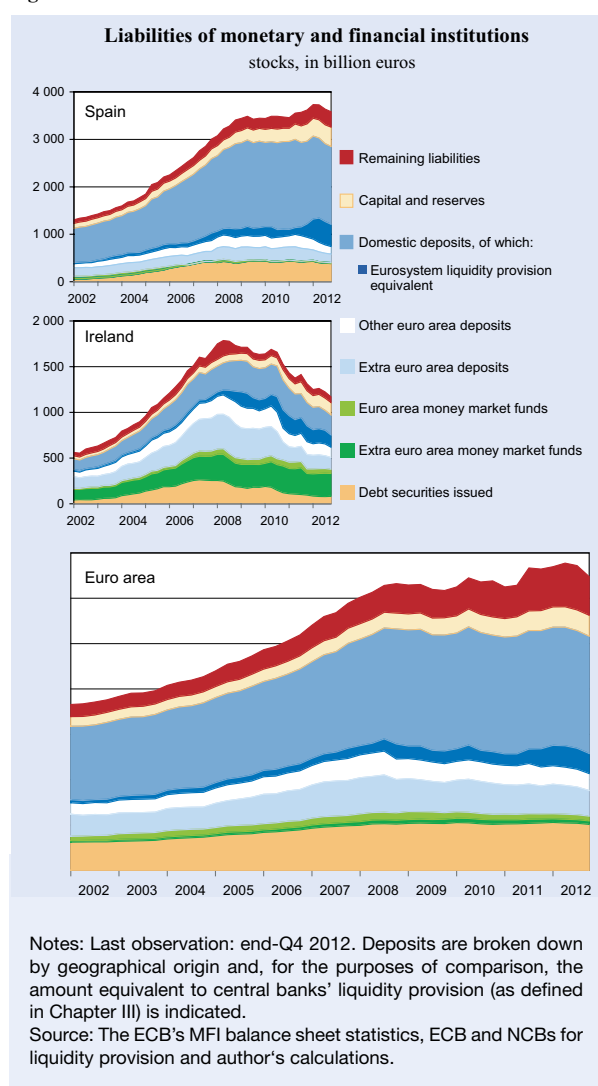
In March 2012, the net outflows in Target were apparently partly directed to the banking systems in Germany and France, which show large positive Target inflows in parallel with a recourse to the deposit facility for a larger amount than that obtained in the operations at the central banks. In contrast to the June 2009 operation, the banking systems of Greece, Ireland and Portugal taken together also apparently did not participate significantly in the 3-year operations (and, in fact, reduced their lending and deposits over the month of March 2012), probably because of collateral constraints, and accordingly there was no widening in their central banks' Target liabilities.

To sum up, Chapter III, together with the analysis in Chapter II, has shown that Target balances are not a separate mechanism. The large increase in the Target liabilities of some NCBs during the crisis is a reflection of funding tensions in those countries' banking systems combined with the ECB's measures to accommodate the ensuing liquidity needs with a view to maintaining price stability in the euro area over the medium term.

IV. Target balances and macroeconomic imbalances in the euro area

The imbalances in payment flows between banking systems in the euro area reflected in Target balances largely result from a questioning of the sustainability of economic developments in certain countries. Problems stem in particular from adverse feedback loops between the sustainability in the public finances of certain sovereigns and the viability of their banking systems. The perception that past macroeconomic imbalances are unsustainable generated tensions in the cross-border funding of banks and sovereigns, setting a vicious circle in motion. However, efforts on the part of

Figure 11



individual countries to correct imbalances can provoke a return to more positive dynamics, as seen after the summer 2012.

Target balances as such are a manifestation of the internal macroeconomic tensions within EMU that have surfaced with the crisis. Some argue that these tensions are similar to those which, in the absence of a monetary union, would have resulted in balance-of-payments crises, which in fixed exchange rate regimes would imply a need for exchange rate realignments similar to those that occurred with the collapse of the Bretton Woods system (Sinn and Wollmershäuser 2012a).²⁶ It has been argued that Target balances would then be similar to quasi-unlimited foreign exchange reserves. The possibility for an economy to sustain large

²⁶ See also Kohler (2012) and Blankart (2012), as well as Tornell and Westermann (2012b) who take the example of the peg of the Mexican peso with the US dollar.

payment outflows within EMU (with an associated large Target liability) would undermine the incentives for governments to make the necessary macroeconomic adjustments.

This chapter illustrates the link between Target balances and countries' macroeconomic imbalances as measured through the lens of the balance of payments.

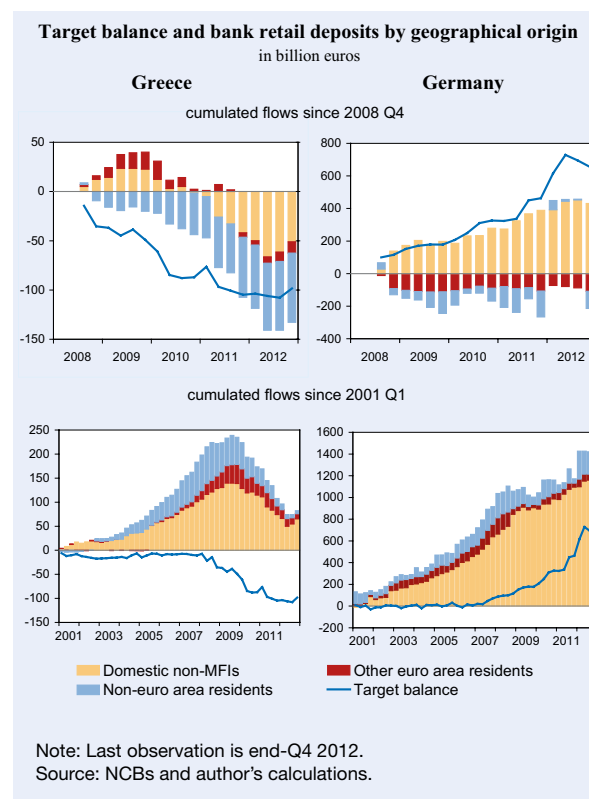
IV.1. Target balances in relation to the funding needs of national banking sectors

Banks that have a Target account at a given NCB essentially fall into the sector of Monetary and Financial Institutions (MFIs) in that country.²⁷ The observations made earlier at the level of NCBs thus allow a macroeconomic interpretation of Target balances. In particular, the provision of Eurosystem liquidity underlying Target balances can be put in perspective with the overall funding of national banking sectors.

This is done in Figure 11 for Spain, Ireland and the euro area, using data on the breakdown of MFI liabilities. A compression of total funding is observed in Ireland – where it was pronounced – but not in Spain or at the euro area level. In Spain, this can be explained by the recourse to central bank liquidity: discounting for this, there was a reduction in funding from non-central bank sources. This is generally the case for crisis-hit countries that faced large net outflows in Target. At the euro area level, a stabilisation in funding from non-central bank sources is observed during the crisis.

A marked reduction in cross-border deposits from abroad is observed (both from 'other euro area' and 'extra euro area' in Figure 11).²⁸ In some of the countries under strain like Ireland and Greece, domestic

Figure 12



deposits also declined, as can be expected from the net payment outflows and the weakening in economic activity. Domestic deposits were more resilient in other countries under strain such as Spain. The cross-border transactions contributed to increased liquidity in the banking systems of the recipient countries. At the euro area level, domestic (aggregated country-level) deposits increased overall, even when discounting for the Eurosystem liquidity injection.

Figure 12 compares developments in the MFI deposits and Target balances since the onset of the financial crisis, in the example of two countries. In Germany, the increase in deposits after the onset of the crisis in October 2008 was of an order of magnitude similar to that of Target claims. In Greece, the same applies for the comparison between the reduction in deposits and Target liabilities. The lower panel of Figure 12 suggests that the crisis largely led to a reversal of the deposit inflows cumulated since 2001 when Greece joined the euro area. (Valuation effects are not accounted for, but at the same time, the deposit inflows are amplified by the financial support to the country in the context of its adjustment programmes.)

The observed reduction in cross-border deposits in crisis-hit countries does not mean that the emergence

²⁷ In particular, subsidiaries of foreign banks do not complicate the analysis or generate any mismatch between banks at the origin of the Target flows and the set of banks belonging to the MFI sector. Subsidiaries of foreign banks have an account at the central bank in the host country and their transactions affect its Target balance. Those subsidiaries are counted as belonging to the country's MFI sector. However, there are banks that have remote access to Target at the NCB in that country (and whose transactions also affect its Target balance, see Annex A) and that do not belong to the national MFI sector.

²⁸ Deposits are – together with money market funds – the only sources of funding (thus on the liability side of the balance sheet for the MFI sector) for which a geographic breakdown is available – see 'Domestic and cross-border positions of euro area monetary financial institutions, excluding the Eurosystem' on the ECB's website: http://www.ecb.int/stats/money/aggregates/cross/html/domestic_cross_border_2011-07.en.html. There is notably no information (yet) on the geographic counterparty of the debt securities issued by the MFI sector.

of Target balances resulted from movements in cross-border deposits themselves. Figure 12 shows that for Germany and Greece there is no matching between the Target balance and cross-border deposits (the sum of the blue and red bars). Financial institutions reduced their cross-border deposits markedly, but the reduction was much less marked for households and firms. Retail deposit shifts are one driver of Target balances, but contrary to some public perceptions, there was no widespread phenomenon of households and firms in crisis-hit countries shifting their bank deposits abroad (or preferring to hold banknotes). In addition, there was no increase in cross-border deposits in countries like Germany that could correspond to their decline in crisis-hit countries. In fact, the cross-border payment flows related to trade in goods and services or the purchase of assets end up in the bank accounts of recipients abroad. Therefore they show up as domestic deposits (the light yellow bars in Figure 12, which increased in Germany), even if they originated from foreign residents.²⁹

IV.2. Target balances in the balance of payments: accounting identities

The previous section analysed the link between Target balances and the cross-border funding of MFIs. Even if cross-border payments are also initiated from sectors other than MFIs – such as households, firms and the government – they are intermediated by the MFI sector. Thus, there must be a relationship between movements in the Target balance and financial flows registered in a country's balance of payments, which lumps together all sectors of a national economy.

This argument holds true even if movements in the Target balance reflect the cross-border payment transactions of a country's banking system in central bank money with banks in other euro area countries, and *a priori* not all the country's payments in all currencies *vis-à-vis* the entire rest of the world. The reason why the relationship still holds is that a euro area country cannot create money in other currencies: for example, if it makes a payment in dollars there must be a compensating inflow in dollars.³⁰ Similarly, agents in non-euro area countries cannot create euros and thus

their position in euro *vis-à-vis* the euro area banking system is balanced.³¹

The relationship between a NCB's Target balance and the country's balance of payments takes as a starting point the following identity over a given period:

$$\text{Current Account} + \text{Financial Account} + \text{Capital Account} + \text{Net errors and omissions} = 0$$

The NCB's Target balance corresponds to a position of the country's central bank *vis-à-vis* the rest of the world. It is thus registered in the country's financial account position, which measures the net financial inflows, specifically within the item 'Other investment', under the sub-item 'Monetary authority'. For a given period, a deteriorating Target balance and thus net Target outflows (in accounting terms equivalent to net inflows from the rest of the Eurosystem) make a positive contribution to the financial account.

For illustrative purposes, a country's financial account can thus be decomposed into its NCB's Target balance (with opposite sign) and the remainder of the account.³²

$$\text{Financial Account} = -\Delta\text{Target balance} + \text{Other Financial Account}$$

In turn, for countries under adjustment programmes one can further isolate the net inflows corresponding to EU/IMF loans, including under the euro area facilities (ESM/EFSF).³³

The remainder of the financial account essentially corresponds to private net inflows³⁴ and respects the following identities:

³¹ Outside a monetary union, central banks would normally not allow one another to hold sizeable balances among themselves or those would be brought back to equilibrium through an adjustment in their foreign exchange reserves. For example, the non-euro area NCBs are obliged to have non-negative balances in Target *vis-à-vis* the ECB.

³² For some countries, such as Germany, the liability net of assets under 'Monetary authority' actually corresponds to the Target balance. For other countries the statistical correspondence is less close. I have chosen here to use the actual Target balance of the central bank for the splitting of the financial account. Such a choice has also been made by King (2012), while Merler and Pisani-Ferry (2012) use the financial account data.

³³ The disbursements from the IMF and the European sovereigns would normally be net of the countries' interest payments and reimbursements, but this would not change the orders of magnitudes. In the case that loans are in the form of ESM/EFSF bonds, they end up in potentially dampening the Target liability for the beneficiary country only if and when they reduce the demand for central bank money. This is, for instance, the case if those bonds end up strengthening the balance sheets of domestic banks, thereby reducing their refinancing needs at the NCB.

³⁴ This is an approximation. As indicated in Annex A, the payment transactions in Target are for the most part initiated by the private sector, but not entirely. In particular, the liquidity provided by NCBs in foreign currency also contributes to Target balances.

²⁹ For example, a household buying an asset abroad may transfer funds to the account of the seller (or temporarily *via* a personal account) at a bank abroad. This will lead to an increase in the statistics on 'domestic deposits' of that bank.

³⁰ This inflow in dollars can come from the country's central bank itself, which was able to obtain dollars *via* the ECB in the context of its currency swap line with the US Federal Reserve during the financial crisis (see Chapter III).

Private Financial Account = Financial account + Δ Target balance - EU/IMF net inflows

Private Financial Account = - [Current Account + Capital Account + Net errors and omissions] + Δ Target balance - EU/IMF net inflows

Annex C shows how the latter identity also allows a now-casting of the private element in the financial account, which could be useful for statistical and monitoring purposes in real time.

The balance of payments identity implies the following for the Target balance, in change and in cumulated flow terms over a time period:

(5)
 Δ Target balance = Current Account + Private Financial Account - EU/IMF net inflows + Capital Account + Net errors and omissions

(6)
 Target balance = Initial Target balance + Σ [Current Account + Private Financial Account - EU/IMF net inflows + Capital Account + Net errors and omissions]

In practice, the current account and the financial account form most of the balance of payments in euro area countries (the capital account balance being small in developed economies). The cumulated sum of the financial account balances over time is analogous to the net international investment position if valuation effects are omitted. It offers a measure of a country's external debt (if positive) or claim on the rest of the world (if negative). In turn, the cumulated sum of the current account balances offers an intuitive measure of a country's competitiveness. Considering it together with the mirroring positive cumulated financial account, the cumulated current account deficit appears as a debt, the financing of which needs to be rolled over in the form of renewed net financial inflows.

The identity in equation (6) makes it possible to put the Target balance into perspective with the cumulated balance of payments accounts of a given country. Turning around the accounting identities further, the (change in the) Target balance can be described more precisely from the perspective of the various types of financial flows. To this end, the financial account is broken down into its subcomponents (equation (7)), including 'Other investment', which is itself broken down further to allow the change in the

Target balance and the official EU-IMF loans to be distinguished. This leads to an identity for the change in the Target balance in equation (8), as follows.

(7)
 Financial account = Direct investment + Portfolio investment + Financial derivatives + Official reserves + Other investment

Other investment = Other private investment - Δ Target balance + EU/IMF net inflows

(8)
 $-\Delta$ Target balance = Financial account - [Direct investment + Portfolio investment + Financial derivatives + Official reserves + Other private investment + EU/IMF net inflows]

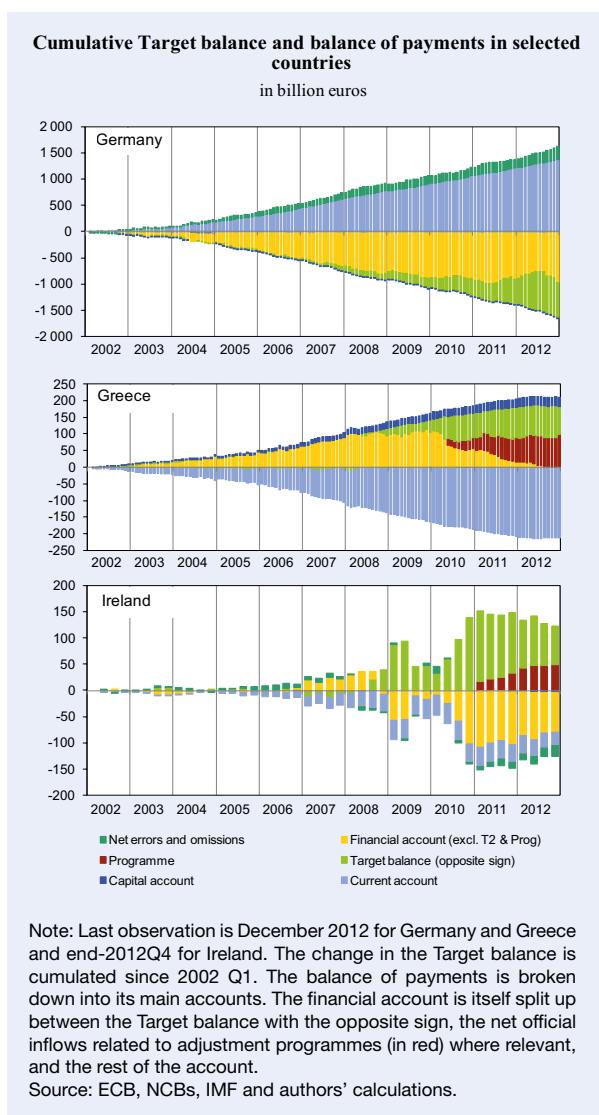
IV.3. The drivers of Target balances through the lens of the balance of payments

In analysing Target balances from a balance of payments perspective, the literature often addresses the issue of whether current accounts or financial flows drive Target balances. Sinn and Wollmershäuser (2012a) show that the Target balance is not necessarily correlated with the cumulated current account balance, as in the case of Ireland.³⁵ They emphasise the reversal of capital flows behind the emergence of Target balances. Tornell and Westermann (2011) also mention a sudden stop in capital flows in that context. Along the same lines, Merler and Pisani-Ferry (2012) and King (2012) describe sudden stops in balance of payments flows and the associated emergence of Target balances. Other authors address the issue by considering empirical correlations or econometric tests for different periods of time, such as Cecchetti, McCauley and McGuire (2012) and Auer (2012).

For the analysis of the drivers of Target balances in this paper econometrics would not add much value to accounting identities. Instead, an original representation of the balances of payments is proposed where the current account and the financial account are treated equally. Since a current account deficit and a financial account surplus usually go hand in hand, there is no reason to focus on one rather than the other when analysing Target balances.

³⁵ In particular in Sinn and Wollmershäuser (2012a), the authors argue that not only the current accounts matter, but also emphasise that in some cases, there was an additional capital flight (Ireland, Spain, Italy) leading, in the context of central bank accommodation of bank liquidity needs, to compensating refinancing and Target balances.

Figure 13



It will be shown that while Target balances appear broadly associated with cumulated current account balances,³⁶ they can grow even larger if the direction of net private financial flows is reversed, as was the case in Ireland. This also implies that the potential for an increase in Target balances is not bound by current account imbalances in the euro area. It is bound instead by the scope of the Eurosystem liquidity support and thus the ECB's decisions to accommodate the liquidity needs of solvent banks, notably through its collateral policies.

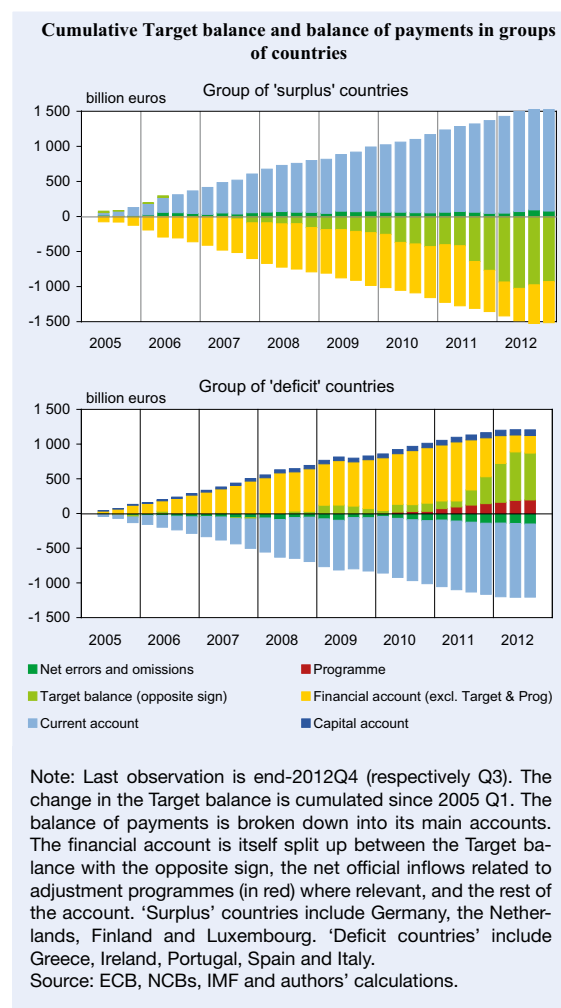
The identity of equation (6) is illustrated in Figure 13 for Germany, Greece and Ireland. The illustrations for

Germany and Greece appear to be broadly the mirror images of one another. The situations in Portugal, Spain and Italy have some similarity to that of Greece as illustrated in Annex C.

During the crisis, the external account of the monetary authority itself – essentially the change in the Target balance with the opposite sign – reflected an increased share of the financial account in many euro area countries. This is also illustrated for country groupings in Figure 14: for the group of countries with cumulated current account deficits and the group of countries with surpluses. The Target balances reached a magnitude comparable to that of the cumulated current account over the past decade.

In addition, the sum of the Target liabilities and the net inflows in the form of official loans (called 'Programme' in Figures 13 and 14) actually substituted for the essential part of the

Figure 14



³⁶ This observation does not mean that the current account surpluses/deficits are *vis-à-vis* the euro area (for instance for Germany the surplus is for the most part *vis-à-vis* the rest of the world). See for instance Lane and Milesi-Ferretti (2010).

private engagements in crisis-hit countries. For Greece for instance, starting from soon after the introduction of the euro, cumulated net private financial inflows appear to have been fully unwound overall since 2002.

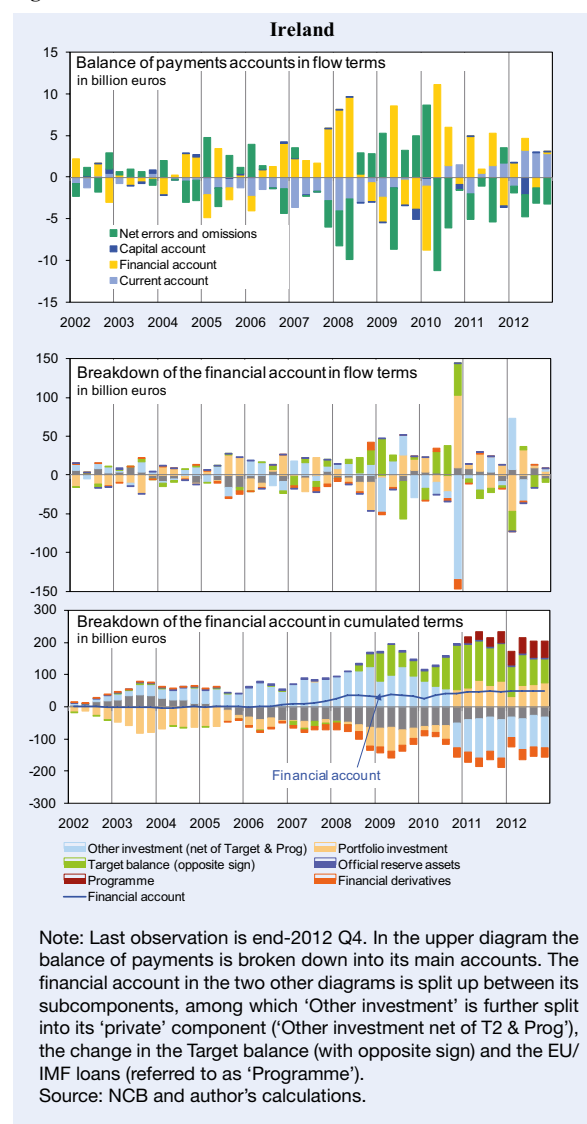
While in most countries the Target balance was of a sign opposite to the rest of the cumulated financial account during the crisis, this was not the case of Ireland (Figure 13). Overall, the private financial inflows into Ireland after the country joined the euro in 1999, and especially in 2006 and 2007, were more than fully unwound in the aftermath of the financial crisis (discounting for inflation when cumulating flows would not change this result). They no longer contributed to the financing of cumulated current account deficits, but turned into net outflows. Thus, beyond covering for the financing of the cumulated current account deficit, which was relatively limited in Ireland, the net inflows in the form of central bank liquidity provision reflected in the Target liability were covering additionally for net private financial outflows, a point also made by Sinn and Wollmershäuser (2011 and 2012a).

The balance of payments identity concerning period-by-period flows captured in equation (5) is also illustrated for Ireland in Figure 15 (upper diagram). In turn, the financial account is broken down into its subcomponents as in equation (8) in flow terms (middle diagram) and in cumulated terms since 2002 (lower diagram).

Financial outflows are observed in specific quarters as early as Q3 of 2008 when the financial crisis hit (Figure 15 on the top).³⁷ The decomposition of the financial account shows that this mainly stems from a net reduction in net portfolio investment inflows (in yellow), which was replaced some time later by a reversal in the direction of flows in the private component of 'Other investment' (in light blue). The latter can be specifically attributed to developments in cross-border interbank loans and deposits. Deposits notably include those from residents abroad in Irish banks, but also from domestic residents that were shifted abroad as seen in Figure 11.

³⁷ However, the relatively large net errors and omissions in the balance of payments statistics for Ireland indicate that caution is required in the interpretation: as a balance sheet item, net errors and omissions have been seen to offset the financial account rather systematically and for large amounts since end-2007 (Figure 15 on the top).

Figure 15



The financial outflows accelerated at the end of 2010 as the sovereign debt crisis struck in Ireland and official support became needed. In line with those developments and given central bank liquidity support to banks, the Target liability of the Central Bank of Ireland widened markedly (in green) and the country started to receive financial support under the EU-IMF programme in early 2011 (in red). More recent developments indicate a decline in the Target liability in 2012, particularly as Ireland benefited from renewed inflows in portfolio investment.

A similar analysis conducted for other crisis-hit countries (respectively the more resilient countries) would show that the rise in Target balances after the outbreak of the sovereign debt crisis was largely related to net outflows (respectively net inflows) in the private

component of ‘Other investment’, notably in relation to the reduction in cross-border positions of MFIs such as interbank loans and deposits. The decline in Target balances in the second half of 2012 was related in particular to a reversal of this movement, as well as to a return of portfolio investment flows to crisis-hit countries.

IV.4. Target balances and the balance of payments adjustments in EMU

The observations in the previous section are now interpreted in the light of the increased intermediation function of the ECB in the crisis. With the financial and sovereign debt crisis, private foreign investors were no longer willing to roll over the financing of the cumulated current account deficits. Foreign and domestic residents also tended to withdraw their investments and deposits from those countries. The monetary authority, as a consequence of the ECB’s decisions to accommodate the liquidity needs of solvent banks in dysfunctional markets, took on a major intermediation function.

The emergence of Target balances within the euro area countries’ balances of payments can be interpreted as the monetary authority having largely substituted for private money flows³⁸ in the financing of the cumulated current account deficits of certain countries or beyond, when financial inflows reversed direction as in the case of Ireland.

Thus, the liabilities of originally private debtors in bilateral relationships reflected in the countries’ positive cumulated financial accounts have been replaced by the Target liabilities of their central banks. Similarly, the claims of private creditors have been replaced by the Target claims of their central banks.

Given that the Target balance is a claim or a liability *vis-à-vis* the ECB, this means that the ECB through its increased intermediation function largely substituted for the bilateral claims and liabilities contracted in the first place between, essentially, private agents, and associated in particular with the countries’ cumulated current account balances.

Those observations can be further interpreted in terms of transfer of risk exposure, as shown in Chapter V.

In fact, one rediscovers here the implications of interconnected economies, especially in monetary union. Whichever balance of payments account is concerned, a persistent and large imbalance indicates a source of vulnerability for the country, and thus for its partners. If the intermediation in the market becomes dysfunctional and the central bank steps in, there can be a transfer of risks associated with such vulnerability to the central monetary authority.

Fundamentally, large imbalances in the various accounts (or any sub-account) of the balance of payments reflect the interconnection, and thereby also the dependence, of a country *vis-à-vis* the outside world. Therefore, they are vulnerable to spill-over effects from adverse developments in other countries, such as in the case of the sovereign debt crisis in the euro area with its potential for reversals in payment flows.

At the same time, while current account balances have been markedly reduced since the onset of the crisis, for several countries under strain they remain in deficit (or in the case of Ireland, the surplus is not sufficient to cover for net financial outflows) and similarly, they remain in large surplus in other euro area countries. Thus, the correction of past imbalances in the current and financial accounts does not appear as strong as may be expected outside a monetary union where the countries’ exchange rate and external accounts could adjust rapidly.

Eurosystem liquidity support as reflected in the associated Target balances – and this is one of the hypotheses of this paper – has helped to smooth the balance of payments adjustments in EMU. Target balances are not a separate mechanism. The Eurosystem liquidity support was given to the normal counterparties in central bank operations, namely banks, to support their liquidity position. In no way was there any aim to provide funds to finance current account imbalances – these are all indirect effects of a monetary policy aimed at maintaining price stability in the euro area.

The ‘shock absorption’ by the central bank is inherent in the construction of a monetary union where, firstly, the payment system ensures the smooth flow of capital in a currency whose value is the same everywhere in the monetary union; and secondly, the central bank takes decisions, within its policy mandate, that contribute to the preservation of the monetary union. To ensure the outreach of monetary policy throughout the area when cross-border financial markets become fragmented, the monetary authority can itself replace

³⁸ ‘Private’ is an approximation. While the financial account flows were mostly of a private origin prior to the crisis, there were also public money flows, for example, related to the structural funds of the European Commission.

private intermediation to some extent and augment liquidity provision.

Without the Eurosystem accommodating the liquidity needs of solvent banks in countries under strain – and in absence of the possibility for exchange rate realignments within a monetary union – disorderly adjustments may have arisen, with adverse implications for the economies, as well as for price stability in the euro area as a whole.³⁹

This is also the case for countries with current account surpluses. Their residents could have incurred disruptive losses on the claims they had previously contracted on debtors in countries now under strain (or may not have been able to smoothly repatriate the funds initially invested there). Surely, they could not have been able to sustain those current account surpluses. The possibility of Target balances emerging thus allowed creditors in surplus countries to continue recovering their claims on foreign debtors, and firms to continue exporting goods and services. Reciprocally, residents in countries under strain could continue to service the domestic and external debts previously contracted, while solvent customers could continue to import goods and services, including those that are vital for production chains.⁴⁰

At the same time, while the resulting stabilisation *via* Target balances offset the sudden lack of private financial flows, the Eurosystem intermediation did not foster a rebalancing in the balance of payments alone. This stabilising action gave time for policymakers to address the underlying causes of the imbalances – the question is whether this time is being used effectively.⁴¹

V. Risks and incentives related to Target balances

It is sometimes argued that NCBs with negative balances should be penalised to the benefit of NCBs with positive balances. This chapter shows reasons why this argumentation is misguided and argues that the best way to obtain a durable reduction in Target balances and the associated financial risks is to address their root causes.

³⁹ The role of Target balances in preventing a disorderly correction of the external balances across the euro area countries has been studied in investment banks – see, for example, Buiter and Rahbari (2012), King (2012) and Schumacher (2011).

⁴⁰ In particular, it could be argued that German businesses should not want the possibility of Target balances emerging to change. Otherwise, euros would no longer flow into Germany from solvent customers in other euro area countries wanting to buy German goods or reimbursing previously contracted debts.

⁴¹ A related time inconsistency problem was pointed out by Tornell and Westermann (2012b).

V.1. Are Target balances risky?

The notion of risks and possibly adverse incentives is omnipresent in the policy discussion of Target balances. The subtitle of Sinn's (2012) book speaks volumes: *The Target Trap – Dangers for Our Money and Our Children* (translated from the original German title). The dangers he sees are the alleged risks of financial losses, financial transfers and adverse incentives created by the Target system. 'Too much money in the window' reduces the incentive for reform and adjustment in countries under strain; this is Sinn's main argument.⁴²

Target balances are not foreseen to be settled. They are booking entries in the balance sheets: for each euro issued in net terms, an NCB automatically generates a claim of the ECB on itself. No settlement at any horizon is attached to that claim, reflecting a principle of confidence within an integrated area. *A priori*, and as argued in particular by Sinn and Wollmershäuser (2011), this can raise issues of financial risks and potential risk transfer from the private sector to the public sector, as well as across countries.

Several authors call for constraints on the system to reduce the perceived risk for central banks and to push countries to correct imbalances and address problems in their banking systems.⁴³

When assessing those financial risks, two key elements need to be recognised. Firstly, the financial risks are associated with the central banks' operations, not with Target balances. Secondly, given income and risk sharing in the Eurosystem, a Target balance does not represent an NCB's financial risk (as long as its country belongs to the Monetary Union).

As regards the first element, Target balances as such are not risky; what is – inevitably – subject to risk are the central banks' operations underlying those balances. Monetary policy implementation is inevitably associated with financial risk because it involves the provision of central bank money against assets or collateral, which – although by Treaty prescription must be 'adequate' to ensure risk protection – can never be as safe as central bank money itself.

⁴² See also for example, Sinn and Wollmershäuser (2012a) and Schlesinger (2012).

⁴³ In relation to this, a law Professor in Munich, Bernd Schünemann, submitted criminal charges against the Deutsche Bundesbank's Board for breach of trust, with possible damage to Germany and the taxpayers in April 2012, based on the criticisms by Sinn and former Bundesbank President Helmut Schlesinger on the Target balances issue (Schünemann, 2012).

In a financial crisis characterised by the overpricing of risk and contagion effects, a central bank can choose to take a certain risk that market participants are no longer willing to take because it is not subject to liquidity risk. As noted by Sinn and Wollmershäuser (2011), with Target balances, “there is a public credit flow that went contrary to market flows”. The central bank can maintain exposure over a longer time horizon than private economic agents, and thereby help avoid worst-case scenarios in financial markets.⁴⁴ Even though the central bank takes risks at that moment, it can eventually make profits on its operations.

The financial risk that a central bank takes is mitigated by a protective risk management framework and buffered through capital and provisions. In outright asset purchases, the risk is one of valuation. In lending operations, the counterparties must be financially sound banks and the operations are collateralised. Adequate collateral is required that is valued at market prices – with daily adjustments to price fluctuations – and additional haircuts are applied. The haircut implies that a bank can only borrow liquidity in a smaller amount than the value of the collateral it provides as a guarantee. The haircut can be up to 30 percent or more for marketable assets with a longer maturity. For non-marketable collateral, it can be even higher. The daily adjustment to price fluctuations implies that if the value of the collateral declines, the bank is immediately required to post additional collateral as a guarantee for its loan.

If a counterparty defaults on its obligation arising from a central bank credit operation, its collateral is seized and at some point sold in the market to mitigate potential losses. In general, if the anticipated cash receipts linked to the collateral are expected to be insufficient to cover the counterparty’s defaulted obligation, then each euro area NCB at the time of default records a provision equal to its share in the total amount of that expected loss (determined in accordance with the ECB’s subscribed capital key). This is in the case of operations conducted as part of the implementation of the single monetary policy. The provisions are reviewed and adjusted accordingly at the end of each financial year. Any residu-

al losses may be offset against the monetary income of the Eurosystem.⁴⁵ Generally speaking, this income is allocated to the euro area NCBs in proportion to their shares in the ECB’s capital.

Residual losses on counterparties would still not necessarily imply actual financial losses. The only way to gauge the residual risks from the overall Eurosystem operations is to assess them against the overall financial buffers of the Eurosystem. Those buffers can be used to absorb losses once a risk has materialised. They are contained in three balance sheet items: capital and reserves, which includes paid-up capital, legal reserves and other reserves; revaluation accounts, which include unrealised gains related to price movements particularly for gold and foreign exchange reserves; and other liabilities that include provisions and profit for the year. As of 1 February 2013, these items stood at 86 billion, 407 billion and 234 billion euros, respectively according to the financial statement of the Eurosystem, which is published weekly. The bank-note issuance on the liability side of its balance sheet can be seen as a further financial buffer as it generates seigniorage revenues for the Eurosystem.

Thus, inevitably, central banks take risk, but they manage and control this risk. Target balances do not represent any risks beyond those arising from the Eurosystem operations, which are managed and controlled so as to limit potential losses.

Turning to the second element, a Target balance does not imply a financial risk for the NCB directly concerned, because income and risk are shared within the Eurosystem. Therefore, the interpretation of the balance sheets of Eurosystem central banks cannot draw on standard accounting practices. The sharing of risk and income is consistent with the equal treatment across the euro area of banks as counterparties: it should make no difference to the calculation of risk at the NCB in which the counterparties participate in the Eurosystem operations. Income- and risk-sharing are thus normal features of an integrated monetary area.

⁴⁴ See, for instance, Cour-Thimann and Winkler (2012) for an interpretation of central banks’ crisis response as reflecting their capacity to act as the ‘ultimate sector’ that can take on risk exposure and manage risk in a conservative way when other sectors are under pressure to deleverage.

⁴⁵ If the loss corresponds to an operation of the ECB itself, it is also shared within the Eurosystem – see the Annual accounts in ECB (2012a): “Profit distribution/allocation of losses: Pursuant to Article 33 of the Statute of the ESCB, up to 20 percent of the net profit [of the ECB] for any year may be transferred to the general reserve fund, subject to a limit equal to 100 percent of the ECB’s capital. The remaining net profit is to be distributed to the euro area NCBs in proportion to their paid-up shares. In the event of a loss incurred by the ECB, the shortfall may be offset against the general reserve fund of the ECB and, if necessary, following a decision by the Governing Council, against the monetary income for the relevant financial year in proportion and up to the amounts allocated to the euro area NCBs [...] in proportion to their paid-up shares in the capital of the ECB”.

Both the residual financial risk and the risk-sharing configuration were consciously accepted by the euro area countries.⁴⁶

Thus, although intra-Eurosystem claims and liabilities appear on the balance sheet of an NCB, the financial risk is shared by the whole Eurosystem. It makes no difference whether a given central bank has a positive or negative Target balance; its risk exposure is always equal to its share in the entire Eurosystem operations outstanding, according to its share in the ECB's capital.⁴⁷

There are nonetheless some credit operations for which the risk is not shared, but borne by the NCB itself. Those operations are by nature temporary and exceptional, and are related to the crisis. This is the case of emergency liquidity assistance⁴⁸ and the provision of liquidity where collateral such as government-guaranteed bank bonds, or the so-called 'additional credit claims' that the ECB's Governing Council decided to make eligible in December 2011, is temporarily allowed.⁴⁹

For the fraction of operations that are not covered by risk-sharing, the relevant NCB would be the one bearing the potential losses. Nevertheless, whether under risk-sharing or not, all the liquidity-providing operations of a given NCB could be considered to imply some risks for the rest of the Eurosystem because the fact that a euro area NCB could end up with negative capital – all the more so in case of a loss on counterparties as the NCB would bear it in full – may still be perceived as a problem for the credibility of the Eurosystem.

Even those observers who acknowledge that Target liabilities are themselves not risky still see them as an indicator of 'risk of fiscal transfers' within EMU. If

Target balances do not represent any additional risks by themselves, the underlying operations do imply a shift of risk exposure from the private sector to the public sector. However, – and this is another hypothesis of this paper – it will be shown that a Target claim may be a sign of a *reduction* in a country's risk exposure (considering the private and public sectors altogether), rather than the contrary.

V.2. A shift in risk exposure from the private to the public sector

As noted by Sinn and Wollmershäuser (2011), with Target balances, "there is a public credit flow that went contrary to market flows". The ECB's increased intermediation function implies a shift of risk exposure from the private sector to the ECB – a risk that is controlled and managed as seen above. The increased concentration of Eurosystem claims on banks in countries under strain, as reflected in the Target liabilities of their NCBs, further implies a concentration of the ECB's risk exposure on those countries. Moreover, the transfer of risk exposure can grow beyond the level of the cumulated current account deficit in the case of a reversal in financial inflows, as seen in Chapter IV. Finally, through the ECB, the risk is transferred to all euro area sovereigns.

The reasoning thus far is similar to that of Sinn and Wollmershäuser (2012a), who pointed out that countries with persistent current account deficits can become a source of risk exposure for the ECB, and thus also for Germany, if the central bank accommodates the liquidity needs of their banks in its lending operations. The authors further argue that crisis-hit countries would be given the possibility to draw on public money without the involvement of Parliaments, as in the case of EFSF/ESM loans. Yet, while Target balances indeed imply a shift of risk exposure from the private to the public sector, they do not involve a fiscal redistribution from the more resilient countries to crisis-hit countries.

Postulating a fiscal redistribution across countries would tend to neglect the fact that the Target flows are essentially initiated by *private* agents and that the conditions at which banks can refinance themselves at the Eurosystem are decided by an independent institution with a public mandate and whose decision-making body is appointed in line with Treaty procedures. There is an additional reason why a perception of fiscal

⁴⁶ In line with Articles 32 and 33 in Protocol No. 4 of the TFEU on the statute of the ESCB and the ECB, monetary income and losses are shared in the Eurosystem. The mechanism governing the allocation of profits and losses among the euro area NCBs is the so-called monetary income-sharing scheme.

⁴⁷ In particular the Deutsche Bundesbank, the Dutch National Bank, the Bank of Finland or the Banque Centrale du Luxembourg provide liquidity to their banking systems in lower proportions than the shares to which their central banks would be involved in the overall loss sharing. Their exposure *vis-à-vis* some other national banking systems is large, as reflected in the large Target liabilities of other NCBs.

⁴⁸ NCBs can, under certain conditions and subject to the guidelines of the ECB's Governing Council, provide temporary emergency credit lines for solvent, but illiquid banks that do not have enough eligible collateral to participate in the monetary policy operations.

⁴⁹ See the ECB press release of 8 December 2011: "the ECB announces measures to support bank lending and money market activity". The additional credit claims are accepted at a number of NCBs, which also decide on the risk control measures applied.

transfer to crisis-hit countries associated with Target balances cannot be correct. Target balances reflect the external funding needs of individual economies only imperfectly, as mentioned in Section II.2. In particular, the underlying transactions may take place within the same banking group or involve non-euro area banks.⁵⁰

Moreover, the reasoning behind the issue of transfer in risk exposure across countries needs to be drawn to its full extent. Closer inspection leads to the conclusion that the risk exposure of countries with large Target claims (considering all their economic agents and not only taxpayers) has not necessarily increased in the process. Fundamentally, it is far from clear-cut that there is a risk transfer from countries with Target liabilities to countries with Target claims. For some items a transfer in the other direction may take place. Buiter *et al.* (2011b), De Grauwe and Ji (2012b), and Buiter and Rahbari (2012) argued along similar lines.

Indeed, the argument that is valid for countries with persistent current account deficits is also valid for countries with persistent financial account deficits (mirroring current account surpluses): there is also a financial risk associated with such deficits that can eventually be transferred to the ECB. To see why, it is worth recalling the nature of the shift that took place as explained in Chapter IV. To start with, private agents in countries with positive net international investment positions (for instance in relation to current account surpluses) held claims on private agents in deficit countries. As those claims were not rolled over and the ECB accommodated the ensuing liquidity needs of solvent banks, Target claims replaced what were essentially private claims with public claims.⁵¹ Thus a Target claim means that the monetary authority substituted for part of the (essentially private) claims on foreign debtors reflected in the cumulated financial account and associated with cumulated current account surpluses. In other words, this means that persistent current account imbalances can also eventually imply a financial risk exposure for the ECB.

V.3. The risk profile may not have deteriorated for countries with Target claims

Most importantly, whereas the country's residents bore the entire risk in the private contractual relationships in the first place, they only bear a fraction of the risk in the Target set-up because risks are shared among the Eurosystem. Indeed, as indicated above, the Target balances are *vis-à-vis* the ECB whose shareholders are the 17 NCBs and *in fine* essentially⁵² their sovereigns. Hence, claims are not solely borne by the individual country itself. They are public claims for which all the euro area central banks, and ultimately the 17 sovereigns, are liable in EMU.

Therefore, it is not evident that for a country like Germany, the financial risk exposure for the country as a whole has risen with the emergence of Target balances. On the contrary, it might well be that for some items, such as in the case that Target claims replaced earlier private sector claims on stressed countries, the risk may actually have fallen. To give a concrete example, the reason for this seemingly paradoxical result is that in the process of emerging Target balances, a claim, say, of a German bank on a Spanish bank, has become a claim of the Bundesbank on the ECB, which, in turn, has a claim on Banco de España. Whereas before, the German bank had borne the risks attached to that claim alone, in the situation of Target balances, the Bundesbank bears only a fraction 27 percent of the risk attached to this claim (which, moreover, is no longer on a Spanish bank, but on Banco de España), and the other parts of the risk have been shifted to other NCBs.

Thus, all the other euro area sovereigns, and behind them, the respective taxpayers, have become exposed to what were originally external bilateral claims by residents in Germany.⁵³ Nevertheless, the example for residents in Germany applies to residents of some other countries as well, even if their NCBs do not exhibit large Target claims. This is for instance the case

⁵⁰ As mentioned, transactions in foreign currency may also inflate Target balances. Moreover, Target balances are only one, albeit large, part of total intra-Eurosystem balances; banknote issuance being the other large item. Banknotes issued are a liability on a central bank's balance sheet. Like for Target balances, within Monetary Union there is no financial risk associated with the banknote issuance of an NCB.

⁵¹ The risk exposure that would be associated with the Target claim is thus offset in part by a decline in the exposure of private domestic residents (such as banks having reduced their cross-border positions on crisis-hit countries), as well as by increased deposits in domestic banks, including from foreign residents.

⁵² The shareholders of the euro area NCBs are their sovereigns, except in the case of the Banque Nationale de Belgique and the Bank of Greece which are listed in the stock market, so that the respective sovereigns are not the sole shareholders. (The rights of the non-sovereign shareholders are, however, restricted for such public institutions.)

⁵³ For instance, parallel to the increase in the Target claim, the balance-of-payments statistics of the Deutsche Bundesbank indicate that between end-2009 and end-November 2012, the claims of MFIs in Germany *vis-à-vis* residents abroad declined for Ireland from 174 billion to 53 billion euros, for Spain from 165 billion to 81 billion euros, for Italy from 122 billion to 86 billion euros, for Greece from 32 billion to 21 billion euros, for Portugal from 29 billion to 12 billion euros, for Cyprus from 7 billion to 1 billion euros. In the meantime, the claims of MFIs in Germany increased *vis-à-vis* residents in France, the Netherlands, Finland and Luxembourg.

of France where financial institutions had taken large claims on residents in crisis-hit countries, so that in net terms the shift of risk exposure across countries' taxpayers may not be that far from the original geographic distribution of the private creditors.

Admittedly though, Sinn (2012a) focuses on taxpayer risk rather than country risk. Indeed the Target balances do show that private investment risks have been shifted from private investors to the taxpayers of the Eurosystem according to the ECB capital key.

As will be seen below, only in an extreme and theoretical scenario of dissolution of the euro area would the risk that was shifted to the ECB through Target be shifted back to those countries with Target claims – and not to the original private contractors, but to all taxpayers through their sovereigns.

V.4. Financial risk in destructive scenarios

Target balances do not entail financial risk in a cohesive monetary union. They would constitute a financial risk if the integrity of the euro area were to be jeopardised. A Target balance would nevertheless represent the *individual* financial risk of an NCB only in the theoretical scenario whereby its respective country were to leave the monetary union.

The event of a country exiting the euro area is not explicitly envisaged in the Treaty. Article 50 only envisages a withdrawal from the EU.⁵⁴ In the theoretical case of an NCB leaving the Eurosystem due to its country exiting the EU, its Target balance would become due immediately. Any NCB leaving the Eurosystem would presumably have to honour its Target liability or would call its Target claim.

However, even in that case, the Target balance is not the correct indicator of the financial risks borne by that individual NCB and its sovereign. To assess the national component of risks associated with Target balances, it is necessary to account for the situation of all other central banks in the Eurosystem, and for the fact that Target balances, although not formally collateralised, reflect central bank operations that are collateralised.

⁵⁴ A country that decides to leave the EU should notify the European Council. The EU shall then “negotiate and conclude an agreement with that State setting out the arrangements for its withdrawal, taking account of the framework for its future relationship with the Union”. This would presumably include provisions on the payment of the Target balance.

If, however, a Target liability came due in a context of large-scale bank failures and financial market turbulence or meltdown, it may take several years for the exiting NCB to recover a substantial portion of the value of its collateral, and in such a scenario the sovereign would also be unlikely to be a backstop for the Target liability. By the same token, in the hypothetical case that an NCB with a Target claim were to leave the system, being honoured on its claim would depend on the capacity of the remaining NCBs to honour their respective shares in that claim.

The theoretical case of an NCB leaving the Eurosystem and being unable to reimburse its Target liability was described by the Deutsche Bundesbank (2011, 50): “should a country with Target liabilities opt to leave the euro area, any claims the ECB might have on the NCB of that country would initially persist in the same amount. If the exiting central bank proved unable to repay its liabilities despite loss-offsetting within the Eurosystem and the collateral available, it would be necessary to devise a solution for the outstanding amount. Only if and when a residual claim was deemed unrecoverable would the ECB actually recognise a loss by virtue of writing it off as a bad debt”. In other words, the ECB would not necessarily need to recognise a loss; the residual Target liability (after a potential recovery of liquidity in central bank credit operations or of collateral) is initially a debt. If and when a loss takes place, it would then be taken off from the asset side of the ECB's balance sheet and compensated, on the liability side, by a reduction in the provisions and, if insufficient, also in the capital. The ECB could then call on its shareholders – that is, the NCBs of the remaining euro area countries – to participate in the loss according to their shares in the ECB's capital.⁵⁵ In sum, it is clear that potential residual losses in a theoretical exit scenario would not be related to the Target positions of individual NCBs remaining in the Eurosystem, only to the position of the central bank that was leaving. Only in a purely theoretical scenario of an entire dissolution of the euro area would the individual Target positions of the

⁵⁵ The quotation continues as follows: “compensation for any losses incurred by the ECB would be decided by the NCBs in their capacity as shareholders on the ECB Governing Council, based on a capital majority. Any participation in the ECB's loss would have the effect of reducing the profits of the NCBs and, for example, in the case of Germany, reduce the Bundesbank's Target claims on the ECB. In reality, the Bundesbank expects monetary union to persist in its present form”. Indeed, such participation would imply an adjustment in the Target balances of central banks commensurate to those shares, as well as lower profits for NCBs. This could entail lower revenues for their sovereigns or, in the extreme case, losses and calls on sovereigns to recapitalise the central banks.

NCBs be a relevant measure of their risk exposure. There seems to be no controversy on such conclusions (see Sinn 2012a and 2012b).⁵⁶

V.5. Are there adverse incentives associated with Target balances?

The perception that Target balances are risky is often associated with the view that they entail adverse incentives for the national economic policymakers. Adverse incentives are argued to arise from the facts that:

- a) Target balances are not settled, in contrast with the internal balances in the Federal Reserve System which are settled once a year;
- b) Target balances are *de facto* not remunerated within a cohesive monetary union; and
- c) the generous liquidity provision underlying Target balances reduces incentives for governments to strengthen their domestic banking systems.

These three arguments should be considered in turn. On the first argument, it will be shown in the next chapter that although the internal balances of the 12 Reserve Banks in the Federal Reserve System are settled annually, a settlement cannot discourage cross-regional flows, as this would be incompatible with the very existence of the currency union. The Fed actually views the settlement of the interdistrict balances as an accounting exercise, with certainly no intention to discourage capital flows between districts and also no such effect.

On the second argument, which relates to remuneration, a real remuneration across NCBs within the Eurosystem was not foreseen because Target balances entail no risk as such in a cohesive monetary union.

First, it is important to recall that the size or distribution of Target balances have no impact on the monetary income of the individual NCBs within the Monetary

Union. Target balances in first instance bear monthly payments at the prevailing marginal interest rate in the main refinancing operations (in full allotment equal to the main refinancing rate). These interest payments flow from NCBs with Target liabilities *via* the ECB to NCBs with Target claims. However, at year-end, when the NCBs pool their monetary income net of expenses in the context of the income-sharing scheme, these interest payments are taken into account and thus offset.⁵⁷ Still, in the context of perceived risk on the cohesion of the Monetary Union, the fact that the Target balances accrue the monthly interest payments might be seen as remunerating such risk.

Second, the NCBs' income on possible credit operations at their own risk is not fully passed on to the Eurosystem despite the fact that they too can give rise to Target balances.⁵⁸ Those two factors generate an apparent mismatch between income and actual financial risk, for NCBs with Target liabilities and, through their exposure, also for NCBs with Target claims.

There could be a third adverse incentive associated with Target balances and the underlying central banks' liquidity operations if generous liquidity provision were to weaken the incentives for national authorities to strengthen the domestic banking system. Even if a bank needs adequate collateral to borrow from the central bank, the decision on whether a bank is financially sound or not – and thus is allowed to borrow – ultimately lies in the hands of the national supervisors. It is in part against this background that the establishment of the European supervisor has been seen as so important (see also Section VII.3).⁵⁹

VI. How the US Federal Reserve System deals with payment imbalances

The possibility for internal balances to emerge among central banks within Monetary Union is at the core of the functioning of a currency union. It also exists

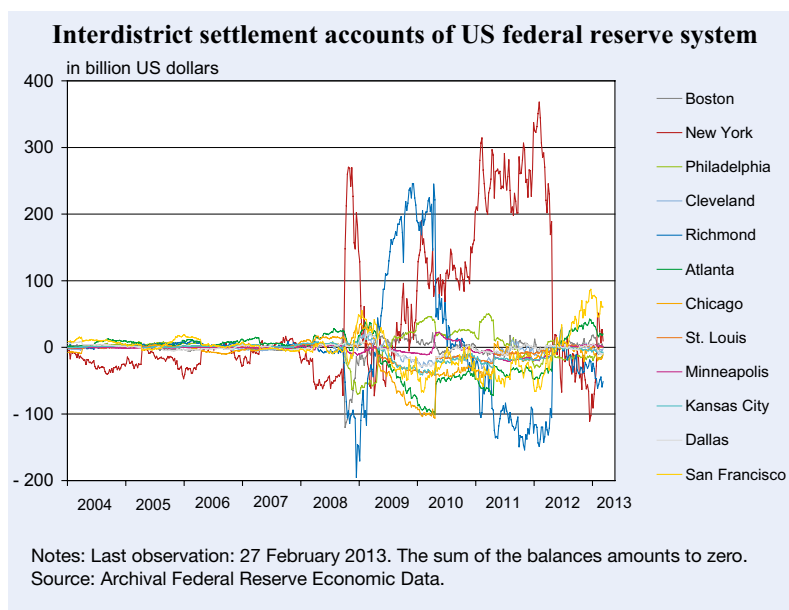
⁵⁶ It is noteworthy in this context that in its announcement to consider a downgrading of Germany, the Netherlands and Luxembourg, Moody's explicitly mentioned the contingent liabilities from the Target balances of their NCBs – See “Moody's Changes the Outlook to Negative on Germany, Netherlands, Luxembourg and Affirms Finland's Aaa Stable Rating”, 23 July 2012, London, http://www.moody.com/research/Moodys-changes-the-outlook-to-negative-on-Germany-Netherlands-Luxembourg-PR_251214?lang=de&cy=ger. The agency writes: “the second and interrelated driver of the change in outlook to negative is the increase in contingent liabilities ... The contingent liabilities stem from bilateral loans, the EFSF, the European Central Bank (ECB) *via* the holdings in the Securities Market Programme (SMP) and the Target 2 balances, and – once established – the European Stability Mechanism (ESM)”.

⁵⁷ The ECB's decision on the allocation of monetary income can be found at: http://www.ecb.int/ecb/legal/pdf/1_03520110209en00170025.pdf.

⁵⁸ In the case of emergency liquidity assistance operations, the risk is borne by the NCB granting it and is not shared by the Eurosystem. The cost is substantially higher than that of Eurosystem facilities, thereby reducing the incentive for counterparties and compensating NCBs to take on additional risk. The income that would correspond to applying the main refinancing rate is pooled in the income-sharing scheme.

⁵⁹ See, for instance, Thimann (2013). Integrated supervision at the euro area level would reduce the difference between claims on domestic banks of a given NCB and Target claims, which reflect claims on banks arising from operations conducted by NCBs elsewhere in the euro area.

Figure 16



in the United States where the central banking system also has a decentralised structure. In this continental economy of roughly comparable size to the euro area, there are internal positions among the 12 Reserve Banks in the 12 districts of the Federal Reserve System.

VI.1. The emergence of large internal positions within the Federal Reserve System

The United States has also experienced persistently asymmetric payment flows between Federal Reserve districts during the crisis.⁶⁰ This makes it interesting to compare the US Fed system of balances with that of Target balances, as do Garber (2010), Sinn and Wollmershäuser (2011 and 2012a), Sinn (2012c and 2012d) and EEAG (2013).

Other similarities with the euro area are striking: in the United States, payment flows had been broadly balanced for a long time before large imbalances emerged as the crisis developed. The magnitudes of these imbalances are comparable to those in the euro area; and some of the 12 regional Feds have tended to be net payers and others net recipients. Yet while Target balances have triggered a heated public debate in Europe, virtually no attention has been paid to internal balances in the United States.

⁶⁰ The Federal Reserve System includes the Federal Reserve Board and 12 Federal Reserve Banks, each covering a US district. This is in some way similar to the Eurosystem, which includes the ECB and 17 National Central Banks. In difference to the euro area countries however, the districts do not correspond to political entities.

Those balance sheet items in the Federal Reserve System are called the Interdistrict Settlement Accounts (ISAs, see Figure 16). As the quasi-equivalent Target balances in the euro area, the ISA balances stem from cross-district payment flows between banks, such as *via* Fedwire and other ancillary systems where positions are settled at the end of the day in central bank money.

Thus, in both the Federal Reserve System and the Eurosystem, the internal balances stem from imbalances in post-crisis payment flows

between commercial banks in different parts of the two currency areas.⁶¹ And the magnitudes can be hundreds of billions of dollars for certain regional Feds, just as they are hundreds of billions of euro for certain NCBs. The daily payments in Fedwire, the main US payment system, are of a similar magnitude to those in Target: 2,500 billion US dollars compared with 2,400 billion euros.

At the same time, like the Eurosystem, the Federal Reserve also increased its provision of central bank liquidity during the crisis. In the United States this was essentially through asset purchases conducted by one Reserve Bank (the New York Fed) on behalf of the whole system. Nevertheless, the result was similar to that in the Eurosystem: the central bank liquidity flowed into the bank accounts of the asset sellers at the various Reserve Banks. Thus, when the New York Fed buys securities the counterparty to those transactions is the market as a whole, and this generates payment flows within the United States. For example, the New York Fed might buy a security from a New York-based primary dealer, but the funds may ultimately land in a deposit account at the San Francisco Reserve Bank if the bank of the seller of the security maintains its Reserve Bank account in San Francisco.^{62 63}

⁶¹ Although the origin of ISA balances is similar to that of Target balances, there is no balance-of-payment data for districts that could be exploited to interpret the imbalances. Nevertheless, the imbalances in cross-district payment flows also reflect the location of banking groups. Banking groups in the United States are required to have one account at one regional Fed in the district where their head office is located, contrary to the case in the euro area where, in theory, banking groups can access liquidity at various NCBs through their subsidiaries.

Figure 17

Stylised balance sheet of a regional Fed with a positive ISA balance

Before settlement		After settlement	
Assets	Liabilities	Assets	Liabilities
Share in asset	Banknotes	Share in asset pool	Banknotes
ISA	CAs and deposits	ISA (remaining)	CAs and deposits
Other	Other	Other	Other

Source: Author's conception.

In sum, it was the difference in cross-district payment flows, combined with the *de facto* distribution of central bank liquidity throughout the US districts that, as in the euro area, generated balances among the Reserve banks.

VI.2. The annual settlement of internal balances in the Federal Reserve System

In contrast with the Eurosystem, the internal balances in the Federal Reserve System are settled – at least partially – once a year against the assets held in common by the system. The settlement implies an adjustment of the shares of the regional Feds in the common pool of securities holdings managed by the New York Fed on behalf of all twelve for monetary policy purposes. This common pool of securities results from the conduct of monetary policy, which mainly consists of buying and selling securities in outright open market operations. It is referred to as the System Open Market Account (SOMA).

The annual settlement consists in converting (part of) the non-interest-bearing interdistrict balances into shares in holdings of interest-earning securities, whereby the regional Feds with a negative balance reduce their shares in the SOMA to the benefit of regional Feds with a positive balance.⁶⁴

⁶² The positive ISA balance for the New York Fed in the financial crisis may be explained by the relative concentration in the New York district of the origination of assets that are purchased by the US Federal Reserve.

⁶³ In addition, and although those are not considered as monetary policy operations and are of a small extent relative to the outright transactions conducted by the New York Fed, the Reserve Banks can lend to commercial banks that maintain an account with them. Depending on the use of the loan, this can also generate cross-district flows in Fedwire and thus contribute to the ISAs.

The conversion results in a reallocation of future profits and losses between the regional Feds as the earnings on security holdings are distributed to the regional Feds based on their adjusted shares.⁶⁵ In this process, the ISA balances are brought back to more neutral positions once a year (see Figure 17).⁶⁶ Since the average of the ISA balances over the previous 12 months is considered in the adjustment, the new positions after adjustment are not necessarily zero (see Meltzer

2004 and 2010). For instance, contrary to what is sometimes argued in the literature on this topic, settlement took place as usual in April 2011 (see Annex D).

Interestingly, if no such settlement had been taking place, the cumulative balances over the years since the beginning of the crisis would have amounted to very similar levels in the United States as in the euro area (see Figure 18). In particular, the New York Fed would be in a position broadly similar to that of the Deutsche Bundesbank in the Eurosystem.

VI.3. Why the US Fed settlement system cannot be applied to the euro area

So why are internal balances settled in the United States? Could they be settled in the euro area? And if so, what difference would that make?

⁶⁴ In fact, the ISA is settled against gold certificates during the reallocation process, but then gold certificates are immediately reallocated again based on the currency liability of the regional Fed. That is, the holdings of gold certificates of each regional Fed are adjusted to keep them in a certain proportion to the amount of Federal Reserve Notes (banknotes) issued by that regional Fed during the year. That proportion is the ratio between banknotes and gold certificates holdings computed at the aggregate level of the 12 regional Feds. The adjustment in the holdings of gold certificates is offset by an adjustment in the SOMA shares. In substance, the sum of the ISA balance plus the regional Fed's under-proportionate issuance of banknotes (or minus the over-proportionate issuance) is used to adjust the SOMA holdings by an equivalent amount. What is considered for settlement in the United States is thus the equivalent of the intra-Eurosystem balances in the euro area, which mainly consist of Target balances, but also of balances related to the uneven allocation of banknote issuance.

⁶⁵ The assets, liabilities and earnings of the SOMA are distributed to each of the 12 regional Feds in their balance sheets. Contrary to the case of the ECB's capital key determining the income of NCBs in the Eurosystem, the shares in the SOMA are not a fixed weight related to GDP and population given their annual adjustment in function of the ISAs.

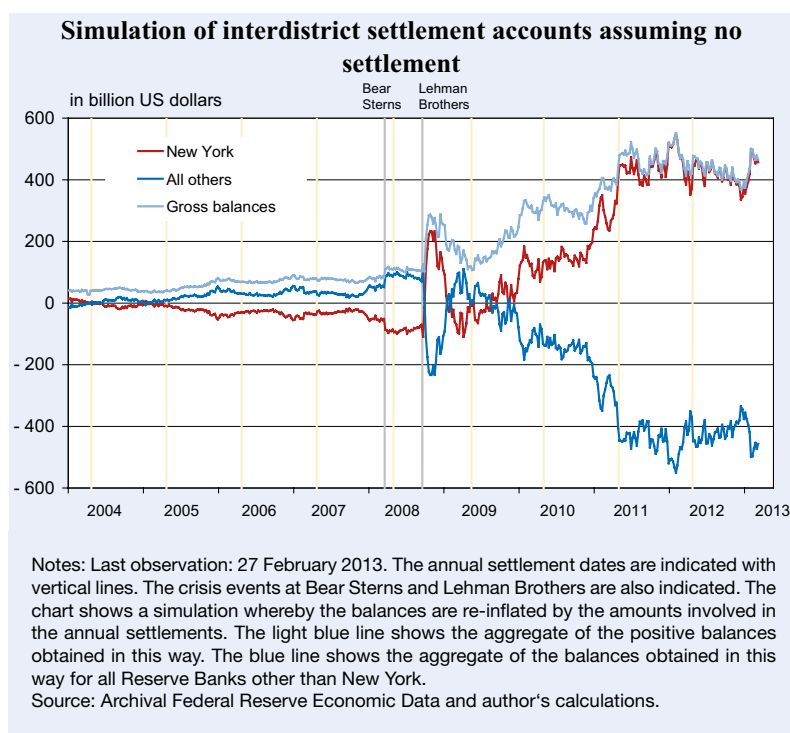
⁶⁶ This description of the annual settlement is similar to that of Sinn and Wollmershäuser (2012a).

The US settlement system stems from the way in which monetary policy operating procedures were conducted during the inter-war period. It is a legacy of the gold standard, where every dollar flowing to another part of the country in net had to be backed by an asset which would then be moved in parallel to the regional Fed in that other part of the country. This no longer happens on the same day as in the past, but it still means that once a year the internal balances are reset.

Three differences explain why such a settlement form cannot be applied to the euro area. Firstly, in the United States, the net income of the regional Feds goes to the single federal government (the US Treasury),⁶⁷ whereas in the euro area, 17 different governments receive the central banks' net income. Secondly, in the Federal Reserve System, the implementation of monetary policy is conducted on behalf of the system by one Reserve Bank. In the euro area, all 17 NCBs implement monetary policy by engaging in refinancing operations with the commercial banks based in their country. Thirdly, the US monetary policy is predominantly implemented through purchases and sales of securities. In the euro area, the bulk of implementation occurs through repurchase operations – time-limited lending against collateral.

So the euro area does not start from a single pool of assets owned by the system that could be easily shifted among NCBs. Moreover, assets essentially are pure claims on the commercial banks: the NCBs do not own securities nor do they own the collateral underlying the claims. Shifting claims that derive from contractual relationships with NCBs, even if they are acting on behalf of the Eurosystem, would raise

Figure 18



considerable legal issues. The same is true for shifting collateral attached to such claims.⁶⁸

Most importantly, such a settlement system would not change anything in terms of the allocation of income. Income is not distributed in relation to the volume of operations undertaken by each NCB. It is distributed according to the ECB's capital key and thus the weight of each country in the euro area in terms of its GDP and population.

Nevertheless, some critics of the euro area system look to the US experience as an exemplary solution. They argue that the adoption of the US Fed settlement system would reduce the incentives for NCBs to let Target liabilities emerge on the back of generous provision of central bank money that, in their view, is not adequately securitised, and thus prevent "huge capital flows [from running] through the Target system".⁶⁹

The authors who argue for adopting the US settlement system actually focus on an *indirect* way in which

⁶⁷ The fact that the net income is allocated first to the regional Feds creates no incentive effect as regards avoiding a negative ISA balance. This is the case even if the regional Feds are owned by the private commercial banks in their districts whom they remunerate: such remuneration is fixed. Indeed, the commercial banks pay in a fixed share of capital (they are required to purchase shares issued by the regional Fed equal in value to 6 percent of their capital) on which they receive a fixed income. The Reserve Bank has no say on the amount of reserves of the individual banks, nor on the ratio for the paid-in capital or its remuneration, which are both fixed.

⁶⁸ Those issues will be elaborated in Section VIII.2.

⁶⁹ See Sinn and Wollmershäuser (2011a): "the Eurosystem should adopt the rules prevailing in the USA, according to which the Target debt has to be settled once a year with the transfer of marketable assets. Otherwise, huge capital flows will run through the Target system again and again, pushing the Eurosystem to its limits and creating political situations like that in which the European Union and the euro in particular find themselves today. We cannot imagine that the European idea would survive this unscathed" (see also EEAG 2012 and 2013).

settlement can be penalising. Their core reasoning is to affect incentives in the demand for central bank liquidity.⁷⁰ (Options to adjust the provision of central bank liquidity and other options to address Target balances are discussed in the next chapter.)

However, seeking to penalise capital flows *directly* by means of a settlement system would be in contradiction with a currency union. But interpreting the underlying logic of the US system in this way is not correct. Firstly, the US system of settlement is not meant to penalise regional Feds with negative balances. While there were initially practical constraints to the system (interpreted above as an apparent legacy of the gold standard), the settlement now is, rather, an accounting exercise within a politically integrated area. As mentioned, the districts do not even correspond to geographical borders of political entities in the United States.⁷¹ Secondly, the US system is not intended to discourage internal capital flows and it has no such effect. Doing so would be inconsistent with an integrated currency area. Large imbalanced capital flows within the US districts in the early 1930s actually led to fundamental institutional changes in the US (see Section VI.4), but not to new arrangements that would have been designed to discourage internal capital flows.

Indeed, if settlement were intended to penalise, one regional Fed might penalise its local banks from moving dollars out so as to limit the size of the ensuing internal balance that it would have to settle.⁷² As a result, the dollar deposits at that regional Fed would be of a lower value than elsewhere – this is impossible in a currency union. A dollar deposited in San Francisco cannot have a different value to a dollar deposited in New York. Equally, a euro deposited at the central bank in Dublin must have the same fungibility as a euro deposited at the central bank in Frankfurt. So, even if there were a settlement mechanism in the

Eurosystem, it would not and could not be designed in a way that discourages capital flows within the euro area. The settlement system is by no means intended to discourage capital flows across districts.

In fact, were a regional Fed not to have sufficient means to settle its ISA balance (that is, settlement would imply a negative share in the SOMA), one could imagine that this would not be an issue, or that it would be remedied in some fashion. For example, the Federal Reserve Board could use its powers under Section 16.14 of the Federal Reserve Act on ‘Transfer of Funds among Federal Reserve Banks’, which offers some degree of discretion.⁷³ In fact, this is what makes the internal balances within a currency union different to the inter-central bank loans under the gold standard.⁷⁴

Chapter VII will return to the issue of adjusting Target balances and review possible mechanisms to do so, including those inspired from the settlement of internal balances in the Federal Reserve System.

VI.4. The 1933 crisis, Fed imbalances and banking legislation

The cumulative positive ISA balance for the New York Fed during the recent crisis remains benign today, but this would not have been the case in the context of the 1930s. In fact, the 1933 financial crisis was accompanied by the build-up of large imbalances between the regional Feds, not dissimilar to the situation in the Eurosystem today.

The imbalances were signs of a lack of confidence in certain parts of the US banking sector. Massive deposit flights out of small banks in the countryside, which were perceived as weak, and into larger banks in the cities led to large increases in the reserves held at the New York Fed and the Chicago Fed (in the Michigan office), while they were depleted in other parts of the United States.

⁷⁰ For instance, if NCBs were to provide central bank liquidity at less accommodative conditions, the cost of money and thus market interest rates would rise in the respective countries, which would raise incentives for private capital to flow in and thus lead to more balanced Target positions – albeit this would likely not be the case in crisis times as argued in Chapter VII.

⁷¹ The boundaries of the Fed districts do not correspond to those of US States, but were based on the distribution of population and banking when the Federal Reserve System was established in 1913, and on political forces in that year. There is thus no balance of payment data that could be exploited to interpret the imbalances. A district can encompass several States or parts of States. For instance, the San Francisco Reserve Bank of the 12th district serves member banks in Alaska and Hawaii; while the State of Missouri is included in two different districts.

⁷² This is already impossible. There is no way for a Reserve Bank to protect its deposits from flowing to another Reserve Bank since their districts do not relate to a sovereign entity that could take such a decision.

⁷³ Section 16.14: “the Board of Governors of the Federal Reserve System shall make and promulgate from time to time regulations governing the transfer of funds and charges therefor among Federal reserve banks and their branches, and may at its discretion exercise the functions of a clearing house for such Federal reserve banks, or may designate a Federal reserve bank to exercise such functions, and may also require each such bank to exercise the functions of a clearing house for depository institutions” – see <http://www.federalreserve.gov/aboutthefed/section16.htm>.

⁷⁴ See in particular Bindseil and Winkler (2012): the unwillingness of the Federal Reserve and the Banque de France to extend further a loan to the Reichsbank in 1931 was due to, and also contributed to, high financial distress in Germany.

At the peak of the crisis at the end of February and early March 1933, the deposit flights were combined with large increases in gold withdrawals. Driving forces were both domestic hoarding and gold exports, given a loss of confidence in the prospective convertibility of the currency. The pressure on the banking sector became no longer contained to weaker banks in scattered sections of the country, but also affected the financial centres and spread to the country as a whole.

The resolution of the crisis involved restrictions on deposit withdrawals, the suspension of gold payments (and later a rescaling of the gold to dollar ratio under the gold standard) and bank holidays. At the same time, measures were taken to accommodate the liquidity needs of banks and to alleviate constraints on their reserve holdings. In particular, the regional Feds were given increased power in 1932 to purchase government securities in the open market. For a limited period government securities were accepted as collateral for Federal Reserve Notes, which helped to provide banks with additional reserve funds.

The ECB's decision to accommodate bank liquidity needs opens an interesting parallel with the US Fed experience. The assessment of the Federal Reserve Board in its annual report for 1933 uses some notions applied to the euro area today: "the ability of the Federal Reserve banks to meet enormous demands for currency during the crisis demonstrated that [...] the crisis of February and March 1933 was not a currency crisis but a banking crisis, and was occasioned not by a shortage of currency but by loss of confidence in the solvency of banks and by a depreciation in bank assets" (Federal Reserve Board 1934).

There is another way in which the 1933 crisis recalls issues discussed in the euro area today, and this relates to the significant institutional changes implemented as an outcome of the crisis. In the United States, important banking legislation was enacted, the elements of which are also found in plans for a euro area banking union today: supervision, resolution and deposit insurance schemes (see Section VII.3).

The Banking Act of 1933 included provisions imposing many new responsibilities on the regional Feds and the Federal Reserve Board in the field of bank regulation. At the same time, "the act provided for a plan for insuring deposits up to 2,500 US dollars for any depositor in any participating bank, to become effective at the end of the year [...]. The Federal Reserve banks were required to invest an amount equal to one half of their surplus in stock of the Federal Deposit Insurance Corporation (FDIC)".

Interestingly, the relationships within the central banking system itself were also changed, with stronger control of the regional Feds by the centre. In the light of this experience, it is no surprise that the increasing imbalances in payment flows between banking systems in different parts of the euro area during the current crisis have evoked proposals to change the relationships within the Eurosystem and deal with Target balances.

VII. Options for dealing with Target balances

Obviously, the Target balances would not be perceived as posing risks of fiscal transfer across countries if they were of a limited size or if the risk associated with the central bank operations were ultimately borne at the national level. The perception of financial risks has led to proposals for addressing the Target balances. There is a range of theoretically possible options for dealing with Target balances. This paper reviews all such options, for the sake of completeness and to show their limitations.

Nevertheless, measures aimed directly at reducing the risks associated with Target balances, for instance, either by suspending risk-sharing or by discouraging capital flows, are not considered among the options because they are not compatible with an integrated currency area. Restricting Target flows would be in contradiction with the fundamental principle of free movement of capital in the European Union. (Critics of the euro area system do not advocate such restrictions; they rather want to restrict the possibilities for local money creation to replace private capital inflows.) Similarly, discouraging Target liabilities in a way that would encourage some substitution between electronic payments (in Target) and cash payments (with banknotes) is not an option. In fact, the ensuing need for a measure to additionally discourage the extra issuance of banknotes could, itself, precipitate a confidence crisis and thus deposit withdrawals that would aggravate banking sector strains and lead to even greater Target imbalances.

As shown below, many of the other options reviewed would require fundamental changes, which may not be feasible within the prevailing statutory setting and which may also not be desirable from a policy perspective. Other options appear difficult to implement in practice. Ultimately, the review fundamentally underscores the *raison d'être* of Target in a monetary union. It also shows why the best way to deal with these balances is to address them at their root causes.

This paper classifies the various options of dealing with Target balances into three categories: (i) measures that would avoid Target balances or prevent their large increase; (ii) measures to deal with Target balances once they have arisen; and (iii) measures to address the root causes of Target balances. The overview of the theoretically possible options is the following.

Measures that would avoid Target balances or prevent their large increase

Option 1: Centralise monetary policy at the ECB. This could concern the implementation of monetary policy in general or the use of centralised instruments such as ECB debt certificates.

Option 2: Tightening the conditions in central bank liquidity provision. This would reduce liquidity provision and thereby the scope for large Target balances. There are *a priori* several ways to do so: suspending full allotment in liquidity operations, raising collateral standards, establishing surcharges for liquidity provision above certain thresholds, or reducing the share of operations under risk-sharing above certain thresholds to discourage liquidity provision.

Measures to deal with Target balances once they have arisen – through transfers

Option 3: Transfer assets held outright from NCBs with Target liabilities to NCBs with Target claims. This would allow a settlement of Target balances as proposed by Sinn and Wollmershäuser (2011 and 2012a). The assets could be high-quality assets held by NCBs that are sufficiently homogenous across the euro area or standard euro area assets created for the purpose of allowing such transfer, as suggested by EEAG (2012).

Option 4: Transfer claims on credit institutions. This would consist in shifting the claims (not the collateral underlying them) across NCBs. Claims could arise from the implementation of the single monetary policy or from special operations.

Option 5: Transfer collateral underlying credit operations. This could be either the collateral associated with the implementation of the single monetary policy; or also the collateral in other credit operations, such as emergency liquidity assistance and operations involving additional credit claims.

Measures to deal with Target balances once they have arisen – through changes in income allocation

Option 6: Adjust the ECB's capital key in function of Target balances. This would reduce monetary income for NCBs with Target liabilities to the benefit of those with Target claims.

Option 7: Allocate monetary income to a specific euro area budget. If NCBs and thereby their sovereigns were no longer the recipients of monetary income, the perception of adverse incentives in operations underlying Target balances would be reduced.

Option 8: Adjust the income-sharing scheme. One way would be to apply interest surcharges as proposed by Schlesinger (2012) and not to pool interest payments on Target balances in the income-sharing scheme; another way would be to share income not only deriving from the implementation of the single monetary policy, but also from special operations outside this framework.

Option 9: Increase financial buffers for NCBs with Target liabilities. Such increases could be calibrated in proportion to the provision of overall liquidity or of liquidity outside the framework of the single monetary policy.

Measures to strengthen the policy framework of EMU

Option 10: Strengthen economic policy conduct in countries under strain, re-establish trust in the interbank market and improve the institutional framework of EMU. Measures include fiscal adjustment to strengthen debt sustainability, the implementation of structural reforms enhancing competitiveness and changes in the institutional arrangements of EMU towards a more cohesive and stability-oriented framework.

These three sets of options are discussed below and illustrated in Table 1.

VII.1. Options to limit Target balances *ex ante*

This section analyses measures to limit Target balances *ex ante* – those that may contain their emergence in the first place. Starting with measures to centralise monetary policy (Option 1), centralised implementation at the ECB would imply the disappearance of intra-Eurosystem balances. However, it is not realistic in a multi-country context that NCBs become branches

of the ECB, or, at the extreme, that the euro area banks have their accounts at the ECB itself. Even if outright operations were centralised at one central bank (as in the case of the United States where those are conducted by only one entity, the New York Reserve Bank), or if the euro area were to become a federal union, when banks maintain their accounts at regional central banks the internal balances do not disappear. The balances could be disconnected from national concerns in a federal union only if the regional central banks were not to match national boundaries (similarly to the US case where the boundaries of the Fed districts do not correspond to those of States), but such a configuration is difficult to imagine in the euro area.

There are other, less intrusive ways to centralise monetary policy, such as by making use of centralised instruments. For example, if for monetary policy purposes the ECB were to issue debt certificates to absorb excess liquidity, cash-rich banks could purchase those debt certificates instead of depositing liquidity surpluses at their NCB (where they create a Target claim). This would generate new claims of the ECB *vis-à-vis* the NCBs whose banking systems are cash-rich. In theory these new claims could then be offset against the existing claims and liabilities in Target by designing the operation in a way that would generate Target flows to the ECB from those cash-rich NCBs.

In this process, the Target claims of cash-rich NCBs would end up being transferred to the ECB's balance sheet. The balance sheets of those NCBs would shrink on the liability side to the extent of the reduction in the deposits of banks having bought the debt certificates and on the asset side by the corresponding reduction in the Target claim.

At the same time, the claims would be moved from public to private hands: the commercial banks having

bought the debt certificates would now own the claims on the ECB instead of the NCBs holding the original claims in Target. Those NCBs would still bear their capital share of the Eurosystem monetary policy operations underlying the Target liabilities in the crisis-hit countries. However, the tail risk associated with the extreme scenario of a euro area dissolution would be reduced for those NCBs as their risk exposure would have been shifted to private residents.

Other than by centralising monetary policy, the emergence of Target balances could be contained by adjusting the provision of liquidity (Option 2). There are, in principle, three ways of doing so:

- i) by suspending full allotment in the provision of liquidity or providing incentives to reduce the provision of liquidity;
- ii) by increasing the quality standards for eligible collateral *ex ante*; or

Table 1

Illustrative assessment of theoretical options to address Target balances

	In line with monetary policy...			Reduces NCBs' Target balances	Reduces adverse incentives	Reduces financial risk for Target claim countries	
	current setup?	stance ?	in a union?			direct effect	total effect
1. Ex ante measures to limit Target balances							
Centralise monetary policy							
... implementation at the ECB (1)							
... instruments (e.g. debt certificates issuance) (1)							
Keep decentralised implementation but:							
Suspend full allotment in liquidity provision (2)							
Tighten collateral requirements (2)							
Thresholds/surcharges on liquidity provision (2)							
2. Ex post measures on Target balances as they have arisen							
Transfer assets of NCBs with Target liabilities							
Transfer assets held outright, for settlement (3)							
Transfer claims on banks (4)							
Transfer collateral pledged by banks (5)							
Adjust the allocation of monetary income							
Adjust ECB capital key to Target balances (6)							
Transfer income to a central euro area entity (7)							
Apply interest surcharges to Target balances(8)							
Suspend interest pooling on Target balances(8)							
Pool also income from special operations (8)							
Raise financial buffers for Target liabilities (9)							
3. Measures addressing root causes of Target balances							
Address the roots of market segmentation							
Address dysfunctions in financial markets (10)							
Strengthen public debt sustainability (10)							
Enhance competitiveness through reforms (10)							
Strengthen the singleness of monetary policy							
Integrate banking supervision (10)							
Integrate banking resolution (10)							
Re-establish confidence in interbank market (10)							

Notes: A cell in green indicates a positive answer; in red, a negative one; in white, a neutral effect; in yellow, that the effect is uncertain or the answer depends on the measure's design (for example, on the associated conditionality, the issue whether equal treatment of counterparties is respected, etc.). The correspondence with the options listed above is indicated with a figure in parentheses. In the second to fourth columns the measures are assessed according to their compatibility with the current setup of monetary policy (decentralised implementation), the monetary policy stance (geared towards maintaining price stability), and the single monetary policy for an integrated area (where banks are treated equally and disincentives to liquidity provision at the level of certain NCBs have no place). The total effect in the last column accounts for indirect, or delayed effects. Source: Author's conception.

iii) by penalising liquidity demand above certain thresholds;

The first and second ways are clearly difficult to achieve in an environment of financial crisis where large liquidity provision is needed and the quality of collateral is stressed. Considering them as options would imply questioning the appropriateness of the liquidity and collateral policies of the ECB. Certain observers do so, and ultimately the issue is one of judgement: central banks take decisions that they find most appropriate to fulfil their mandate on the basis of their assessment of the situation. In any case, the ECB's monetary policy decisions are aimed at maintaining price stability and cannot be guided by an aim to address Target balances.

The third way consists of addressing Target balances by penalising excessive liquidity demand, either by individual banks or at the level of NCBs. One form of penalisation could be to apply interest surcharges in the provision of liquidity above certain thresholds, defined at the level of individual banks or of NCBs.⁷⁵ This form was discussed by Bindseil and Winkler (2012).⁷⁶ For instance, at the level of individual banks, to prevent the build-up of Target imbalances in the future and once the access of banks to funding markets has been restored, banks could, in theory, be charged more for large reliance on central bank liquidity.⁷⁷

Another, more indirect, form of penalisation of excessive liquidity demand is in theory to reduce the part of operations which is under risk-sharing above certain thresholds. This would increase uncertainty as to the extent of the future monetary income and thus could possibly act as an incentive for the sovereign and the regulator to better tackle problems in the domestic banking system. However, it would be illusionary to think that Eurosystem risk could be isolated from the refinancing operations of a certain NCB.^{78 79}

In any case, it is argued here that both direct and indirect forms of penalisation of excessive liquidity demand could only be imagined at the level of the counterparties (or consolidated banking groups) in the central bank operations. The criteria of overreliance on central bank funding would need to be homogeneous throughout the euro area. Penalisation cannot be considered at the level of a national banking system as this would otherwise introduce a national focus in monetary policy implementation.⁸⁰ Other authors would challenge this view and argue for penalisation at the national level on the ground that this would be consistent with equal treatment of national banking systems (see Schlesinger 2012; Sinn and Wollmershäuser 2011 and 2012; EAAG 2012 and 2013). They would argue that a national banking system could be penalised for issuing more money than is needed at the aggregate national level for internal circulation.⁸¹

By contrast, it is argued here that the singleness of monetary policy requires the equal treatment of *banks*, whichever their jurisdiction, throughout the euro area. This is in this respect that the point 'a euro is a euro' is made in this paper: it is because its value or price cannot be made dependent on the jurisdiction of the NCB from which it is issued.

In turn, the fact that restrictive conditions can *a priori* only be applied at the level of the counterparties makes this a less effective tool to address Target balances than if they could have been applied at the level of specific NCBs. Indeed in that hypothetical case, the

⁷⁵ As seen in Section V.1, reducing the scope of risk-sharing makes the NCB's balance sheet more vulnerable to an idiosyncratic shock such as a large-scale failure in its banking system, with spillover effects for the credibility of the Eurosystem. In addition, increasing the part of operations that are at the NCB's own risk does not change its Target balance and thus the associated tail risk in destructive scenarios for the integrity of the euro area.

⁷⁶ A further way to exert such pressure on the sovereign and thereby reduce risks for the whole Eurosystem would *a priori* be to seek *ex ante* from the government a guarantee for the risk taken in the NCB's operations above certain thresholds of liquidity provision to individual counterparties. This could actually be counterproductive if seeking protection from a sovereign with weak public finances aggravates its situation and possibly precipitates self-fulfilling dynamics, thereby fuelling Target balances further.

⁷⁷ To some extent, the proposal of De Grauwe and Ji (2012a) whereby the Deutsche Bundesbank would, in case of a break-up, restrict the conversion of euro into marks to German residents, also implies a renationalisation of monetary policy at the time that such measure would be announced. The authors see this measure as a way to limit the emergence of Target balances *ex ante* if depositors knowing this would not shift deposits out of countries under strain to Germany to gain protection against redenomination risk. However, another problem with such measure is that it would not address the source of redenomination risk perception itself and may aggravate it and instead drive Target balances up.

⁷⁸ The authors also claim that charging a higher cost of central bank money for crisis-hit countries would have a rebalancing effect on Target balances as higher market interest rates would attract capital from abroad. This would mean, however, that monetary policy was tightened for banks in countries under strain, which would be an inappropriate monetary policy stance. Such a tightening would also raise risk premia in market interest rates and not attract, but rather discourage capital inflows.

⁷⁵ The proposal of Schlesinger (2012) to apply interest surcharges on Target balances themselves will be discussed as part of the options to address Target balances *ex post*.

⁷⁶ The authors note: "if borrowing were to exceed proportional borrowing by more than say 100 percent, then a surcharge of e.g. 0.5 percentage points could apply, and for each additional 100 percentage points of over-proportionality, the surcharge would increase linearly. The extra income [...] would have to be shared within the system of central banks". Proportional borrowing could be understood here as relative to the size of the bank or the country's banking system or to the NCB's share in the ECB's capital. To the extent that Target liabilities reflect excess borrowing of the banking systems, the measure would be similar to applying interest surcharges on a banking system depending on the country's Target liability.

⁷⁷ *De facto*, individual banks would in any case be charged more for large reliance on central bank liquidity when access to funding markets is restored. This is because the tender procedures for the provision of central bank liquidity would be changed from fixed rate full allotment back to competitive auctions. Individual banks would have to bid higher interest rates to obtain large amounts of central bank liquidity, but would then find funding at better conditions in the market.

conditions of liquidity provision could have been calibrated in such way that NCBs provide liquidity to their national banking systems only to the extent of their 'national' funding needs. There would be no provision of liquidity beyond those needs that would be available for flowing out through Target. Even without such calibration, the mere presence of restrictive conditions would probably have led banks to adjust their location policy and funding behaviour within the euro area in a way that would have led to an effective reduction in Target balances.⁸² This also means reduced shift of risk exposure from private investors to taxpayers through Target balances. If restrictive conditions on liquidity provision are instead applied at the level of counterparties (or banking groups), this has no effect on their location policy and funding behaviour within the euro area.

In sum, among the measures reviewed to deal with Target balances *ex ante* by discouraging their emergence, some are not compatible with the ECB's mandate for the single currency area. They would imply introducing other policy objectives next to the ECB's primary objective of price stability (if one assumes the prevailing liquidity and collateral policies of the ECB to be appropriate for its mandate) and/or involve introducing a renationalisation of monetary policy. Other measures, such as the penalisation of excessive reliance on central bank funding at the level of counterparties would have some merit but be difficult to implement in practice in a crisis when liquidity conditions are stressed.

VII.2. Options to address Target balances *ex post*

Options to address Target balances *ex post* involve either a transfer of assets (Options 3 to 5) or a change in the allocation of monetary income (Options 6 to 9). As this section will argue, most of those measures are essentially unfeasible or undesirable.

Options involving a transfer of assets

A transfer of assets from NCBs with a negative Target balance to the benefit of NCBs with a positive

Target balance could be a way to settle Target balances and bring them down to more neutral positions. Such a settlement could be inspired by the existing annual settlement of the balances among the regional Feds in the Federal Reserve System (as shown in Chapter VI). The US construction has been argued to be more adapted than the current Eurosystem construction in protecting against the risk of a disruptive scenario: a share in a common portfolio of marketable assets is more tangible than a Target claim.

Knowing the requirement to settle Target balances, the NCBs would *a priori* have an incentive to curb the emergence of large Target liabilities. This could translate into disincentives for the exceptional operations outside the framework of the single monetary policy as well as the overreliance of counterparties on central bank liquidity.⁸³ Such incentives, however, could have only limited effects because for its essential part the liquidity is provided at conditions that are the same for all counterparties in the euro area as part of the implementation of the single monetary policy.⁸⁴ Indeed, the same interest rates are applied in the refinancing operations conditions, and the assets provided as collateral are valued according to a principle of risk equivalence (riskier assets bearing higher haircuts so that their residual risk is in principle the same for all collateral types).

In contrast with the Federal Reserve System, there is no portfolio of assets held in common in the Eurosystem. This means that the *assets transferred* should be ones that are held by the NCBs themselves, or their sovereigns (Option 3). NCBs hold assets outright as part of their reserves, their investment portfolios or the purchases conducted in the context of certain monetary policy operations. The former assets, however, are not necessarily identical across the Eurosystem.

The most homogeneous assets are high-quality assets such as gold holdings, foreign currency reserves and AAA government bonds. However, they would not be available in sufficient amounts to settle a Target liability. For example, for the NCB of Greece, gold holdings and foreign currency reserves account for 6 billion euros, only a fraction of its Target liability of around 100 billion euros. The NCB could *a priori* call on its

⁸² For example, banks could try and obtain liquidity through subsidiaries in other euro area countries rather than at their own NCB (albeit supervisors may limit the room for doing so). Alternatively, banks could move their financial centres away from countries with Target liabilities and some concentration of the financial industry would take place in countries with Target claims. A reduction of balances would occur if banks in such countries could substitute the business of banks in the countries with Target liabilities. In some way, such an outcome would seem to be the result of a market-based solution to address Target balances, whereby private capital flows would substitute again for central bank liquidity. Whether this would make the banking industry more effective or not in financing the euro area economy is another issue.

⁸³ As argued above, in the absence of centralised banking supervision, there may be disincentives for national supervisors to tackle problems in their banking systems and reduce their reliance on Eurosystem funding.

⁸⁴ At the same time, choosing to apply more restrictive conditions in liquidity provision with the very aim of discouraging Target balances is not an option as already argued in the context of options to address Target balances *ex ante*.

sovereign to provide the complement of assets demanded for the settlement, but such a demand could only be fulfilled with time; during a sovereign debt crisis a demand for immediate fulfilment would trigger capital flight and would actually augment Target balances.⁸⁵

In this respect, there are proposals for creating standard euro area assets, backed by national collateral, which could be used for settlement. For instance, the EEAG (2012) proposed to introduce ‘Euro standard bills’, that is, collateralized short-term treasury bills issued by each European sovereign and satisfying common standards. The bills would be collateralised with future tax revenue or real estate, subject to joint supervision.⁸⁶

A requirement to settle balances with high-quality assets would be constraining. In the absence of means to prevent the emergence of a large Target liability (and without the existence of commensurate standard euro area assets), the settlement device, instead of providing disincentives, would actually become binding. As a result, it would mark *de facto* the end of a true monetary union. Again, this is because the very expectation that an NCB would not have the means to settle its balance would imply that a euro issued by that NCB – for example, while debiting a current account to process the payment of a commercial bank – would be valued less than the euro of another NCB.

To maintain compatibility with the monetary union (again in the absence of plausible recourse to standard euro area assets for settlement and in the EMU context as it is), any settlement requirement would have to include an explicit exemption clause for cases where an NCB may happen not to possess the assets demanded in sufficient amount. Such an exemption clause can be argued to exist implicitly in the United States (in Section 16.4 of the Federal Reserve Act as mentioned) where the situation would be addressed with flexibility as it arises. In contrast with the situation in the United States, however, flexibility is not possible in the multi-country context of the euro area. The Eurosystem cannot deal easily with a situation whereby

an NCB would have insufficient means to settle its Target balance as the need arises because of the associated implications for the resources of NCBs, and thereby of sovereign states. Although some flexibility may exist in the design of the monetary income sharing scheme, the absence of a federal government may make agreements on such solutions more delicate. The inclusion of an explicit exemption clause for cases where an NCB could not settle its balance through a commensurate transfer of assets would thus be needed in today’s EMU context. In turn, this exemption clause would make the very settlement non-constraining, and thus little able to provide effective disincentives that would discourage liquidity provision by NCBs (for the part that could possibly be discouraged).

In sum, a requirement to settle Target balances with high-quality assets would not be viable in the absence of commensurate assets available to NCBs. By contrast, a settlement of Target balances would, in theory, not be constraining if one could consider the transfer of the NCB *claims on commercial banks* arising from lending operations (Option 4). Including those, the assets would be available in sufficient amounts because, as shown in Chapter IV, underlying each Target liability there is a net provision of liquidity by the NCB for an equivalent amount.

However, NCB claims on banks involve contractual relationships between an NCB and resident counterparties, which implies legal impediments to a transfer.⁸⁷ In addition, even if such a transfer were feasible, the balance sheets of the recipient central banks would include credit claims *vis-à-vis* counterparties in another jurisdiction. The NCBs with Target claims would not find themselves better off in such a process than with a Target claim on the ECB itself.

In theory, an alternative to enhance risk protection would be to transfer the *collateral* underlying the credit claims from NCBs with Target liabilities (Option 5). While their transfer would not change Target balances, the rationale would be to shift the collateral to an arguably safer place, such as the ECB, for the lifetime of the corresponding credit operation. This could be seen as offering some credit risk protection in case of a disruptive scenario or in case of a large-scale bank failure, where the recovery of collateral would be a challenge.

⁸⁵ Even if a given sovereign had enough assets for settling the Target balance of its NCB, it is not straight-forward to see from an institutional and political point of view that these would be mobilised in practice.

⁸⁶ The proposal is mainly grounded as follows: “without a safe asset, the euro area would constantly be subject to massive and destabilising capital movements and flight”. “A homogenous, commonly guaranteed bond or bill may, in principle, satisfy the need for a common safe asset, but is hardly consistent with the liability principle [whereby each state is ultimately responsible for its debt], given the present lack of political integration. National bills subject to common rules and satisfying strict standards may offer a viable alternative to a homogenous Eurobond”.

⁸⁷ Sinn (2012a and 2012d) recognises this difficulty. He suggests that a portfolio of additional collateral would need to be created including, for example, covered bonds on real estate. This is consistent with the proposal of the EEAG(2012) mentioned above.

However, a transfer of collateral means that the recipient central bank would need to step in into the monetary policy operations and thus replace the NCB in the contractual relationship with the counterparty. This would be the only legally possible way for the collateral to be posted at the ECB. Yet it would require a fundamental change to the prevailing decentralised implementation of monetary policy. In addition, given that the collateral would rapidly lose value in case of the adverse scenario against which protection is sought in the transfer, the option might offer only limited advantage.

In sum, in the absence of standard assets available in sufficient amounts, a settlement with the purpose of providing disincentives for the emergence of Target liabilities cannot be operationalized without marking the end of the monetary union. A settlement could only offer some risk protection for extreme events. Yet, as mentioned in Section VI.3, in contrast with the Federal Reserve System a transfer of assets would not change as such the distribution of monetary income.

Options involving a change in the allocation of monetary income

For a transfer of assets to affect the distribution of monetary income, the NCBs' income would have to be determined by their (remaining) asset holdings. This would ultimately be equivalent to having the *Target balances determine the ECB's capital key* (Option 6), which governs the sharing of monetary income within the Eurosystem. NCBs with Target liabilities would see a reduction in their shares in the ECB's capital to the benefit of NCBs with Target claims.⁸⁸

At first glance, the outcome of this would be similar to that in the Federal Reserve System, whereby the settlement of interdistrict balances implies an adjustment of the regional Feds' shares in the common pool of assets and thereby their income. However, a major difference with the situation in the United States is that, as mentioned in Chapter VI, in the euro area the monetary income does not end up with a single federal government, but with 17 different sovereigns.

The euro area's multi-country context implies a very different meaning to the possibility of a negative share

in contrast with the United States. The mechanism described could imply negative shares for certain NCBs: their sovereigns would be asked to pay instead of to receive monetary income. Again, however, this could aggravate further sovereign risk and thereby fuel capital flight conducive to a larger Target liability.

Any change in the ECB's capital key would be a political matter. It is possible that the matter would become less political if the central bank net income were not passed to the individual governments, but *fund a common euro area budget* (Option 7). This could provide for a fiscal capacity or other tasks of a deepened EMU (see Van Rompuy 2012).⁸⁹

As a milder alternative, the monetary income-sharing scheme would itself be adjusted, in a way such that Target balances would *affect the income of NCBs* (Option 8). The aim would not be to settle balances, but arguably to enhance the remuneration of individual NCBs that are notionally exposed in relation to the asymmetric distribution of liquidity provision as reflected in Target balances. This would also reduce the scope for NCBs with Target liabilities to pass on profits to governments, thereby raising incentives for their governments to tackle domestic problems, notably in their banking sectors.

In particular, Schlesinger (2012) proposes to apply interest surcharges to Target balances, to be paid by the NCBs. Similarly, Bindseil and Winkler (2012) consider in theory an increase in the marginal rates of remuneration on Target balances, in relation to their ratio to GDP.⁹⁰ (Those options would address Target balances *ex post*, once they have emerged, but would also indirectly be means to address them *ex ante* as in the option to apply interest surcharges on the underlying liquidity provision reviewed above).

Applying to Target balances an interest rate higher than the main refinancing rate would still have no effect on the NCBs' final income. This is because, under the prevailing monetary income sharing-scheme, the interest payments and receivables are pooled at the

⁸⁸ In such hypothetical scenario, the ECB's capital key would be adjusted in function of the Target balances, for example, by adding the ratio of a NCB's Target balance to the overall Target imbalances in the Eurosystem (given by the sum of Target claims) to its share in the ECB's capital. That ratio would be negative for NCBs with Target liabilities and positive for NCBs with Target claims and in total the sum of the adjusted shares would remain 100 percent.

⁸⁹ Bini Smaghi and Gros (2000) also discuss the idea to transfer the income of the Eurosystem to a central entity, noting the similarity with the situation in the United States where the Federal Reserve's net income is transferred to the federal government, and the political difficulty of doing so in Europe where there is a EU budget, but no euro area budget.

⁹⁰ The authors note: "for example, for TARGET balances up to e.g. 25 percent of GDP, the normal MRO rate would apply, but then for each subsequent 25 percent, it would increase by say 0.5 percentage points. As the remuneration would be paid by the central bank, and hence be at the expense of the profits transferred to the Government, this would create economic incentives for the Government to address the reasons for the capital flight".

end of the year. To obtain the effect sought by Schlesinger and as recognised by the author, the monetary income scheme would have to be adjusted to offset the neutrality of Target balances for the individual NCBs' income. For example, the interest payments on Target balances would not enter the pooling, or alternatively the interest payments pooled would not account for the surcharges above the main refinancing rate.

In a similar vein, the monetary income-sharing scheme could, in theory, be amended to ensure that NCBs do not obtain a higher return for operations outside the single monetary policy framework than the income they pool for sharing among the Eurosystem. For instance, NCBs would share income deriving from those operations in full, as in the case of operations under the implementation of the single monetary policy.

Alternatively, NCBs with Target liabilities would be asked to *increase their financial provisions* (Option 9) to offset adverse financial incentives for their sovereigns that would be arguably related to Target balances.⁹¹

In all cases, the measures to adjust the monetary income sharing-scheme so as to penalise Target liabilities and the relevant sovereigns would not raise significant protection against tail risk and, in fact, could in the first place augment tail risk itself by aggravating further sovereign risk. Admittedly, penalising measures (if they were to be advisable) could still lead to a reduction of tail risk in the longer term if they are perceived by investors as a signal to be more careful in their financial investments (instead of Target balances allowing a shift of risk exposure from private investors to taxpayers).

VII.3. Options to address the root causes of Target balances

Some of the options reviewed above to address Target balances are not compatible with equal treatment of counterparties across the Eurosystem that the singleness of monetary policy arguably requires. Such equal treatment – and the derived principle that the value of a euro cannot be made dependent on the

jurisdiction of the NCB from which it is issued – implies that Target balances can emerge in a crisis where financial markets are segmented and the Eurosystem takes an intermediation function in bank funding.

It is also misguided to argue that NCBs with negative balances should be penalised to the benefit of NCBs with positive balances in a cohesive monetary union. The link between a Target balance and the funding need of a national economy is loose. Moreover, the transfer of risk exposure involved in Target balances is not necessarily from countries with liabilities to countries with claims: Target balances result in the first place essentially from private residents in resilient countries having shifted their exposures on crisis-hit countries to the central bank.

Insofar as Target balances reflect a shift of risk exposure from private investors to taxpayers, it is natural to look for disincentives to the factors underlying the emergence of Target balances so as to protect taxpayers. However, the options to address Target balances – whether *ex ante* or *ex post* – ultimately question the Eurosystem liquidity support in response to the crisis. Those options would not be the way to achieve the durable reduction of Target balances because they do not address their root causes.

Target balances are a manifestation of underlying tensions across countries in terms of access to market funding. For one part, this is due to dysfunctions in certain financial market segments. The ECB's non-standard measures to address such dysfunctions can help overcome market segmentation to some extent and thus limit the emergence of Target balances. For instance, as mentioned in Section II.3 a reduction in Target balances was observed after the ECB's decision on the scheme for Outright Monetary Transactions.

For another part, the tensions in access to market funding reflect more fundamental factors. The imbalanced cross-border payment flows have largely been driven by investors' lack of confidence in the financial health of certain banking systems, their sovereigns and their economies. The solution to obtain a durable reduction in Target balances lies in improving the competitiveness and fiscal sustainability of those countries and in rebuilding confidence in their banking systems so that they attract more private capital again – and do so on a sounder basis than prior to the crisis, where risks were mispriced that led to asset price bubbles. This, in turn, also calls for a strengthened economic pillar in

⁹¹ For instance, NCBs would be made to increase their financial provisions in relation to their liquidity provision outside the single monetary policy framework (in the forms of emergency liquidity assistance and portfolio investments) to offset related adverse financial incentives for those NCBs and their governments. Such NCBs are among those with large Target liabilities; their balance sheets would thus be put over time in a less weak situation to withstand bank failures, thereby also enhancing Eurosystem risk protection over (a long) time.

EMU, notably to set appropriate economic incentives commensurate with a single currency.

As a far-reaching avenue, a change in the institutional environment in EMU towards federalism for financial matters would remove the implications for taxpayers of separate countries of the risk associated with Target balances. In such environment, the net monetary income would go to one single, federal agency or government (as envisaged in Option 7 above), and bank regulation, supervision and resolution would be a federal task, at the euro area level. Target balances would become a non-issue as in the case of the internal balances in the Federal Reserve System in a context of a single, federal government.

As a less far-reaching avenue, a federal structure could be established specifically for the supervision and resolution of banks, so as to break the adverse link between sovereigns and domestic banks, as well as overcome market segmentation along national borders. Hypothetically, a guarantee of bank deposits at the euro area level – if this were not to imply moral hazard and risks of unidirectional and permanent transfers across countries⁹² – would also reduce the scope for retail deposit shifts driven by concerns of redenomination risk and sovereign default, and thereby Target balances. Strengthening banking supervision and resolution and establishing a deposit guarantee at the level of the monetary union was part of the changes brought by the Federal Reserve System to overcome the 1933 crisis, as seen in Chapter VI.3. This allowed a reversal in deposit flights that had led to large imbalances within the central banking system itself.

If history indeed repeats itself, a similar institutional change could also help address the driving factors of Target balances, albeit unlike the United States this may not include a deposit guarantee scheme in the absence of political integration. The key elements of single supervision and resolution as part of a ‘banking union’ have been agreed by heads of state or government in 2012.⁹³ The establishment of the European Single Supervisory Mechanism was decided by the Ecofin council in December 2012 and in spring 2013 it is in the legislative process; a single resolution scheme is to be proposed by the Commission by the summer of 2013.⁹⁴

⁹² See, for example, Van Rompuy (2012) and Sinn (2012a).

⁹³ At the European Council summit on 28–29 June 2012 they agreed to activate Article 127(6) of the TFEU, which allows specific tasks to be conferred on the ECB regarding prudential supervision.

⁹⁴ An integrated resolution system could also imply changes to the landscape of the banking sector in the euro area. If it involves a reduction in the size of the banking systems in countries under strain, Target balances – which depend on the residency of the banks operating the cross-border flows – could also shrink as a result.

VIII. Conclusion

Target balances highlight two key aspects of EMU. The first is the importance of current account and financial account positions in a group of states for which many wanted to abolish all accounting of balance of payments, as it was thought to be a ‘domestic’ issue of no broader relevance. The second is the importance of heterogeneity in an environment where there is a single monetary policy that, in principle, should apply evenly across the area.

In this sense, Target balances highlight what many observers wanted to disregard: imbalances and fragmentation in monetary union. It is against this background that they are highly relevant from a macroeconomic and monetary policy perspective.

As has been said many times, Target balances are not the driving force: they are a manifestation of underlying macroeconomic tensions in EMU; a symptom, not the cause. Together with the uneven distribution of central bank liquidity across the euro area NCBs, they represent public claims and liabilities within the central banking system that replace stalled and reversed private capital flows. This also makes them highly useful. Like a real-time barometer, they indicate the relative pressure across countries in terms of access to market funding – albeit the link between a Target balance and the funding need of a nation is somewhat loose. And they are not a partial indicator of any specific market segment, but a powerful, synthetic macro-financial indicator – and perhaps the only balance of payments indicator that is available to central banks on a daily basis.

This paper has aimed to provide a comprehensive analysis of Target balances in the context of the crisis in the euro area. It has analysed the link with cross-border payment flows and bank funding; the link with the ECB’s monetary policy and the Eurosystem operations; and the link with macroeconomic imbalances in the euro area. It has provided a comparison with the Federal Reserve System and explained why – contrary to the view of some observers – a settlement system such as that in the United States cannot be applied in the euro area.

Finally, the paper has systematically analysed the various options discussed in the literature on how to deal with Target balances. Some options would be difficult to implement in practice. Other options would not be compatible with a single monetary policy focused on

price stability within a monetary union. In particular, the single monetary policy requires the equal treatment of banks and conditions of liquidity provision cannot be made dependent on the issuing NCB. Moreover, in the absence of commensurate amounts of standard euro area assets available to NCBs, a settlement requirement would lead to expectations that an NCB may end up not having a sufficient amount of assets to settle a Target liability. Therefore, the euro deposits at such an NCB would be seen as less available for cross-border payments than euro deposits at other NCBs. This would violate the fundamental principle of ‘one euro equalling one euro’ throughout the monetary union.

In all cases, the aim of discouraging Target balances is questionable: the associated transfer of risk exposure is not as it seems, from crisis-hit countries to the more resilient countries, but it essentially involves a transfer from private investors to the public sector. This paper has consistently attempted to clarify many technical questions about the Target system and the accumulation and interpretation of imbalances. It has also aimed to clarify a number of misperceptions in the literature.

The Target balances are not a separate facility, but can emerge as a natural occurrence given the decentralised structure of the Eurosystem and the fundamental feature that the value of the currency must be the same throughout the monetary union. Target balances do not represent any financial risk beyond that inherent in the Eurosystem operations in a cohesive monetary union. The ECB, and thus the Eurosystem as a whole, expanded its balance sheet during the crisis and increased its exposure to risk – but a risk which is managed and controlled. The way to obtain a durable reduction in the reliance of banking systems on central bank liquidity, and thereby in Target balances, is to address the root causes of the crisis.

In normative terms, Target balances are a double-edged sword: they seem to be public sector risks as they are financial claims and liabilities among public sector institutions. At the same time, however, by reflecting the Eurosystem liquidity support they appear to be adjustment valves that direct pressures away from the real economy.

The Target system and its specific features that allow, in principle, for unlimited imbalances within the scope of the Eurosystem liquidity support have buffered the adjustment of the real economy and kept trade and financial flows running – giving also time for the euro area

countries to set conditions for economic growth on a sounder basis with appropriate incentives. In that sense, the dragon of Target imbalances, to modify Napoleon’s dictum, has shaken the policy debates, but not the real economy ‘world’ of the euro area. Despite all of their baffling features, this may be their greatest value.

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Annex A Balances in Target and the imperfect link with national funding needs

Caution is needed in interpreting Target balances. A brief analysis of payment transactions in Target shows that the notion of ‘cross-border’ is blurred. There are several reasons why a Target balance cannot be interpreted as reflecting a national funding need (or surplus).

A.1. Transactions in Target

In relation to the total transactions in the Target payment system, the daily changes in Target balances, which can be of a few billion euro appear relatively small. There are roughly 350,000 transactions a day on average, which means 90 million a year. In value terms, transactions amount to around 2,400 billion euros per day on average, which is equivalent to transacting the euro area’s annual GDP in four days. One third of the transactions are cross-border, in terms of both number and value.⁹⁵

Claims that Target is a public facility to finance crisis-hit countries do not withstand the facts. Table A1 provides a breakdown of the transactions in Target into four categories of participants, by number and value. Transactions are essentially initiated by private participants: commercial banks (including groups) and market infrastructures other than Target. Operations with the central banks accounted for only 9 percent (and 27 percent in value) of the transactions in Target in 2012 – for example, when an NCB provides liquidity to a commercial bank.

Central banks provide via Target payment and settlement services for participants across the European Economic Area. Looking at those participants in more detail, among central banks the ECB and all euro area NCBs are connected to Target. The other NCBs in the EU can also decide to connect to Target on a voluntary basis. For instance, the central bank of Denmark is connected, but not the Bank of England.

Market participants in Target include commercial banks and market infrastructures. About 850 credit institutions are connected to Target. They must

⁹⁵ The share of cross-border transactions increased from 22 to 35 percent between 2007 and 2011. In value terms this share had been increasing pre-crisis to reach a peak of 36 percent in 2007 and retrenched to 32 percent in 2008, the level at which it remained in the years to follow – see ECB (2012b).

belong to the European Economic Area,⁹⁶ but can themselves conduct payments originated by other credit institutions. Thus, transactions in Target can originate from roughly 60,000 participants worldwide.

Commercial banks can choose from several payment systems when conducting their transactions, but payments conducted in Target are in real time and have the further advantage that they are in the safest form of money, central bank money (they indeed involve euro at the banks' accounts at their central banks).

There are around 80 market infrastructures connected to Target. Such ancillary market infrastructures include CLS (for foreign exchange transactions), EURO1 (a competitor to Target), securities systems (the central security depositories), central counterparties and retail payment systems. Transactions in euros conducted through those market infrastructures yield balances for the various national banking systems. Those balances are incorporated into Target balances at the end of the day at the time of their settlement in central bank money.

Balances in those market infrastructures contribute to Target balances. By allowing market infrastructures to settle in central bank money their net balances, Target prevents systemic risk in the chains of payments that could otherwise arise in extreme situations if such transactions were to be left in commercial money.⁹⁷ Thus, Target effectively supports the smooth processing of payments and constitutes an essential element of the stability of the financial system in Europe.

A.2. The imperfect link with national funding needs

Although the upsurge in Target balances relates to funding stresses in some national banking systems, these balances imperfectly reflect the funding needs that result from the financing of the individual euro area economies. This is for three reasons: (i) some cross-border payment flows in euros are in cash or remain in commercial bank money and thus are not accounted for in Target balances; (ii) in turn, the notion of 'cross-border' is blurred in a financially integrated area; and (iii) only the euro leg in foreign exchange transactions contributes to Target balances.

⁹⁶ A credit institution in a country where the central bank is not connected to Target needs to select one NCB in the EU connected to Target to access the payment system directly.

⁹⁷ The principle of 'settlement finality' still applies in other market infrastructures and not only in the Target system, which implies that when a payment is settled, it becomes legally irrevocable and the recipient bank can immediately use the money to conduct further transactions.

Firstly, payments in Target, and thus Target balances, do not cover all cross-border payment flows in euro. This is because some payments are conducted in cash or because they are not settled in central bank money.

Cross-border transfers in cash can be significant. With the emergence of the sovereign debt crisis, the preference for banknote holdings increased for residents in some stressed countries, adding to banks' funding stress. In such cases, Target liabilities tend to underestimate the special, crisis-related funding needs of national banking systems. As with Target balances, differences in demand for banknotes across the euro area banking systems also lead to the emergence of intra-Eurosystem balances.⁹⁸ There is a possible substitution of payments in central bank money between the electronic form (through Target) and the cash form. The provision of central bank liquidity implies a crediting of banks' accounts: the banks can then choose to convert part of their holdings at the central bank into banknotes. Thus, the special funding needs of a national banking system are better captured by the sum of the intra-Eurosystem balance in Target (that is, the Target balance) plus the intra-Eurosystem balance related to the issuance of banknotes.

In addition, Target balances do not account for cross-border flows in commercial money. Transactions conducted in market infrastructures are in commercial money; they can affect Target balances only if they are eventually settled in central bank money. Some transactions remain in commercial money.⁹⁹ Nevertheless, net cross-border balances in commercial money are presumably relatively small in the current context of reduced confidence in banks.

Secondly, Target balances also reflect transactions that one would not necessarily qualify as 'cross-border'. Typically, a cross-border transaction in Target

⁹⁸ Banknote issuance is recorded on a central bank's balance sheet as its capital key share in total banknote issuance in the Eurosystem. The over or under-issuance of banknotes relative to the NCBs' shares in the ECB's subscribed capital is recorded as an intra-Eurosystem claim or liability. Such claims and liabilities are large in some NCBs for structural reasons and thus also prior to the crisis. For example, while the Deutsche Bundesbank at present has overall an intra-Eurosystem claim, it had for several years an overall intra-Eurosystem liability. Such liability resulted mainly from the fact that the Deutsche Bundesbank issued more banknotes relative to its share in the ECB's capital than other euro area NCBs. This is, in part, because of German tourists withdrawing cash at home and spending it abroad and because extra euro area demand for banknotes is often addressed to banks in Germany.

⁹⁹ This is the case with: (i) flows related to correspondent banking (where the payment is booked in the account that a commercial bank holds with another commercial bank); or (ii) securities or retail systems.

involves two separate banks, each localised in one euro area country, with an account at its respective NCB. However, the two banks may be part of the same banking group or one bank may be affiliated to a foreign bank, or it may act on behalf of a foreign bank. This also applies in the case of cross-border transactions conducted through other market infrastructures (whose balances are possibly imported into Target balance).

Transactions of banking groups contribute to Target balances, while the geographical location of a payer or recipient bank sometimes has more to do with the group's internal organisation than with the real location of the business. For example, a head office located, say, in Germany, France or the Netherlands can centralise the liquidity management for activities that can be non-domestic and hold one account in Target at its central bank. In fact, the payment system allows multi-country banks to consolidate their liquidity management in one single account/location from which they operate their payment traffic, thereby also transforming in essence domestic payments into cross-border flows.¹⁰⁰ The other branches or subsidiaries within the banking group are channelling their payments in Target *via* the head office (this is called 'indirect participation'). Table A1 shows that one in four transactions in Target is within a banking group.¹⁰¹ The structure of banking groups is likely one factor behind the fact that for some NCBs the Target balances were systematically positive or negative, albeit small, before the crisis.

Moreover, *multi-country banking groups can a priori raise funds in a decentralised manner* (although the national regulators may limit such practices).

Table A1

Payment transactions in Target by number and value

	Distribution by number of transactions	Distribution by value of transactions
Intra-banking group liquidity transfers	3%	25%
Other payments between banks	78%	30%
Payments related to other market infrastructures	11%	18%
Operations with the central banks	9%	27%

Note: Average observations over 2012.

Note: Average observations over 2012.

Source: Updated from Target Annual Report 2011 (ECB 2012b).

For example, if a banking group were to refinance itself at an NCB in another euro area country through a subsidiary, this would generate a Target claim for the NCB in the country of the head office and a Target liability for the NCB in the country of the subsidiary.

Furthermore, Target flows are not generated only by banks established in the euro area. Target balances of euro area NCBs can also be affected, and in some cases significantly, by *transactions stemming from banks outside the euro area*. There are three ways in which this is the case.

- Any credit institution established in the European Economic Area (EEA) can access Target *via* the NCB of another country in the EU, which is connected to Target (this is called 'remote connection'). This is, for instance, the case of credit institutions from non-EU EEA countries (e.g. Norway, Iceland) or from EU member states whose NCBs are not connected to Target (e.g. United Kingdom, Sweden). For example, if a bank based in the United Kingdom is remotely connected to Target *via* an account at the De Nederlandsche Bank, the balance of that NCB also reflects the flows generated or received for this UK-based bank.
- Banks established outside the EEA can use a subsidiary in a euro area country that is itself a Target participant. For instance, if a US bank is connected to Target *via* a subsidiary in Germany, the balance of the Deutsche Bundesbank also reflects the flows generated or received for this US-based bank *via* its subsidiary.
- Target participants established in the euro area may provide correspondent banking services in euro to any bank in the world. For instance, if a

¹⁰⁰ Since November 2007 it has been possible in the Target system to consolidate the activities of banking groups around a single Real-Time Gross Settlement account held by the group's head office, hence increasing the concentration in countries where a majority of these groups are incorporated. Five countries – Germany, France, Spain, the Netherlands and Italy – accounted for 85 percent of the value exchanged and 87 percent of the number of transactions in 2011. Germany actually contributed to half of the number of transactions (ECB 2012b).

¹⁰¹ In this regard, the ECB's TARGET Annual Report 2011 notes that TARGET statistics published by the Eurosystem make less and less reference to such a distinction between domestic and cross-border flows. Indeed, "the migration to the single shared platform of TARGET2 [in 2007, from the former TARGET system] helped to further blur the distinction between inter-Member State and intra-Member State transactions; by doing so, it helped to increase the integration of the euro area money market. However, the fact that a payment is sent to or received from a given banking community may have more to do with the bank's internal organisation than the real geographical anchorage".

bank based in Japan uses as euro correspondent a Target participant based in France, the balance of the Banque de France also reflects the flows sent or received on its behalf.

Thirdly, a Target liability may emerge from banks transferring euro in exchange for foreign currency to their NCB or to banks in other euro area countries. This is because only the euro leg in such foreign exchange transactions will be settled in central bank money in euro and thus registered as a flow in Target. In the case of banks borrowing liquidity in foreign currency at their NCBs, the transaction between the bank and its NCB is not cross-border,¹⁰² but still involves a Target flow from the NCB to the ECB and thus the emergence of Target balances. This is because it is the ECB – not the NCB – which is the counterpart of central banks outside the euro area in the currency swap arrangements put in place after the crisis.¹⁰³ As an example, the Banque de France showed temporarily large Target liabilities after October 2008 and in the second half of 2011 – early 2012 that can be explained to a large extent by temporary liquidity needs of French banks in US dollars.¹⁰⁴

If French banks borrow US dollars from commercial banks in the same jurisdiction, there is no impact on Target balances. However, if they obtain dollars from abroad, say, from US banks based in Germany, the associated cross-border flows in Target lead to the emergence of a Target liability for the Banque de France and a parallel increase in the Target claim of the Deutsche Bundesbank.¹⁰⁵ If French banks obtain dollars by borrowing at the Banque de France (possibly using euros, which may themselves have been borrowed in part at the central bank), a Target liability emerges for the Banque de France and a parallel Target claim emerges at the ECB.

¹⁰² The operations of liquidity provision in foreign currency are a special case among central bank operations: normally the transactions between an NCB and its commercial banks are domestic and thus do not result directly in the emergence of a Target balance.

¹⁰³ In October 2008, a number of major central banks decided to open currency swap lines among themselves. Essentially, the ECB used reciprocal currency arrangements with the US Federal Reserve to prevent a massive shortfall in dollar funding. This explains why the ECB cumulated a temporary claim in Target towards the end of 2008 (of around 250 billion euros), and later again around the start of 2012 after tensions in dollar funding had re-intensified in the second half of 2011 (as shown in Figure 3). Thus, the ECB's own Target balance results essentially from its provision of foreign currency to certain banking systems (via their NCBs) in exchange for euro.

¹⁰⁴ The US money market funds sizeably reduced their assets in the second half of 2011 in the low-profitable context of very low money market rates, and in particular their exposure to French banks – which was large relative to exposure to German banks for example.

¹⁰⁵ This is the case, for example, of transactions in CLS when they are settled in central bank money at the end of the day. A French bank can borrow dollars from a US bank based in Germany in exchange of euro through this clearing system.

To sum up, imbalances in cross-border payment flows between banks settled in central bank money in Target do not necessarily reflect the funding needs of the individual economies. Transactions in Target do not capture all cross-border payment flows; transactions registered as being cross-border can be disconnected from the individual economies; and Target balances capture flows only in euro, while in the case of foreign exchange transactions there is an offsetting flow in foreign currency.

Annex B Deriving Target balances from public statistics

Most NCBs publish their Target balances – or broader balance sheet items which, during the crisis, consist essentially in the Target balances – on a monthly basis. However, for each euro area NCB the Target balance can be derived in a precise way using publicly available information.

The Target balance is one of the three components of an NCB's total intra-Eurosystem claim or liability.¹⁰⁶ The second component is an intra-Eurosystem claim equivalent to the transfer of foreign reserves from NCBs to the ECB with respect to their shares in the ECB's capital. It can be obtained using public ECB data on the total amount of ECB's foreign exchange reserves, times the share of each NCB in the ECB's capital.¹⁰⁷

The third component is an intra-Eurosystem claim or liability related to the allocation of euro banknotes within the Eurosystem. A liability corresponds to the amount of banknotes that is issued beyond what would correspond to issuance in proportion to the central bank's key in the ECB's capital. A claim corresponds to the amount issued below that proportion.

For each NCB, the accounting amount of banknote issuance and the amount of banknotes actually issued are documented monthly in the International Financial Statistics of the IMF, which also documents the total intra-Eurosystem claims net of liabilities.¹⁰⁸ Those data are originally provided by the Eurosystem.

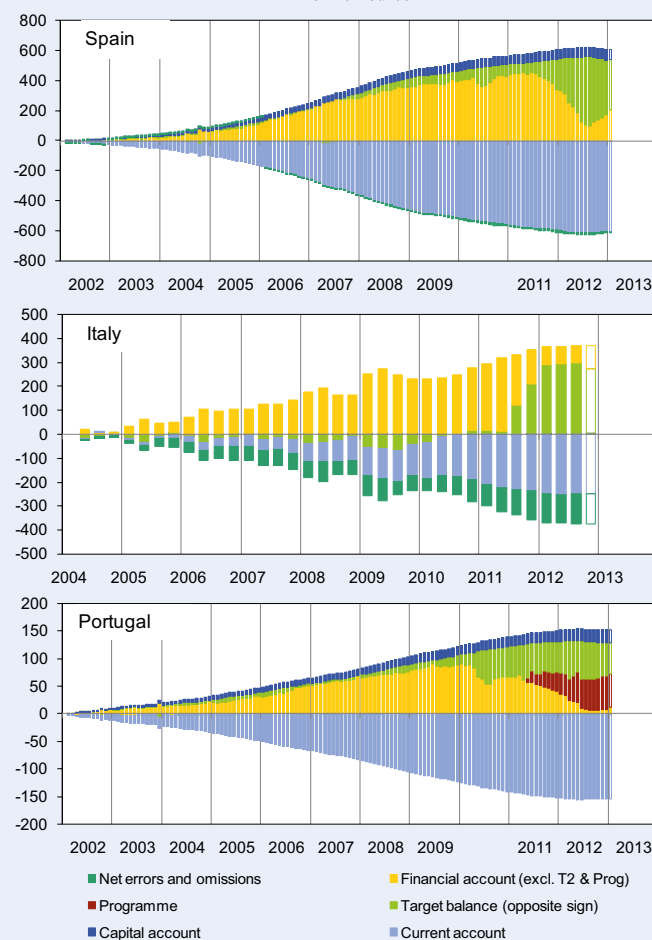
¹⁰⁶ In fact, some central banks indeed report their Target balance as a residual which forms the essential part of a balance sheet item 'Other intra-Eurosystem claim/ liability'.

¹⁰⁷ The capital key is available at www.ecb.int/ecb/orga/capital/html/index.en.html

¹⁰⁸ In the IMF statistics, this total is called 'net claims on the Eurosystem', the accounting reporting of banknote issuance is called 'currency issued', and the amount actually issued is called 'currency put in circulation'. The data for Estonia are apparently missing to date, so that the Target balance of the central bank of Estonia is missing in Figures 3 and 4.

Figure C1

Balance of payments in which the target balance and official loans are used to "now-cast" developments in the remainder of the financial account
in billion euros



Notes: Last balance-of-payments observations are December 2012 (Spain and Portugal) and 2012 Q3 (Italy). The striped bars are now-casted values for the subsequent month (respectively the subsequent quarter). The now-casted values of the private element of the financial account (and thus the part excluding the Target balance and the official loans) in the yellow bars are calculated as the residual after accounting for the actual Target balance, the agreed official loans (with observations in January 2013), and an extrapolation of the current account value using a four-period moving average.
Source: NCBs and author's calculations.

In sum, the Target balance can be inferred precisely for each euro area NCB as this total Eurosystem net claim minus the difference between the amounts of banknotes reported and banknotes actually issued, and minus the amount of foreign exchange reserves transferred to the ECB. The ECB's own Target balance can be computed at a monthly frequency as the residual that ensures that the sum of all Target claims equals the sum of all Target liabilities in the Eurosystem.

The Target balances inferred in this way are very precise, as can be verified by comparing them with the end-of-year figures published in the central banks'

annual reports or the figures published at the monthly frequency for most NCBs. However, the International Financial Statistics of the IMF are published with a two-month lag and thus are, in general, less timely than the balance sheet statistics published by the individual NCBs themselves. For instance, on 24 April 2013 the statistics are available up to February 2013. Statistics available for some NCBs are used to estimate the Target balances data for an additional month.

Annex C Now-casting balance-of-payments developments using Target data

Target balances are timelier than balance-of-payments data. The Eurosystem can *a priori* observe daily developments in Target balances and thus associated cross-border transactions in real-time because it operates the payment system Target. Therefore, balance-of-payments data can be 'now-casted' by exploiting their accounting link with Target balances data, and thus provide insights into the most recent developments. This is particularly useful in times of crisis where dynamics can be fast and may require timely reactions, notably for private financial flows.¹⁰⁹

Similarly, Target balances data could help to 'now-cast' cross-border positions in the balance sheet data for MFIs. The MFI balance sheets, which are available with a lag of one month, are a key element in the monetary analysis used by the ECB in assessing risks to price stability.

A now-casting of the private element in the financial account is illustrated in the case of Spain, Italy

¹⁰⁹ In turn, relationships between developments in a Target balance and developments in a sector identified as being vulnerable to a potential reversal in cross-border flows can *a priori* be exploited to now-cast certain national account data as well. This would allow, for example, the analysis and anticipation in a timely manner of the dynamics and direct effects of a bank run or the bursting of a real estate bubble.

and Portugal (see Figure C1). The results are presented in cumulated flow terms, but it would suffice to subtract the data in the previous time period to obtain results in flow terms. The identity in equation (5) is used for such now-casting, assuming no new net errors and omissions and capital account flows. In addition, since current accounts are typically less volatile than financial accounts, the most recent developments in current accounts are simply now-casted with a moving average of past developments.

Private Financial Account(t) = Δ Target balance(t) – EU/IMF net inflows(t) - Current Account(t-1 to t-4 average)

For the period considered, the now-casting suggested that net financial inflows beyond the central bank liquidity provision (underlying the Target balance) and official loans would continue to be negative as the yellow dotted bars shrink. Taking a longer time perspective, the net financial inflows would still have remained positive in cumulated terms since 2002 in Spain and Portugal, and since 2004 in Italy.

Annex D Settlement of the ISA balance of the New York Fed in April 2011

It is sometimes argued that the ISA balances were not settled as usual in April 2011.¹¹⁰ In fact, they were settled as usual. The resulting adjustments in the ISA balances were however offset to a significant extent by payment flows across the Federal Reserve districts at the time, whose magnitude was large but not unusual. The following provides evidence that settlement took place as usual in the example of the New York Fed.

The financial statement reports the following amounts of annual reallocations in the major SOMA assets from end-December 2010 to end-December 2011, in million US dollars (see page 35, <http://www.federalreserve.gov/monetarypolicy/files/BSTNewYorkfinstmt2011.PDF>):

US Treasury Securities:	81,793
GSE debt Securities:	7,738
Fed Agencies and GSE MBS:	54,066
Total:	143,597

The total of the corresponding items amounts to some 144 billion US dollars (some of the other assets/liabilities that are part of the settlement are omitted). This

is very close to the average in the ISA balance over the period between April 2010 and March 2011 (+147 billion US dollars). This demonstrates that settlement took place as usual. Such amount was used to adjust the ISA balance for the New York Fed in April 2011 in the process of settlement.

Around the time of settlement in the week between 13 and 20 April 2011, the ISA balance of the New York Fed declined by only 64 billion US dollars (from 288 billion to 224 billion US dollars), reflecting also a cross-district flow at the time (like on any other week). In the absence of settlement, the ISA balance would not have declined, but actually increased by 83 billion US dollars, that is, the settlement amount (+147 billion US dollars) plus the observed weekly change.

¹¹⁰ See, for instance, European Economic Advisory Group (2013).

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CESifo Venice Summer Institute

22 – 27 July 2013



CESifo, in co-operation with the Venice International University, will host its fourteenth Summer Institute in Venice, Italy, bringing together international economists working on economic policy topics for workshops, panel meetings and discussion. The conference venue is San Servolo, an island just off San Marco in the bay of Venice, that offers an ideal setting for an intensive exchange of ideas in a relaxed atmosphere.

The following workshops are scheduled:

22 – 23 July

THE DETERMINANTS OF GENDER GAPS: INSTITUTIONAL DESIGN AND HISTORICAL FACTORS

Organisers: Alessandra Casarico and Paola Profeta

EMISSIONS TRADING SYSTEMS AS A CLIMATE POLICY INSTRUMENT: EVALUATION & PROSPECTS

Organisers: Marc Gronwald and Beat Hintermann

24 – 25 July

POLITICAL ECONOMY AND INSTRUMENTS OF ENVIRONMENTAL POLITICS

Organisers: Friedrich Schneider, Andrea Kollmann and Johannes Reichl

26 – 27 July

THE ECONOMICS OF LANGUAGE POLICY

Organisers: Bengt-Arne Wickström and Michele Gazzola

THE ECONOMICS OF INFRASTRUCTURE PROVISIONING: THE (CHANGING) ROLE OF THE STATE

Organisers: Arnold Picot, Massimo Florio, Nico Grove and Johann Kranz

Economists working on these or related topics are invited to present and discuss their papers, exchange ideas and participate in panel discussions.

The deadline for paper submissions is 5 April, 2013.

Decisions on acceptance will be sent out by the end of April. CESifo will cover accommodation and travel expenses for all participants with accepted papers. It is understood that the papers submitted will be available for publication in the *CESifo Seminar Series* with MIT Press, in *CESifo Economic Studies*, or in the publication outlet specified in the corresponding call for papers.

For further information on the workshops and the publication policy please consult our official website: www.cesifo.org/venice.

PhD students of economics from the VIU partner universities* are invited to participate at their own expense.

* for a list of VIU members see <http://www.univiu.org/about-viu/viu-members>

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