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José Abad, Axel Löffler, Gunther Schnabl and Holger Zemanek\*

# Fiscal Divergence, Current Account Divergence and TARGET2 Imbalances in the EMU

Diverging fiscal policy paths, housing booms and diverging unit labour costs were driving forces of rising intra-European current account imbalances, which were underpinned by low interest rates. Since the outbreak of the crisis, the adjustment of intra-EMU current account imbalances has been postponed by a rising divergence of TARGET2 balances, as the repatriation of private international credit and deposit flight from the crisis economies is intermediated by central bank credit. Given that this process has brought the Deutsche Bundesbank into a debtor position to the domestic financial system, the article discusses options for liquidity absorption by the Bundesbank to forestall asset price bubbles in Germany.

The ongoing eurozone crisis is not only understood as a European sovereign debt crisis, but also as fundamental threat to the common European currency. Europe is subdivided into debtor and creditor countries which struggle with one another over the size and conditions of rescue packages to safeguard European financial stability. Whereas rescue packages negotiated by the EU and the IMF and the newly installed European Stability Mechanism (ESM) have become more and more politically tenuous and conditional, the TARGET2 balances of the Eurosystem have assumed the role of a quasi-unlimited financing mechanism for southern European current and financial account deficits.

Sinn and Wollmershäuser<sup>1</sup> and Sinn<sup>2</sup> opened the discussion of whether rising TARGET2 imbalances have assumed the role of perpetuating intra-European current account imbalances. They argue that rising TARGET2 claims of the

Deutsche Bundesbank versus the Eurosystem constitute a risk for German taxpayers in case of the default of southern European banking systems and governments. They advocate a regulatory limit on TARGET2 liabilities. Buiter et al.<sup>3</sup> responded that the divergence of TARGET2 balances reflects capital flight from crisis countries rather than the financing of current account balances. Bindseil and König<sup>4</sup> argue that imposing a limit on intra-Eurosystem credit would be inconsistent with the existence and survival of the currency union.

We add to this discussion by putting the divergence of TARGET2 imbalances into a broader historical context. We show how an unsustainable current account divergence in the euro area was triggered by diverging fiscal policy stances, enhanced by monetary expansion after the burst of the dotcom bubble and translated via real estate and government consumption booms into diverging international asset positions. We explain the divergence of national TARGET2 balances within the Eurosystem since the crisis as the replacement of private capital flows to the crisis countries with a public quasi-unlimited credit mechanism which prevents or cushions the adjustment of diverging competitiveness and current account balances. Finally, we show that capital and deposit flight from the crisis countries has brought the Deutsche Bundesbank into a debtor position to the banking system. We explore different options to absorb surplus liquidity from the German banking system to forestall inflationary pressure in German goods markets and/or bubbles in the German real estate market.

\* The views expressed in this article are those of the authors and should not be reported otherwise. We thank Daniel Gros for very helpful comments.

1 H.W. Sinn, T. Wollmershäuser: Target Loans, Current Account Balances and Capital Flows: The ECB's Rescue Facility, in: *International Tax and Public Finance*, Vol. 19, No. 4, 2012.

2 H.W. Sinn: *Die Target Falle. Gefahren für unser Geld und unsere Kinder*, Hanser Verlag, 2012.

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3 W.H. Buiter, E. Rahbari, J. Michels: The Implications of Intra-Euro Area Imbalances in Credit Flows, in: *CEPR Policy Insight*, No. 57, August 2011.

4 U. Bindseil, P.J. Koenig: The Economics of TARGET2 Balances, SFB 649 Discussion Paper, No. 2011-035, CRC 249 Economic Risk.

### The public-driven emergence of financial and current account imbalances

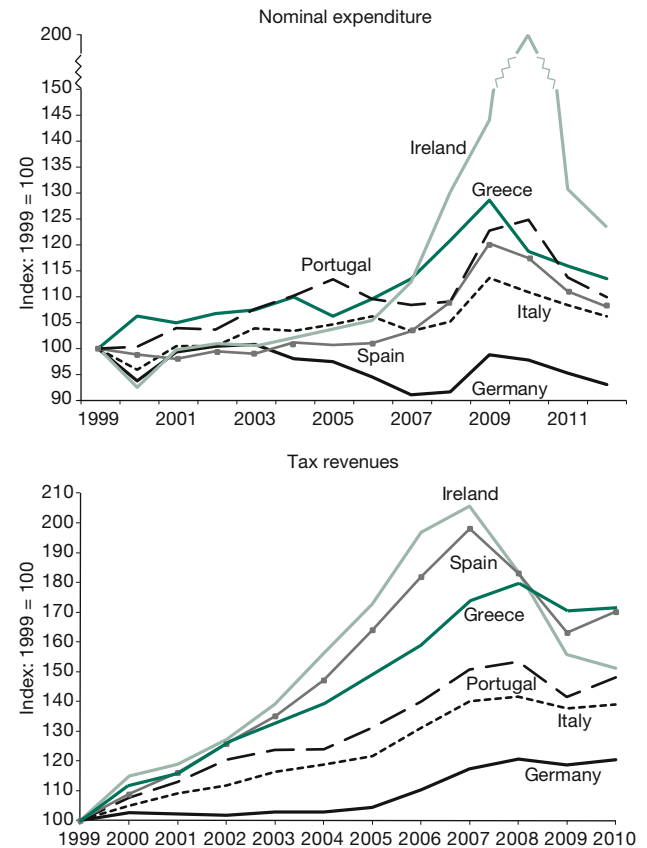
The roots of diverging financial account balances in the euro area can be traced back to the year 1990, when the German unification constituted an asymmetric shock to Europe. Before unification, Germany generated current account surpluses and substantial net capital exports. With the unification shock, German net capital exports were re-directed towards domestic investment and consumption, given the heavy investment needs in the new eastern part of unified Germany. While a boom developed in Germany, the rest of Europe slid into recession as German capital exports dried up. When by the mid-1990s the unification boom had ended, German wages had substantially increased relative to productivity. The German mark had substantially appreciated in real terms against the currencies of its European trading partners. General government debt had spiked to unprecedented levels, and a historical peak in unemployment had been reached.

### The role of fiscal policies

During the second half of the 1990s, consolidation efforts by the German government and the enterprise sectors started to set the stage for diverging current account positions in Europe. German austerity constituted a new asymmetric shock to Europe, which continued until the outbreak of the European sovereign debt crisis in 2008.<sup>5</sup> The German public sector struggled with fiscal consolidation in line with the Maastricht Treaty. Public wage austerity and reforms in the social security sector (to curtail non-wage labour costs and to reduce unemployment) were regarded as pivotal towards public consolidation. Simultaneously, German industry aimed to regain international competitiveness by cutting real wages and increasing productivity. The private and public attempts to moderate real wage increases were facilitated by the exceptionally high unemployment rate and wage competition from Central and Eastern Europe and East Asia. Reflecting the mood of austerity, German domestic investment and consumption slowed down, while saving for a more uncertain future increased.

In the second half of the 1990s, the convergence process towards the European monetary union had led to the sharp decline of nominal and real interest rates in the former high inflation countries in the south of the European Union. With the introduction of the euro in 1999, real interest rates in the European periphery countries in particular further declined, which further stimulated economic activity. Weak economic

Figure 1  
Public finance divergence indicators



Source: Thomson Reuters Datastream.

activity in Germany, combined with historically low ECB interest rates after the burst of the dotcom bubble, encouraged German financial institutions to hunt for higher yields in European periphery countries by participating in unfolding real estate, financial market or consumption booms. Accelerating growth and rising incomes suggested higher future tax revenues in the eventual crisis countries, which made euro periphery government bonds seem a risk-free and valuable investment. As a result, government bond yields in southern Europe declined to historical lows.

In a monetary union with diverging growth rates, national fiscal policies have to be anti-cyclical to counteract the pro-cyclical effects of monetary policy.<sup>6</sup> However, in several western and southern euro area countries, fiscal policies became pro-cyclical as spending increased, in particular relative to Germany, where faltering spending slowed down economic activity. In the upper panel of Figure 1, the relative divergence of the fiscal policy stances of Germany and the

5 G. Schnabl, H. Zemanek: Inter-temporal Savings, Current Account Trends and Asymmetric Shocks in a Heterogeneous European Monetary Union, in: *Intereconomics*, Vol. 46, No. 3, 2011, pp. 153-160.

6 P. De Grauwe: *The Financial Crisis and the Future of the Eurozone*, Bruges European Economic Policy Briefings 21, College of Europe, Department of European Economic Studies, 2010.

GIIPS countries is indicated based on primary nominal government expenditure indexed to the year 1999 (=100). We use nominal expenditures as a proxy for fiscal policy stance (rather than expenditure as a share of GDP) to control for capital inflow-driven (non-sustainable) growth effects on spending as a share of GDP.

As shown in the upper panel of Figure 1, the fiscal policy stance of Germany was relatively restrictive, as primary spending declined over time.<sup>7</sup> In contrast, in Greece and Portugal starting in 1999, public primary spending steadily increased. Ireland, Italy and Spain followed Germany's path in the first years of the monetary union but began to increase spending starting in 2003. By 2009 a considerable gap between the spending behaviour of Germany and the GIIPS countries had emerged, encouraged by rising tax revenues from unsustainable credit-financed consumption and speculation booms in the eventual crisis countries.

The lower panel of Figure 1 shows the development of tax revenues in Germany and the GIIPS countries. German tax revenues stagnated through 2005 due to public and private austerity and then only increased slowly. In contrast, the tax revenues of the GIIPS countries increased substantially, with the rise in government revenues being most pronounced in Ireland and Spain, where the low interest rate environment contributed to financial and real estate market booms. With government revenues rising faster than government spending in Ireland and Spain, government debt levels could be substantially lowered, in particular if measured as a share of GDP. However, because rising government revenues and growth effects were generated by speculative financial and real estate market booms (rather than by productivity growth), declining government debt levels can *ex post* not be classified as sufficiently anti-cyclical fiscal policy stances (as spending strongly increased during the consumption boom). Rather, fiscal policies in both Germany and the GIIPS countries can be argued to have caused or amplified asymmetric economic development.

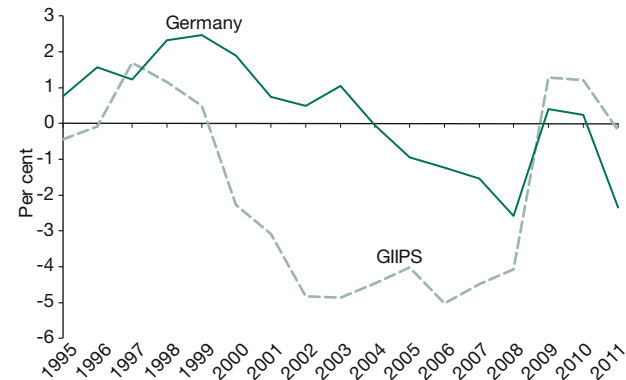
### The role of monetary policy

Diverging fiscal policy stances and asymmetric business cycles in Germany and the GIIPS countries, in particular after 2003, were linked to diverging wage policies. In Germany nominal wage austerity in the private sector was translated into real wage austerity despite rising productivity. Wage austerity in Germany was contrasted by generous wage

<sup>7</sup> This did not prevent Germany from violating the Stability and Growth Pact. The positive growth impulse of reforms was only translated into rising tax revenues with a substantial lag, mainly becoming visible during the recovery after the subprime crisis. During the period of fiscal consolidation, tax revenues declined more than spending, thereby leading to an increasing deficit.

Figure 2

### Taylor rule divergence indicator: GIIPS and Germany



Sources: IMF WEO, IMF IFS, national central banks, own calculations. GIIPS indicator calculated as unweighted average.

increases above productivity growth in both the public and the private sectors in the GIIPS countries. These wage increases were particularly pronounced in Ireland, Spain and Greece. Divergent wage and price developments became reflected in divergent de facto monetary policy stances in different corners of the euro area. Inflation rates in different parts of the monetary union diverged, with the common monetary policy becoming linked to differing real interest rates.

Figure 2 visualises the diverging one-size-does-not-fit-all monetary policy stances in the European monetary union before and after the advent of the euro in the eventual crisis countries and Germany. To create an inflation-neutral benchmark, we calculate a Taylor<sup>8</sup> rule for every single country, assuming a national inflation target of two per cent. The inflation-neutral target interest rate for single members of the monetary union is calculated based on the realised national inflation rates and the national output gaps. From this Taylor rule-based national benchmark interest rate, the ECB policy rate is subtracted. An unweighted average is calculated for the GIIPS countries. A negative value indicates an overly expansionary monetary policy stance relative to the Taylor rule benchmark, i.e. a failure to tighten monetary policy in response to rising inflationary pressure.

As shown in Figure 2, the interest rate in GIIPS countries was on average above the Taylor rule-based interest rate in 1998, but it gradually turned negative after entry into the Economic and Monetary Union (EMU). After the turn of the millennium – when interest rates were slashed in response to the burst of the dotcom bubble – the EMU money market

<sup>8</sup> J.B. Taylor: Discretion versus Policy Rules in Practice, Carnegie-Rochester Conference Series on Public Policy, Vol. 39, No. 1, 1993, pp. 195-214.

rate in the GIIPS countries further fell substantially below the interest rate suggested by the Taylor rule. After 2004, monetary conditions in both Germany and the GIIPS countries were considerably overly loose, with the GIIPS countries being substantially looser.

Given an overly expansionary monetary policy for the whole euro area and the pro-cyclical behaviour of fiscal policies in the eventual crisis countries, real exchange rates within the euro area gradually diverged. Whereas in Germany the real exchange rate depreciated based on wage austerity in both the public and private sectors, the real exchange rates of the GIIPS countries appreciated on the back of capital inflows, rising government expenditure, speculation booms, wage increases and rising prices. The divergence of the real exchange rates within the euro area can be seen as the transmission mechanism between asymmetric economic developments in the euro area and intra-euro area current account imbalances, which started to diverge sharply beginning in 2001, as shown in Figure 3. Whereas the German current account surplus (and financial account deficit) surged, the current account balances (financial account balances) of the GIIPS countries turned strongly negative (positive). Similar patterns emerged between Germany and the Central and Eastern European countries, and Germany and the US, i.e. independent of membership in the euro area.

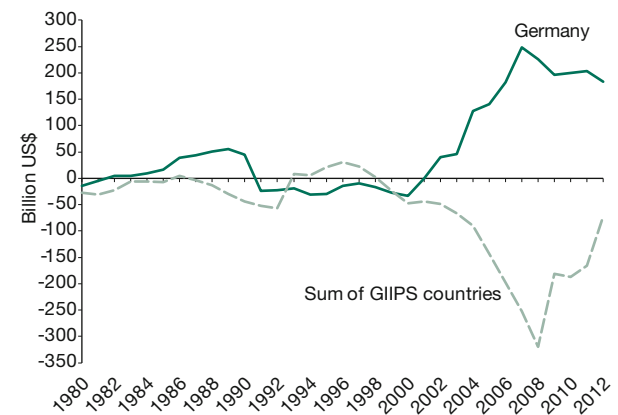
### The crisis, capital flight and TARGET2 balances

The financial crisis was triggered in 2007 by the US sub-prime crisis. European banks, in particular German *Landesbanken*, realised losses on asset-backed securities. German banks had to reassess risk, reduce their international credit exposure and repatriate capital. The private capital flows from Germany to the GIIPS (and other European) countries dried out. At the end of 2009, initial concerns about Greece's creditworthiness emerged, and the risk premium on Greek government bonds increased, followed by rising risk premiums on the government bonds of Ireland, Portugal, Spain and Italy. The fear of contagion to the euro area banking system appeared, along with the implied risk of a systemic crisis. Rescue packages by the European Commission, the IMF, and euro area countries; ECB government bond purchases; and particularly the provision of central bank liquidity via the TARGET2 system prevented the collapse of the financial system.

### The impact of the financial crisis on capital flight

During the crisis, banks in GIIPS countries lost access to the money market as foreign banks stopped lending and began to withdraw credit. Due to declining claims on periphery countries, German banks required less ECB fund-

**Figure 3**  
Current account balances of Germany and GIIPS countries



Source: IMF.

ing, whereas banks in the GIIPS countries started to rely on the ECB lending facilities to meet their liquidity demand.

The asymmetric reliance on ECB funding during the crisis started to affect the TARGET2 balances in national central banks' balance sheets. A monetary union implies and necessitates the same monetary policy stance in each of the member countries. With the ECB targeting short-term money market interest rates, liquidity supply has to be perfectly elastic to commercial banks' demand at the respective policy rate. The TARGET2 system ensures the efficient transmission of monetary policy within the EMU, i.e. an unlimited supply of liquidity at the prevailing interest rate to all euro area commercial banks with sufficient collateral.<sup>9</sup>

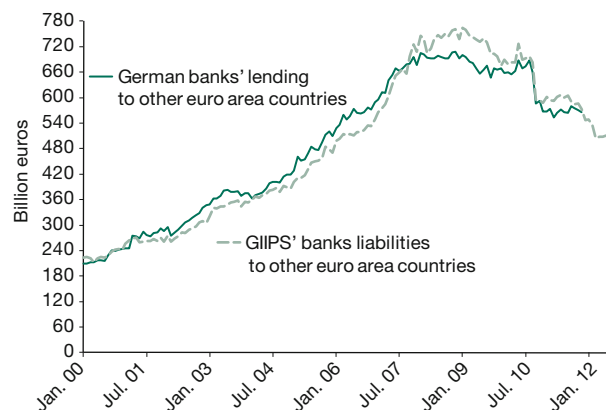
Restricting TARGET2 balances for a specific EMU crisis country in the face of capital flight from that country would be equivalent to restricting the supply of central bank liquidity to one specific part of the monetary union.<sup>10</sup> Limiting central bank liquidity quantitatively would provoke the uncontrolled rise of short-term interest rates in the crisis countries and would cause a collapse of the local banking systems with repercussions for the creditor banks in the non-crisis regions. Thus, a ceiling for TARGET2 balances for specific countries would be equivalent to a return towards national monetary policies under the umbrella of a common currency.

Before the crisis, the German banking system – participating in the E(M)U periphery boom – accumulated foreign assets versus banks and governments in the eventual crisis

<sup>9</sup> ECB Monthly Bulletin: TARGET2 Balances of National Central Banks in the Euro Area, October 2011, p. 35.

<sup>10</sup> U. Bindseil, P.J. König, op. cit.

**Figure 4**  
**Capital flight from GIIPS countries to Germany**



Source: National central banks.

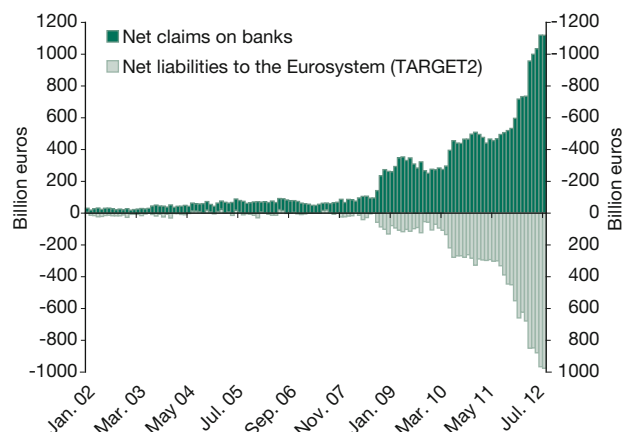
countries. With the financial crisis, this process stopped. The German banking system became risk-averse with respect to foreign assets and started to repatriate credit. Capital poured back from the periphery to Germany. In addition, some individuals in Greece, for instance, fearing a Greek euro exit and/or the default of Greek banks, started to transfer their savings from Greece to Germany (deposit flight), thereby enhancing capital outflows. Figure 4 reflects the flight of capital from GIIPS countries since 2008 and the reduction of German banks exposure to the euro area periphery represented by German banks' lending to other euro area countries and GIIPS banks' liabilities to other euro area countries.

In a world without a lender of last resort, the quasi-bank run on periphery countries' banks would have ended in the collapse of the periphery banking systems. In Germany or other creditor countries such as France, banks would have realised painful losses, as the capital flight would have been limited by the sequential-service constraint.<sup>11</sup> Not so within the Eurosystem, where the ECB started to act as a "market-maker of last resort". To avoid a potential systemic crisis, the ECB guaranteed unlimited<sup>12</sup> credit lines at the main refinancing rate to periphery banks via the TARGET2 system. As indicated in Figure 5, lending to banks – together with TARGET2 liabilities – sharply expanded in the consolidated central bank balance sheet of the GIIPS central banks. The Eurosystem has become the main funding source of periphery banks' loans to the private sector.

<sup>11</sup> Due to term transformation, only the first-movers can save their assets. That was for instance the case in Iceland, where, as capital left the country, many "slow" foreign investors (for instance, based in the UK and the Netherlands) were faced with the default of Icelandic debtors.

<sup>12</sup> Provided periphery banks have sufficient collateral. Yet we observe that collateral requirements have been loosened.

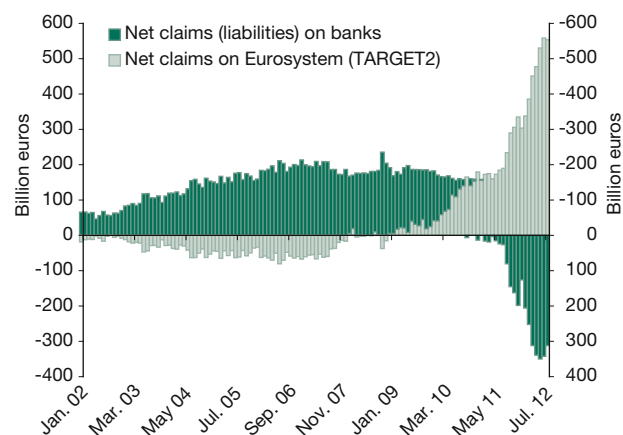
**Figure 5**  
**Refinancing of private credit by TARGET2 credit in GIIPS countries**



Source: National central banks.

Periphery central banks' net liabilities to the Eurosystem (TARGET2) are mainly mirrored in net claims of the Deutsche Bundesbank to the Eurosystem (TARGET2 net claims). *Ceteris paribus* the accumulation of TARGET2 claims on the asset side of the Bundesbank's balance sheet would be linked to liquidity expansion in the German banking system, but due to the lower credit exposure to GIIPS countries, the central bank liquidity needs of the German banking system have decreased. Figure 6 shows the changing structure of the balance sheet of the Bundesbank. On the asset side of the central bank balance sheet, net lending to domestic banks has declined and even become negative since April 2010, whereas TARGET2 claims on the Eurosystem have increased.

**Figure 6**  
**Deutsche Bundesbank – target claims and net lending to banks**



Source: Deutsche Bundesbank.



### A balance sheet approach to TARGET2 balances

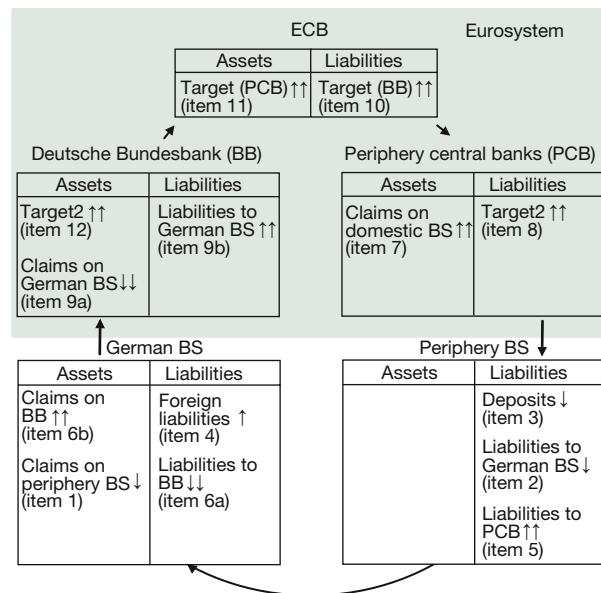
Figure 7 models the dynamics of the flight of German capital out of periphery countries back into Germany.<sup>13</sup> The German private banking sector (BS) decreases its claims on the periphery countries' banking sectors (item 1). This mirrors a reduction of foreign liabilities in the aggregated balance sheet of the periphery countries' banking sectors (item 2). Simultaneously, Greek citizens, for example, reduce their deposits at Greek banks (item 3) and increase their deposits at German banks, where foreign liabilities increase (item 4). Periphery banks fill the financing gap resulting from deposit flight and foreign credit crunch by increasing their reliance on central bank credit (PCB) (item 5). In Germany, declining claims on foreign banks and rising foreign deposits reduce the need for refinancing at the central bank. Liabilities to the Bundesbank decline (item 6a).

At the periphery of the Eurosystem, the volume of open market operations increases on the asset side of the periphery central banks' (PCB) balance sheets (item 7, matching item 5). As the increasing liquidity demand is provided by the ECB, TARGET2 liabilities increase on the liability side of the periphery central bank balance sheets (item 8, matching item 11). In Germany the declining refinancing needs make the claims of the Bundesbank on the German banking sector shrink (item 9a, matching item 6a). As the ECB intermediates the international transfer of capital to the Bundesbank via the TARGET2 system, the ECB's TARGET2 liabilities to the Bundesbank increase (item 10, matching item 12).

Within the Eurosystem, TARGET2 balances start to diverge, as both the liabilities of the crisis countries (item 8) and the assets of safe haven countries such as Germany (item 12) rise. Once this process reaches a point where the Bundesbank's claims on the German banking sector have reached zero, the build-up of TARGET2 assets (item 12) has to be matched by the Bundesbank's liabilities to the German banking sector (item 9b).

The upshot is that given the reduced credit exposure of the German banking sector in periphery countries and capital flight from periphery countries to the German safe haven, the Bundesbank was transformed from a central bank which provides – in net terms – credit to the domestic banking sector into a debtor central bank which absorbs li-

Figure 7  
Financing of intra-euro area capital flight



quidity from markets.<sup>14</sup> Whereas in the crisis countries, the national central banks were transformed into unconditional lenders of last resort, the German banking system, whose net claims on the central bank have increased, now holds liquidity in excess of its reserve requirements.

The effect of this capital flight on the financial account (and thereby on the current account) is zero. Private (German) claims to crisis countries are substituted by public (i.e. TARGET2) claims to crisis countries. The adjustment of the current account deficits of crisis countries which would be triggered by the repatriation of private capital is postponed, and the international liabilities of crisis countries continue to persist and even increase further. Whereas the crisis countries and the European banking system are stabilised, as public claims are less sensitive to changes in risk perception, the international liabilities of the crisis countries have not been reduced but instead further increased on the back of persistent current account deficits. In the short run, a full-fledged economic crisis has been prevented. However, Germany's high and increasing TARGET2 claims (as well as those of other TARGET2 creditor countries) imply rising risks for taxpayers in Germany if – in the case of a euro area exit – the crisis countries default on their TARGET2 liabilities. This enhances the crisis coun-

13 The approach follows J. Abad, A. Loeffler, H. Zemanek: TARGET2 Unlimited: Monetary Policy Implications of Asymmetric Liquidity Management within the Euro Area, CEPS Policy Brief, No. 248, Centre for European Policy Studies, Brussels 2011; W.H. Buiter et al., op. cit.; and U. Bindseil, P.J. König, op. cit.

14 For a more detailed distinction of creditor and debtor central banks, see A. Loeffler, G. Schnabl, F. Schobert: Inflation Targeting by Debtor Central Banks in Emerging Market Economies, CESifo Working Paper, No. 3138, 2010.

tries' bargaining power regarding the conditions applied to rescue packages (moral hazard).

### Asymmetric liquidity management in a heterogeneous Eurosystem

Currently, the Eurosystem provides liquidity to one region of the euro area at the main refinancing rate (currently 0.75 per cent) and absorbs liquidity from other parts of the monetary union, in particular Germany, at the deposit rate (currently zero per cent). Because the de facto policy rate in Germany – where economic development is positive – is lower than in the crisis countries, the monetary policy stance is again pro-cyclical. It may cause overinvestment and speculative bubbles in Germany, in particular in the real estate market.<sup>15</sup>

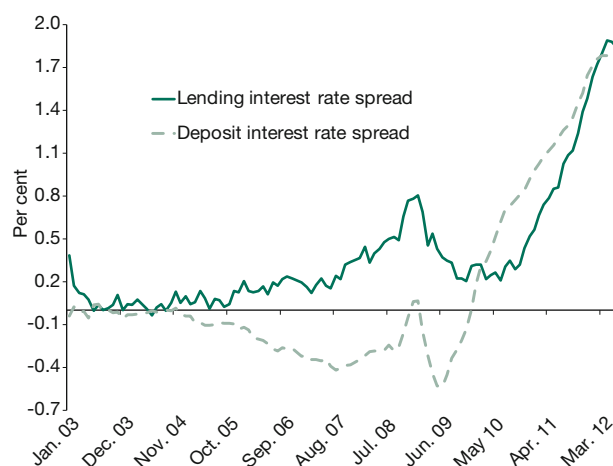
There are three major alternatives for the ECB to deal with the liquidity surplus in the German banking system. First – as is currently the case – it could do nothing and just offer German banks access to the ECB deposit facility as long as German banks deliberately deposit liquidity at the central bank. Second, the ECB could conduct liquidity provision and absorption at the same interest rate. Third, liquidity could be absorbed through non-market based instruments such as (unremunerated) reserve requirements.

#### Deposit facility – no active liquidity drain

Currently, German banks are hoarding ample liquidity at the deposit facility. Due to the excess liquidity in the German banking system, interbank interest rates for non-crisis banks which have access to interbank funding have dropped to the Eurosystem's overnight deposit facility, which is remunerated 75 basis points below the main refinancing rate. At this rate, banks are principally indifferent on whether to invest their excess liquidity with other commercial banks or invest it at the Eurosystem's deposit facility.

Since commercial banks in the crisis countries are virtually excluded from the interbank market, they need to refinance their assets at the main refinancing rate. Therefore the refinancing costs of banks in crisis countries are higher than in the non-crisis countries (e.g. Germany). Furthermore, because deposit flight occurs, they have to keep deposit interest rates comparatively high. Figure 8 shows the difference between the average deposit interest rate of crisis country banks and that of German banks (deposit interest rate spread) and the difference between the average lend-

Figure 8  
Banks' interest rate spreads



Source: IMF IFS.

ing interest rate applied by crisis country banks and the rate applied by German banks (lending interest rate spread). As Figure 8 makes apparent, the lower refinancing costs in Germany are already translated into looser credit conditions.

In addition to depressed yields on government bonds in Germany, the lower short-term interest rates can foster overinvestment in Germany and other safe haven countries when excess liquidity is transformed into rising credit to the private sector. Inflationary pressures, together with the usual hazards associated with excessive and/or riskier lending in Germany, could be two possible outcomes.<sup>16</sup> Just as in Ireland and Spain, an overinvestment boom in Germany could centre on the real estate markets, as real estate prices have started to rise.

#### Deposit taking and liquidity providing at the same interest rate

To discourage German banks from financing risky investment, the Eurosystem could drain liquidity from the German banking sector either through reverse repos at an interest rate close to the main refinancing rate or via implementation of a floor system by conducting deposit taking and liquidity providing at the same interest rate. If excess liquidity is completely absorbed, this option could ensure a common monetary policy stance within the euro area. But there are two main consequences.

First, capital flows from crisis countries to Germany could accelerate, as the opportunity to invest in remunerated cen-

15 A. Hoffmann, G. Schnabl: A Vicious Cycle of Manias, Crises and Asymmetric Policy Responses – An Overinvestment View, in: *The World Economy*, Vol. 34, No. 3, 2011, pp. 382–403, argue based on the monetary overinvestment theories of Hayek and Mises that interest rates below what Hayek and Mises call natural interest rates encourage overinvestment and speculation booms.

16 The anticipation of the higher capital requirements of Basel III and the necessary write-downs of non-performing loans counteract this scenario.



tral bank debt instruments would provide an incentive for German banks to withdraw even more credit from the crisis countries. The Eurosystem would likely further accumulate risky assets, as private capital flowing to Germany would lead to increasing demand for central bank liquidity by periphery banks. To guarantee that the supply of central bank liquidity is perfectly elastic at the ECB's policy rate, collateral requirements would eventually have to be further eased. The default risk of riskier assets would be borne by the ECB and, ultimately, by the individual national central banks in accordance to their capital key.

Second, issuing debt certificates at the policy rate would discourage interbank lending and hamper the reactivation of the euro area interbank market. Because there would be no (or minimal) opportunity costs<sup>17</sup> to banks holding high precautionary excess reserves, the hoarding of reserves at the central bank would further inflate the balance sheet of the ECB. While banks would be insured against liquidity shortfalls at nearly no cost to them, the risk borne by the ECB would rise with the increasing stock of risky assets.

#### Non-market-based liquidity drain

To absorb liquidity from the German banking system (without triggering capital outflows from crisis countries), the Eurosystem could impose different reserve requirement ratios in Germany and the GIIPS countries.<sup>18</sup> In contrast to market-based absorption measures such as the reverse repos or the selling of central bank bonds where commercial banks are free to invest on their own initiative, an increase of binding unremunerated required reserves at German banks would force them to hold deposits at the Eurosystem. Excess liquidity, which could otherwise be used for speculative investments, would be absorbed.<sup>19</sup>

Apart from the fact that the principle of a common monetary policy within the currency union would be undermined, the outcome of absorbing liquidity by legal force would make deposit funding for German banks even more unattractive. The deposit demand and thereby deposit interest rates would further decline. Because lower deposit interest rates may boost current consumption, the tightening impact of higher reserve requirements in core countries is not obvious.

17 The level of precautionary excess reserves would be limited only because banks would need to pledge collateral to receive central bank funds.

18 P. De Grauwe: What Kind of Governance for the Eurozone?, CEPS Policy Brief, No. 214, Centre for European Policy Studies, Brussels 2010.

19 In practice, minimum reserve requirements would need to be increased in all euro area countries, which are interconnected with the German banking system through the interbank market.

#### Economic policy implications

Sinn and Wollmershäuser<sup>20</sup> have triggered a controversial discussion on the role of TARGET2 imbalances in perpetuating intra-European current account imbalances. We have argued that the European debt crisis was caused by divergent intra-European fiscal policy stances and an expansionary monetary policy, which have contributed to rising intra-EMU current and financial account imbalances and diverging crisis-prone international liability positions. The repatriation of German private credit and the deposit flight from the crisis countries have been matched by the rising TARGET2 deficit positions of the European crisis countries. The TARGET2 system has buffered the destabilising impact of the deposit flight and has further helped to prevent a full-scale banking and financial crisis in the debtor and, possibly, the creditor countries. The downside is that the TARGET2 payment system helps to postpone the necessary adjustment of fiscal balances and unit labour costs, which would reduce current account imbalances in the euro area to a sustainable level.

Facilitated by the TARGET2 system, rising German banking sector deposits at the Bundesbank imply an inherent risk of undue credit growth and therefore inflationary pressure or asset price bubbles in Germany. This can only be mitigated by liquidity absorption in Germany, which is not in line with a one-size-fits-all monetary policy. We have shown that the TARGET2 system also contributes to the nationalisation of intra-euro area private asset and liability positions. This implies rising risks for the European Central Bank and its independence (when losses on high-risk assets are realised and capital is eroded) as well as rising risks for European taxpayers (when the ECB has to be recapitalised or central bank losses lead to lower future seigniorage income).

To mitigate these risks, an adjustment of these policies which have caused the divergence of current account imbalances in Europe is necessary. Fiscal policies in crisis countries have to be stabilised towards a sustainable level, and wages need to be aligned with productivity. Structural reforms of rigid labour markets in crisis countries as well as rising wages in Germany could enhance the adjustment of macroeconomic imbalances. If these reforms lead to economic growth picking up in the euro area periphery and the restoration of investors' confidence in crisis countries, TARGET2 balances are likely to decline as domestic savings restock banks' deposits and private capital begins to flow back south. Establishing confidence in the crisis countries through ECB purchases of the crisis countries' government bonds could also fulfil this role. However, this would be equivalent to merely shifting the risk of default from crisis countries' TARGET2 imbalances to ECB holdings of the crisis countries' government bonds.

20 H.W. Sinn, T. Wollmershäuser, op. cit.