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Financial crisis in euro area and policy response

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Abstract: Six years since the outset of the crisis its nature in the euro area is still hotly debated. Views include fiscal prolificacy, lack of competitiveness, current account imbalances, sudden stop of capital and banking crisis. The paper argues that the crisis in the euro area since the outset has been financial and systemic, taking place on the background of a leveraged private sector financed from the core of the euro area and highly integrated financial system without integrated risk monitoring. Yet, the crisis has revealed that member states in absence of a lender of last resort function are subject to destabilizing speculation and some have practically narrow or no margin of maneuver to offset shocks requiring the completion of the monetary union with a common fiscal stabilizing mechanism.

Key words: euro area, financial crisis, peripheral countries, core countries, balance of payments, sudden stop of capital, banking crisis, Target balance, monetary policy, fiscal policy

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Financial crisis in euro area and policy response

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LIST OF ABBREVIATIONS

CAC	Collective Action Clauses
EA	Euro area
EBITDA	Earnings Before Interest, Taxes, Depreciation and Amortization
ECB	European Central Bank
EC	European Commission
EFSF	European Financial Stability Facility
ESM	European Stability Mechanism
ESRB	European Systematic Risk Board
EU	European union
GDP	Gross domestic product
GIIPS	Greece, Ireland, Italy, Portugal and Spain
IMF	International Monetary Fund
LTRO	Long term refinancing operations
OECD	The Organisation for Economic Co-operation and Development
OTR	Outright Monetary Transactions
REER	Real effective exchange rate
SP	Stability Program
SRF	Single Resolution Fund
SSM	Single Supervisory Mechanism
TARGET	Trans-European Automated Real-time Gross Settlement Express Transfer System
UK	United Kingdom
US	United States

Povzetek

Razprave o vzrokih finančne krize so tudi po šestih letih še vedno aktualne. Finančna kriza je nastala zaradi delovanja več dejavnikov: prekomerni fiskalni primanjkljaji, poslabšanje konkurenčnosti gospodarstva, neravnovesje tekočih računov plačilne bilance, nenadni obrat kapitalskih tokov in bančna kriza. V delovnem zvezku analiziramo finančno krizo in neravnovesja evrskega območja, nastala zaradi prezadoženosti perifernih držav (*angl.* peripheral countries), ki so si brez vključenega tveganja in nadzora finančna sredstva izposojala iz držav takoimenovanega jedra (*angl.* core countries). Ekonomska politika si je prizadevala ponovno ovrednotiti breme dolga, saj je s krizo nastalo nezaupanje na medbančnih trgih. Tako je ECB leta 2012 poleg nadaljnjih ukrepov dolgoročnega refinanciranja začela izvajati še program OMT, na osnovi katerega je na sekudarnem trgu kupovala kratkoročne državne obveznice evrskih držav. Ob negotovosti glede vrzdržnosti javnega dolga in omejenem dostopu do trgov financiranja je potrebno poleg monetarne unije vzpostaviti tudi skupni fiskalni stabilizacijski mehanizem. Breme zunanje dolga zasebnega sektorja se je namreč preneslo na državni sektor, kateremu se je skrčil fiskalni prostor (konsolidacija). Ekonomska politika mora zato uravnavati zmerno razdolževanje in spodbuditi agregatno povpraševanje, ki bo pospešilo gospodarsko rast in odpravilo neravnovesje.

Summary

Six years since the outset of the crisis its nature in the euro area is still hotly debated. Views include fiscal prolificacy, lack of competitiveness, current account imbalances, sudden stop of capital and banking crisis. The paper argues that the crisis in the euro area since the outset has been financial and systemic, taking place on the background of a leveraged private sector financed from the core of the euro area and highly integrated financial system without integrated risk monitoring. The underlying diagnosis underpinning the policy response only recognized the systemic dimension of the crisis at a very late stage. The policy response pursued the redefinition of debt burden sharing arrangements against private creditors at the time of major crisis of confidence and in absence of relevant backstop facilities for government and banks. This triggered self-fulfilling crisis expectations that put at stake the existence of the monetary union. It was required the effective ECB communication on Outright Monetary Transactions in 2012 to move the euro area away of a such an adverse equilibria. The euro area emerging institutional architecture provides a stronger set up to deter and to cope with future potential systemic financial crisis. Yet, the crisis has revealed that member states in absence of a lender of last resort function are subject to destabilizing speculation and some have practically narrow or no margin of maneuver to offset shocks requiring the completion of the monetary union with a common fiscal stabilizing mechanism. The existence of such an arrangement and of devising a single fiscal stance at euro area level is particularly relevant in the post crisis period. This is because private debt burden has been transformed into public one reducing fiscal space and there is weak aggregate demand requiring policies that contribute to a conducive environment for an orderly deleveraging and correcting imbalances.

"A passer-by sees a man looking under a lamppost and asks what he is trying to find. "My keys," he replies. They look for a while but find nothing. The passer-by asks whether the first man is sure he lost his keys here. "Oh, no," replies the man. "But this is where the light falls." *(Martin Wolf)*

1 INTRODUCTION

This paper looks at the causes, propagation and financial adjustment to the systemic financial crisis still affecting the euro area; the first systemic financial crisis of the common currency area with its origin in the banking sector. The focus of the paper is on the common drivers of the process and to a lesser extent on country specific conditions of euro area members which contributed to crisis and its propagation (i.e. mainly highly leveraged financial institutions, private sector debt build up and prior misallocation of financial resources). This is because the crisis from the outset can be regarded as systemic to the monetary union although affecting member states with different degree and direction. Recognizing the common dimension of the crisis is a key to understand the evolution of events, spillovers and deepness. It is likely that such a crisis would not have taken place under a different policy set up in which countries would have enjoyed independent monetary policy and faced a fragmented or more narrow financial investor base such as that existing prior to monetary union. The consequences of the crisis and its deepness would have been also lessened if at an early stage its common, systemic nature and financial dimension would have been recognized and addressed.

The emphasis is placed on the common dimension of the crisis to euro area member states, since it was generated in conditions in which countries shared the following conditions: lacked independent monetary policy; exhibited strong financial integration which underpinned the high leverage of financial institutions and their clients; faced light financial regulation and low interest rates. Thus the approach followed highlights the importance of the common policy response, as the fate of the monetary union and member states is collective. This does not neglect the importance of country specific conditions and policy effort in handling the crisis. However, since financial panic and loss of confidence are at its core, creating and fostering confidence required a comprehensive and swift response at supra national level (e.g. effective backstop to government debt). This came only at late stage when the crisis already threatened the very existence of the monetary union due to the fear that individual member states lacked the fiscal capacity to handle the disproportion of the crisis. The policy response at euro area level aimed at minimizing cross border fiscal costs related to potential bailout by means of redefining debt burden sharing arrangements between creditor and debtors amidst and fueling the confidence crisis. This resulted in the coordination of decentralized lender decisions into coordinated self-fulfilling crisis behavior, run on liabilities of vulnerable member states and thus fragmentation of the monetary union and payment system.

The paper argues that the crisis was triggered by financial panic resulting in a sudden banking funding stop and reversal of funding flows leading to systemic banking crisis in the euro area. Such a crisis can be regarded as one in which the entire financial system of the whole monetary area is engulfed (Gorton 2012) affecting the workings of pre-crisis financial channels. The nature of crisis since its origins has been financial. Its evolution reflects the intertwining of the policy responses at euro area and country levels, country specific vulnerabilities (e.g. reliance on euro area financial funding) and relative strength of fundamentals. Although the crisis can be regarded due to its sequencing as: banking, country-specific sovereign debt and monetary union crisis, in reality it can be said that from the outset it was a systemic crisis of the monetary union. One of the most visible traces of its systemic nature is the strong disintegration of cross border banking flows.

The impact of the crisis in the euro area member countries is reflected on changes in the pattern of balance of payment transactions, including those transactions registered in the Eurosystem TARGET2, adjustment in sectors' balance sheets, economic activity, employment, renationalization of banking sector and other relevant variables. The paper traces the impact of the banks funding shock and its propagation as mirrored on various balance of payment transactions of different sectors of vulnerable euro area member states. It is argued that transactions of balance of payments reflect the buildup of vulnerabilities and the impact of

the dramatic disruption on financial flows (the common factor) rather than causing the crisis. Country specific external accounts capture the interaction of the common disruption of financial flows and the net structural borrower positions and vulnerabilities (idiosyncratic factor) buildup before the crisis, when as a result of monetary union the financial sector was strongly integrated, risk perception improved and access to funding was relatively easy (e.g. leading to private sector leverage). Transactions of balance of payments capture the following: the impact of the discontinuity of financial flows affecting originally banks and financial intermediaries (i.e. financial crisis) in the common currency area; the mutation of the sudden stop of capital into sovereign debt crisis and; the manifestation of the crisis into an explicit crisis of the currency union putting at risk its very existence. Thus, balance of payments' transactions mirror the adjustment of various sectors to the sudden stop of capital, successive multiple shocks and confidence erosion resulting from worsening conditions and risk perception of institutions, member states and monetary union. The paper documents how the policy response to the crisis contributed to its propagation and mitigation only at a later stage. In the context of the sequencing of events, it looks at contagion and spillovers and how the vulnerabilities intensified and also affected Slovenia which built imbalances in the run to the crisis.

The paper is divided in five sections. The first looks at the type and causes of the euro crisis. The second dwells on overall financial conditions at the outset of the crisis. The third section traces the change in financial conditions brought by the crisis to the transactions in the balance of payments of peripheral countries. The fourth section looks at the policy response at the euro area level and its impact on the crisis, spillovers and mitigation. The fifth section focuses on how Slovenia coped with its own policy challenges amidst the profound change in conditions brought by the euro area crisis and contagion. The last section concludes.

2 TYPE AND CAUSES OF THE CRISIS

An appropriate diagnosis of the causes of the crisis affecting the euro area and its members is of outmost importance as well as assessing the suitability of the type and timing of policy measures addressing it to understand its evolution. From the outset focusing the policy response on the financial and systemic dimension of the crisis to avoid the adverse consequences of underestimating the risks for overall economy and recovery of euro area would have been desirable. Yet, six years since the onset of the international crisis its nature in the monetary union is still being debated. As such risk have been underestimated as reflected in the evolution of the policy response including until recently the reluctance of creating a backstop facility to shoulder the financial burden of addressing capitalization and resolution of banks and thus disentangle the link between sovereigns and banks. There are various examples of the different views of the nature of the crisis. According to an editorial of the Financial Times (May 2013) the real problems of the euro area lie in excessive current account imbalances, disintegration of banking union and weak growth but not on fiscal discipline with the exception of Greece. On the other hand according to Wyplosz (2013) the euro area crisis is not caused by issues such as competitiveness but is the lack of fiscal discipline broadly defined to include adequate banking supervision. According to Philipon (2014) some economists see the crisis as driven by fiscal indiscipline, others by external imbalances and sudden stops of capital, and others by excessive private leverage. Given the different views regarding the causes of the crisis and state of the economy, it can be argued that the risks for individual countries and as such for the overall monetary union are still present as policy response are devised upon a diagnosis of underlying challenges.

The implicit diagnosis and perception policy makers had about the reasons of the crisis since its outburst can be traced out from the sequencing and type of policy responses. They have so far included: i) strengthening the fiscal framework for budgetary surveillance through the Treaty on Stability, Coordination and Governance (2011) and so-called "Six-pack" (i.e. fiscal dimension); ii) tackling

macroeconomic imbalances though the so-called Macroeconomic Imbalance Procedure (with a range of indicators emphasizing competitiveness); iii) creation of the European Systemic Risk Board (ESRB) to avert the instability of the financial system[1]; and iv) endorsing a banking union (2013) to address the vulnerabilities and tensions of co-existence of banks operating in a financially integrated space but located in members states with relatively limited or strained fiscal capacity. The later included the establishment of a Single Supervisory Mechanism (SSM) through the attribution of banking supervision tasks to the ECB and creation of a Single Bank Resolution Fund. In direct relation to the crisis two financial stabilization mechanisms were created with relative small financial power: the European Financial Stabilization Mechanism (EFSM) and the European Financial Stability Facility (EFSF). In 2012 they were replaced by a permanent rescue mechanism the European Stability Mechanism (ESM). The euro area policy response evolved towards one that recognized the systemic nature of the crisis and the weaknesses of design of the monetary union (i.e. common dimension). Nevertheless, policy response at euro area's level still falls short to fully dispel concerns about the reasons underlying the crisis, to speed up adjustment and sustained the strength of recovery of the monetary union. This includes the lack of single banking deposit insurance system. Similarly, the roles of fiscal transfers and issuance of common debt to underpin the strength of monetary union are still anathema while the aggregate policy mix so far has failed to create a conducive macroeconomic environment to facilitate adjustment and private sector deleveraging in vulnerable countries increasing the risk of a protracted crisis.

There are two main views regarding the origin of the crisis at euro area level. One points out to fiscal policy and the other to the drivers of balance of payment dynamics including those flows registered in TARGET2 system. Within the later there are two views, one pointing at competitiveness and the other to the role of capital flows. The view holding that the crisis in euro area was caused by fiscal profligacy seems to be marginal and valid mostly in the case of Greece. Among those suggesting the role of balance of payments, one points out at current account transactions and the role of competitiveness (minority view) and the other at financial account transactions and the role of capital flows. There are also some conciliatory views recognizing the validity of both arguments in explaining the crisis and argue for a third one related to the so-called redenomination risk or the risk of a re-emergence of national currencies in euro area (for a review of the literature Cecchetti et.al. (2012)).

The view that the crisis in euro area is a balance of payment crisis associated with loss of competitiveness has been forcefully put forward by German economists Sinn and Wollmershauser. According to Sinn (2014) the lack of competitiveness of Southern European countries and France is the underlying problem of the unresolved financial crisis. Sinn and Wollmershauser (2011, 2012a) claim that TARGET2 imbalances (on our view reflecting mainly outflows of capital from euro area peripheral countries without counterpart of capital inflows) are the result of a classical balance-of-payments imbalance (Sinn and Wollmershauser (2012b). Their argument is that current account imbalances of the peripheral countries, financed by creation of money, are reflected in the increase in TARGET2 liabilities (Sinn and Wollmershauser 2011).[2][3]

[1] The macro imbalances process implicitly replaces the role of exchange rate in signaling and adjusting excess aggregate demand or structural problems by focusing among other indicators on performance of export, labor and product markets. The ESRB is an institutional arrangement, aiming at identifying asset prices and credit bubbles driven by financial exuberance, capital flows and credit in a globalized world which also lay at the hearth of developments in competitiveness.

[2] "..the increase in Target liabilities created by the additional creation of money in these countries was of a magnitude that financed the current account deficits"

[3] According to Deutsche Bank 2011 below the surface of the euro area's public debt and banking crisis lies a balance-of-payments crisis caused by the misalignment of internal real exchange.

Furthermore, according to Sinn (2012) the ECB might have caused capital flight as it replaced private flows to finance current account deficits.[4] The other main view explaining the crisis points out at the role of capital flows and reversal of outstanding stock of cross border claims. It includes authors such as Buiter et al (2011), Mody and Bornhorst (2012), Bindseil and König (2012), Cecioni and Ferrero (2012), and Pisani-Ferri and Merler (2012).

The fundamental question is whether the nature of the current crisis in the euro area is indeed a current account's balance crisis triggered by perceived unsustainable current account position and loss of competitiveness of particular member states or a financial crisis triggered by the collapse and erosion of confidence of financial market participants and reflected in the capital account. If it is the latter case the sequencing would be a financial crisis that first affected financial intermediaries and caused a sudden stop of capital, then it became the first banking crisis in the common currency area, turned into sovereign debt crisis and in a later stage manifested in an explicit crisis of the monetary union. The answer to this question contributes to understand the appropriateness of policy response at the euro area and member state level and in particular in light of the fiscal capacity of individual member states to deal with a crisis affecting the monetary union.

Prior to the crisis the notion that an euro area member would be subject-to-balance of payment crisis and of the persistence of current account imbalances was not controversial. This issue was regarded as an important "unknown unknown" concerning the monetary union by Pisani-Ferri and Merler (2012). In their view the events in euro area since 2009 suggests the existence of such a possibility.Concering the literature, Garber (1998) and Kenen (1999) are some of the few economists addressing the issue of balance of payment crisis in a monetary union. In the first case, the envisaged crisis scenario was one of speculative attack and not of a current account balance driven crisis. In particular, it was envisaged some form of attack due to different effect to business cycle shocks and reluctance of a given national central bank to provide unlimited credit.[5] In the second case, two triggers were identified: The reluctance of a given euro area member's central bank to increase claims (which in fact is not at discretion of individual central banks members of the ECB) against a country running current account deficits (i.e. intra-EMU imbalances); and internal opposition to monetary union in a given country. It seems that both contributions point out to the vulnerabilities of the monetary union to the interruption of the common currency payment system and lack of a centralized lender of last resort to underpin it rather than to a balance of payment crisis associated to transactions settled in foreign currency and sustainability of current account .

The issue is that a balance of payment crisis involves the lack of foreign currency to settle external transactions, massive outflows of capital in terms of foreign currency or depletion of external reserves. In a monetary union individual central banks do not hold external reserves while settlement of transactions, domestic and cross border among member states takes place in the domestic common currency issued by the common monetary authority. Those transactions are settled in a centralized platform to which central banks of member states are part. Therefore, it is not clear whether the crisis in the euro area could at all be interpreted as balance of payment crisis caused or triggered by the perception of unsustainable current account imbalances. As long as member states hold, generate within (credit intermediation) or have access

[4] "the ECB compensated for, and may even have caused, capital flight inasmuch as it replaced expensive foreign interbank credit with cheaper credit from the local electronic printing presses, and helped maintain and prolong structural current-account deficits that otherwise would have been difficult to finance"

[5] In formulating the attack scenario Garber refers to the Bundesbank unwillingness to provide unlimited credit at the time of collapse of ERM in 1992.

to flows of common currency deriving from commercial or financial transactions including those facilitated by central bank operations their cross border transactions can be carried out uninterruptedly.

In the world of no-monetary union the impact of foreign trade and financial transactions on money creation depends importantly upon the type of exchange rate regime in place. In the case of a monetary union the impact of commercial and financial transactions among its members are reflected automatically in money creation and as such are undistinguishable from the impact of domestic financial transactions and financial intermediation. Given that domestic central banks in a monetary union do not accumulate external reserves arising from trade and capital flows among members, which will be the case in a fixed exchange rate regime or a currency board which is extremely dangerous in a world of free and volatile capital flows, this implies that current account crisis cannot take place. What can occur in a common currency and among its members is a shock, interruption or reversal of financial flows among members leading to liquidity, insolvency and debt crises.6 In such events, to the extent that the ECB does not provide liquidity to solvent banks to facilitate domestic and cross border transaction the payment system can be interrupted and potentially lead to collapse of institutions. Furthermore, the interruption of cross border funding when affecting the sovereigns in a monetary union can become serious, leading to debt crisis to the extent that they cannot monetize government debt because of lack of independent monetary policy.

Depending of a member states' intrinsic vulnerabilities, particularly depending on the leverage of its various sectors, severe adverse shocks can affect the capacity of generating flows and holdings of common currency. This is particularly the case under an episode of sudden stop of capital. As a consequence, balance sheet adjustments of various sectors of the economy would ensue with real impact on the economy. The adjustment would consist of repairing the capacity to generate and attract domestic currency to enable the financing of domestic and cross border transactions rather than to accumulate external reserves to facilitate external trade alone. Thus a massive adverse financial shock (sudden stop of capital) affecting balance sheets of various sectors (i.e. particularly those leveraged) would generate a similar adjustment process in terms of balance sheet strengthening of the private sector than in the case of a balance of payment crisis. However, the adjustment would concern not only the balance sheet strengthening of those entities engaged in foreign trade but also of all entities, including viable leveraged ones, whose liquidity and refinancing risk increase given to an adverse change in overall liquidity conditions in the common currency. In such circumstances preserving the integrity of the payment system is of outmost importance. Therefore, the appropriate policy implications should be drawn not only taking into account balance of payment statistics but the entire balance sheets of various sectors and entities and their interaction within and across borders. The fact that post-crisis adjustment in current account imbalances in peripheral counties has been slower than the sharp correction in countries that underwent typical balance of payment crisis also reflects the fact that holdings of foreign currency are not the underlying budget constraint to finance cross border transactions but holdings of domestic common currency to settle domestic and cross border transactions.

Given that domestic and cross border transactions among euro area members are settled in a common currency, there is no currency risk and thus credit risk and creditworthiness become essential when engaging in internal and external financial transactions. Also in a monetary union where large troubled financial institutions are not perceived as to big-to-fail or to the extent that governments enjoy enough capacity to provide backstop to large financial entities in case of need, domestic and cross border transactions should not be massively interrupted but the impact should be restricted mainly to the

[6] This is particularly the case when decentralized individual decisions get coordinated by common event, factor or other type of trigger.

troubled institution and its respective creditors. However, prior to the crisis the risk perception was blurred by the massive size of capital flows among developed countries and particularly among euro area members and by the buoyant economic conditions they created. Furthermore the crisis revealed the huge indebtedness of financial entities, banking systems that in size are various multiples of their countries respective GDPs and of the private sector. This, in the context of the sudden stop and coordination of expectations that it created, made of the to-big-to fail entities not the exception with important potential impact on governments' balance sheets. From the outset such a huge vulnerability put a premium on policies that would maintain confidence and financial integration and which would ensure an orderly deleveraging of private sector and thus the survival of the monetary union. In particular, the systemic and financial nature of the crisis put a premium on policies that would defuse the coordination of self-fulfilling crisis expectations that underpinned the propagation of the crisis.

In the absence of foreign currency to settle transactions among euro area members characterizing the crisis as one of balance of payments does not make sense. This might explain why in the pre-crisis period such a possibility received relatively low attention from the academia. A more accurate characterization of the crisis seems to be of a financial crisis with impact on payment system and financial flows. The possibility of a systemic banking or financial crisis in a monetary union on the back of confidence erosion also seems not to have been explored at large.

Regarding the possibility of a banking crisis in a wide monetary union and contagion there were early concerns about the capacity of a decentralized system in euro area to deal with crisis management and with wide systemic implications (e.g. Prati et al. 1999). Evidence also points out at policymakers becoming increasingly aware of European systemic financial risk and of their concerns regarding the limitations of at that time exiting decentralized institutional set up to deal with it (Schinasi 2007). Yet, the policy focus seems to have been more on cross-border burden sharing rather than on a systemic financial crisis and policies to address it. In particular, various key issues of a systemic financial crisis were not explored. For example, dealing with contagion and the consequences of the unprecedented retreat of cross border banking activity; defusing coordination of expectations that become self-fulfilling; the impact on the economy and the financial capacity of individual sovereigns to deal with massive financial shock and impact on their balance sheets (i.e. too-big-to fail) without independent central banks and; the role of EU state aid framework in the event of financial crisis. Another dimension that seems to have also received less attention was the vulnerability arising from private sector indebtedness including to big-to-fail institutions to shocks.

In this paper the view is that the crisis as reflected in balance of payments accounts of core and vulnerable countries and TARGET2 is systemic, it has its origin in the financial system and was triggered by panic. The collapse of confidence and appropriate policy response to tackle it has being the key ingredient spreading and propagating the crisis. Balance of payment accounts reflect the transmission and propagation of the financial crisis encompassing also sovereign debt. As such balance of payments accounts are not the cause but the effect of a profound crisis of confidence originated in the deep disruption of an integrated global financial system (i.e. banking system) that took place on the back of ex-post visible highly leverage position of private sector in at that time highly integrated euro area.

According to Gorton (2012), a financial crisis takes place when banks' debt holders run on such a debt. This definition can be extended and applied to the run of holders on government debt, such as that experienced by some euro area countries, particularly from other euro area residents, leading to shrinkage of the euro area government debt market and widening of debt spreads. More broadly, if in the context of the monetary union the risk of currency redenomination is also taken into account, a systemic financial crisis can be understood as an event in which investors run away from all type of liabilities from sectors or

countries perceived as risky and thus lead to its financial fragmentation. This phenomenon in turn can be traced in the transactions of balance of payments of core and peripheral euro area countries.

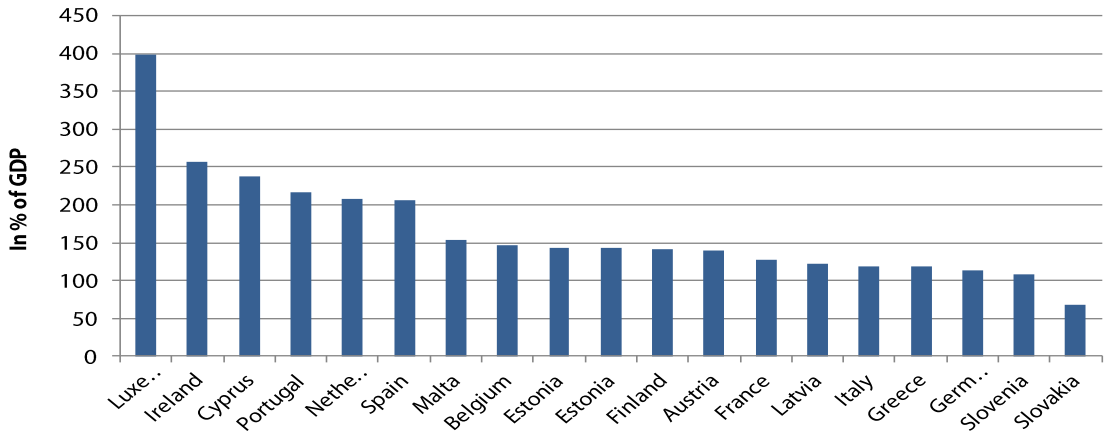
3 FINANCIAL INTEGRATION, LEVERAGE BUILD UP AND BANKING FREEZE

In understanding the financial crisis and its consequences in euro area two important considerations are relevant. One is the enormous financial expansion that took place at the global level before the crisis with the private sector leverage at the center stage (Borio (2012); Shin (2012), Lane (2012), Obstfeld (2012), and Taylor (2012)). The second relates the evolution of interbank liabilities in the pre and post crisis periods. Financial intermediation and banks' liabilities expanded dramatically prior to the crisis exposing financial intermediaries to sudden reversals of funding. This expansion also resulted in large private debt increase in most European countries. In the post crisis period interbank activity practically collapsed, particularly cross border. Banks' non-core liquidity which was an important source of funding before the crisis shrunk, and counterparty risk increased exposing financial vulnerabilities. The crisis and policy response lead to its propagation and financial fragmentation in the euro area. Thus the huge financial expansion before the crisis and sudden contraction in its aftermath, point out to financial flows dynamics and indebtedness at the center stage in explaining it and to the key role played by financial intermediaries and banking system.

There is a vast literature describing and documenting the large global financial expansion and leverage buildup before the crisis in 2007 and the massive retrenchment of gross capital flows. Global capital flows tripled from 7 percent of world GDP in 2002 to over 20 percent in 2007. This was caused in particular by a dramatic expansion of flows to and from advanced economies (Milessi-Ferreti and Tille 2010). The estimated total outstanding cross border liabilities increased by 75% of world GDP in the period 2000-2007 (ECB 2012). Global liquidity measured as the sum of financial sector liabilities of the euro area, Japan, the United Kingdom, and the United States, and expressed as percentage of their combined GDP increased by 33% during 2003 and 2008 (Chen et al 2012). Besides financial innovation, perception of market self-regulation and risk diversification it seems that financial globalization (cross-border financial trade) contributed to the expansion of flows and the resulting financial crisis (Lane 2012, Borio and Disyatat 2011).

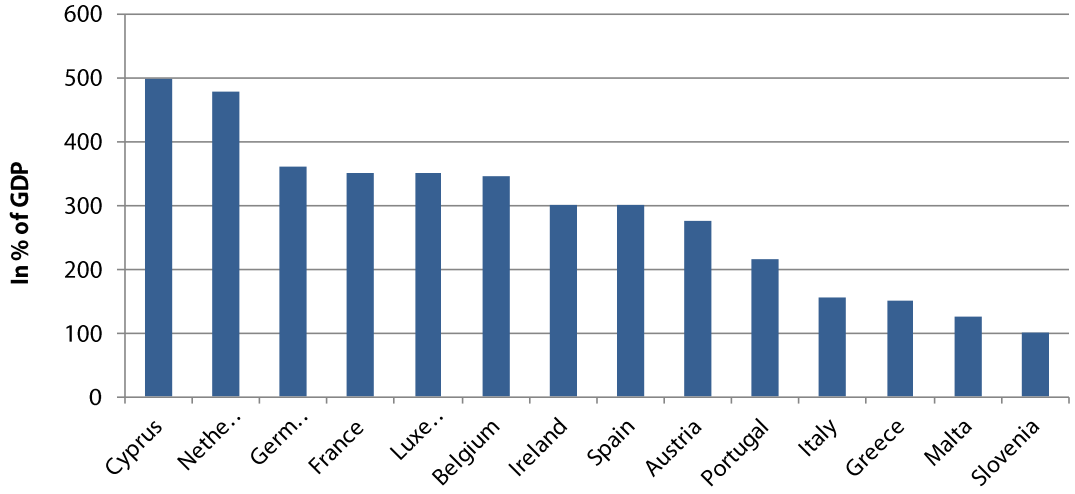
The expansion of global liquidity and banks' balance sheets, reaching in some countries up to five times the size of their respective GDP, is reflected in the large private debt-build up in Europe (Figure s 1 and 2). Between 2004 and 2008 the EU average private debt increase was 39% of GDP while in the same period the average general government debt decreased by 1.5% of GDP. The median of the private debt-to-GDP ratio in the EU in 2004 was 107% of GDP and ratios ranged from 45 % of GDP in the Czech Republic to 200% in the Netherlands. In 2008 the median was 140% and ratios ranged from 66% in the Czech Republic to 400% in Luxemburg.

Figure 1: Private debt in GDP in 2008



Source: ECB.

Figure 2: Total domestic banking sector assets in 2008



Source: ECB.

When confidence collapsed in 2008 and panic ensued, it led to what can be called a systemic banking crisis in a large part of the developed world (USA and Europe). The freeze in interbank activity exposed the buildup of liabilities before the crisis and eroded its funding basis. Following the collapse in asset prices and activity, and weak policy response in the euro area dating back to the Greek sovereign crisis, confidence was not restored and the crisis propagated leading to massive financial outflows from peripheral to core euro area countries. Those outflows reflected financial transaction (e.g. cross border repayment of interbank bank loans and decline of refinancing, non-rolling over of government bonds and private liabilities held by non-residents) and purchases of foreign goods and services (external trade). They were financed by means of drawing down deposits, selling assets, borrowing in the interbank market or capital market or from central bank and multilateral support in the case of some countries. While these various transactions are booked differently and simultaneously in the balance of payment accounts, it would be wrong to draw conclusions about their triggers or their persistence based on the way they are accounted in balance of payment accounts.

To draw conclusions about the causes of the crisis and its persistence, it is important to look beyond balance of payment transactions. In particular to the buildup of leverage of various sectors driven by

liquidity supply shocks and credit risk caused by changes in underlying funding conditions. In the case of euro area the buildup of liabilities, the banking freeze and its consequences has to be seen in the context of the financial integration. In particular in the melting of domestic investor bases into a broader international base, the absence of restrictions to movement of capital and a soft regulatory approach to financial transactions. In particular cross border liabilities among euro area countries increased by 400% from 2002 to 2007 and half of it took place between 2005 and 2007 (Shin 2012).

If we look at the EU and euro area countries (to both core and peripheral countries) the key common factor during the crisis is their exposure to the banking freeze and erosion of confidence in financial intermediation that ultimately affected economic activity.[7] This is reflected in the following facts: a) the large size EU countries' commitment in terms of state aid to their respective banking systems between 2008 and October 2011 (€ 4.5 trillion (36.7% of EU GDP) (Liikanen et.al. 2012); b) the retreat of banking activity within national borders; and c) massive outflows from peripheral to core euro area countries. The discontinuity of financial flows in net debtor countries facing also sharp drop in value of assets propagated to various sectors of their respective economies. Contagion and absence of appropriate policy response at euro area level resulted in episodes of sudden capital stops in countries perceived as more vulnerable from the point of view counterparty risk as the investor base retrenched within national borders or towards safe havens (core euro area countries).

The crisis was triggered by panic and freeze in the banking system causing retrenchment in global liquidity.[8] In particular the increase in non-core liabilities (wholesale and collateral-based financing), the key source underpinning the pre-crisis banking systems' balance sheet expansion, stopped and reversed, leaving highly leverage counterparties (Chen et.al. 2012) and exposing refinancing risk. In the aftermath of the crisis global liquidity declined, as measured by the evolution of the total amount of liabilities of banking system, but also it is important to highlight the change in its composition in favor of core liquidity (i.e. broad monetary aggregates).

The sizable impact of the crisis on total global liquidity can be appreciated by the fact that the large increase in core liquidity in the post crisis period did not offset the decline in non-core liquidity. It is relevant to highlight the composition and factors explaining the evolution of liquidity (core and non-core) before and after the crisis. In the pre-crisis period (2003-2007) core liquidity at global level remained below trend due to primarily negative supply shocks but in the aftermath it has remained above trend. Non-core liquidity was above trend in the period 2005-2007 and explained by positive supply shocks. In the aftermath of the crisis (2009) it contracted and remains well below trend due to negative supply shocks (Chen et.al. 2012). This implies substantial retrenchment of financial activity at global level.

The evolution of liquidity in euro area (core and non-core liabilities) reflects a similar pattern than that at global level (i.e. the increase in core liquidity did not offset the fall in non-core liquidity), but the quantity of core liquidity has reverted back from its peak in 2008 to its trend level. This is explained by the decline in demand for core liquidity which might reflect weak fundamentals and banks being able to access official funding (Chen et.al. 2012). Key questions in this respect are the implications of the shrinking of non-core liquidity for interbank financing in light of banks' leverage positions and the appropriateness of the size of core liquidity expansion in view of depressed value of assets triggered by the crisis and highly leveraged system and counterparts. In this regard important policy issues to disentangle and discussed below include:

[7] The collapse in trade was also important common factor but its nature was temporary.

[8] Following Forbes and Warnock (2011) the following taxonomy is used to describe different dynamics in gross capital flows: "Surge" is a sharp increase in gross capital inflows; "Stop" is a sharp decrease in gross capital inflows; "Flight" is a sharp increase in gross capital outflows; and "Retrenchment" is a sharp decrease in gross capital outflows.

a) the role of the ECB in coping with the crisis (e.g. the counterfactual on consequences of the absence of central bank intervention ; its timeliness, and whether the supply response was appropriate; b) the reasons behind the reduction of demand for core and non-core liquidity (e.g. lack of supply of banking liquidity) and; the policy response (i.e. the alternatives between banking lending or outright purchase of assets).

The abrupt change in financial conditions at global level brought by the crisis is clearly reflected in the dynamics of gross capital flows. Their size was very large and increasing before the crisis. The huge availability of capital resulted in growing financial imbalances captured among various indicators by widening (positive and negative) net international investment positions but mostly by the large size of gross financial flows. The crisis showed that capital flows can also revert easily within the developed world and de facto a global capital retrenchment took place.

The retrenchment of gross capital flows at world level was also dramatic. Capital flows practically disappeared in 2008. This phenomenon was labeled the "great retrenchment" (Milessi-Ferreti and Tille 2010). The value of cross-border claims fell from 59 percent of world GDP at the end of 2007 to 51 percent in December 2009 and was steered primarily by banks. This process of global retrenchment was driven by advanced economies (Borio and Disyatat 2011). According to available data, global capital flows have recovered only partially since the crisis (from 33% of world GDP in 2007 to 9% of GDP in 2010). Among advanced economies total flows after collapsing from about 25% of GDP in 2007 to minus 8% in 2008 regained momentum in 2009 to fell again to about 2.5% of GDP in late 2011 due to euro area crisis (Bluedorn et.al. 2013)).

The retrenchment of capital has been particularly severe in euro area where financial flows (assets and liabilities) fell sharply from 20% of GDP before the crisis to less than 5% in 2008 and remained on average at that level in 2010 and 2011 (ECB 2012). The retrenchment of banks from foreign markets has proved to be more persistent in Europe than in the United States and resulted in net capital outflows from peripheral countries to euro area and to financial fragmentation (IMF 2012). The total euro area banks' exposure to other euro area banks decrease by USD 1 trillion (6% of European GDP) to USD 1.7 trillion in 2009 and continue decreasing gradually to USD 0.9 trillion in June 2012 (3 times lower than the level in 2008) (BIS 2012).

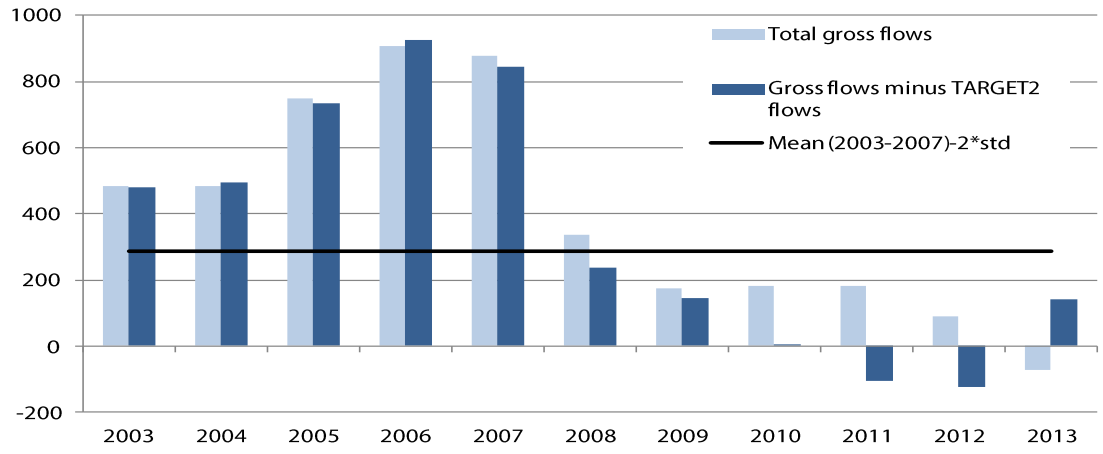
The crisis also brought changes in valuation of assets affecting balance sheets of various sectors in different countries according to their exposure and positions and thus to their performance since the onset of the crisis. This is the reason why the sudden stop and post crisis dynamic of cross border capital flows are at the center of crisis and the post crisis evolution. Confidence erosion since the outset has been the driving force of the crisis and its mutation and deepening. The crisis from being fundamentally a banking crisis in the US and systemic banking crisis in euro area turned into sovereign debt crisis in Greece (April 2010), Ireland (November 2010) and Portugal (April 2011). With further erosion of confidence it spread to the sovereigns of largest peripheral countries since July 2011 leading to a potential breakup of the monetary Union in 2012. The relative success of the communication of the ECB policy of "whatever it takes" in mitigating such a risk and defusing sovereign debt crisis clearly shows the type of policy response that might have been needed from the beginning to address the confidence erosion that was the root of the crisis and prevent it from its spreading.

Looking at the dynamic of various financial indicators (e.g. ESRB composite indicator of systemic stress, quantity transactions on balance of payments (Cecioni and Ferrero 2012) and sovereign yields (Caprirolo 2012) suggest that so far the financial crisis in euro area can be separated in five periods reflected in the capital flows among euro area countries: i) The outbreak of the global financial crisis 2007 (September triggered by the world financial crisis originated in the US); ii) the beginning of the sovereign crisis triggered by the Greek bailout (April 2010-June 2011); iii) the spreading of the crisis in euro area (July 2011); iv)

increase of risk of currency redenomination and fragmentation in monetary union (second quarter of 2012); and v) post ECB effective policy communication in defusing the crisis. Coinciding with the first three periods Merler and Pisani-Ferry (2012) identified episodes of sharp decrease in capital inflows or sudden stops of capital in euro area peripheral countries reflecting spreading and contagion across countries. The chronology of the episodes is as follows: In Greece and Ireland from March 2008 to March 2009; In Greece, Portugal and Ireland from April 2010 to December 2010, and in Italy, Spain and Portugal from July 2011 to November 2011.[9]

Looking more broadly at the combined dynamic of gross capital inflows to the euro area peripheral countries, it is possible to say that these countries as a whole experienced an episode of sudden stop of capital flows in 2008 followed after 2009 by a period of gross capital flight particularly in 2011-2012 (Figure 3). In 2008 gross capital inflows excluding those registered in TARGET2 (financial transactions debiting asset positions of countries with target system), fell below two standard deviations of the sample mean (2003-2007).[10] In addition episodes of capital flight took place during 2010-2012. Gross capital inflows, net of flows registered in TARGET2, further collapsed and were almost zero in 2010. In 2011 the size of gross inflows excluding those registered in TARGET2 turned negative reaching its lowest level in 2012 when also TARGET2 flows were the lowest. The dynamic of capital flows indicates the severity of the crisis. In 2013 and after three years conditions improved as capital flows from countries outside the euro area turned positive again. The positive inflows allowed peripheral countries to reduce TARGET2 balances. The recovery of capital outflows from outside the euro area indicates that the handling of the euro area crisis not only eroded the confidence on peripheral countries from other euro area members but also from the rest of the world.

Figure 3: Gross capital flows (euroarea peripheral countries)



Source: Eurostat and central banks.

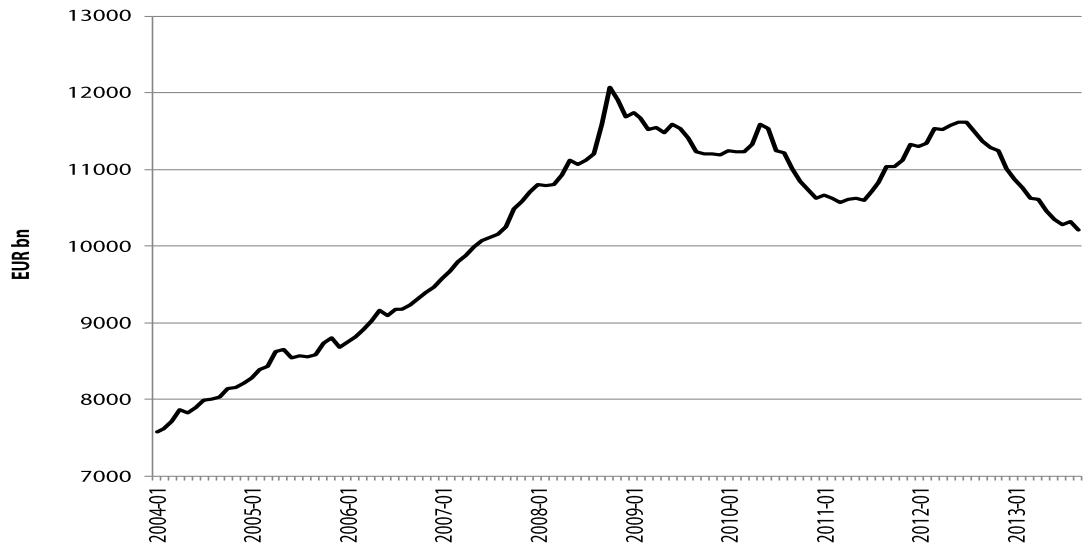
[9] In Greece from: March to June 2008; October 2008 to January 2009 and; April 2010 to July 2010. In Ireland from: July 2008 to September 2008; October 2008 to March 2009 and; July 2010 to December 2010. In Portugal from: April 2010 to July 2010 and; September 2011 to November 2011.In Spain and Italy from July 2011 to November 2011.

[10] Calvo et al (2004) identified a sudden stop based on monthly data as an episode with the following characteristics: i) at least one month in which capital flows fall (year-on-year) two standard deviation below the sample mean; ii) the start of a sudden stop starts when year-on-year change in capital flows drops one standard deviation below the mean and; iii) the end of a sudden stop takes place when change in capital flows revert to the mean.

The retrenchment of financial flows resulted in changes in banking funding patterns at global level and in the euro area in particular. This has redefined the level playing field upon which banks operate in euro area with important implications for banks' possibilities of expanding their balance sheets and for intra euro area cross border activity flows. On the liability side there has been a substantial decline in the euro area banks' funding sources with important implications for credit activity. Figure 4 highlights the collapse in interbank borrowing and the importance of ECB lending in improving banks sources of financing but also in steering interbank activity. Figure 5 indicates that there was a break in the trend evolution of interbank banks liabilities in the third quarter of 2008 followed by a short-lived period of activity revival in the second quarter of 2010 underpinned by ECB lending (Figure 4). Then the interbank activity followed a downward trend until July 2011 where again rebounded on the back of ECB intervention which lasted until the third quarter of 2012. Since then interbank lending has declined again. The total cross border interbank lending of peripheral countries fell by accumulated USD 1.2 trillion during 2008-2013 with about 60% taking pace since the summer of 2011 (BIS 2014)

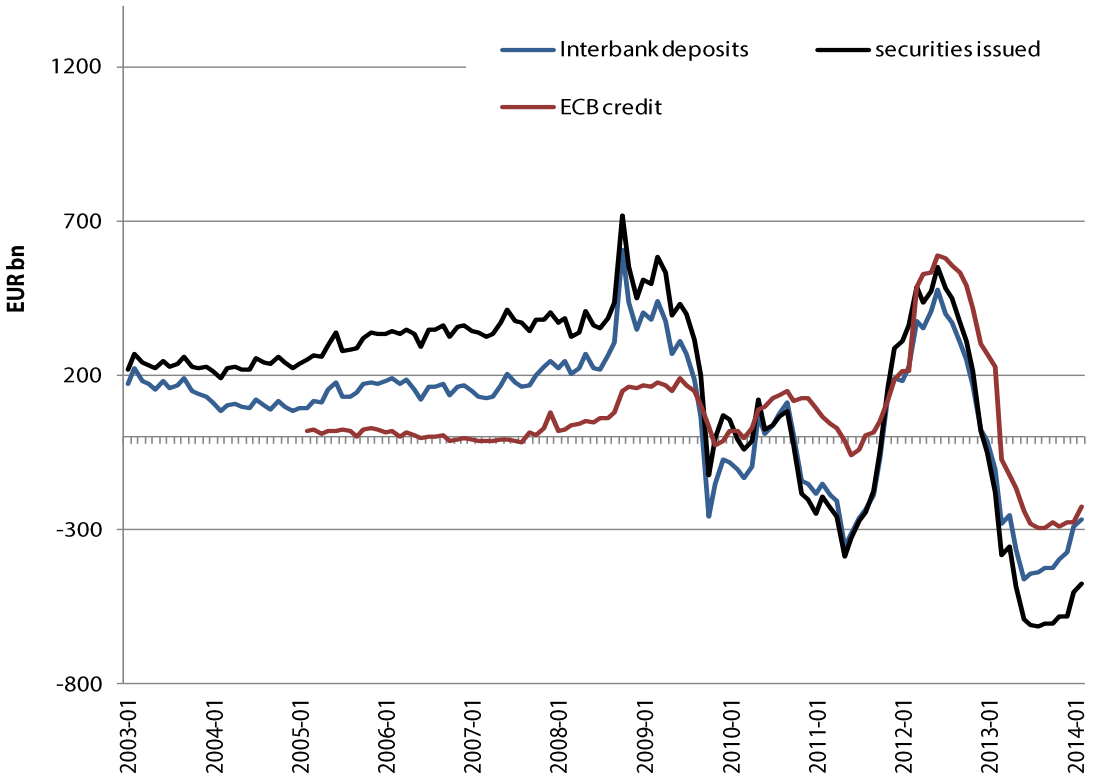
Another important issue to underline is that not only interbank transactions have diminished in euro area, but since 2008 the downward trend in the share of domestic interbank liabilities in total interbank liabilities reversed (ECB 2012). Euro area banks' cross border exposure to euro area banks declined from about USD 2.6 trillion in 2008 Q3 to about USD 0.9 trillion in 2012 Q2 (BIS 2012). The sharper drop in cross border interbank lending took place from 2008Q3 to 2009Q1 (USD 1 trillion) and since then a downward trend continued. In the case of peripheral countries (Figure 6) while the increase interbank deposits already stopped in 2008 Q3 and the yearly growth rate turned negative in 2009 banks continued accessing funding by means of increase in securities issued until April 2010 when the Greek crisis burst. Since then and until 2013Q1 banks managed to keep the outstanding amount of securities issued at a constant level. In 2013Q1 a trend declined in the outstanding amount of securities issued by peripheral countries emerged when the Cyprus crisis hit and discussion of various modalities of bailing-in investors in addressing bank challenges in the EU came to the forefront. This indicates that funding conditions for banks' in vulnerable countries did not worsened at once after the crisis but sequentially. First with the impact of the Greek sovereign crisis followed by the contagion to Italy and Spain in 2011 and then with the Spanish banking crisis in second quarter of 2012.

Figure 4: Liabilities of peripheral countries credit institutions, 12-months accumulated flows



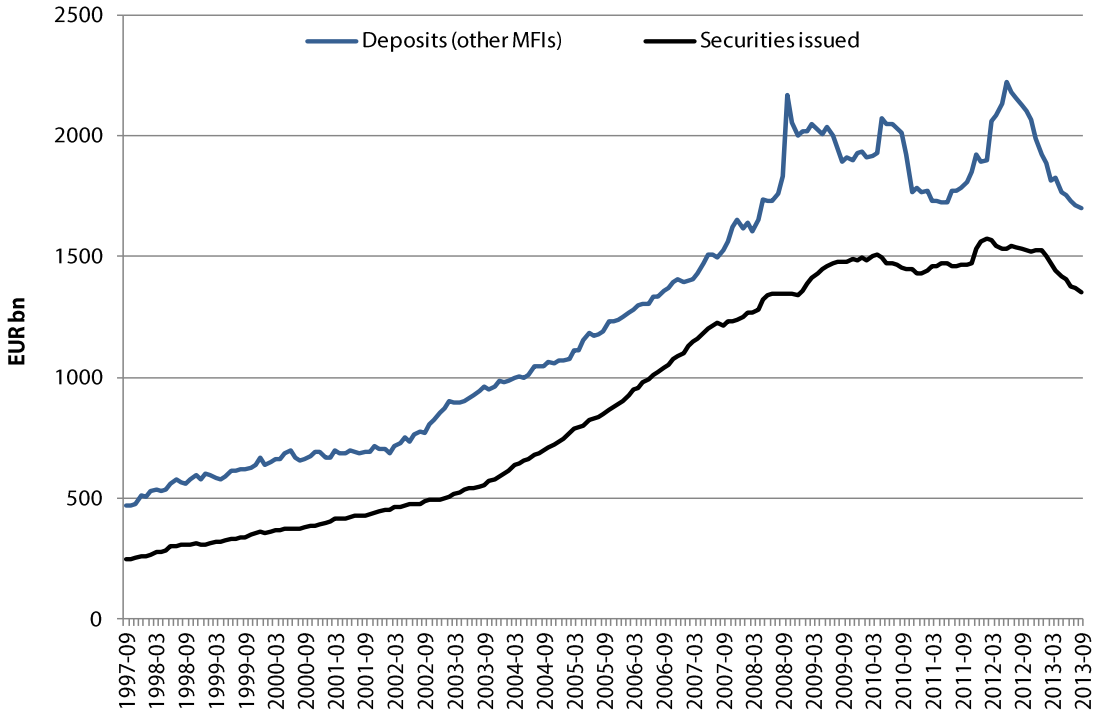
Source: ECB and eurocrisis monitor.

Figure 5: Liabilities of peripheral countries´ credit institutions broken down by instruments (12-month accumulated flows)



Source: ECB and eurocrisis monitor.

Figure 6: Peripheral countries bank deposits and securities issued



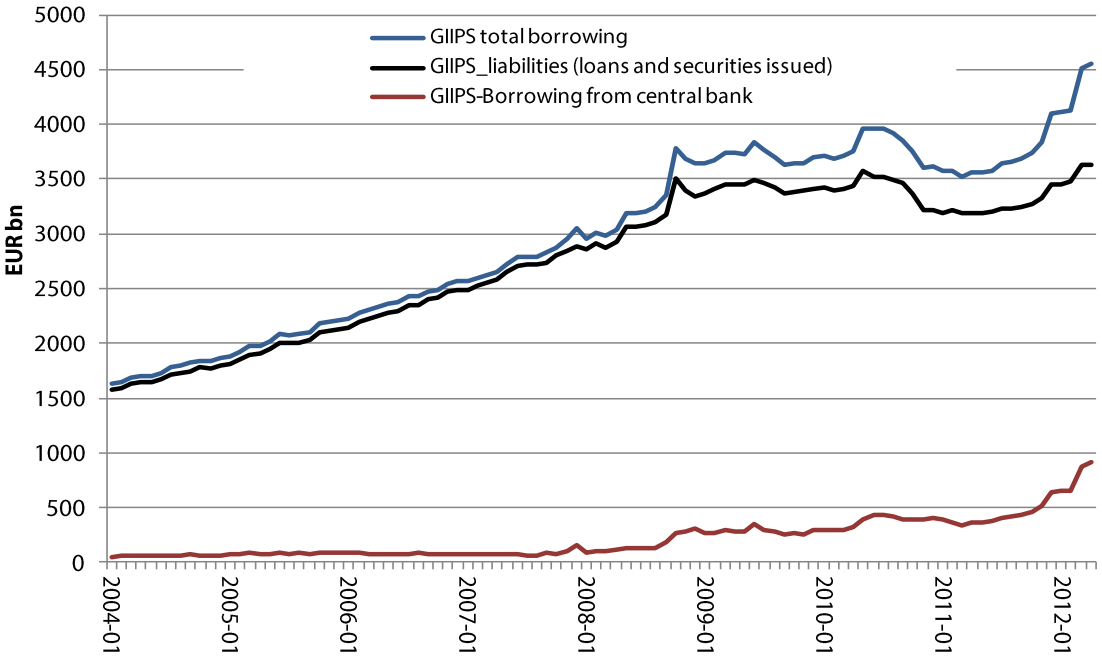
Source: ECB and eurocrisis monitor.

As mentioned earlier, it would seem that banks' demand for liquidity in euro area decreased (Chen et al 2012) but, the fact that bank liabilities stop declining temporarily in 2010 and increased again in 2011 Q3 on the back of ECB interventions might suggest prevailing tight funding conditions at that time. Undoubtedly, the weak economic outlook and subdued business confidence weights on the demand for bank loans and on stricter banks' risk assessment standards which in turn affects banks' demand for financing sources. Yet, according to ECB's bank lending surveys,, both in the financial turmoil period (2007-2008) and in the 2010-2011 crisis periods, banks justified the tightening of their credit standards besides deteriorating risk due to the economic outlook on the grounds of a combination of pure supply-side factors including the need to strengthen their capital position and challenging access to financing markets. Furthermore, in the aftermath of ECB's LTRO operations and in the context of persistent weak loan demand (2013Q3) a gradual stabilization of factors affecting lending supply conditions took place. In this context an issue that requires further analysis is the impact of the decrease in non-core liabilities on bank's balance sheets and deleveraging pressures on the economy over the medium term. The sharp reduction of euro-area banks cross border exposure to euro area banks clearly indicates a fundamental change in funding conditions facing banks and strong deleveraging pressures. The cross border flows in Europe declined from USD 1.5 trillion in 2008Q1 to 0.8 trillion in 2013Q2 and at euro area level banks' cross border exposure to other euro area banks was in the first half of 2012 lower than that in 2005.

Banks recourse to ECB credit also provides an account of financial conditions that banks have faced in euro area. Four phases showing the worsening in their financing conditions before start improving in the second half of 2013 can be identified (Figure s 7 to 9). The first starting from 2008 Q3 when the freeze in interbank activity at global level took place. The second with the Greek crisis in April 2010. The third from July 2011 with the spreading of the sovereign debt crisis; and the fourth with the banking crisis in Spain in the first half of 2012. Since 2013 there has been a reduction of total peripheral bank's exposure to ECB and LTRO operations that matured at the end of 2014 and beginning of 2015.

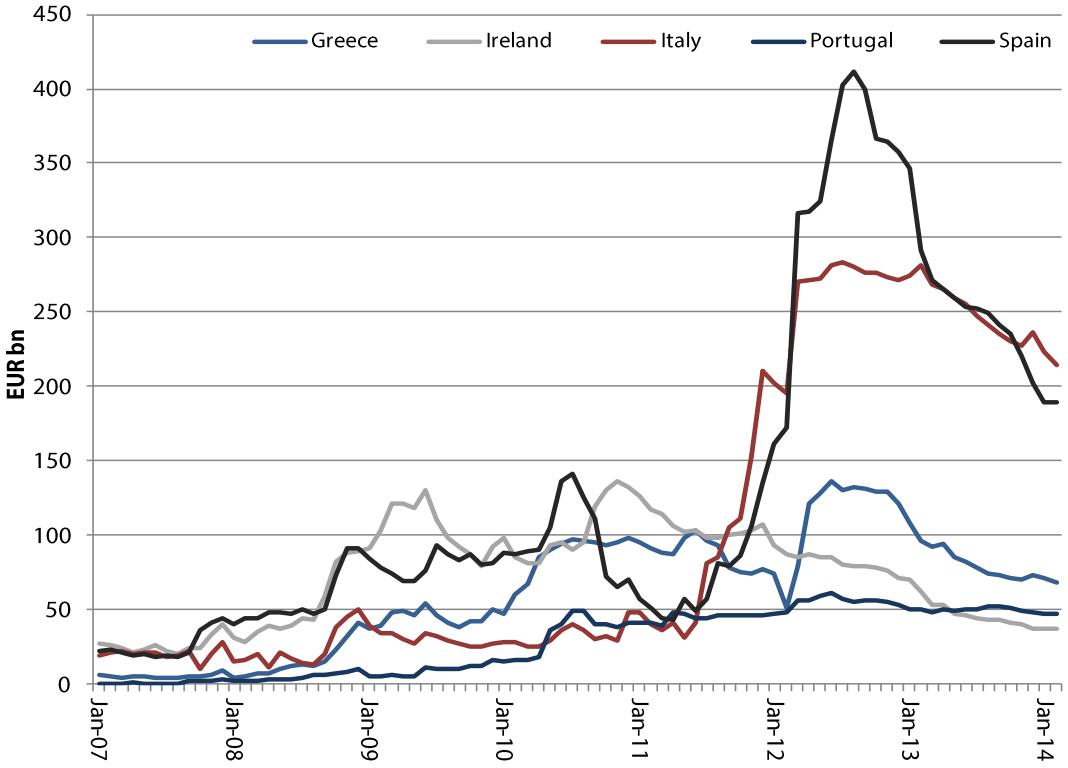
Looking at country's specific banking sector data and access to ECB financing is also possible to disentangle the timing in which financing pressure arose for a particular country. In 2008 Q3 the liquidity pressures became clear for all countries. However, Spain and Ireland already exhibited worsening conditions before. In the aftermath of the outburst of the crisis liquidity conditions stabilized but again further deteriorated with the Greek crisis for Greece and its contagion to Portugal. Then in July 2011, with Ireland, Greece and Portugal already under international support programs and lack of EU appropriate policy response the contagion of the crisis spread to Italy and Spain. Due to erosion of confidence among banks and tight liquidity conditions the ECB had to inject funds massively at the end of 2011 and beginning of 2012 (LTRO). It is not clear weather this affected negatively interbank activity which further diminished in the second half of 2012 or this reflects still the lack of trust among banks. An important issue in this regard is the timing of the ECB sizable intervention and the type of intervention. Whether it should have taken place earlier to underpin confidence among banks and whether it should have consisted also in sizable purchasing government bonds in the secondary market. Direct lending to banks can mitigate refinancing risks and eventually increase credit if there is demand for it. Purchases of government bonds in the secondary market (outright purchases of securities) change overall risk perception of underlying debt instrument and by injecting liquidity directly can stimulate aggregate demand and underpin overall price of assets. After the banking crisis in Spain was addressed and the successful ECB communication of outright purchases of government bonds overall funding conditions for banks eased or did not further deteriorated. The mere announcement of the possibility of purchasing government bonds moved away the government debt market from a situation of multiple bad equilibrium, improving confidence and the overall economic outlook.

Figure 7: Peripheral (GIIPS) countries borrowing and liabilities (loans and securities issued)



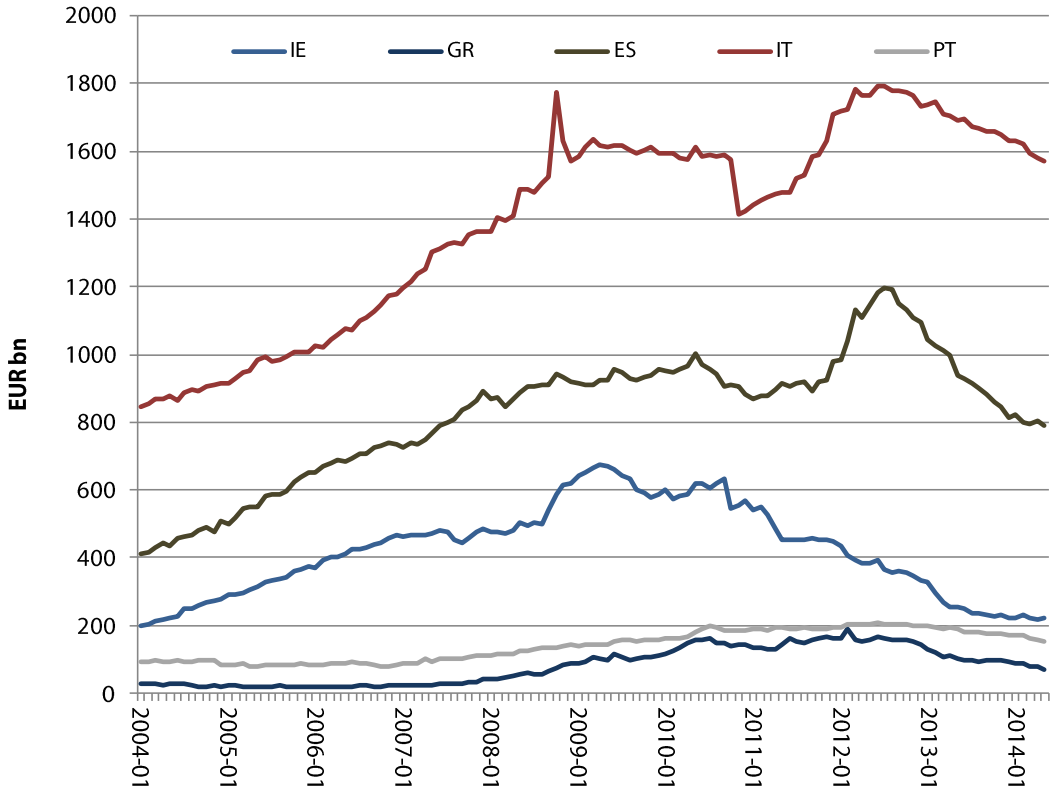
Source: ECB and eurocrisis monitor, own calculations.

Figure 8: ECB lending to credit institutions



Source: ECB and eurocrisis monitor.

Figure 9: Bank liabilities to euro area residents (loans and securities issued)



Source: ECB, own calculations.

The ECB's effective communication also improved confidence from countries outside the monetary union on peripheral countries. Although gross inflows were still negative in 2013 inflows from rest of the world became positive. Yet challenges remain as financial fragmentation is still entrenched and reflected in banks' home bias towards government bonds; corporate sector lending rates in peripheral countries are higher than in core countries; and banks' volume of bonds issued still declined in 2013. On the asset side bank's balance sheets were affected by exposure to toxic assets, drop in assets value, weakening macroeconomic conditions affecting the quality of assets and regulatory demands influencing banks deleveraging. Thus, in addition to the broad issue of financial fragmentation credit creation and bank's deleveraging pressures still represent an important challenge for growth.

The Greek crisis and its propagation on the background of weak banks' balance sheets did not affect only interbank cross border activity but changed adversely funding conditions for euro area sovereigns particularly of vulnerable countries. A vicious circle between banks and sovereigns balance sheets emerged. Not only government bonds' spreads widened until the second half of 2012 but euro area banks' exposure to vulnerable sovereigns' debt fell by more than a half. In particular, between 2005 to March 2010 banks' exposure to peripheral countries sovereign debt averaged $ 500 billion. But it decreased from $ 560 billion in 2010 to $ 235 billion in July 2012. The most significant drop took place in 2010 between March and December (about $ 200 billion). Since then a declining trend was observed broadly matching the deepening and spreading of the crisis. The reduction of cross border government bond holdings was accompanied in peripheral countries by a trend increase in banks holdings of domestic government bonds and the tightening of the link between the balance sheets of sovereigns and the domestic banking systems.

The crisis came to its height when there was a wide perception that governments would not be able to cope with the vulnerabilities of their banking systems. When it was clear that governments lacked domestic monetary authority as the ultimate backstop to defuse the crisis and when the risk of breaking up of the monetary union became evident. In such a context it was required the effective ECB communication to finally stop the crisis. Later on the announcement of the establishment of banking union with the centralized banking supervision at the ECB and the decisions of setting up a Single Resolution Board and Single Bank Resolution Fund contributed to cement the revival of confidence. But the ECB policy action was the key that dissipated the risk perception arising from the relation between sovereigns and banks' balance sheets. The ECB communication policy and banking union are two key policy measures pointing out at the financial root of the crisis and the type and magnitude of the policy response needed to prevent the spreading and coping with the systemic crisis if appropriately and timely would have been identified earlier. Other measure that could have similar impact would have been the creation of common bonds at euro area level that was not accepted.

4 THE SYSTEMIC FINANCIAL CRISIS, ITS TRANSMISSION AND TRANSACTIONS OF BALANCE OF PAYMENTS

Looking narrowly at current account balances and their financing without considering countries' private sector leverage positions at the outset of the crisis and the important changes the crisis brought in terms of liquidity and funding conditions at global and euro area levels can lead to wrong diagnosis of the crisis and to wrong policy conclusions. In particular, even with balanced net capital flows systemic risk can build up due to gross asset and liability positions (Obstfeld 2012). That risk materializes when there is a massive shock like the one observed in 2008 when funding and liquidity banished. In fact the erosion of confidence and abrupt change in funding conditions in euro area forced balance sheet adjustments, reassessment of risks and collapse in economic activity.

The effect of the crisis on the euro area in terms of change in financing conditions and reassessment of risk can be traced to the developments in balance of payment transactions (net basis), gross capital flows and net international investment position of peripheral countries. These indicators suggest that the crisis did not result from current account imbalances but from a collapse of confidence affecting the financial system, leading to a sharp decrease in capital flows at global and EU levels, reassessment of risk and worsening conditions for financing.[11] According to Wyplosz (2013) the euro area crisis did not result from lack of competitiveness and there is evidence that changes in the current account balance precede changes in relative unit labor cost (Gabrisch and Staehr 2013). The surge of capital inflows before the crisis, linked also to financial integration in euro area, magnified and might have fueled distortions that other ways might not have happened or their extent would have been smaller under an independent monetary policy set up. Furthermore, it seems plausible that financial globalization facilitated the emergence of large and persistent current account imbalances (Lane 2012). Therefore, current and financial account transactions should be regarded as symptoms but not the reason explaining the crisis in peripheral countries.

A narrow look at peripheral countries' balance of payments data (current account and net financial transactions) which is expressed in net terms (gross inflows minus gross outflows) would give the impression that the widening of current account deficits in euro area peripheral countries during 2003-2008 fully explain the financial flows to those countries (i.e. pull factors). Similarly, it would suggest that the relative gradual correction of current account imbalances in the post crisis was due to available financing; mainly by money creation as reflected in increasing target imbalances (Figure s 10 and 11). This will imply

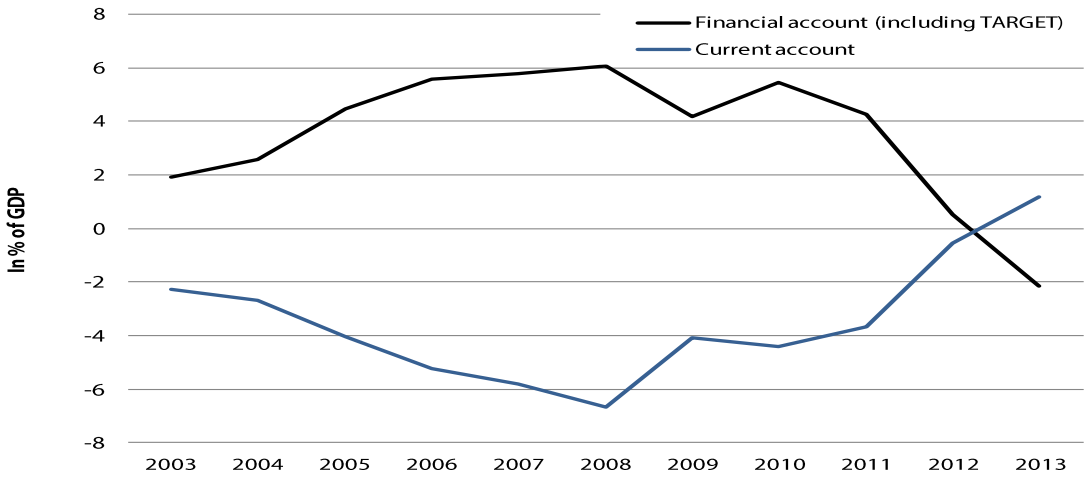
[11] According to Wyplosz (2013) the euro area crisis did not result from lack of competitiveness.

causation from current account dynamics into financial account (e.g. EC 2012). These views can be challenged by looking at factors underpinning the overall liquidity expansion before the crisis (i.e. supply shocks to non-core liquidity) and the composition of peripheral countries' capital flows in the financing account of balance of payments in the aftermath of the crisis.

As discussed earlier, the substantial expansion of liquidity in the pre-crisis that is reflected in the buildup of cross border liabilities of euro area banks was caused by positive supply shocks to non-core liquidity and negative supply shocks to core liquidity as investors were seeking profitable investments (Shin 2012). The crisis triggered a sharp contraction in non-core liquidity and demand shocks for core liquidity which is captured by outflows of capital from peripheral countries and increase in ECB liquidity lending (Figure s 11 and 8). The emergence of growing imbalances in TARGET2 system clearly captures the massive liquidity shock and reassessment of counterparty risk affecting at the outset the financial intermediary sector and later on spread to governments.[12] In particular, the decomposition of peripheral countries' banks TARGET2 transactions capturing net financial flows between "netted-out" flows (national central banks debited position compensated with credited position) and "non-netted" out flows, (positive or negative balance of national central banks with the ECB) indicates that already in 2007 a one-way capital flow direction from peripheral countries considered as a whole to core countries emerged (Figure 11). The transition from the episodes of sudden stop to episodes of capital flight did not happen at once but it was gradual. The ECB and euro area policy response led to a gradual normalization and reduction of overall outflows from the periphery in 2009. However, starting with the Greek crisis capital outflows strongly intensified since 2010. In particular, TARGET2 balances surpassed the financing requirement of current account deficits of peripheral countries since 2010. The size of outflows and overall liquidity conditions worsened to such an extent that long-term refinancing operations had to be carried out in 2011 and 2012 and consequently TARGET2 imbalances surpassed by huge amount the shrinking current account imbalances. The fact that TARGET2 imbalances were not associated mainly with financing current account is also clearly visible in 2013 when the combined current account position of peripheral countries was slightly in surplus and at the same time TARGET2 imbalances became significantly negative. This outcome was the result of improvement in confidence on peripheral countries that resulted in the re-emergence t of inflows from the rest of the world. The surge in TARGET2 imbalances (Figure 11) associated with capital outflows from peripheral euro area countries clearly reflects the episode of sudden stop described before (Figure 3) and the propagation and deepening of the crisis. The euro area banking system funding model was clearly broken in 2008, when the trend increase in outstanding interbank borrowing reverted (Figure 4). Yet, in 2009 confidence partially reemerged with banks funding their needs by means of issuing government guaranteed securities (Figure 6). This and the improving confidence resulted in reduction of net TARGET2 balances of peripheral countries (Figure 11). But, capital outflows reemerged again with the Greek crisis in 2010 and due to the type of policy response that pursue changes in debt burden sharing arrangements amidst a confidence crisis and growing perception that the euro area policy response was insufficient. Capital outflows surpassed by a large margin the size current account financing needs of peripheral countries. The growing erosion of confidence and two way cross-border financing activity between core and noncore euro countries that lead to financial fragmentation is reflected in the widening of TARGET2 imbalances.

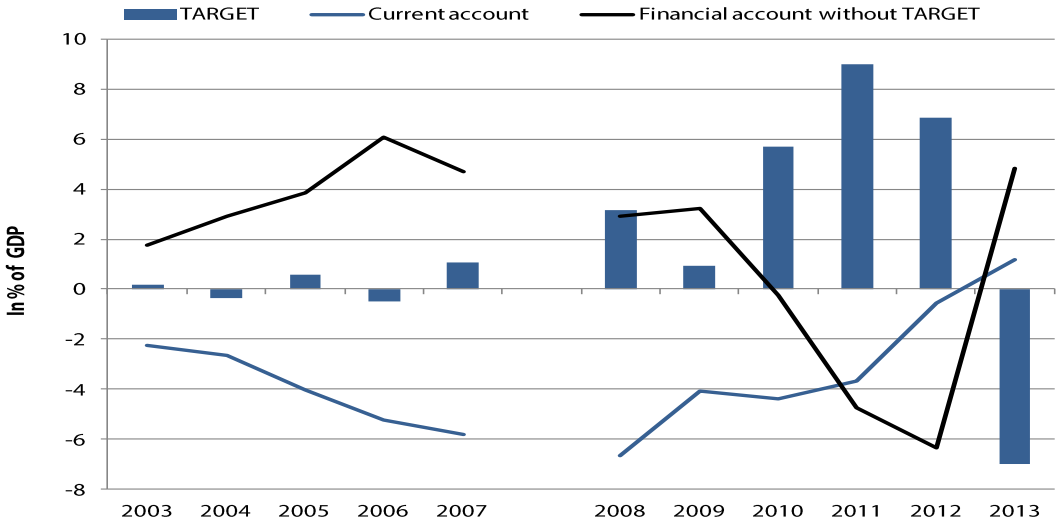
[12] TARGET2 is a payment system in central bank money only for banks operating in the euro area Monetary authority", which includes all transactions of the central bank with foreign counterparts and which, in the euro area, are in large part related to NCBs TARGET2 position with the ECB.

Figure 10: Peripheral countries net financial transactions and current account



Source: Eurostat, own calculations.

Figure 11: Peripheral countries net financial transactions and current account



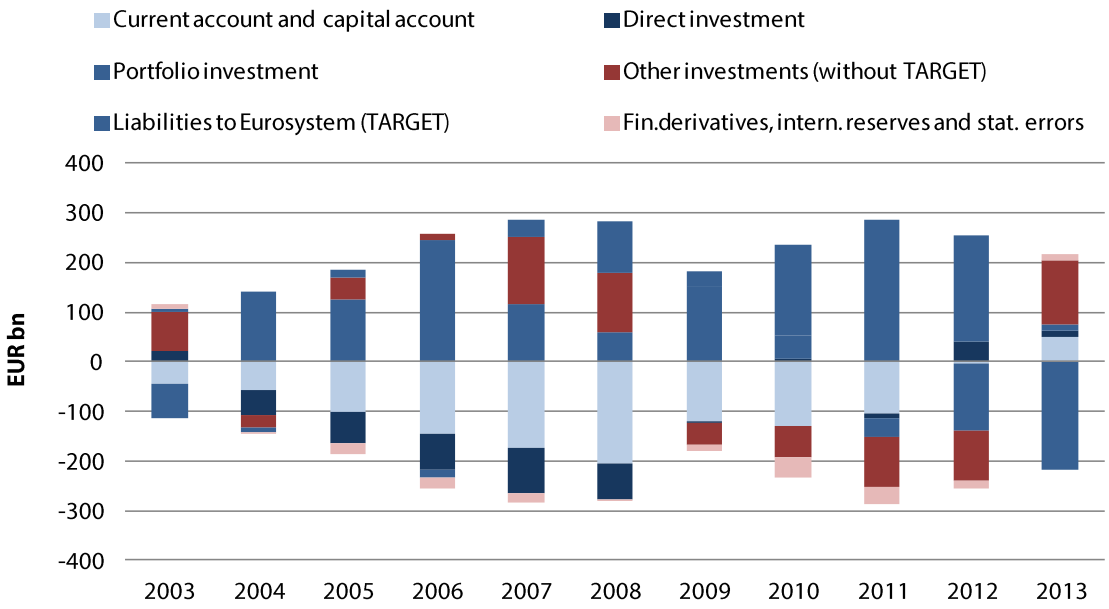
Source: Eurostat, own calculations.

The composition of balance of payment transaction of peripheral countries indicates that prior to the crisis capital flows did not only contribute to finance current account deficits but were also related to foreign direct investments. The size of financial inflows was larger than current account deficits in the period 2004-2008 (Figure 12). Since 2009 foreign direct investment practically banished and TARGET2 reflected primarily capital outflows. Prior to the crisis capital inflows were underpinned by push or supply factors and their structure was vulnerable to a sudden stop (Figure 12). Inflows were predominantly of portfolio nature during 2004 until 2010. This was the case particularly before the crisis (2004-2007) and coincided with the increase in value of stock prices. The size of portfolio inflows decreased significantly in 2007. That fall was compensated by a substantial increase in the inflows classified under the category "other investments" in the balance of payments accounts. In 2008 portfolio inflows further fell while other investment decreased and were not enough to cover total outflows including current account transactions as reflected in widening TARGET2 balances. The observed dynamics suggests adjustment in the supply of funding and

financing needs during 2007 and 2008. With confidence reemerging in 2009 the size of portfolio inflows increased sizably and was larger than the current account deficit, yet outflows of capital measured by TARGET2 balances persisted and reflected the outflows in "other investments'" flows.

During the three–year period 2010-2012 capital outflows were massive and mirrored in the surge of TARGET2 imbalances (Figure 11). In 2010 portfolio inflows were still positive but became negative in 2011 and outflows further intensified in 2012. A clear feature showing the change in post crisis funding pattern is the relatively sizable outflows of "other investment" during 2009-2012. TARGET2 imbalances clearly reflect financial outflows that surpassed in size the current account deficit. This is the case particularly in 2012 when the combined current account deficit of peripheral countries almost disappeared and in 2013 when the current account turned in to surplus. Arguably, it can be claimed that in 2008 and 2010 TARGET2 imbalances reflect importantly the financing of current account deficits. However, this is clearly not the case in 2011 and 2012 when capital outflows increased and become massive. Furthermore, country specific dynamics indicate that in 2008, even in the case of Greece, TARGET2 imbalances reflected also capital outflows (i.e. other investments). In the case of Ireland TARGET2 outflows reflect primarily flows of portfolio investment while the current and capital account considered together had a marginal effect on the outflows. Thus, the lack of private inflows due to the crisis of confidence and its propagation explains primarily the capital outflow associated with financial and current account transactions as captured in TARGET2 imbalances.[13] The massive outflows in 2010 and particularly in 2011 and 2012 raises the issue of the appropriateness of EU policy and timeliness of ECB response to mitigate confidence erosion.

Figure 12: Peripheral countries balance of payments



Source: central banks, own calculations.

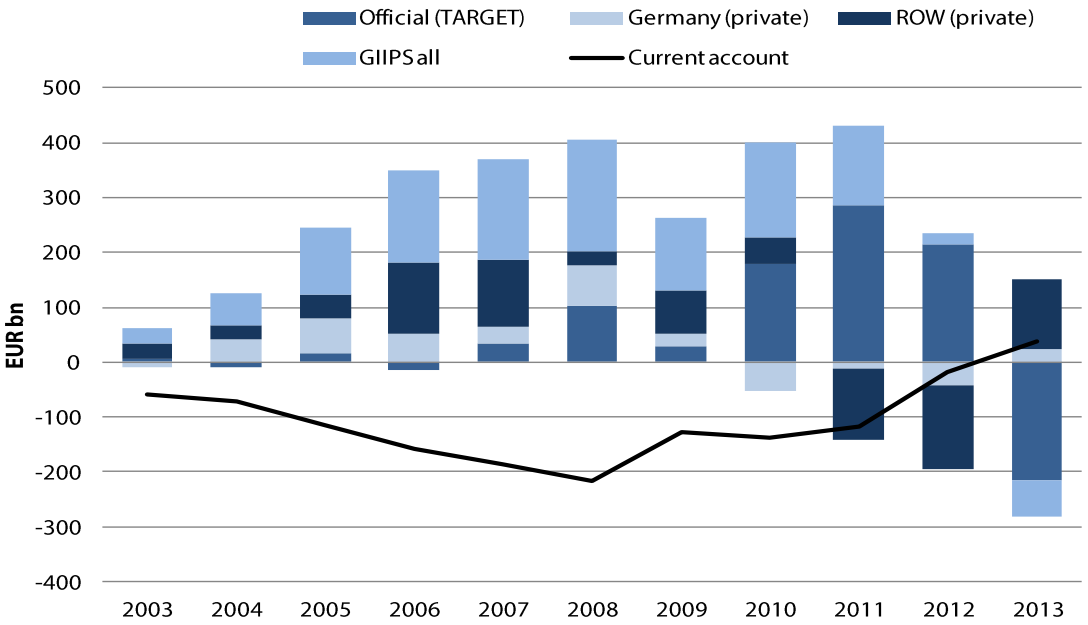
There is no available detailed information on net capital inflows to peripheral countries classified by country of origin except for Germany. Based on that information it is possible to distinguish among net inflows originating from Germany, rest of the world (RoW), including other EU countries (primarily France

[13] Given correlation between TARGET2 imbalances and countries' recourse to ECB refinancing operations a causal relation between them can be claimed but as explained by Cecioni and Ferrero (2012), TARGET2 are not caused by these operations.

and the UK), and TARGET2 balances. This information contributes to understand the impact of the funding crisis and partly of capital outflows as reflected in TARGET2 balances.

Figure 13 shows the sustained increase in net private portfolio inflows to peripheral countries in the period 2003-2007. Inflows from Germany were sizable during 2004-2006 but also in 2008. The huge magnitude of the financial shock in 2008 can be appreciated by the increase in TARGET2 imbalances which in that year was similar in size to the total private capital inflows in 2005. In 2009 the size of private inflows remained at the same level as in the previous year. In the period 2010-2012 there is a clear change in the dynamics of private capital inflows; they practically disappear. In 2010 there were still net inflows from the RoW that were similar in size to the net outflows of capital but in 2011-2012 there were not capital inflows at all but capital outflows as reflected in the widening of peripheral counties' TARGET2 balances. The dramatic change in funding conditions in the period 2010-2012 can be appreciate by comparing the accumulated size of TARGET2 2 balances in the period 2010-2012 (€ 6.8 trillion) that was bigger than the accumulated private capital flows in the period 2004-2007 (€ 5 trillion) and by the share of accumulated net capital outflows in the period 2010-2012 (67%) in total capital inflows in the period 2004-2007. The massive swing of capital flows in the post crisis period affected the whole monetary union and not only specific countries but the impact was uneven and in favor of core countries due to flight to safety. The change in direction of capital flows without doubt altered favorably the financing conditions in core countries and created a comparative advantage for enterprises in terms of cost of capital and restructuring of financial obligations. In 2013 capital inflows from Germany and ROW returned back to peripheral countries facilitating the reduction in their TARGET2 obligations in an amount that was bigger than the size of capital inflows in the same year. Most of the capital inflows were in the form of deposits which highlights the importance of reestablishing confidence in solving the crisis in the euro area.

Figure 13: Peripheral countries net financial transactions



Source: central banks, own calculations.

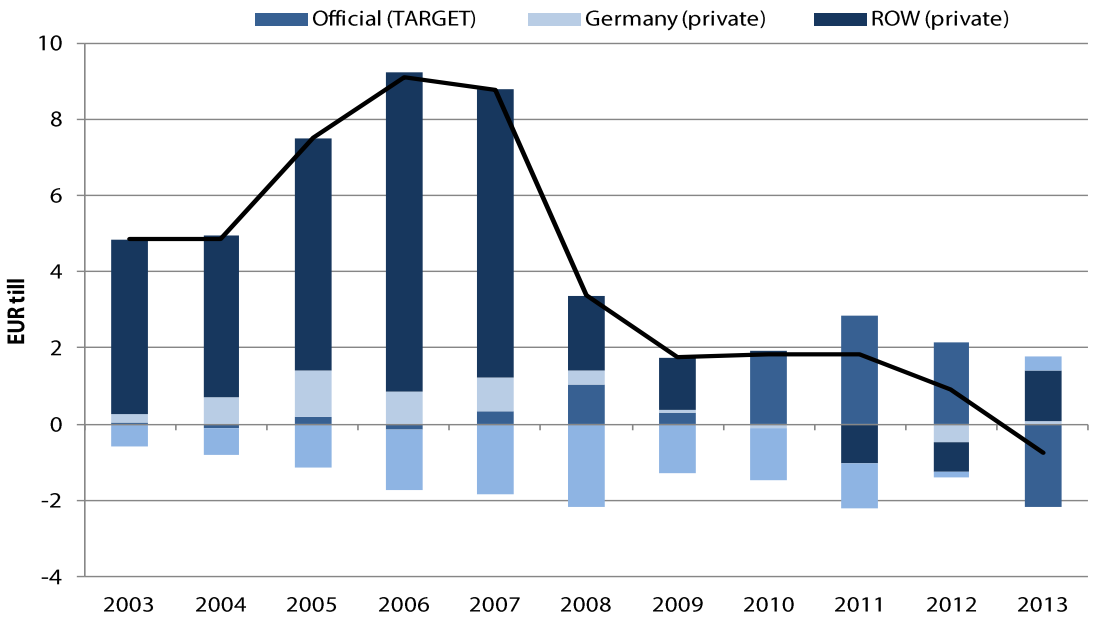
The review of balance of payment transactions, which are measured on a net basis, highlights the relevance of capital outflows triggered by the crisis. Yet, the impact of the crisis and its propagation on funding and financial conditions can be assessed by looking at gross foreign asset and liability positions of peripheral countries (Acharaya and Schnabl 2010, Borio and Disyatat (2011) and (Obsfeld 2012). With financial

globalization the relative importance of trade in international asset than trade in goods and services has increased. This is particularly the case in euro area in which monetary integration brought significant changes in the financial investor base widening it from domestic to the broad euro area and attracting investors from RoW as reflected in large portfolio inflows prior to the crisis (Figure 12). The effect of financial integration and abundant liquidity was a sharp increase in cross border holdings of assets and liabilities among euro area member states. With the banking crisis, the sudden stop of capital flows and erosion of confidence amidst highly leveraged positions of financial entities and private sector a major reversal of capital flows took place also mirrored in the reduction of cross border holdings of securities and their turnover. The relative greater importance of financial transactions than, those associated with trade in goods and services in explaining the crisis, is drawn by comparing the size and dynamics of gross capital inflows to trade flows and by looking at changes in valuation of stock of assets and liabilities (net international investment position). The issue is that current account transactions do not tell about the underlying dynamic in gross flows and their effect on domestic financing conditions (Borio and Disyatat 2011). That is why countries even when registering surplus in the trade balance can be subject to systemic risk under a sudden change in financing conditions such as that observed with the crisis. This is because cross border capital flows in the common currency are intermediated directly by financial institutions, which before the crisis were considered as safe counterparties, and without intervention of local monetary authority. The peripheral countries' reliance on cross border financing and misallocation of resources prior to the crisis resulted in the buildup of vulnerabilities.

There is also evidence of a strong relation between large capital inflows and booms in asset prices and that such a relation is weaker in more flexible exchange rate regimes (Olaberria, 2012). The case of Ireland is relevant in this regard. Ireland registered surplus in the trade balance in the period before the crisis but it suffered a severe shock to its net financial position due to collapse in the value of assets not matched by decreased in liabilities. The case of Denmark, although having independent monetary authority, also highlights the importance of capital inflows influencing domestic conditions beyond current account dynamics. In Denmark the current account was in surplus during 2006-2008 but at the same time it experienced large capital inflows leading to a boom in housing prices (Jara and Olaberria, 2013). Furthermore, even in countries that adjusted their current account imbalance relatively fast after the crisis like Slovenia such correction does not tell about the financial strains and the impact of changes in funding conditions as reflected in TARGET2 nor does tell about underlying reasons behind the adjustment.

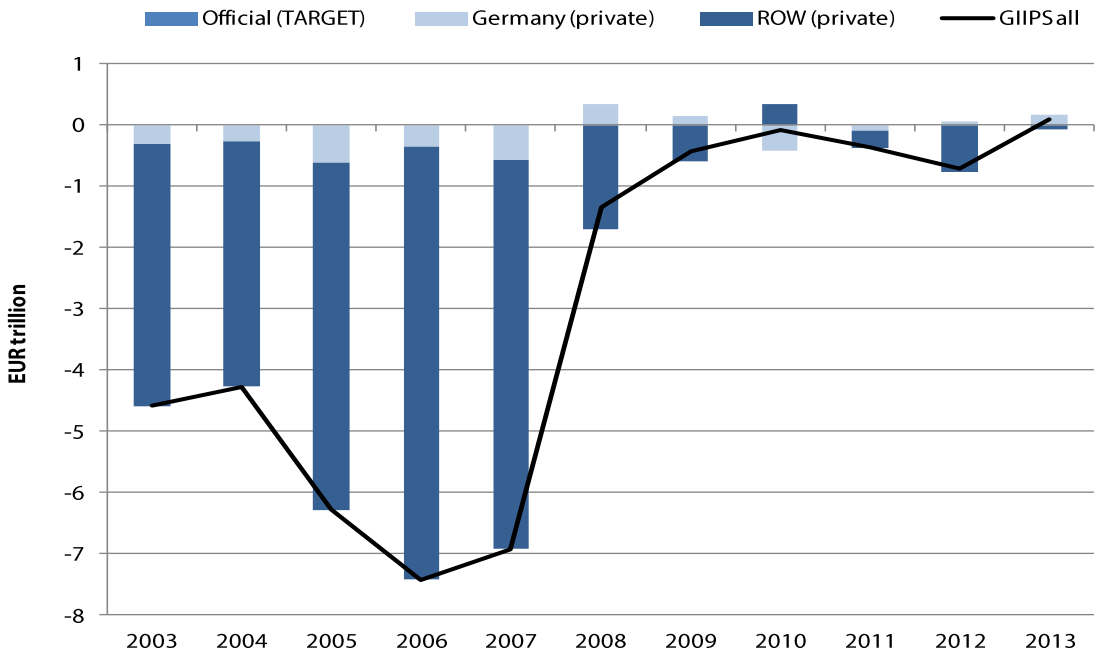
The data on gross financial flows and current account (net financial flows) indicates that the accumulated combined size of the gross capital flows to peripheral countries was six-times bigger than their combined accumulated current account balance in the period 2004-2007 (Figure 14). With the crisis and slightly larger current account deficit in 2008, this ratio shrunk to less than two suggesting a sharp correction in funding conditions with implications for liability financing as all peripheral countries are net international debtors. While gross capital outflows from peripheral countries also shrunk (retrenched) in tandem with gross inflows (Figure 15), the fact that the magnitude of gross capital inflows in the aftermath of the crisis did not recover nor reached a similar size than in the pre-crisis period, or turned negative if TARGET2 imbalances are excluded, clearly points out to the growing strains that peripheral countries faced in financing new and outstanding liabilities. In 2013 when confidence improved and financial conditions eased gross capital inflows turned negative reflecting the reduction in TARGET2 imbalance.

Figure 14: Peripheral countries gross capital inflows and current account



Source: central banks, own calculations.

Figure 15: Peripheral countries gross capital outflows



Source: central banks, own calculations.

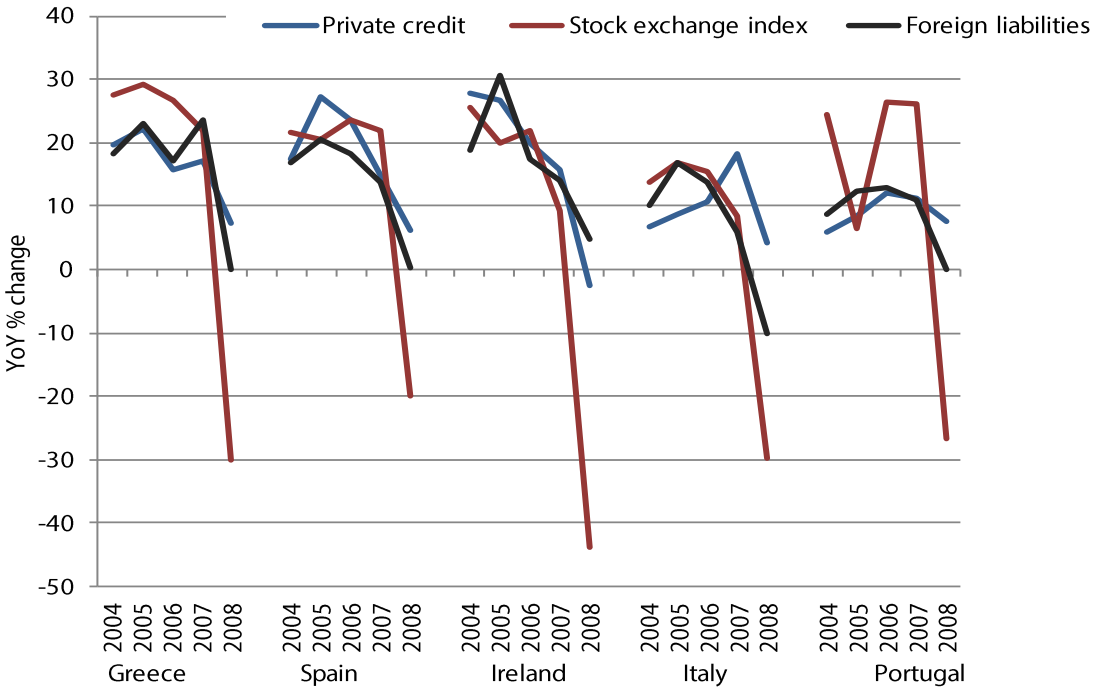
Gross capital inflows to peripheral countries were sizable reaching up to 30% of their combined GDP in 2006 and on average were more than 25% of GDP in the period 2005-2007.[14] The data on gross inflows classified by country of origin (Germany and RoW) suggests that the bulk of inflows were from RoW which were massively reduced in 2008 with the sudden stop and then disappear during 2010-2012. Gross inflows from Germany reached a peak in 2005 and were 4.3% of the peripheral countries combined GDP. Available data on current account deficit for peripheral euro area countries indicates that about half of the deficit was incurred with countries outside the euro area (EC 2012) suggesting that TARGET2 reflects importantly financial transactions. A sizable reduction of the current account deficit of peripheral countries with countries outside euro area (by half) took place in 2009 and since then it remained at that level until 2012. With the Greek crisis following the sudden stop in 2008 and weak regaining of confidence in 2009 a period of massive capital flight began. During 2010-2012 there were practically no private gross inflows but on the contrary the positive TARGET2 inflows reflect the sizable amount of outflows that took place. Capital inflows from Germany also stopped during 2009-2011 and in 2012 turned negative reflecting reduction of exposure to peripheral countries (Figure 14). The amount of capital outflows as captured by TARGET2 balances during 2010-2012 was 59% bigger than the total accumulated size of German private inflows during 2003-2008. In 2013 when confidence improved TARGET2 balances classified as negative gross outflow on accounting basis in fact corresponded to a renewal of capital inflows and current account surplus of peripheral counties.

The importance of the financial dimension in explaining the crisis and its propagation is visible not only in the dynamics of capital flows but also in the sizable change in valuation of underlying assets which alone outpaced the size of current account balance of peripheral countries. The combined peripheral countries' net external indebtedness as reflected in the Net International Investment Position (NIIP) exhibited an increasing trend in the run to the crisis. It mirrored not only favorable financing conditions at world level (great moderation and increase in capital flows) but also favorable domestic conditions in peripheral countries (asset booms) derived from the synergies of an enlarged euro area financial market (investor base) and integration. Thus the NIIP does not capture only financing of current account deficits in the run to the crisis but also capture the boom and bust periods underpinned by capital inflows as reflected in changes in valuation of underlying financial assets.

The increase in portfolio inflows underpinned the domestic booms in asset prices and credit activity in peripheral countries as they relaxed overall credit constrains (Figure 16). Notice in particular that indebtedness of peripheral countries in the period 2003-2006 increased not only due to capital inflows but also due to positive valuation changes of liabilities associated to booming stock exchanges. These in turn increased the value of collateral used for credit and overall credit activity.

[14] It is important to differentiate between gross capital inflows and outflows as this points out the whether the flows are being initiated by foreigners or by domestic investors. The focus on *net* capital flows cannot differentiate between changes in foreign and domestic behavior. For example, the fact that gross capital inflows from Germany became negative suggests the reluctance of German private sector to keep their financial exposure to peripheral countries.

Figure 16: Credit activity, asset prices and foreign liabilities in GIIPS countries



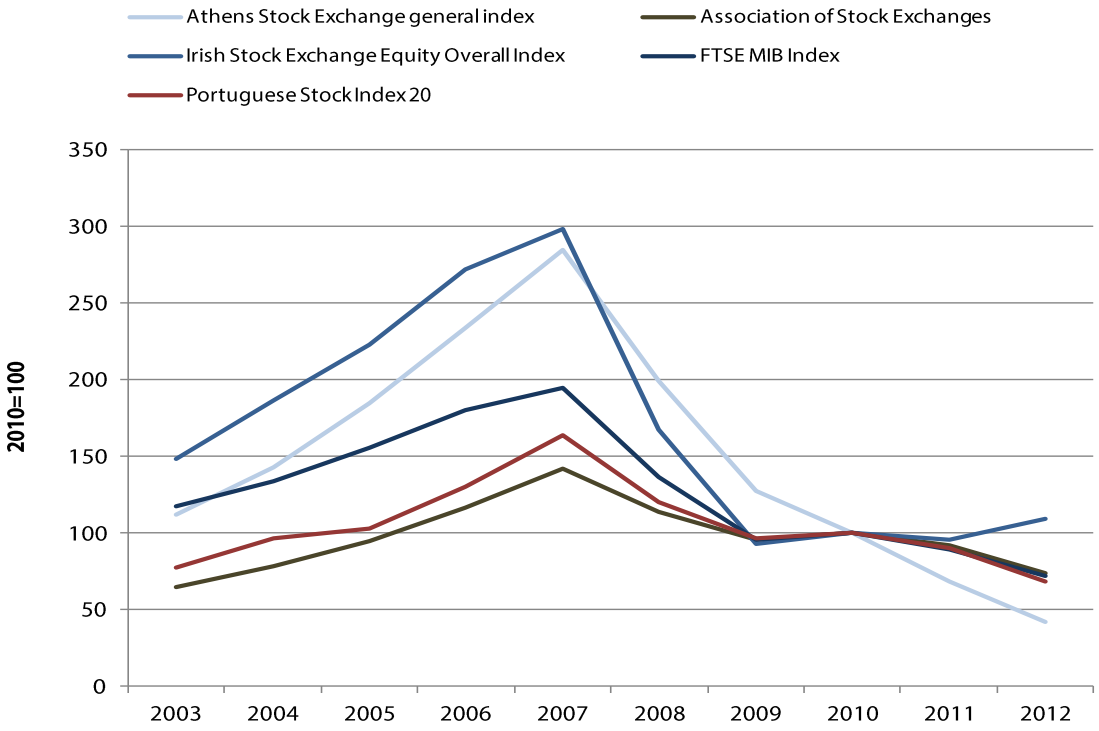
Source: central banks.

With the first signs of the crisis in 2007 and after three years of sustained gains, the value of foreign holdings of domestic liabilities of peripheral countries fell. In 2008 with the crisis and massive shock the local stock market indices collapsed (Figure 17) and with them the value of domestic liabilities held by foreigners, the value of assets used as collateral for loans and overall credit activity. The magnitude of the financial shock was such that it wiped out the foreign creditors accumulated gains in previous four years and depressed assets market prices in peripheral countries. The fall in value of collateral in turn tightened credit constrains. With the deterioration in overall funding conditions risk was re-priced in 2009 as reflected in the strong valuation gains of cross border creditors' holdings of peripheral countries liabilities and in the widening of their government bond spreads.[15] In 2010 the effect of the Greek debt crisis was mostly reflected in the collapse of gross capital inflows than in the change of valuation of liabilities to foreigners (Figure s 14 and 18). The small size of valuation changes is also visible in the value of stock exchange indices that with the exception of Greece did not deteriorate further but remained depressed. In 2011 the crisis spread to Spain and Italy. A clear widening trend in government bond yields of peripheral countries emerged in April 2011 and in the case of Italy the government 10-year bond yield reached a level close to 7% in November. In absence of capital inflows, but capital flight as reflected in the widening of TARGET2 balances, the fall in value of liabilities held by foreigners was mostly linked to fall in yields of government bonds as the value of stocks continued depressed. With the crisis reaching a height in 2012 again a substantial re-pricing of risk of peripheral countries took place as observed in the valuation changes of domestic liabilities held by non-residents which was similar in size to that in 2009. The magnitude of re-pricing of risk is also visible in the value of stock exchange indices that further deteriorated to levels close or lower than those reached nine years earlier in 2003. In 2013 the improvement in confidence is visible in the positive increase in gross capital flows and positive valuation changes of peripheral countries' liabilities to foreigners which is

[15] The crisis also adversely affected the value of assets peripheral countries held abroad.

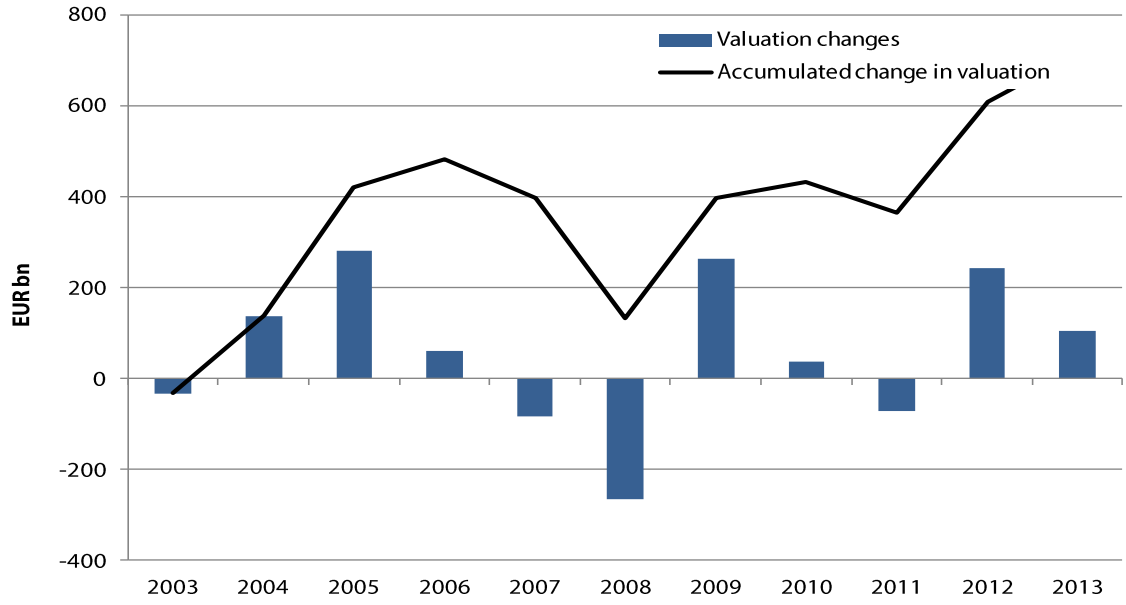
consistent with or underpinned the stock exchange indices' gains that took place in the second half of the year.

Figure 17: Share price indices



Source: Eurostat.

Figure 18: Change in foreign liabilities due to valuation

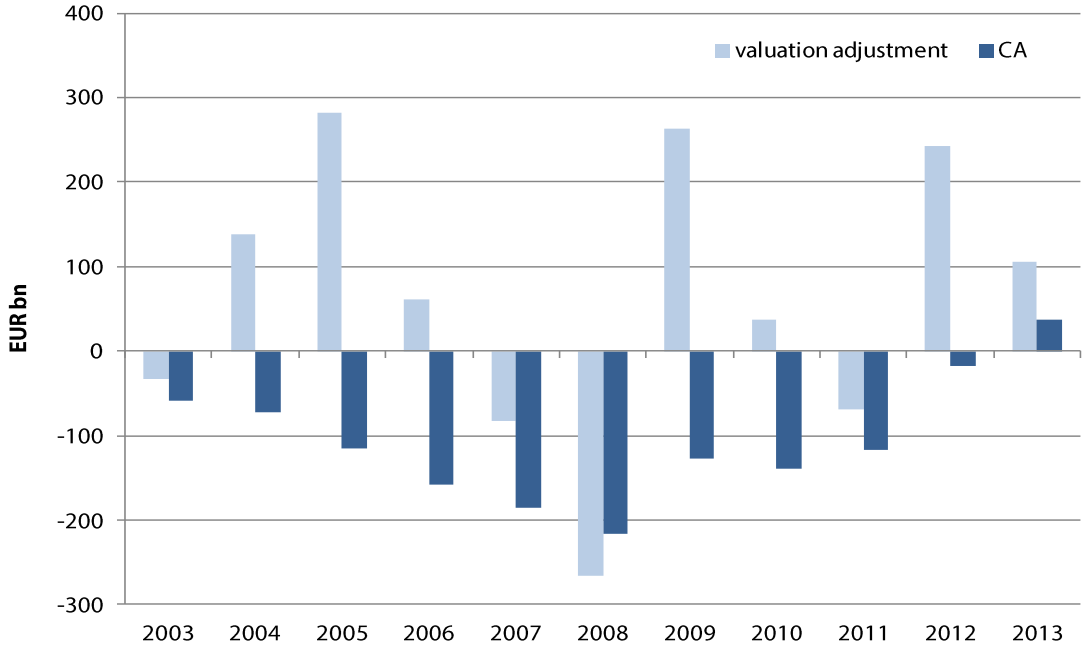


Source: Central banks, own calculation.

The nature of the financial crisis is also visible by comparing the magnitude of the valuation changes in assets and liabilities resulting primarily from portfolio investments which was the main source of external financing of peripheral countries (Figure 12). The changes in valuation of foreign liabilities have been sizable and outpaced by far the size of current account imbalances in those countries in various years during 2003-2012. This suggests that the size of current account deficits was not the main source of vulnerability but the changes in financial conditions and capital flow dynamics. While valuation changes tend to be netted out through time (EC 2012b) the issue is that they reflect the impact and adjustment of balance sheets, credit constrains and liquidity to changing in financial conditions. On the liability side the adverse impact of valuation changes in 2004-2006 coincides with relaxation of financial constraints and buoyant credit activity. The magnitude of those changes compared to the size of current account balances points out to the strong financial expansion that was taking place at that time (Figure 19).

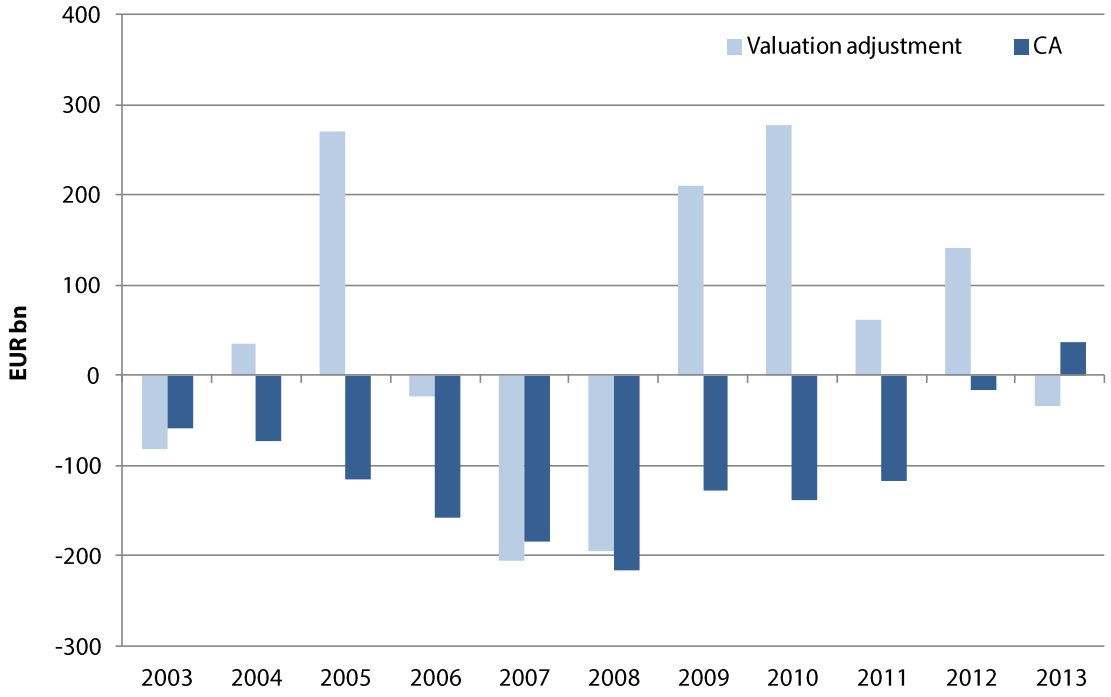
It can be argued that in absence of capital inflows and valuation changes the increase in the value of assets and credit activity would have been by far more modest. In 2008, with the collapse of stock exchange indices, not only the positive creditors' valuation gains during the boom period were wiped out but the size of valuation changes was bigger than the combined current account deficit of peripheral countries in that year which was also the largest. The size of the swings in adverse valuation of liabilities in the 2009 and 2010 outpacing the size of current account deficits in the respective years and that of 2008 reflect the strenuous financial conditions facing peripheral countries in terms of capital flight, re-pricing of risk, funding conditions and credit activity (Figure 21). Thus, although netted out over time, the importance of valuation changes and its information content, is very relevant in real time as it provides indication of underlying economic conditions and shocks. The sign and huge magnitude of valuation changes in the pre and post crisis periods clearly highlights the turbulence generated by the crisis, its propagation and the importance of financial stability. Importantly, the negative valuation change of liabilities to foreigners reflects the degree of financial stress and tight financing conditions while positive gains in value of liabilities capture re-pricing of risk.

Figure 19: Peripheral countries current accout and valuation changes of liabilities



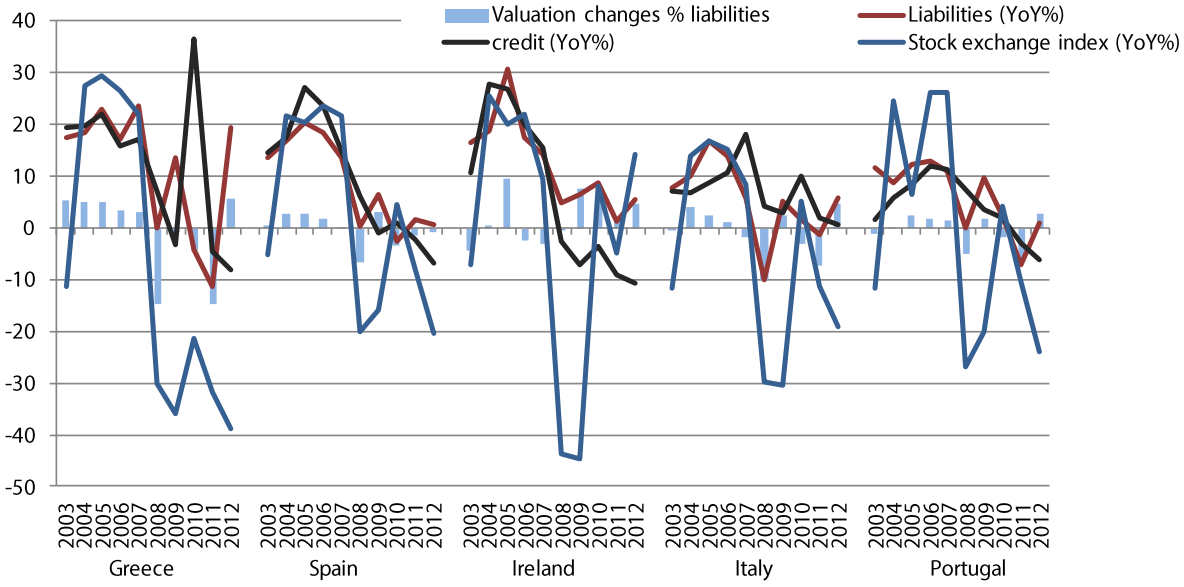
Source: Central banks, own calculation.

Figure 20: Peripheral countries current accout and valuation changes of assets



Source: Central banks, own calculation.

Figure 21: Credit activity, stock exchange and valuation changes in GIIPS countries



Source: Central banks, own calculation.

From the point of view of a net international debtor-country it can be argued that valuation effects on assets held abroad are equally important than valuation changes on liabilities held by foreigners. This can be the case when assets are used for collateral financing (net worth) and can serve to repay liabilities. Nevertheless, given that the assets held abroad by a country with negative NIIP are by definition

underpinned by leveraged financing, shocks to liabilities to foreigners at the time of crisis (negative and positive), to the extent that reflect worsening of domestic conditions and losses of creditworthiness, they seem to have more adverse consequences. However, peripheral countries with the collapse of local stock markets did not only face adverse valuation changes on domestic assets, whose price has not still recovered to pre-crisis level, but also undergone the fall in value of assets of domestic residents held abroad, which worsened their overall financial capacity. The valuation of assets held abroad by domestic residents of peripheral countries improved in the period 2009-2012 with flight to safety and better financial conditions in the core of the euro area, however they were not enough to offset the sizable adverse valuation effect of liabilities in 2012. A broader issue is the overall relevance of assets held abroad in mitigating the balance sheet adjustment of debtor entities at the time of financial stress.[16][17] It can be argued that there is a possible mismatch among the domestic entities owing debt to foreigners and those entities holing claims on foreigners. Thus at time of stress these foreign holdings of assets cannot or can only be partially used to cover obligations.

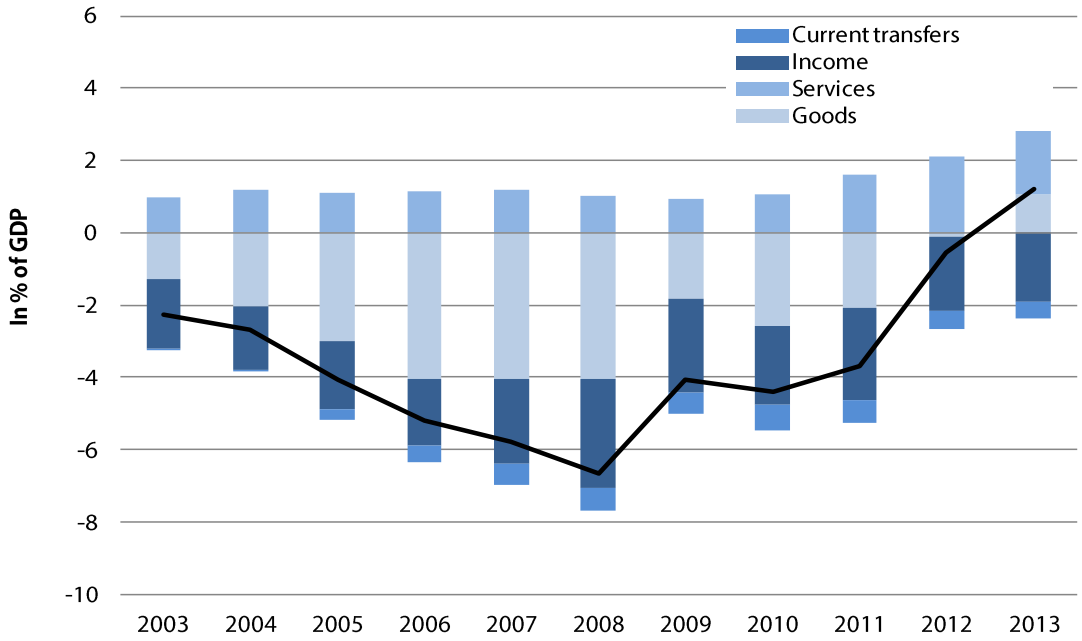
Another important issue regarding capital flows is that the size and sudden change in their direction impacts the value of assets affecting portfolio allocation and generating wealth effects. Also when there is capital flight affecting collateral value this hinders overall credit activity. This takes place when financial intermediaries acknowledge the impact of capital outflows on collateral valuation which is reflected in the observed relative lagged response of credit activity to financial shocks.

The relevance of the financial dimension in explaining the crisis is also visible by looking at the item "factor payments" of the peripheral countries' current account balance (Figure 22). In particular, interest payments, which are the bulk of factor payments, became bigger than the trade balance already since 2009. While by accounting identity net domestic savings equals net exports, the important issue in the context of euro area process of integration prior to the crisis is that a major reallocation of portfolios (restructuring) towards non-residents holders took place which was also facilitated rapid expansion of liabilities. Thus the increase in interest payments is not only associated with the financing of current accounts deficits incurred on the run to the crisis but also to changes in the holders of the stock of debt built before monetary integration by means of purchases of assets already in place or being refinanced at lower interest rate due to convergence. The high degree of financial integration resulting in increased cross-border debt service obligation explains why the peripheral countries combined trade gap closed relatively fast while the current account deficit at a slower pace. It also points out to the notion that the crisis is not a current-account balance crisis (trade related) but a crisis whose determinants are in the financial sector.

[16] Changes in net liabilities capture shocks with important effect on domestic asset prices and future investment dynamics.

[17] According to the review of the literature by Goldstein and Razin (2013) firms suffer from a currency mismatch between their assets and liabilities: assets are denominated in domestic goods and liabilities in foreign goods. A real exchange rate depreciation increases the value of liabilities relative to assets, leading to deterioration in firms' balance sheets. Due to credit frictions the deterioration in firms' balance sheets implies that they can borrow and invest less. The decrease in investment particularly foreign validates the depreciation in a general equilibrium setup as the aggregate demand for the local goods will fall relative to foreign goods.

Figure 22: Current account balance in peripheral countries



Source: Central banks.

The large increase in cross border holdings of liabilities/assets in the run to the crisis facilitated by monetary and financial integration and reflected in sizable cross-border interest payments points out to the overarching importance of having preserved the integrity and stability of the unified euro area financial market from the outset. In particular preserving confidence on financial institutions and sovereigns was of outmost importance and required appropriate backstop facilities and facilitation of orderly deleveraging. Yet, the evolution of the policy response indicates that the systemic nature of the crisis became a policy concern only at a late stage. The policy approach followed indicates that the diagnosis of the crisis only recognized its systemic financial dimension to the monetary union at a late stage and as a consequence the policy response was piecemeal instead of being comprehensive. That the systemic nature of the crisis was overlooked is also clear from the approached followed aiming at reducing the cross border taxpayer exposure and the redefinition of debt burden sharing arrangements amidst the crisis of confidence that put the monetary union at risk of disintegration. With the deepening of the crisis it became clear that in absence of financial backstop economies in monetary union by issuing debt in a currency that do not control are vulnerable to destabilizing speculation which can be generated by various reasons including policy response that coordinate self-fulfilling crisis expectations.

5 POLICY RESPONSE TO THE CRISIS AND THE ZERO LOWER BOUND

Looking at the crisis and its aftermath it is clear that the policy response failed to contain its propagation and deepening until a later stage (summer of 2012). Yet the strength of the recovery is still weak and subject to important risk for the monetary union (e.g. deflation and secular stagnation). This section explores the reasons why the policy response failed to contain the crisis and its' spreading at an early stage and its contribution to it. Based on the analysis in previous sections the following arguments can be provided and further developed.

The nature of the crisis was not understood (i.e. financial), its systemic dimension (i.e. monetary union) and underlying vulnerabilities (highly integrated and leverage financial system) underestimated.

Pursuance of a strategy aiming at redefining debt burden sharing arrangements to minimize cross border fiscal impact amidst a systemic financial crisis contributed to coordination of self-fulfilling crisis expectations.

There was a lack of adequate institutional infrastructure to deal with systemic financial crisis affecting the monetary union.

Three important considerations can be made in assessing the euro area policy response to the crisis. One relates to the nature and order of magnitude of the crisis in which EU banks played an important role. Other is that it affected countries belonging to a common currency area with a high degree of financial interconnections resulting from absence of restrictions to capital flows, and the third is that prior to the crisis there was a strong increase in indebtedness of private sector in a domestic currency that is not controlled by individual member states.

The nature of the crisis was financial and its striking feature was the dramatic loss of confidence and increase in risk premia (see section I). It is clear that the order of magnitude of the shock brought by the collapse of Lehman Brothers and the "breaking of the buck" by a mutual fund following the burst of housing bubble in the US was massive. It resulted in a financial crisis of global dimension and a sudden stop of capital to the combined peripheral countries. This crisis can be understood a structural break or regime switch (Gorton 2012). In particular this is related to the working of the shadow banking system (including securitization vehicles, asset-backed commercial paper conduits, money market mutual funds, markets for repurchase agreements (repos), investment banks, and mortgage companies) that played a major role in global finance and liquidity expansion. The crisis eroded trust and increased refinancing risk among financial intermediaries and banks due to the uncertainty of their degree of exposure to the so-called toxic assets and because of banks' reliance on short-term funding and or securitization. Since the onset of the crisis the most important challenge has been the rebuilding of confidence on banks and facilitating an orderly deleveraging of institutions and sectors. In particular, the key issue has been to dispel doubts about the financial strength of banks as measured by their respective capital and the potential impact of capital shortages of too-big-to fail institutions on their respective sovereigns and the resulting vicious feedback loop between balance sheets of banks and sovereigns.

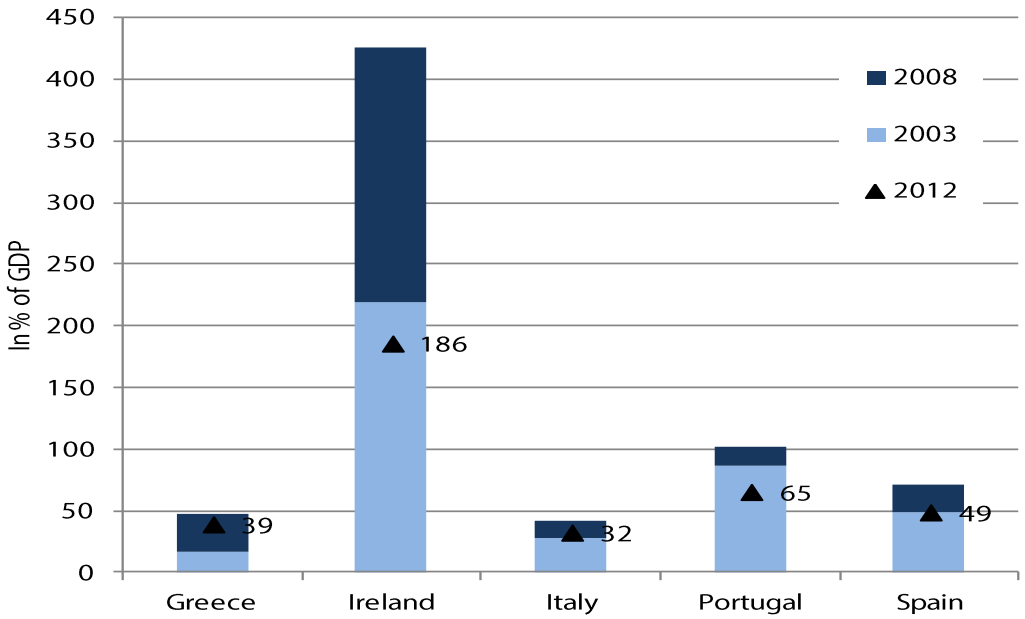
The crisis severely affected European banks as they were heavily involved in intermediation in the US market (Shin 2012 and Ivashina et.al (2012)) and the overall financial conditions in Europe as they increased their cross-border activity explosively during 2003 until 2007. The role and exposure of European banks to the US subprime crisis, the high degree of financial integration among euro area countries in which banks of core countries enabled credit booms in peripheral countries and the interruption of interbank funding called the crisis to be classified from the outset as a systemic financial crisis. Given that euro area banks share a single monetary authority it can be called a systemic financial crisis of the monetary union.

The second important dimension is the relatively high degree of financial integration among euro area countries prior to the crisis. This is particularly important because when funding dried or was interrupted the high degree of interconnectedness contributed to the propagation of the crisis and contagion. Banks' cross-border activity expanded very fast during 2003-2007 with flows moving from core to peripheral countries. Total EU banks' exposure to EU member states doubled from about $ 6000 Bn. in 2003 to $ 12000 Bn. in 2007 (BIS). The source of rapid growth was interbank credit and repo market as the deposit base grew in line with GDP (Liikanen 2012). Bank's cross-border holdings of debt securities (government and corporate bonds) alone doubled in 10 years from 15% in 1997 to 37% in 2007 (ECB 2012b) and banks cross-border penetration grew substantially. Also the share of non-resident holders of government debt in total exceeded 38% which was also the case in Spain and Italy in 2011 (Eurostat). The degree of cross-border holdings of equity issued by euro area residents also increased steadily from 22% in 2011 to 32% in 2007.

In this context keeping cross-border financial activity was of outmost importance to ensure orderly rebalancing and deleveraging. In particular it points out to the importance of backstop mechanisms to underpin the uninterrupted flows of financial transactions or to gain time to ensure an orderly deleveraging process. In the US and UK for example monetary and fiscal policy interaction facilitated the deleveraging of private sector as a pre-condition to the recovery.

The third important issue concerning the policy response to the crisis and its consequences is the substantial increase in leverage of banks and private sector before the crisis and thus the rollover risk when funding conditions changed. This dimension has to be considered in light of the size that some financial institutions and banking systems reached and the national governments capacity to underwrite those risks. In 2008 the average size of domestic banking systems' assets as percentage of GDP was 300 per cent. The growth of banks' balance sheet was underpinned by their cross border wholesale borrowing. From 2003 to 2008 cross border bank indebtedness increased substantially particularly in Ireland (Figure 23). Similarly, between 2000 and 2007 private debt in euro area increased by 82 p.p. of GDP to 325% of GDP, while government debt slightly decreased by 4 p.p. to 75% of GDP in the same period. In 2011 15 EU countries and 11 euro area members had a private debt-to-GDP ratio exceeding 160% of GDP which is considered a safety threshold by EU commission in the surveillance of macro imbalances. The large increase in private debt is explained by financial sector debt (47 p.p.) followed by corporate sector debt (29 p.p.) and household debt 18 (p.p.). Between 1999 and 2007, peripheral countries' private debt almost doubled from 83% of GDP to 160% of GDP while government debt decreased from 90% of GDP to 85% of GDP. The relative high leverage of the private sector and the impact of the crisis has to be seen in light of: i) the sizable cross border funding underpinning it and its retrenchment; ii) the capacity of national governments to provide support to financial entities under stress which under deepening crisis was increasingly called into question and; iii) the absence of a credible backstop facility to mitigate the vicious circle between banks and governments.

Figure 23: Banking system´s external liabilities



Source: Eurostat.

The major dislocation of financial flows brought by the huge financial shock to the integrated financial area, where private and financial sectors was highly leveraged, called for a swift policy response to keep cross border financial activity and to rebuilding confidence. To some extent this was achieved temporarily by ECB refinancing operations particularly by those of long-term nature that were carried out at the end of 2011 and the beginning of 2012. Yet at that time of the long-term operations confidence was very low and contagion wide spread. At national level early government intervention measures also improved confidence temporarily and facilitated banks access to financial markets by issuing guarantees and injecting capital on banks. In particular half of total banks capital increase by EU tax payers in the period 2009-2012 (€ 123 billion) took place in 2009 and 2010 and about 40% in 2012 at the peak of the crisis following the 2011 EU wide system stress test (Eurostat 2013). Despite those attempts confidence on banks was not fully restored and there was a growing perception that the dimension of the crisis was overwhelming compared to balance sheet strength of individual governments. The events highlighted the weakness of design of monetary union (i.e. the fragility of banks' balance sheets and potential impact on sovereigns that are constrained by issuing debt in the currency that they do not control (De Grauwe 2011) and thus the clear systemic nature of the crisis. The worsening of the crisis reflected the lack of coherent approach to address its systemic nature which required an euro area common backstop facility or common instruments to remove idiosyncratic risk (e.g. common bonds or purchases of government bonds in secondary market by the ECB), credible stress test (e.g. Dexia, Spanish Cajas), bank capitalization by supranational entity, and decisive action of governments to increase capital when possible and/or resolve banks. It was required the ECB effective OMT communication to fill the policy vacuum to brake the negative loop between sovereigns and banks, dispel uncertainty and pave the way for the banking union which is work in progress. The ECB promise to provide effective backstop to government debt dispelled the expectations of a self-fulfilling sovereign debt crisis.

In addition to guarantees given to banks and capital injections and a short lived fiscal stimulus the EU policy response to the crisis consisted originally in re-enforcing fiscal discipline (pushing for an early exit strategy of fiscal stimulus by 2011) and enhancing the fiscal framework (negotiated and adopted in 2011). To some extent this might be explained by the reaction to the Greek sovereign crisis triggered by the disclosure of higher debt than officially reported amidst an overall process of banking system balance sheet repair. The policy focus was the overhaul of the EU fiscal framework resulting in an enhanced rule-based fiscal framework with strong surveillance and enforcing mechanisms. In addition macroeconomic surveillance procedures to identify macroeconomic imbalances (MIP) and a Systemic Risk Board (ESRB) to identify systemic risk were deployed.[18] Particular attention was placed on current account imbalances. The nature of the measures was preventive and to avoid the repetition of the crisis. Nevertheless, the reviewed fiscal framework strengthened the corrective arm and a MIP procedure was design to stir correction of imbalances. Paradoxically, the ensuing crisis actually triggered the rebalancing of macroeconomic conditions which was further accelerated by the policy response that failed to contain the propagation of the crisis. The emphasis was placed on country specific developments as if the crisis would have been triggered mainly by domestic conditions and less due common drivers underpinning imbalances and the workings of the common currency area. The European Banking Authority (EBA) was created to provide a single set of harmonized prudential rules for financial institutions and their enforcement. To tackle the impact of the crisis on countries more affected ad-hock financial assistance was provided as if the shock would have been country specific and not systemic. In absence of a crisis management mechanism a

[18] For example according to Couree (2012) the 'original sins' of Economic and Monetary Union were weak fiscal institutions, tolerance of economic imbalances and the lack of an integrated mechanism to supervise and resolve banks.

temporary rescue fund for countries in difficulty, the European Financial Stability Facility (EFSF) was established in 2010. Then with the crisis deepening the decision was taken of setting up the European Stability Mechanism (ESM 2011) as a permanent tool for handling crisis (i.e. to provide access to finance in times of distress subject to conditionality). Its operations started in 2013 at the time when the strains of the crisis already eased.

With the Spanish banking crisis coming to the fore in the first half of 2012 and an increasing risk of euro area collapse, it was necessary to break the link between banks and their incumbent governments' limited fiscal capacity to absorb the shock and the change in funding conditions. As a result the idea of a banking union started to be discussed in June 2012 and the first steps for its constitution were agreed in December 2012. A banking union was an explicit recognition of the systemic nature of the financial crisis. The aims were to restore confidence on banks, reduce the fiscal impact on governments and brake the feedback loop of bank's declining value of government bond holdings and sovereign risk. The agreed elements of the monetary union include supranational oversight on banks, common resolution of banks by a single supranational entity and pooling eventual financial costs of bank resolution via common backstop.

In the case of the ECB the policy response besides low interest rates, which temporarily increased in 2010, consisted of liquidity provision. The response goes back to 2007 with massive liquidity injections in the months of August and December of that year. At the beginning liquidity was provided only on short-term basis and then its maturity was extended in successive steps as funding problems of banks became more acute. It also involved expanding the eligible collateral and outright purchases of banks' covered bonds and government bonds under Securities Market Program (SMP). With regard to the SMP the aim was enhancing the transmission mechanism of monetary policy by mitigating pressures in the government debt market. It included purchase of government securities of Italy and Spain in the secondary market when contagion spread to those countries. The most important measure addressing banks funding conditions were the so-called Long-Term Refinancing Operations (LTRO) with 3-year maturity. The banks' response was massive in terms of number of banks and amounts involved.[19] In fact it served as backstop to bank debt and hedged roll over risk and avoided a disorderly reduction of assets due funding constraints. The key issues with the ECB policy response in terms of the long-term financing operations is whether it was timely or too late to avoid financial fragmentation as the trust among banks completely eroded at the time of their implementation; and whether an ECB active role in easing deleveraging pressures would have also reduced financial fragmentation.

It can be argued that with the policy of full allotment of short-term funding the ECB appropriately addressed bank's liquidity needs and that the lack of banks' recourse to refinancing facilities observed in the aftermath of the Greek crisis was demand driven. Yet various factors suggest that stigma and still relative short-term maturity of refinancing discouraged banks from accessing refinancing until conditions became untenable. These include the practical cessation of bank's access to ECB refinancing towards mid 2011 notwithstanding the extension of maturity of refinancing to 1-year in 2010, the drying of interbank activity in 2011, and the massive response to LTRO at the end of 2011 and February of 2012. It was only in summer 2012, when the euro area crisis reached its height and the area faced a double-dip recession that the ECB policy restored confidence. The ECB commitment to purchase unlimited amount of government debt subject to conditionality or to backstop sovereign debt changed the overall risk perception. This is particularly observed in the evolution of government yields and banks funding conditions since the ECB announcement. Similar actions in the case of the US and UK helped to keep government debt yields low

[19] At 1.0% interest 523 banks signed up to €489 billion LTRO money in December 2011 and in February 2012 800 banks signed up for €529 billion.

by eliminating the risk of default. The issue was that two years from the outbreak of the Greek crisis and despite forward looking changes in the policy framework (e.g. fiscal, imbalances procedure and risk sharing arrangements) the euro area was doomed to collapse due to inadequate policy response at euro area level that would address the root of the systemic financial crisis; the lack of confidence on banks and individual sovereigns.

Looking in perspective at the euro area and ECB policy response suggests that the most effective measures in addressing developments in financial and government debt market and thus the euro area crisis seems to have been the ECB backstop actions to mitigate the refinancing risk of banks by means of LTROs and reduced the risk of default of the sovereigns by means of the OMT; in both cases backstop facilities. It is argued that the LTRO tightened the link between banks and sovereigns in peripheral countries, yet the absence of such a massive intervention would have led to the collapse of banks in many countries given the freeze of cross-border activity. An important issue is whether such a policy by fostering the temporary revival of interbank activity and intermediation, if deployed earlier, would have mitigated the worsening of risk perception and contagion. In the case of vulnerable sovereigns notwithstanding the policies enacted to address specific country problems (EFS and ESM), the crisis got worse and the market perception was that fiscal resources were always insufficient to cope with underlying risks. This is because the crisis was systemic to euro area and in absence of appropriate backstop facilities domestic financial capacities to cope with financial needs are questioned and thus risk perception exacerbated. The policy response by coordinated self-fulfilling crisis expectations unveiled that economies in monetary union are also vulnerable to destabilizing speculation. Furthermore, besides the ECB responsibility for coping with the euro area wide crisis, responsibility was not clearly entrusted to single entity. As a consequence the response was piecemeal and county specific as if the crisis was also only country specific.

The ECB effective policy communication on backstop of government debt and banking union are the two key policy measures containing the spreading up of the crisis and potential break-up of the Monetary Union by tackling credit risk of sovereign and financial institutions. Thus an important issue to explore is what underpinned the erosion of confidence and exacerbated perception of default risk. This is particularly relevant taking into account that in the aftermath of MTO announcement government yields have declined notwithstanding continued increase in government debt in 2013 and 2014 and there was still uncertainty about the strength of banks' balance sheets that had to be fully dispelled by the ECB AQR exercise in 2014.

Undoubtedly the change in funding conditions and economic outlook brought by the crisis triggered a deep reassessment of credit risk. The crisis exposed vulnerabilities not seen before it. To what extent the policy response mitigated or exacerbated credit risk? Was this due to the understanding of the nature of the crisis or underestimating implications of the policies followed? The evidence suggests, as exposed below, that the policy response magnified credit risk because it was only at late stage that the systemic nature of the crisis was recognized, the institutional set up was inadequate and accountability not defined to handle a systemic crisis of the monetary union or that there was a design failure to cope with that possibility.

Looking at the evolution of the policy response and various interpretation of the nature of the crisis it is not completely clear whether there was an accurate understanding of what was driving its propagation and deepening.[20] According to Coure (2013) the crisis had three dimensions consisting of a classic debt deleveraging cycle, "crisis of the social contract" and crisis of the institutional architecture. The German

[20] See Jay C. Shambaugh, "The Euro's Three Crises", Brookings Papers on Economic Activity, Spring 2012, or the special report of the German Council of Economic Experts, "After the Euro Area Summit: Time to Implement Long-term Solutions", July 2012

Council of Economic Experts (2012) considered that the crisis had a systemic nature originating from the implicit sovereign default risk related to: member states not having maintained low public indebtedness (as required by the Stability and Growth Pact), private sector not having kept low indebtedness and; unsustainable external balance of payments. The European Economic Advisory Group (2013) considered that euro area was undergoing three interrelated crises: balance-of-payments crisis, a sovereign debt crisis and a banking crisis associated with the emergence of current account imbalances (surpluses and deficits). Degrauwe (2011) argued that the crisis in the monetary union arose because of the nature of the debt issued by governments which is in a currency that they do not control.

While there are various interpretations about the nature of the recent crisis the issue is to disentangle the symptoms, manifestations and factors explaining it. Indeed the crisis has renewed attention to the analysis of the causes and nature of crises.[21] According to Claessens et.al (2013) the literature clarified factors explaining financial crises--macroeconomic imbalances, internal or external shocks-- but the issue is still to identify their causes. Among financial crises they identify four major types which can often overlap: currency crises; sudden stop (or capital account or balance of payments) crises; debt crises; and banking crises. With respect to causes of crises they suggest their root in "irrational factors" and "animal spirits".[22] Bernanke (2012) highlights the importance of distinguishing between vulnerabilities and triggers (events). With respect to the 2007 crisis He regards it as a classic-financial-panic triggered crisis. Goldstein et.al. (2013) review basic theories explaining three types of financial crises: banking crisis and panics, credit frictions and market freezes, and currency crises. They point out that the crises experiencing the euro area exhibit ingredients of those crises. In particular the financial system, in its different segments and participants, is subject to reluctance of creditors to roll over existing liabilities and provide financing (i.e. coordination failure). Similarly, information asymmetries (frictions) became extreme leading to credit freeze. This is exacerbated in the context of currency union where countries face free movement of capital, governments have limited capacity to absorb shocks and maintain national debt as they lack monetary autonomy creating vulnerability to runs and potential monetary disintegration. Gorton (2012) regards the crisis affecting US and Europe in 2007-2009 as a financial crisis in which bank debt holders run on money market debt and required central bank and government intervention to ensure that banking system function is not impaired (2012).

Taking into account the evidence and literature it is difficult to contest that the crisis is a crisis of the euro area and not only of single countries and its nature was and still is financial and associated with risk perception and funding conditions. The crisis affected countries sharing a single currency which were strongly financially integrated (at the outset of the crisis). Its effects have been felt by all members in different degree and direction (e.g. positive and negative capital outflows; government spread movements away from fundamentals; and high and low interest). The nature of the crisis is financial because not only funding conditions changed radically, but risk perception and confidence played a key role in its evolution. Confidence among banks and on banks' balance sheet strength has not been fully restored and it has been not longer ago that confidence on sovereigns improved as reflected in lower government debt yields. Yet the issue is whether those gains are permanent.

If the exacerbation of credit risk and worsening of financing conditions underpinned the evolution of the crisis then it is important to disentangle the role that policy played at euro area level. Leveraged financial institutions and uncertainty on their quality of assets has been a permanent concern since the outbreak of the crisis and such uncertainty was not fully dissipated by the first EU wide stress test in July 2010 and the

[21] Claessens et.al (2013), and Goldtstein et.al. (2013), Gorton (2012).

[22] Keynes (1930); Minsky (1975); and Kindleberger (1978).

2011 improved stress test. To understand why the regulatory effort particularly in 2011 failed to restore confidence it is first necessary to analyze the policy response to Greek crisis.

The Greek sovereign debt crisis contributed to change the credit risk perception of financial institutions and of sovereigns with stressed financial institutions in Europe. This is also explained because of resident banks holdings of their respective sovereign's debt. The policy response to Greek crisis was conflicting. It placed the link between balance sheets of banks and sovereigns at the center of the crisis and became an evolving policy approach that aimed at redefined burden sharing arrangements on liabilities to mitigate the exposure of euro area tax payer. The approach was built amidst a massive crisis of confidence contributing to its propagation. The issue in question is not the aim or the approach in itself (i.e. reducing moral hazard), but the timing of its conception and implementation. The key dilemma at that time of the Greek crisis was whether to restructure the debt or to provide financial backstop to ease it's rolling over. Two arguments seemed to have weighted on this dilemma: the euro area large banks' exposure (France and Germany) to Greek government debt and debt sustainability concerns. The decision taken was to give a support package that did not dispel debt sustainability concerns nor provide a permanent backstop to hedge Greece against the risk default. On May 2010 a rescue package for Greece was agreed as well as the decision to set up a regional financial firewall (European Financial Stability Facility (EFSF), which was later replaced by the permanent European Stability Mechanism (ESM) in October 2012) to support joint EU-IMF rescue packages for euro-area countries.

Despite concerns about the Greek's debt sustainability, at the same time the policy approach aiming at imposing private burden sharing in dealing with debt issues started to emerge. In particular, the idea of introducing collective action clauses "CACs" on government bonds with the aim to limit EU taxpayer exposure to bailouts was already discussed at that time.[23] In the same year Ireland also required assistance to deal with failed banks. But, notwithstanding the pursued policy approach of imposing losses to creditors of bad behaved sovereigns or entities, Greece and Ireland were barred from imposing losses on senior creditors and bond holders.[24] While it is argued that if EU banks would have been in a better shape at the time when the crisis broke up an early restructuring of debt would have taken place than later in 2011 (Veron 2011), the issue is whether the contagion or intensification of default risk of other euro area sovereigns would have been ruled out.[25]

After the Greek package systemic risk and tensions on the sovereign debt market eased but the issue of confidence still hunted the euro area. In October 2010 the Euro group adopted the proposal made by Germany to introduce "CACs" on government bonds and, following in the Deauville agreement in the same month, reference was made that the preparatory work on the ESM would include "the role of the private sector" in debt restructuring. As a consequence tension in the government debt market resumed as

[23] CACs allow the holders of diverse debt instruments to vote collectively to restructure all debts.

[24] According to Veron (2011) if EU banks would have been in a better shape at the time when the crisis broke up that would have allowed an earlier debt restructuring than that in 2011. But in fact the exposure of core countries was large and then fast decreased leading to financial disintegration.

[25] According to Kirkegaard (March 2013) the ECB prevented imposing immediate losses on bondholders in the collapsed Irish banks due to fears of destabilizing further the euro area banking system.

reflected in the debt spreads of peripheral countries that start widening again. [26][27] The policy response underestimated the impact on confidence erosion amidst a fast deteriorating environment.

By November 2010 Ireland and then Portugal in April 2011 signed multilateral financial support packages. In the case of Ireland the issue or argument for the program was not competitiveness or government debt but the banking system. In the case of Portugal it was mostly driven by capital outflows in securities and interbank market and not current account (Cecioni 2012). The large banks' significant exposure to euro area sovereign debt on the top of already weak balance sheet positions further eroded trust. The negative feedback loop between sovereigns and banks was further tightened.

In the first half of 2011 it appeared that Greece would need additional support. This was made available under condition of private sector involvement in the partial restructuring of its government debt which implied write downs on debt holders.[28] As a result of the restructuring confidence on Greece did not return but confidence erosion spillover to other countries despite the EU statement that the approach followed on Greece was unique. Financial conditions worsened. Overall liquidity conditions of banks and governments resulting from decrease of cross-border flows deteriorated and tightened the link between domestic banks and governments as reflected in the banks' increase of holdings of domestic government debt (Section 1). Such a development has to be seen in light of the fast erosion of financial integration. The growing anxiety regarding the capacity of some national governments to deal with liquidity squeeze and erosion of confidence was clearly perceived by the market. This was also reflected in the euro area policy response to the crisis as captured by the step up increase in the financial capacity of the newly created institutions to provide support to governments in case of need which was consecutively perceived as inadequate and which did not prevent the spread of contagion.[29]

In July 2011 the result of the second euro area banking system wide stress test was published, but despite improvements it also failed to fully re-establish confidence on banks. Two arguments can be provided to explain the failure. One is the criticism that the exercise did not test for the risk of sovereign default which until Greece was not present and, the other is that the overall economic outlook deteriorated severely due to the unfolding events driven by the type of policy response. With regard to the first argument the IMF expressed criticism about the discount factor applied to government debt which seems questionable given multiple equilibria in the government debt market resulting from self-fulfilling crisis expectations in the absence of backstop for government debt in countries without independent monetary authority. On the second argument the issue is that the economic development turned completely different than envisaged in the stress test. In May 2011 while the consensus forecast for the 2011 GDP growth for the euro area was similar (1.6% (1.7% ECB)) than the outturn (1.6%) the forecast for 2012 (1.8% (ECB 1.8%) was well above the outturn (-0.6%). In 2011 the US money market funds reduced exposure to euro area banks increasing funding pressures. In the summer of 2011 the contagion spread to Italy and Spain exacerbating tensions

[26] Banks' access to capital markets started to close again for all but strongest banks (Likenen 2012) and credit growth started to decline as consequence of worsening funding conditions. Interbank lending that started to recover decreased again.

[27] According to Smaghi (2010) the re-emergence of the positive trend in government yields was due to the issue of private involvement in the context of the ESM while according to De Grauwe (2010) this was due to the introduction of CACs.

[28] Private sector involvement' took place largely because of domestic political factors in countries including Germany and the Netherlands.

[29] Originally the EFCF's financial capacity was of € 440 Bn. In July 2011 it was increased to €780 Bn. and further to more than € 1 trillion in October 2011.

for banks and government financing which then were partially eased with LTRO operations of November 2011 and February 2012.

Putting at the center stage of the stress test the probability of default of euro area sovereigns when self-fulfilling expectations of debt crisis were intensifying cemented the risk perception that solution to the crisis was not within reach. A negative feedback loop emerged between worsening of macroeconomic conditions due to loss of confidence and bank's balance sheets. The described developments highlight the contribution of the policy response to the crisis.

In March 2012 a third aid package for Greece was agreed involving a haircut of 78% of net present value of government debt. In spring of that year the Spanish banking crisis set in. Pressures on Spanish debt market intensified with rapid withdrawal of portfolio investment by non-residents. The pressure spilled over to Italy and in both countries their banking systems became more dependent on ECB liquidity (Van Rixtel et. al. 2013). The market increasingly questioned the financial capacity of Spanish government to deal with its banking system as well as the capacity of euro area to deal with systemic crisis. The cost of a default of Spain would have been at that time far reaching than those of Greece. But, the growing financial pressures and broad spillovers for the euro area and financial markets forced euro area policymakers to find a compromise to address Spanish banking problems. The evolving financial crisis and the unsustainable dynamics between governments and banks' balance sheets pushed EU authorities to provide financial support to Spanish banks dislocating the immediate pressures on the Spanish government. An agreement to help restructuring Spanish banking system with EFSF/ESM money was reached in June. Notice however that despite the growing pressure on Spain, the government did not request direct assistance subject to conditionality from EFSM/ESM due to associated stigma.[30][31] The conditionality was not imposed on the government but on the restructuring process and resolution decisions on banks including the setting up a bad bank with private participation to mitigate the debt impact on the government.

The Spanish deal was another benchmark in the approach being built towards further shifting the burden over to private creditors (junior creditors in this case) in addressing debtor problems but in this case it concerned banks. The agreement reached with Spain under conditionality and approval of DG competition included a provision imposing losses on international and local junior creditors of Spanish banks. In June 2012 the European Commission proposed legislation introducing the principle of bail-in of junior creditors as a precondition for government bail outs and DG competition started to apply such a rule since the beginning of 2013.

With the bail out of the Spanish banking sector the powers of EU authorities on bank restructuring and liquidation widened. Given the fragility of banks in euro area and to avoid only collecting the bills the next logical policy step in the EU policy response consisted of taking over the bank supervision authority from national central banks or institutions to ensure that same rules apply uniformly. Thus with the Spanish support package the idea of EU banking union came to the fore recognizing that to ensure financial stability in an integrated area and ensure accountability to the euro area-tax payer it was necessary to provide a common supervision and regulation of participating banks. It became clear that banking problems in a large country belonging to a monetary union have financial implications that go beyond the financial capacity of individual member states. But at the same time the policy aim was further reducing euro taxpayer exposure to banking sector interventions.

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[30] The issue might have been the perceived risk of shutting out the Spanish government from the market with important domestic consequences.

[31] Such stigma besides the relative short-term maturity of refinancing might have been the reason that deterred banks from accessing massively ECB liquidity before the LTRO operations.

Taking into account the policy steps made in terms of shifting burden sharing in financial arrangements towards creditors in case of bailout of banks and that the decision about pooling resources to capitalize or resolve institutions was made at the end of 2013, it can be argued that the proposed banking union in itself did not mitigate systemic stress in the euro area. Thus, it was the ECB announcement that prevented the disintegration of the euro area, and created conditions that gradually lead to the rebuilding of confidence. The ECB Chairman's statement affected positively the risk perception of balance sheets of sovereigns and banks. Undoubtedly, the new euro area financial architecture now including the banking union would result in a future more resilient financial area but its effect on the crisis itself was secondary to the ECB policy action.

The ECB policy clearly brought relief to the euro area as reflected in the decrease of peripheral countries' government bond yields. However the crisis and approach to solving it got another twist with the final unfolding of the crisis in Cyprus whose resolution was postponed for several months.[32] The crisis in Cyprus was not of public finances, current account or competitiveness but also a banking crisis like that in Ireland with implications for the government balance sheet of Cyprus. The newly approved template designed for addressing Spanish banking problems, including imposition of losses to private sector, was going to be applied also to Cyprus.33 The issue with potential spillovers to other euro area members facing with banking system difficulties, like Slovenia, was the novel feature of bailing-in also uninsured small and large depositors as proposed by the IMF (CNBC 2012) and some countries (Wall street Journal 2012)34 as part of given support packages. In particular, by including deposits below the €100,000 amount guaranteed by deposit insurance this could undermine the trust in deposit guarantee systems throughout Europe. The final deal for the bailout consisted in limiting losses to shareholder, bondholders and large depositors. The controversial idea of imposing losses to depositors and the statement of the Euro group chair Mr. Dijsselbloem, of using the Cyprus template for future bank restructurings in the euro zone triggered market turbulence including the reversal of government bond yields' downward trend. The Euro-group chairman had to retract indicating that Cyprus was also a special case. However, the Cyprus approach later in the year became the new normal in the euro area as the European Parliament endorsed in December 2013 mandatory bail-ins starting 2016 forcing costs equivalent to 8% of bank capital on creditors, shareholders, junior and senior unsecured bond holders and unsecured large depositors. Notwithstanding the new legislation, the approach followed in Cyprus bailed-in large depositors. The approach followed in Cyprus to address banking problems did not result in major spillovers to other euro area members with the exception of Slovenia, whose banking problems were widely exposed by the government and because banking problems in other countries were not considered as pressing. The OECD Report on Slovenia (OECD 2013) published at the time of Cyprus crisis suggesting the possibility that Slovenia's banking system would require higher amount of capital than envisaged by the government and including the possibility of imposing losses on senior and subordinated debt in bank restructuring triggered a rise in government yields.[35] Such a doubt was dispelled only on December 2013 when the outcome of the AQR and stress test confirmed the appropriateness of the overall size of the fiscal envelope associated with banking repair endorsed by the Parliament in 2012 (€ 5 Billion) and which was implemented by the government without external involvement. In the meantime and for more than six months the specter of an international bailout of Slovenia was present. Following the Slovenia's bank capitalization the pressure on government yields

[32] With recapitalization needs according to The Economist (2013) estimated in € 10 Bn.

[33] According to EU Commissioner Almunia (2013) regarding the governance of the Spanish model.

[34] According to Wall Street Journal (2013) the Netherlands, Germany and Finland pushed for a cut in large private-bank deposits to reduce the size of the Cyprus bailout, which in turn would directly hit pension funds that hold big deposits with Cypriot banks.

[35] The economist (2013) "Slovenia and the euro: The next domino?"

declined and risk of self-fulfilling bailout dissipated. The bank capitalization in Slovenia under state aid procedure was allowed by the DG competition under the facto rule of bail-in of banks' owners and bond holders. The key question for Slovenia's bank recapitalization is whether under a scenario of bailout by the troika the approached followed would have also consisted, like in Cyprus and now endorsed by the EU parliament, of bailing-in unsecured large deposits which would have severe impact on enterprise deposits or the size of the capital buffer would have been arbitrarily large with additional fiscal impact on banks depositors as the government would not have controlled the process.

The euro area policy response throughout the crisis reflects the underlying strategy to change the burden sharing arrangements concerning debt instruments issued by government and banks towards creditors to reduce national and cross border tax payers' exposures at the time when there were not available sizable backstop facilities at euro area level. The policy response exposed better the underlying credit risk of debt instruments and changed incentives thus mitigating moral hazard. However, the policy response by being pursued amidst the worst crisis of confidence resulted in heightening and exacerbating credit risk. The implementation of such strategy since the Greek crisis is reflected in the capital flow dynamics among euro area members including in TARGET2 balances and resulted in winners and losers among countries and in the financial fragmentation of the euro area. The question is whether the new emerging euro area architecture dispels default risks beyond the implicit guarantee given by the ECB and breaks the negative feedback loop between sovereigns and banks or such a commitment will remain the corner stone of the emerging architecture. In the case of sovereigns the procedure of accessing the support from the European Stability Mechanism (ESM) in case of acute market-financing difficulty is clear and subject to conditionality. In the case of banks and implicitly on the respective sovereign is less clear cut. The issue is that under the Bank Recovery and Resolution Directive and the Single Supervisory Mechanism the decision of closing a bank in a single country is taken outside the country while the fiscal impact is borne, although in a decreasing fashion[36], by the individual member state until the EU Rescue and Single Resolution Fund (SRF) will be finally operational in 2023. The issue is whether the size of the Fund is large enough to cope for event of a crisis in light of size of the banking system in euro area and arrangements of a backstop facility for the Fund are not settled. Under such conditions there is a risk that decisions of winding down banks made at supranational level could have costs and externalities (bank runs) beyond financial capacity of a given country given the size of banking systems in some countries.

The crisis and its evolution have resulted in reshaping the architecture of the monetary union. It consists of a set of procedures, regulations and institutions that strengthen surveillance and aim at mitigating moral hazard behavior of governments and banks. It also includes a framework for preventing macroeconomic imbalances to take place and to steer structural reform. Would this be enough to ensure long lasting stability and survival of the euro area in light of the severe impact of the crisis or new crisis? In the new architecture countries do not only lack independent monetary policy, discretionary fiscal policy and decision power on their banking institutions and of any policy tool to offset shocks or modulate business cycle, but are left alone to face the adjustment of real variables (employment and output) . While large countries can benefit the most from monetary policy and from flight to safety in the event of severe downturn small countries do not have countercyclical stabilization tools and now some of them have narrow margin of maneuver given post crisis indebtedness level. To complete the euro area architecture it would be necessary to introduce a risk sharing mechanism in the form of fiscal transfers (fiscal union) that can cushion severe downturns and mitigate impact on borrowing conditions of governments when access to finance is not being lost. One of the key lessons from the crisis is that financial integration can be severely hampered when there is absence of o underpinning mechanism that would mitigate such a major risk and

[36] The fund will be 60 percent mutualised by the end of year two of its operations.

that self-fulfilling expectations can be coordinated making those economies inherently vulnerable. Thus further steps to fiscal union would not only contribute to revert existing financial fragmentation but reduce the possibility of such an event.

More broadly the euro area lacks single fiscal authority and the ECB is subject to pressures limiting its expansionary monetary policy beyond rate cuts. The absence of a single fiscal authority and limits to monetary policy (broad policy coordination failure) can lead to suboptimal response and stronger persistence of shocks. This requires a clear coordination at euro area level and argues for a macroeconomic stabilization tool to ease severe shocks. The crisis is not over and deflationary trends put a premium on policy coordination and on a growth strategy beyond necessary structural reforms.

6 CRISIS AND CONTAGION TO SLOVENIA

The deep financial crisis in the euro area also affected Slovenia given the relative high leveraged position of non-financial corporate sector and banks at the outset of the crisis. Since the beginning of the crisis given its financial nature, preserving confidence by means of policy response and appropriate communication was the key priority to avoid the adverse consequences of its erosion. However, in an environment in which confidence collapsed in the euro area the policy response and its communication in Slovenia did not contribute to minimize confidence erosion. On the contrary, the absence of policies to address swiftly key vulnerabilities (i.e. increase in bank capital) and wrong communication aiming at steering domestic policy process resulted in focusing international attention to the very key vulnerabilities that Slovenia faced and thus placed the country at the verge of an international bailout at the time when the unfolding crisis in Cyprus spilled over to Slovenia.[37]

Slovenia as other peripheral countries underwent a sudden stop of capital inflows in 2009 (Figure 24). Private capital inflows practically banished in 2009 and since then total private inflows have been negative (outflows-retrenchment). Had not been the government borrowing and fiscal space given by relative low debt-to-GDP ratio at the start of the crisis (21.6% of GDP), the private capital flow reversal would have had devastating consequences (employment and output) as current account in the first three years after the crisis in 2009-2011 registered relatively smaller surplus compared to the size of private capital outflows (Figure 25). Thus the adjustment to massive and long lasting shock was mitigated by an expansionary fiscal stance and automatic fiscal stabilizers as revenue collapse while expenditure continued increasing. The widening of the government deficit not only mitigated the effect of sudden stop on economic activity but allowed an orderly external deleveraging of private sector and in particular of banks (Figure s 26 and 27). Prior to the crisis until 2007, and similar to other vulnerable peripheral euro area countries, the size of gross inflows, mainly driven by banks, was several times the size of the current account balance highlighting the importance of capital flows in explaining the economic crisis (Figure 28). In Slovenia, as in the case of other peripheral countries, positive valuation changes in liabilities to foreigners were sizable prior to crisis reflecting good economic conditions underpinned by capital inflows. In the post crisis period the opposite process has been taking place. Capital flows reversed and changes in valuation of liabilities to foreigners, after being negative at the outset of the crisis have become adverse reflecting worsening of financial conditions, reassessment of risk and higher overall cost of funding. Like in other peripheral countries, such as Ireland, loss of competitiveness as measured by increase in unit labor cost or real exchange rate does not seem to have played a role in explaining the crisis (Figure 29). Worsening of cost competitiveness in Slovenia (i.e. unit labor cost and REER) worsened after the crisis as a result of the crisis in itself (collapse in output) and increase in minimum wage in 2010 and 2011 but did not trigger the crisis. In particular, it seems that Slovenia did not face persistent competitive losses before 2008. In this regard it is worth highlighting recent empirical literature pointing out that capital flows preceded the erosion of cost competitiveness not vice versa (Gabrisch and Staehr 2014). The crisis in Slovenia is mostly related to misallocation of financial resources, mispriced of credit risk and weak corporate governance.

Notwithstanding the sudden stop and huge capital outflows the liabilities of the Slovene central bank to ECB including in TARGET2 did not increase (Figure 30) but remained at the pre-crisis level until the end of 2011 when the crisis in euro area wide spread forcing the ECB to provide long-term financing (LTRO). Thus the adjustment to the sudden stop and capital retrenchment was mitigated by government financing and cannot be claimed that ECB financed the adjustment to the sudden stop of capital inflows. Furthermore,

[37] Bloomberg (April 18, 2013) "Slovenia Bailout Would Be Spanish-Cypriot Mongrel"

Slovenia's TARGET2 balance shows primarily the repayment of debt created before the crisis as the current account deficit fast corrected already in 2009 and in 2010 was practically balanced.

In Slovenia, as in the case of other peripheral countries under stress, the financial integration resulted in rapid credit expansion and stock exchange boom. In the period 2003-2008 the size of the banking system's foreign liabilities doubled and at the same time both the amount of private credit and the value of the stock exchange index before the crisis tripled (Figure 31). External borrowing played a key role in the massive credit expansion before the crisis which is reflected in the high positive correlation between the growth of wholesale borrowing and credit growth (Figure 32). The strong credit expansion was not associated with a housing boom, although construction of commercial objects increased. It was driven mainly by non-financial corporate sector borrowing associated with a leveraged ownership consolidation process (management buyouts), poor corporate governance and weak managerial skills. The post-independence ownership consolidation process was accelerated prior to the crisis by the change in the political balance and facilitated by availability of credit. Financial integration also resulted in internal competition among domestic and foreign resident banks for market share resulting in underestimating the systemic risk of the whole process.

With the crisis and sudden stop in 2009, external borrowing by banks which constituted the bulk of total external debt collapsed (Figure 33). From the second half of 2008 to the first half of 2009 bank's external debt decreased by about 10% of GDP, out of which 60% was wholesale interbank borrowing excluding securities issued. Access to markets improved in the third quarter of 2009 as overall financial strains in the euro area eased. Consequently banks temporarily increased again external debt but the level reached was below that of the peak before crisis (second quarter of 2008). The banks' external debt level stabilized until the third quarter of 2010 to restart again with a sustained deleveraging trend that has persisted since then. Banks' external debt decreased massively (€ 9 Bn. or 25% of 2013 GDP) between 2010 Q3 and 2013 Q4. Affected by the impact of the Greek crisis the banks' wholesale interbank borrowing, excluding securities issued which were facilitated by government guarantees, decreased significantly from the second quarter of 2010 to last quarter of 2011 before the ECB' LTRO. In that period lasting 18 months, wholesale financing, which was the main source of credit expansion before the crisis, was reduced by € 3.1 Bn. or 8.7% of 2011 GDP. In 2013 wholesale borrowing excluding securities issued further decreased massively by € 4.1 Bn. or 11.6% of 2013 GDP.

The sudden stop of capital clearly affected the banks financing and capacity to supply credit as wholesale borrowing, of which the bulk was external financing, was reduced enormously in the aftermath of the crisis (€ 9.7 Bn. or 27% of 2013 GDP between 2008 Q2 and 2013 Q4). Notice in particular that before the crisis until 2008 Q3 there was a linear positive trend and high correlation (98.8%) between the increases in the level of banks' external borrowing and private credit (Figure 34). After that (from 2008 Q3 to November 2013) there was a change in the trend (became polynomial) and a strong positive correlation emerged (92%) between decreasing external borrowing and shrinkage of private credit (Figure 35). The impact of the sudden stop of capital on bank credit can be traced also in the positive relation between the increases in total banks wholesale borrowing and private credit (Figure 36). The increasing positive relation and linear trend between the two variables extends from the period before the crisis until July 2010. This is a longer period than that in which there was a positive trend relation between increasing external indebtedness and private credit that lasted until 2008 Q3, suggesting that the fall in external indebtedness triggered with a lag the drop in wholesale funding. Since the second quarter of 2010 also a negative polynomial trend emerged between shrinking wholesale financing and private credit. The longer increasing positive trend between wholesale financing and private credit than that between external borrowing and private credit (Figure s 34 and 36) can be explained by the fact that wholesale funding includes domestic funding which

prolonged the timing of the collapse in total credit and by a government credit guarantee scheme to non-financial corporations of which a large proportion of credit granted under the scheme later on became non-performing. Credit to non-financial sector reached its peak in 2010 and then started to decrease.

Looking at the sources of credit supply it can be said that despite of the drop in wholesale funding the positive private credit growth to some extent was underpinned by increasing government deposits, although such source of funding is quite volatile, and by the government credit guarantee scheme to non-financial corporates. Government deposits increased from €1.5 Bn. before the crisis to an average of € 3.3 Bn. in the period 2009 Q2-2011 Q4. The impact of the level increase in deposits might have been particularly relevant during the first half of 2010 until 2010 Q3 when the annual growth rate of private and government deposits together reached its height (15.7% YoY in 2010 Q3). After that this source of funding decreased significantly and one year later the growth rate of government deposit was negative.

The collapse of external funding underpinning that of wholesale funding and low growth of public and private deposits contributed from the supply side to constrain overall credit availability. Undoubtedly the worsening of credit risk, notwithstanding the government credit guarantee scheme in place, contributed to reduce credit supply. In addition, another important factor constraining credit supply was the bank's lack or weak capital position to cope with mounting expected losses and reluctance of the government as majority owner of largest banks to increase it. In this regard the empirical literature points out that banks' capital strength determines the increase in market share and probability of survival in time of crisis (Berger and Bouwman 2013). In the case of Slovenia the evidence indicates that in the post crisis period (2010) banks that had lower capital adequacy also reduced more significantly credit activity (Kavčič and Schoner 2014) and that large and small domestic banks failed to increase the capital adequacy in the post crisis period or implicitly underestimated their expected losses (Figure 39).

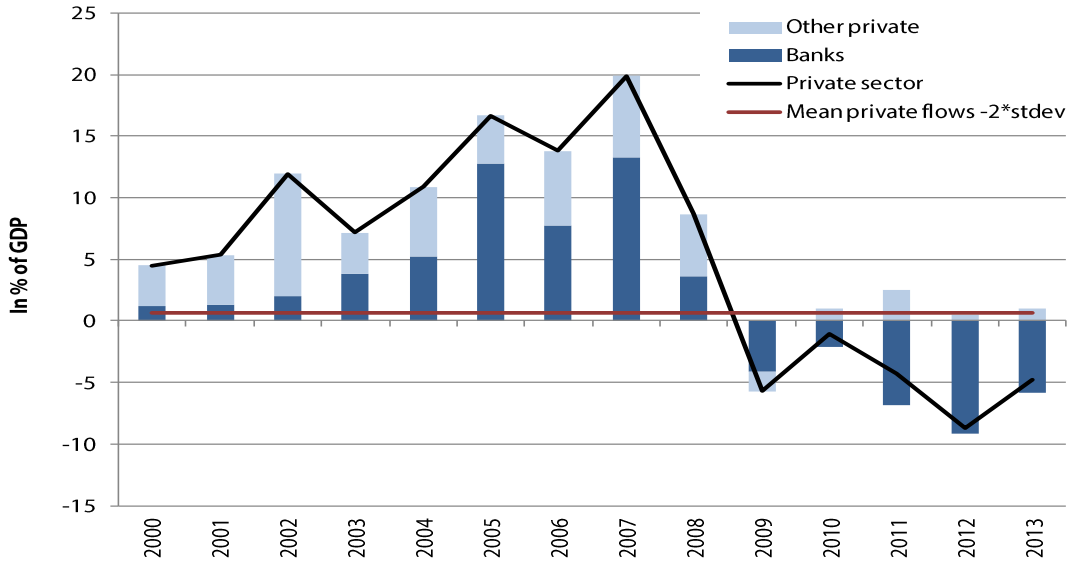
With regard to credit demand, available lending survey data for bank credit (2009-2013H1) indicates that demand has been decreasing since 2009 (Bank of Slovenia) (Figure 40).[38] However, looking at other relevant data pertaining non-financial corporate performance which influence their demand for credit, it is clear that before 2009 credit growth was underpinned by growth of investment and value added as captured by core enterprise revenues (i.e. high and positive EBITDA growth), profitability (ROA) and in the buoyant stock exchange prices underlying the value of collateral for credit (Figure s 41 and 42). The magnitude of the shock in 2009 resulted in a drop of investment and profitability which underpins the fall in credit demand as reflected in lending survey data. In the aftermath of the shock, the fall in corporate operational profitability (EBITDA) and of the value of equity (collateral) magnified the relative burden of debt which increased in nominal terms before crisis (Caprirolo 2013). This affected the financial position of enterprises and their creditworthiness (Figure 43). Without doubt, the uncertain macroeconomic conditions and erosion of profitability undermined corporate credit demand. With low economic activity affecting investment demand and fall in operational profitability (EBITDA margin), the overall corporate profitability measured by net income against total assets (ROA) substantially decreased (Figure 44). The evidence suggests that profitability eroded more in those enterprises whose activity is oriented to the domestic rather than the export market. Credit demand was also constrained by the increasing number of bankruptcies which has been an important way of enterprise deleveraging.

The sudden capital stop and shocks in the form of collapse in external and domestic demand resulted in the drop of credit activity. The deepness of the crisis and weak recovery exposed the relative high leveraged positions of enterprises and banks' balance sheets. With massive capital outflows constraining credit supply the erosion of creditworthiness of indebted corporate sector became the key credit constrain affecting

[38] There is no available data on credit demand growth before 2009.

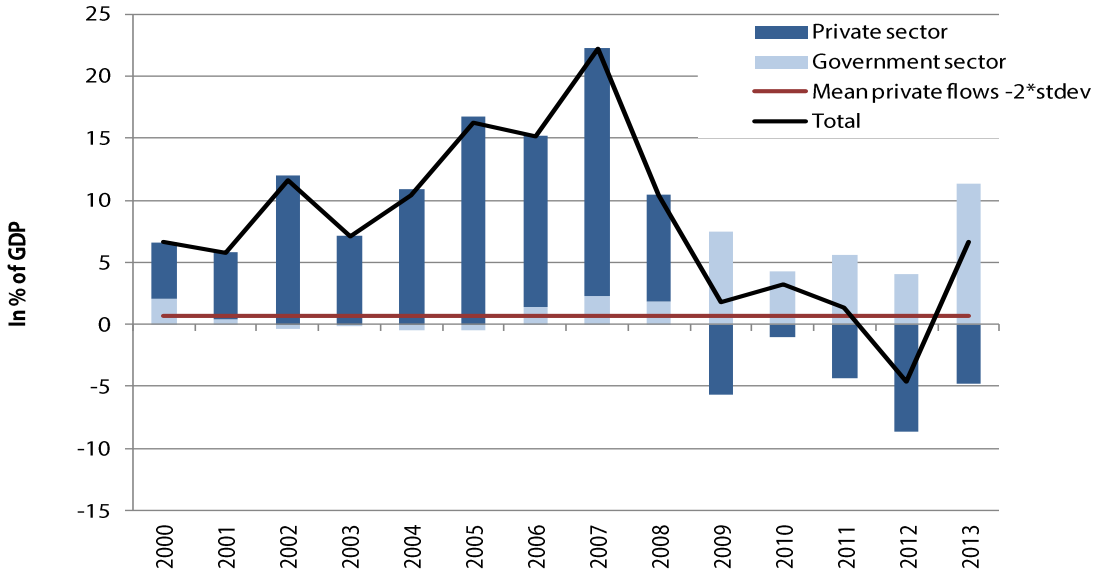
supply and discouraging demand. The more permanent nature of the crisis is visible in the erosion of enterprise profitability (ROA) and its correlation with the sharp and escalating increase in non-performing loans. This and the lack of capital lead to a systemic banking crisis (Figure 45).

Figure 24: Private capital inflows in Slovenia



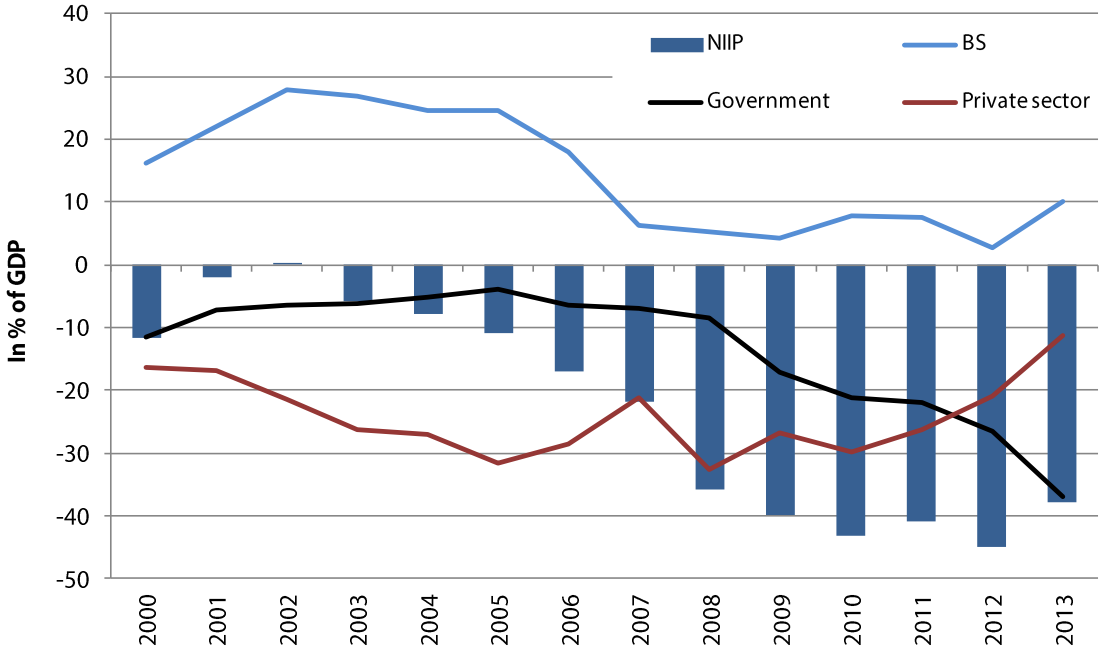
Source: BS, own calculation.

Figure 25: Private and government capital inflows in Slovenia



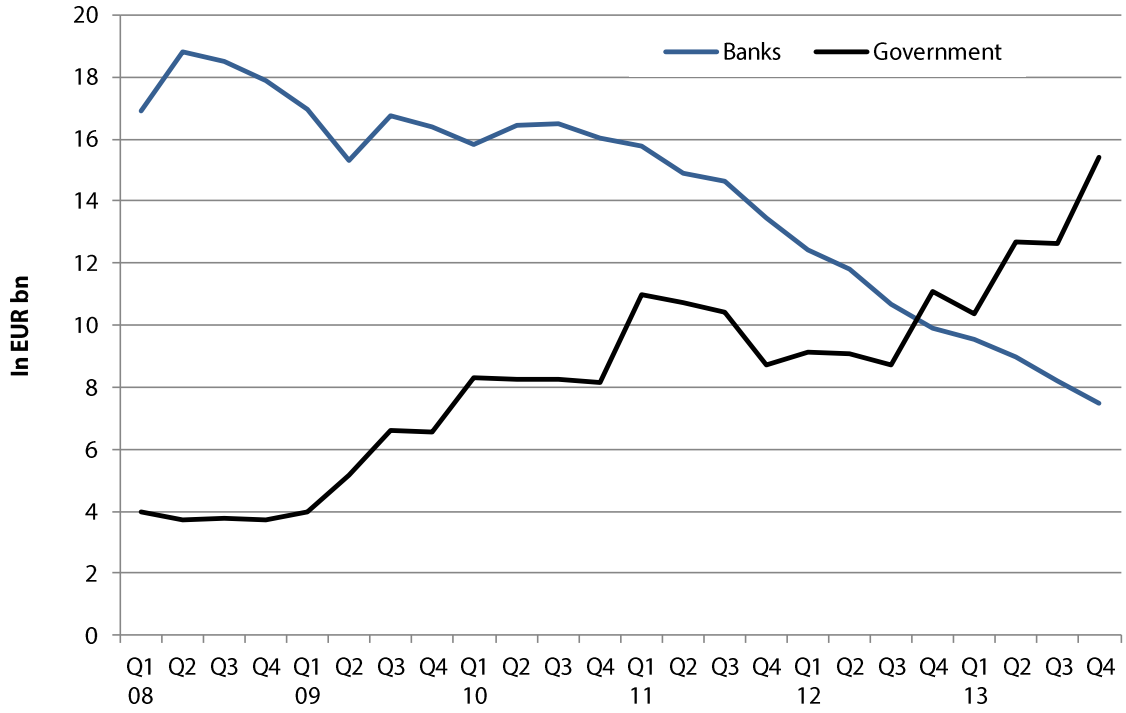
Source: BS, own calculation.

Figure 26: Net international investment position of Slovenia



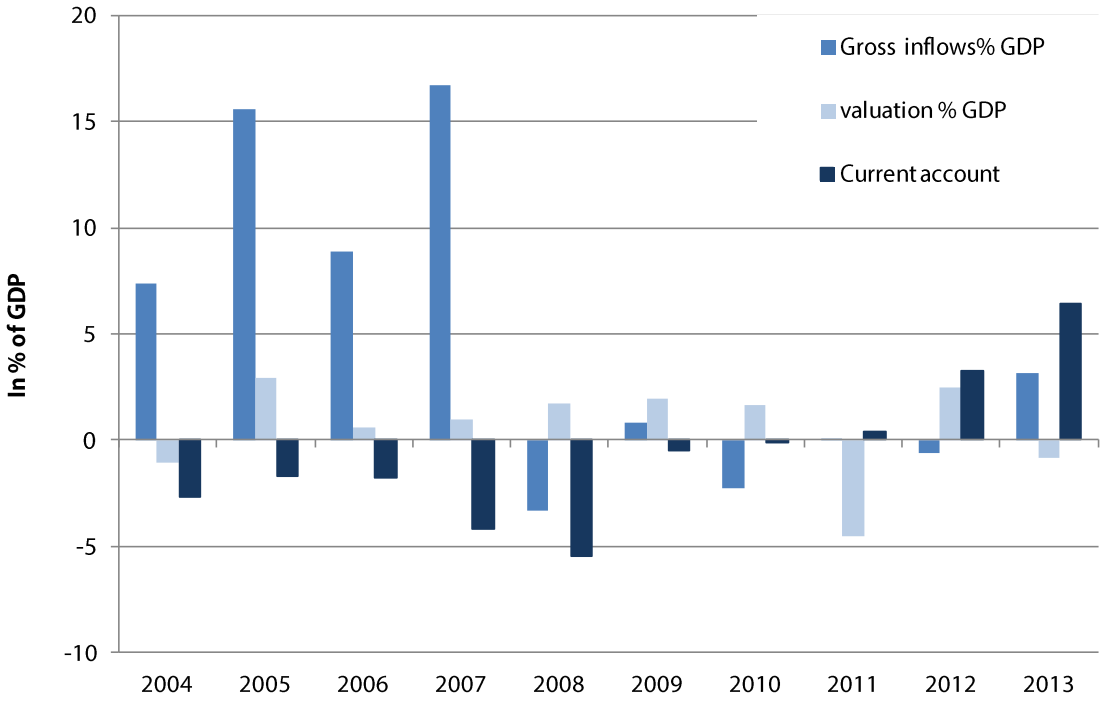
Source: BS, own calculation.

Figure 27: External debt (government and banks) of Slovenia



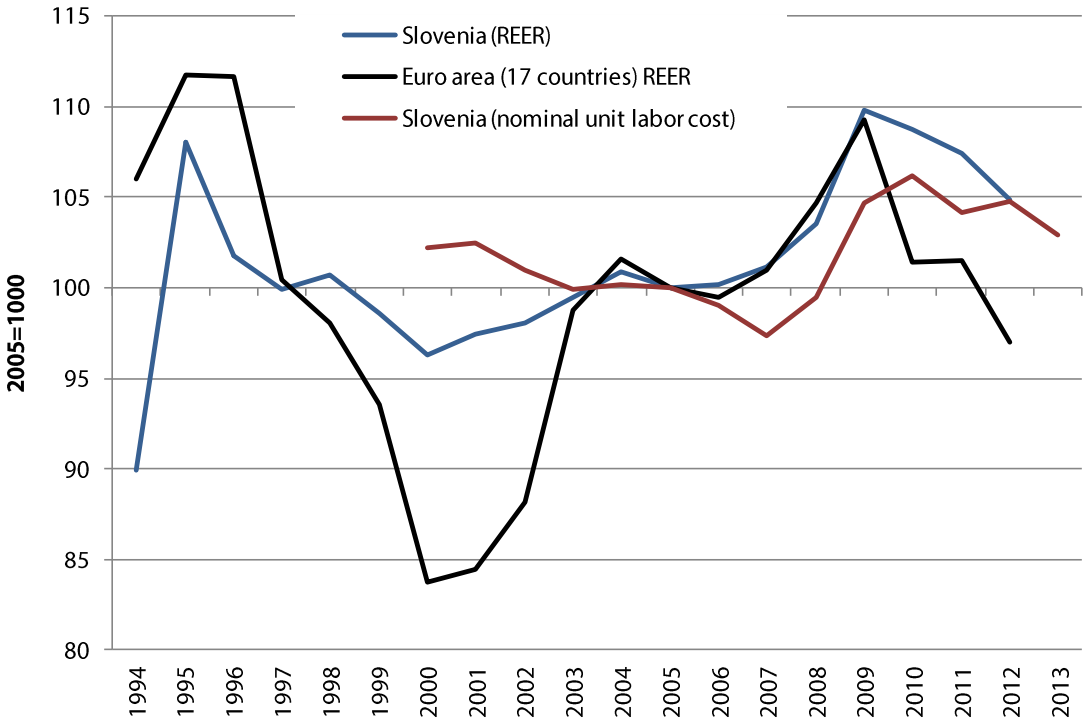
Source: BS, own calculation.

Figure 28: Gross capital inflows, valuation adjustments and current account of Slovenia



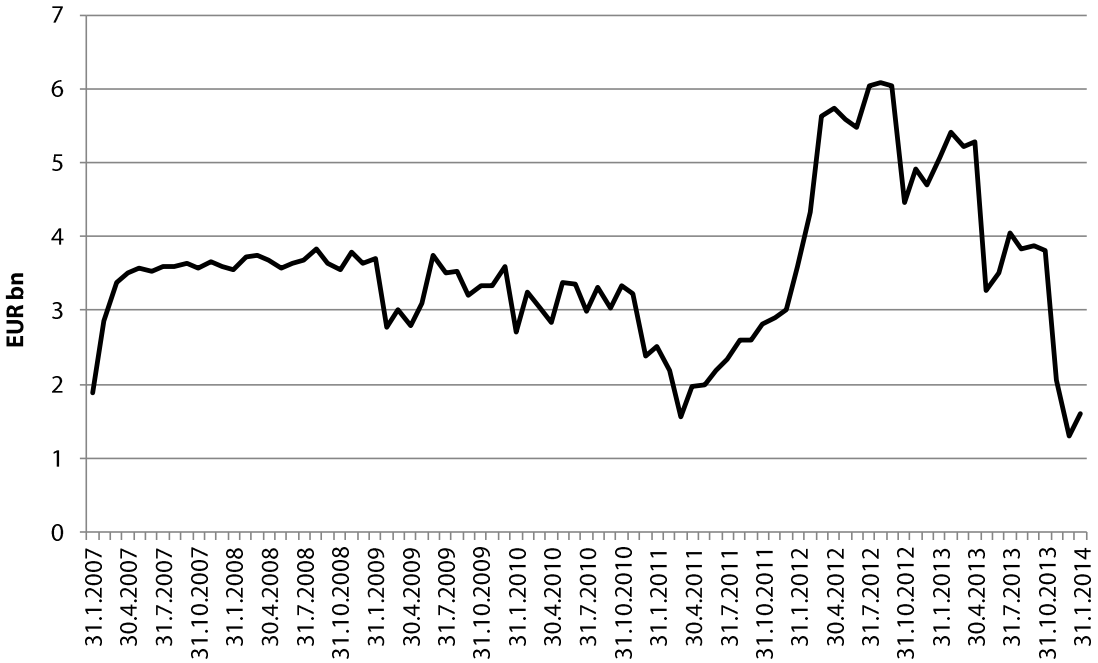
Source: BS, own calculation.

Figure 29: Real echange rate and nominal labor cost



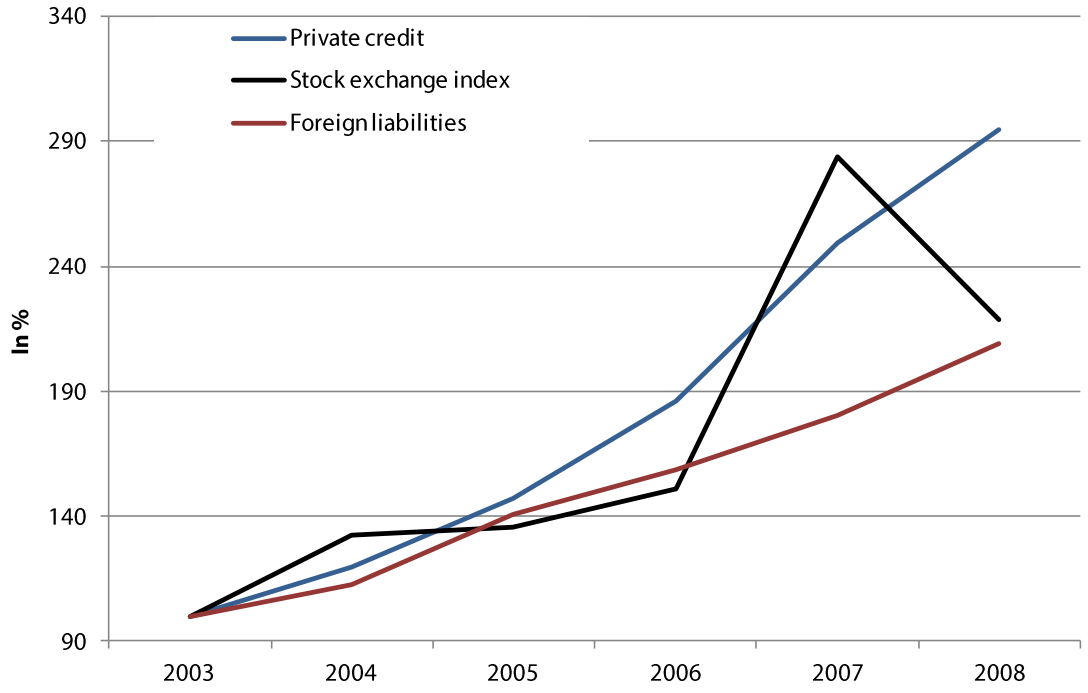
Source: Eurostat, ECB.

Figure 30: Target liabilities of Slovenia



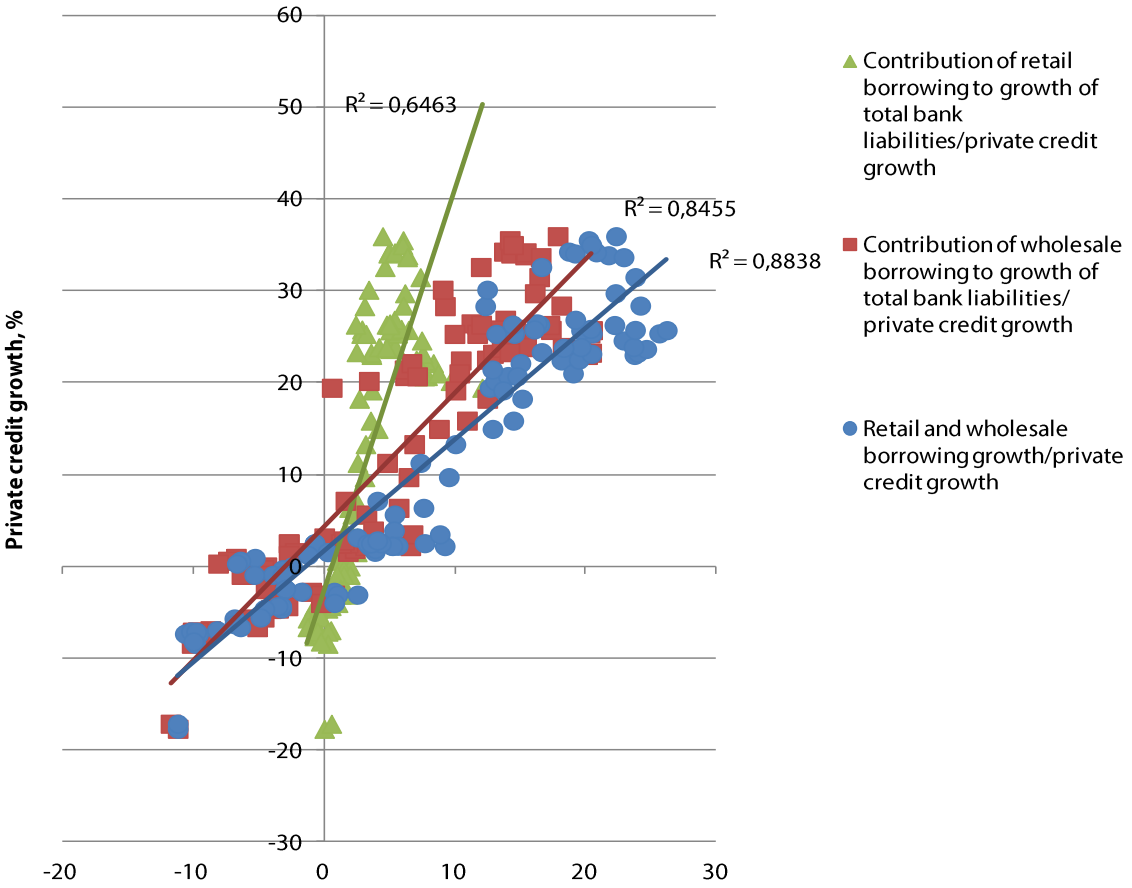
Source: BS.

Figure 31: Accumulated growth



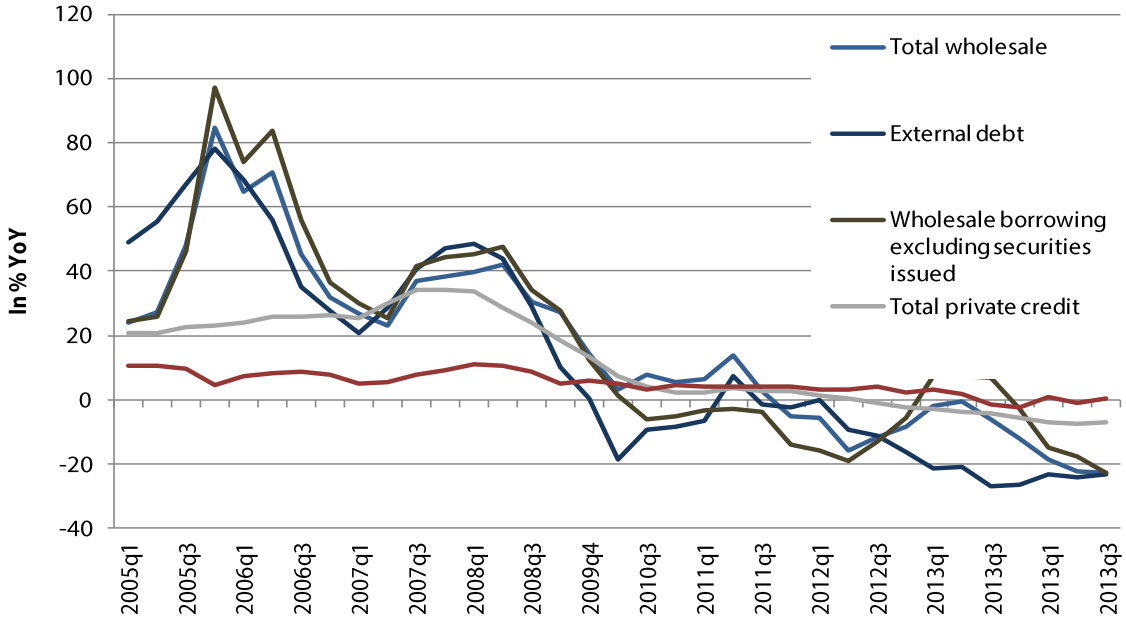
Source: BS.

Figure 32: Correlation between total bank liabilities and private credit growth



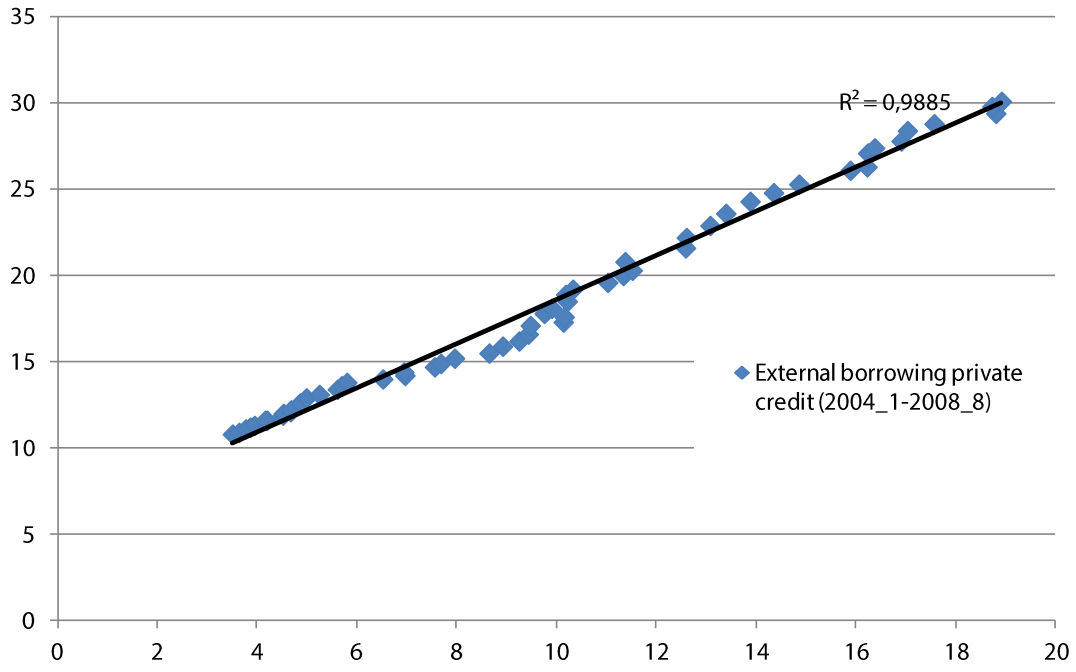
Source: BS, own calculation.

Figure 33: Growth of external debt, total whole sale, private credit and private deposits



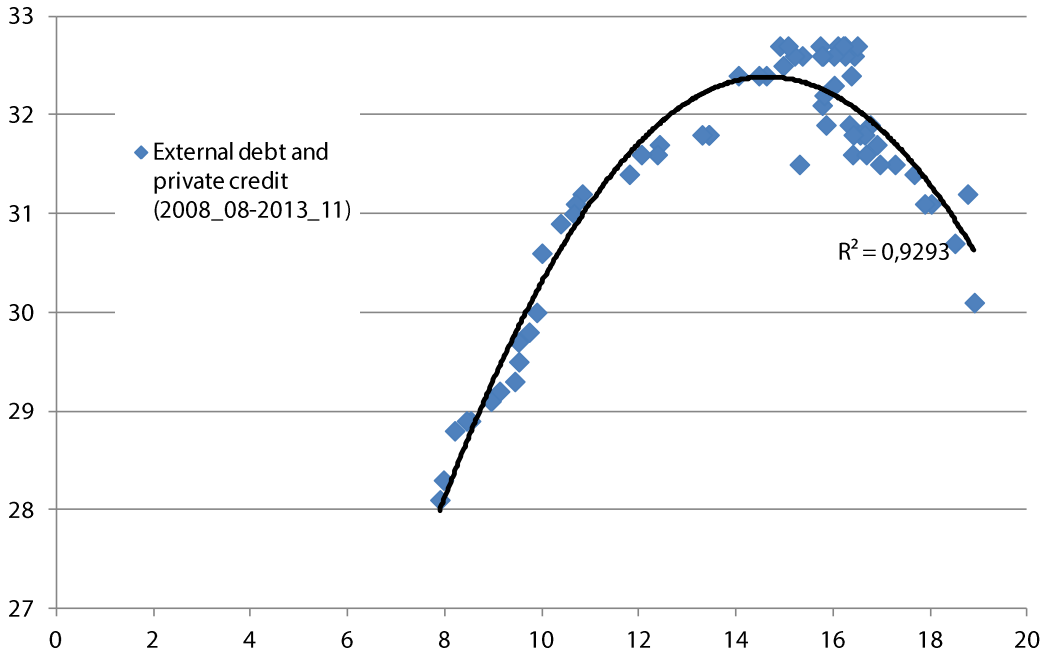
Source: BS, own calculation.

Figure 34: Correlation between external borrowing and and private credit gowth



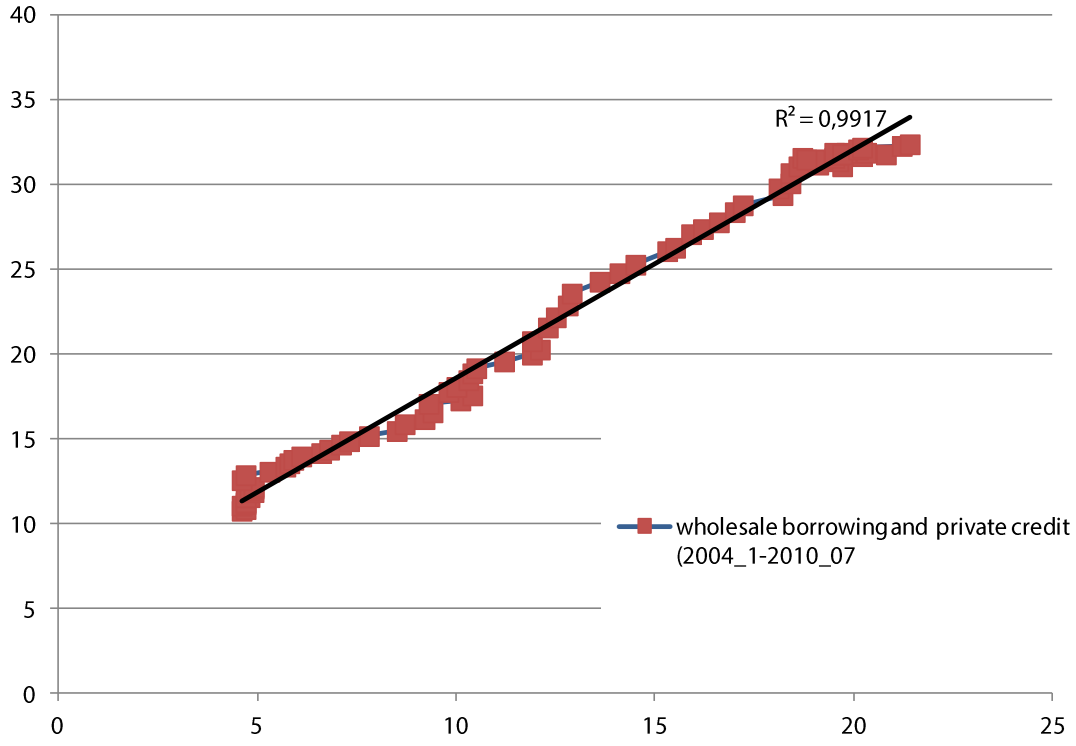
Source: BS, own calculation.

Figure 35: Correlation between external borrowing and and private credit gowth



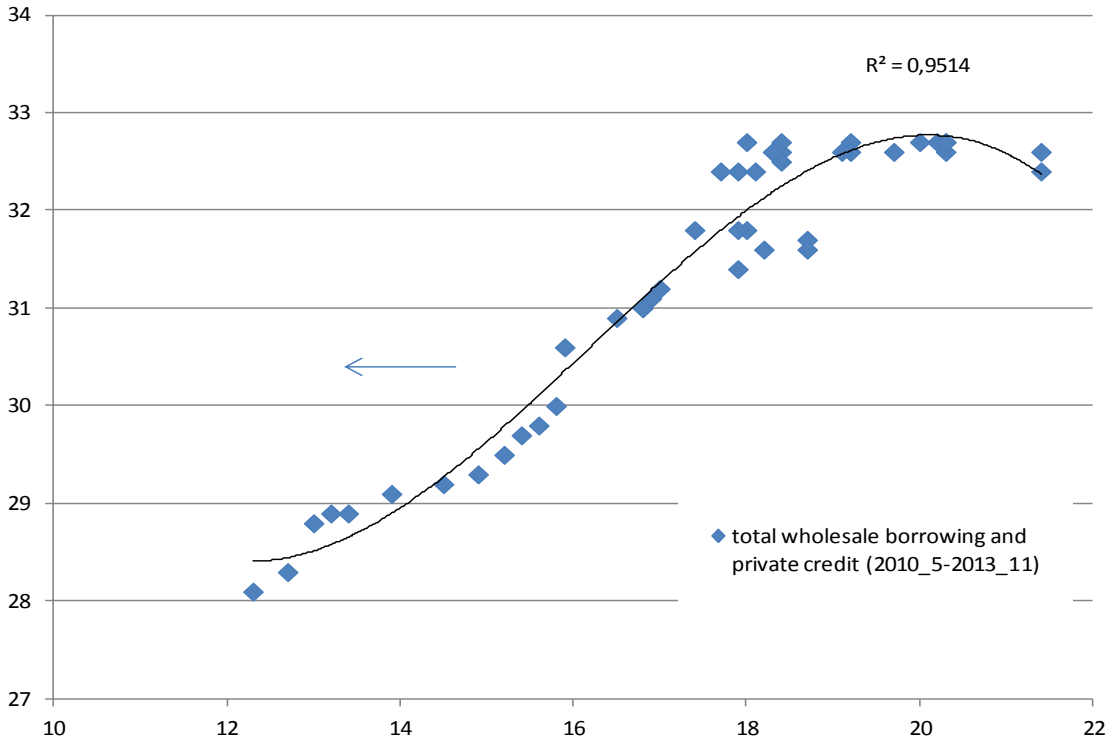
Source: BS, own calculation.

Figure 36: Correlation between wholesale borrowing and and private credit gowth



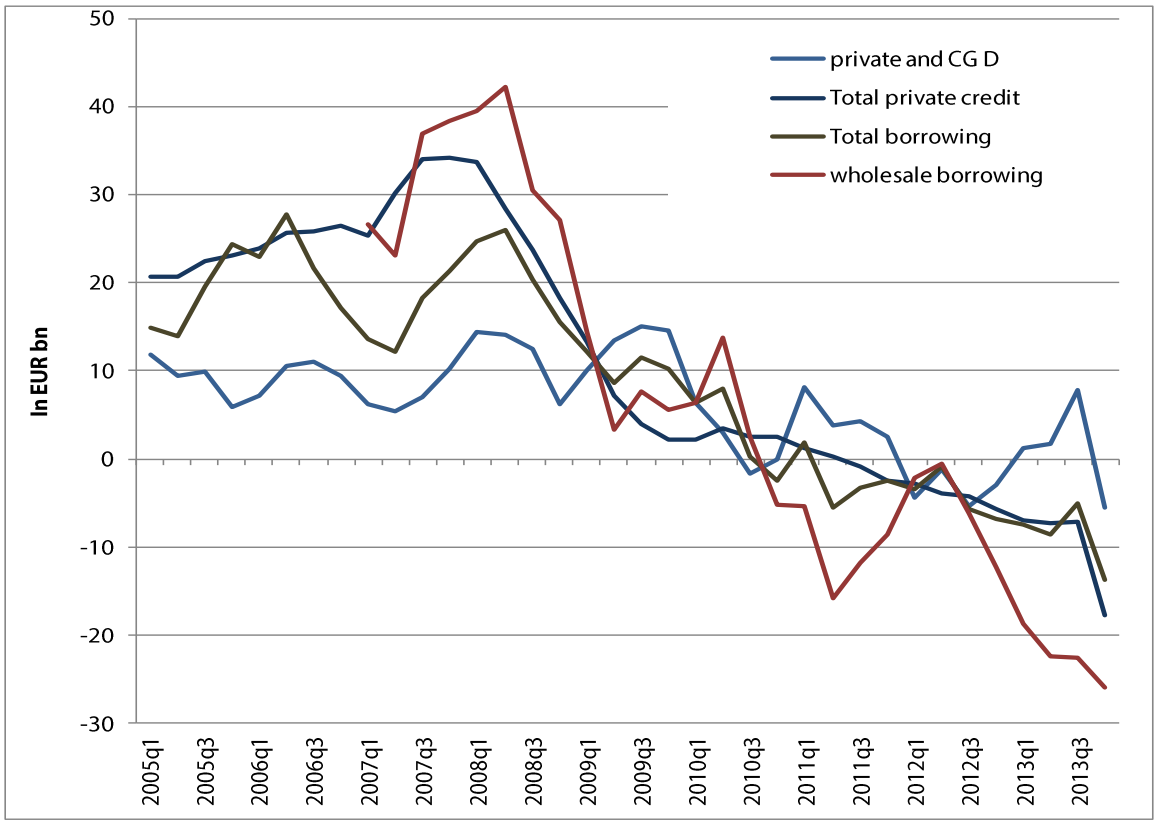
Source: BS, own calculation.

Figure 37: Correlation between wholesale borrowing and and private credit gowth



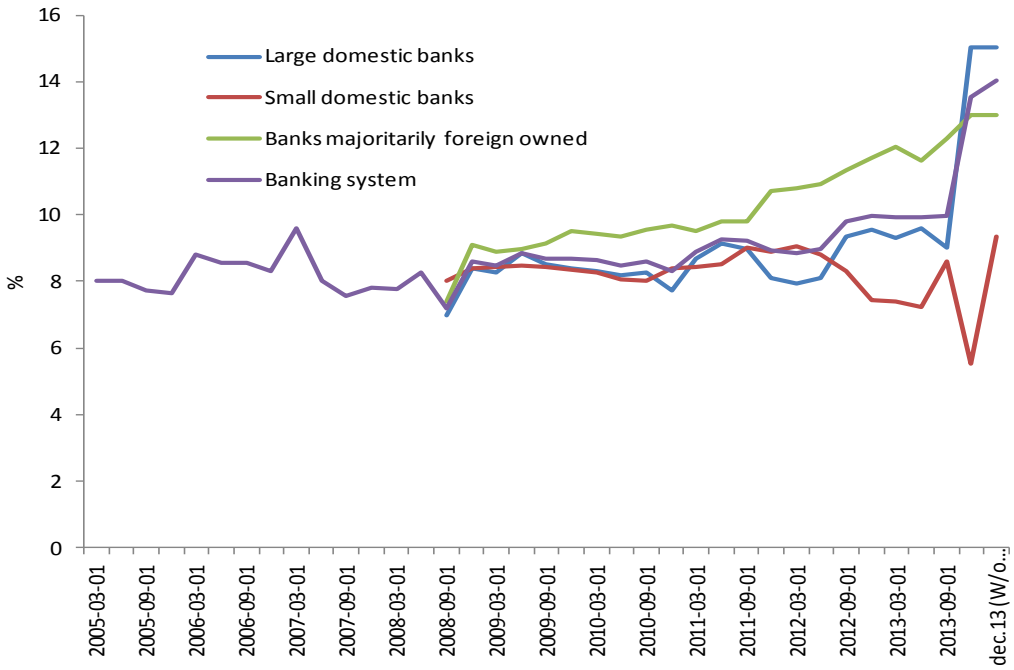
Source: BS, own calculation.

Figure 38: Slovenia outstanding amounts at the end of the period (stocks)



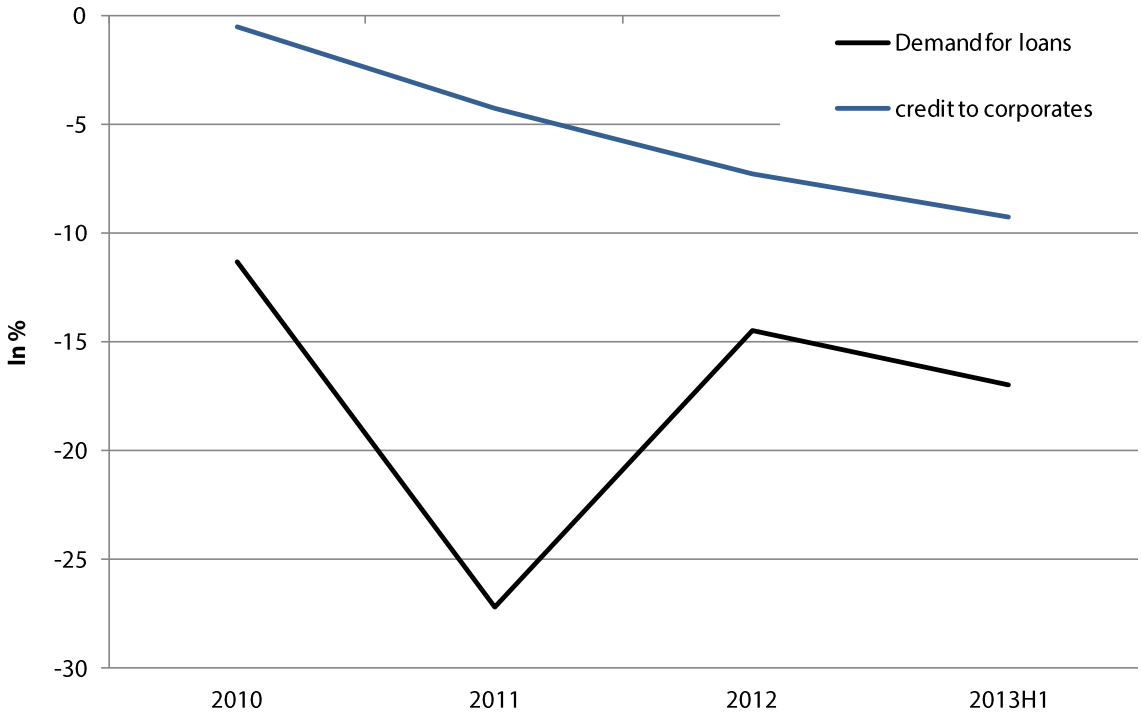
Source: BS.

Figure 39: Capital adequacy (core tier 1) of Slovenia



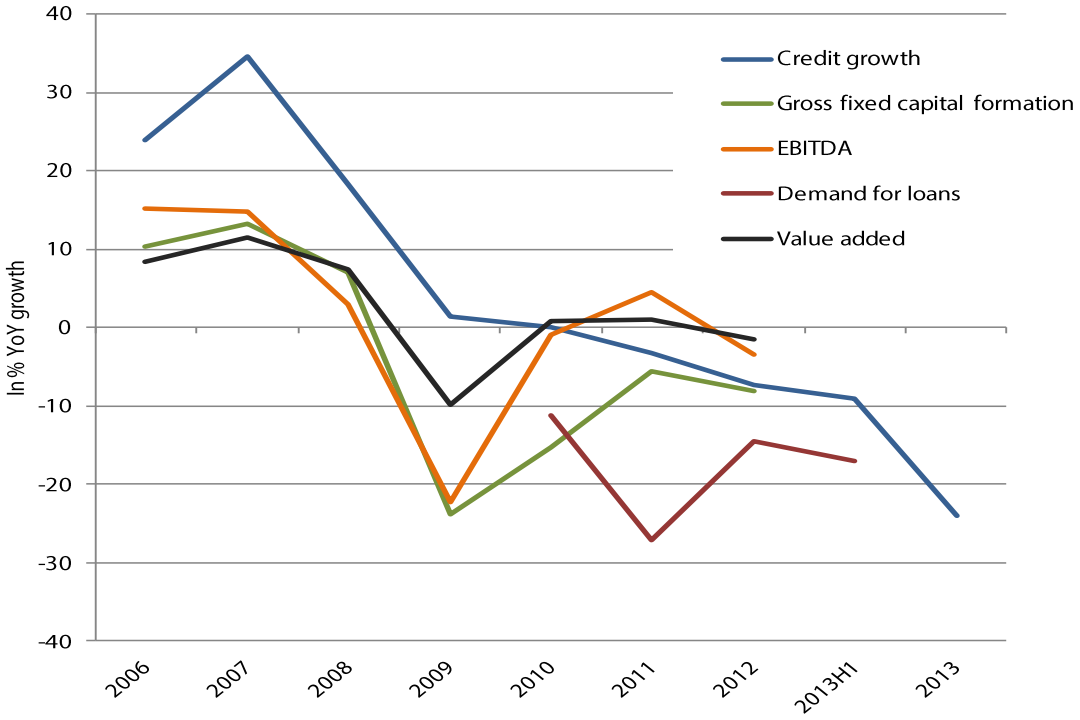
Source: BS.

Figure 40: Demand for loans



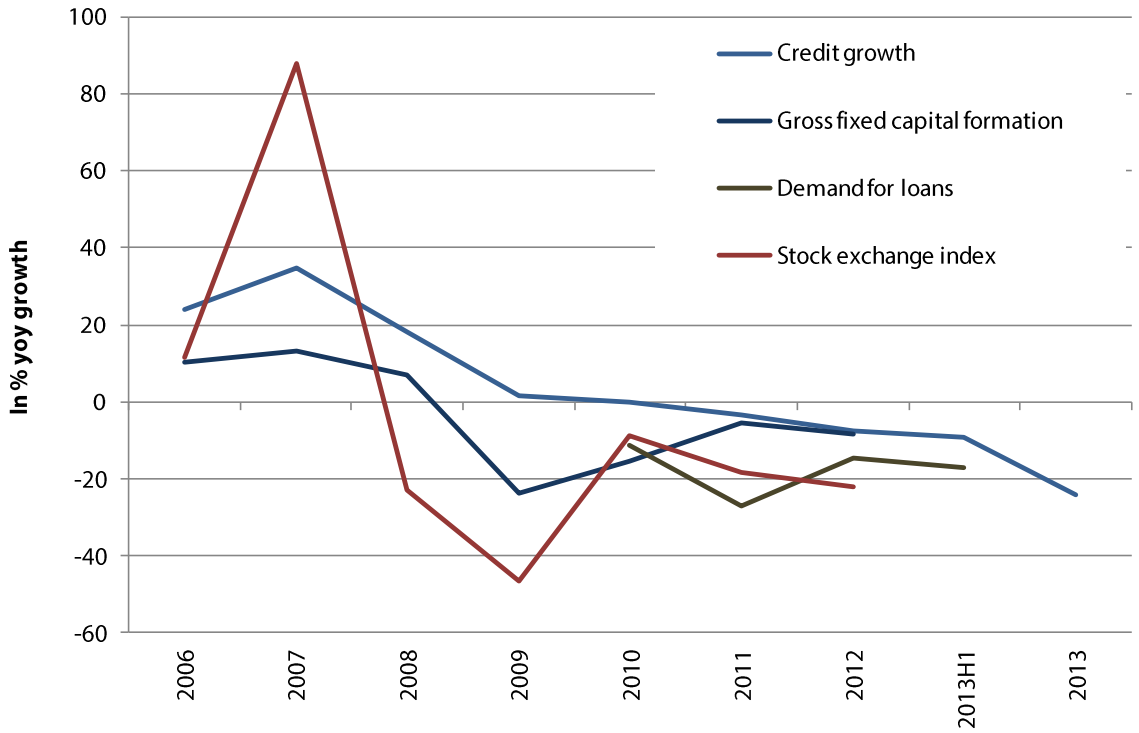
Source: BS.

Figure 41: Non-financial corporate performance of Slovenia



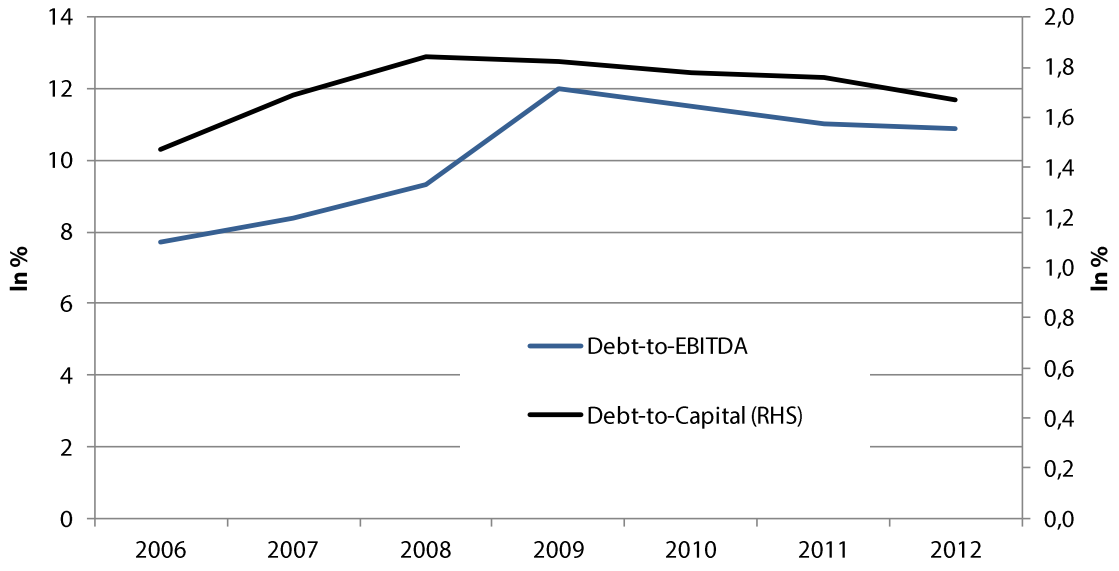
Source: AJPES.

Figure 42: Selected financial structure indicators of Slovenia



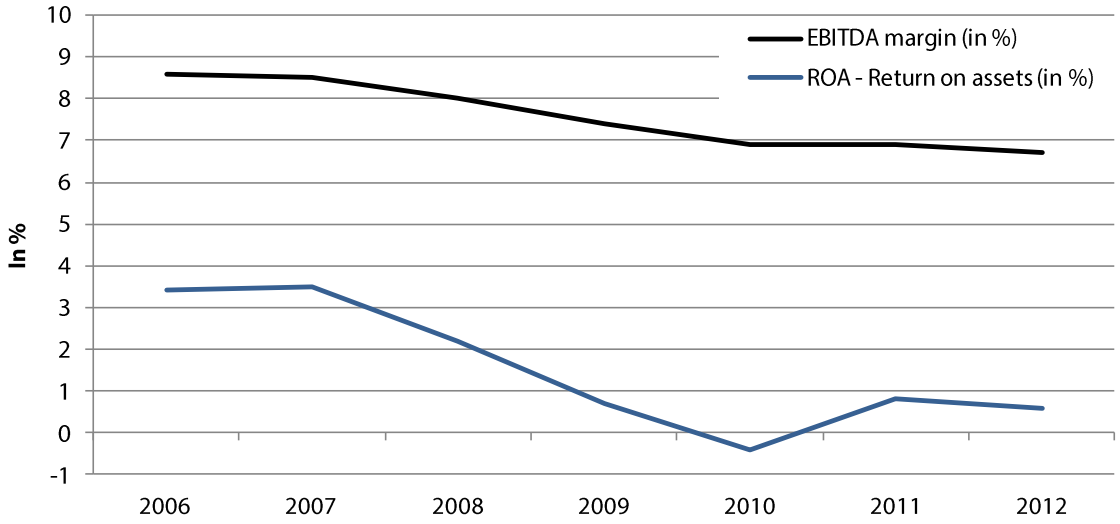
Source: AJPES.

Figure 43: Selected indebtedness indicators of Slovenia



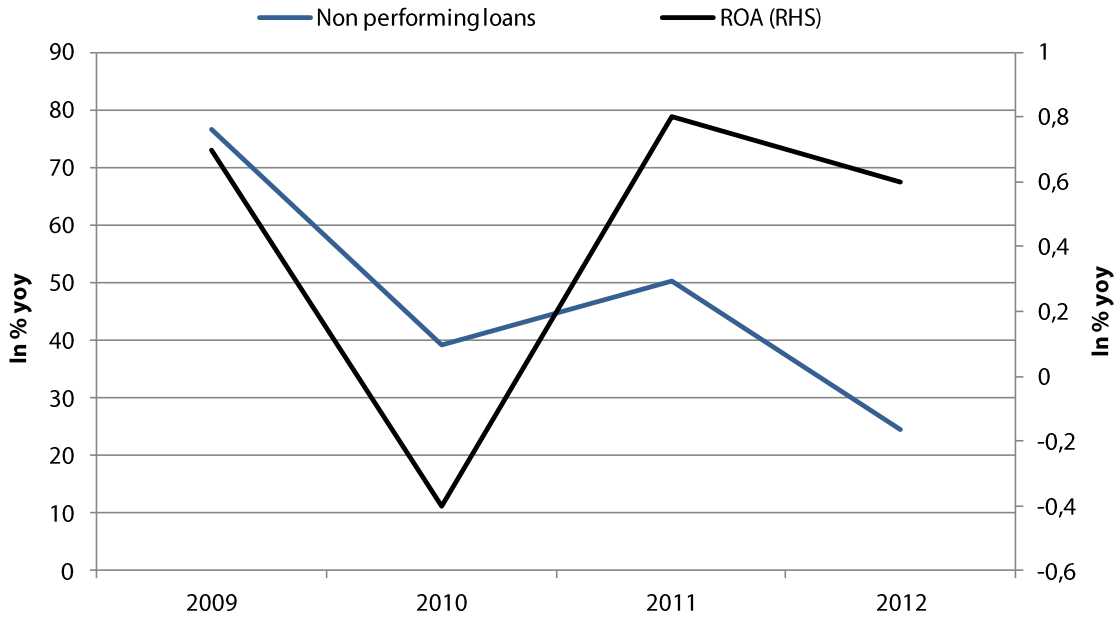
Source: AJPES.

Figure 44: Selected cash flows and margin indicators of Slovenia



Source: AJPES.

Figure 45: Selected cash flows and margin indicators of Slovenia



Source: AJPES.

An early and sizable re-capitalization of banks would have prevented the systemic banking crisis and reduced the fiscal burden of repairing banks' balance sheets. In particular under valid state aid rules until 2010 capitalization of banks would not have entailed deep discount of assets and bail-in of subordinated debt. Also at that time Slovenia's government had higher sovereign credit ratings and thus enjoyed lower borrowing costs than it was the case later in 2012 after several credit downgrades mainly associated with conditions in banking system. The absence of policy response in terms of a sizable capital increase of domestic government own banks generated uncertainty about the size of capital needs of banks and thus triggered doubts about possible bailout of Slovenia as reflected in the increase in government bond yields at the time when the Cyprus crisis came to its height. The resulting adverse development in government's bond yields underpinned by worsening conditions in euro area in turn also affected the value of other

assets in the economy and the size of required capital in banks. Furthermore, an early and sizable increase in banks' capital would have, within overall banks' funding supply constraints, mitigated the fall in credit activity as without capital banks cannot take risks or face stronger constraints to supply credit, or put it differently, a well-capitalized bank supports lending and not the opposite (Schoenmaker and Peek, 2014).

After a delay of approximately 6-months due to EU Commission requirement on Slovenia to perform a wide system stress test and asset quality review, which lead to a massive domestic outflow of private capital, the strengthening and cleaning of the banking system balance sheet was implemented consisting primarily of capital increase (63%) and the rest on debt issued in exchange of bad assets transferred to a newly stablished bad bank (BAMC). The additional delay in addressing banks problems in 2013 had significant economic cost as reflected in capital outflows, worsening in borrowing conditions for the state and private sector and probably forced further deleveraging of banks. Some claim that the alternative of a bailout by the so-called troika (EC, ECB and IMF) would have been desirable or less costly for the Slovenian tax payer. The question is that under the new EU bail-in blueprint, aiming at minimizing the cost for EU taxpayer, the balance sheet repair in Slovenia could have entailed also the bail-in of deposits of corporate sector that were not included or resulted in issuance of additional debt by the government as the exercise has some discretionary policy elements or parameters. In particular, if carried out by the troika it is likely that would have resulted in additional government debt (e.g. The IMF claims that the size of NPLs post banks transfers is substantial which later on also became an argument of the EC 2014) or sizable bail-in of large deposits which would also hindered already adverse balance sheet position of the corporate sector.

7 CONCLUSIONS

The recent crisis faced by the euro area can be best characterized as a systemic financial crisis affecting all of its members. The crisis has had different phases but all of them are related to either private or public financial liabilities. Given that the crisis is financial the outmost important dimension to tackle has been restoring and maintaining confidence.

The financial crisis was triggered by the collapse of confidence and resulted in the sudden stop of capital to peripheral countries considered all together. The crisis caused a massive retrenchment of capital at world level and a dramatic change in wholesale funding conditions in what was a highly financial integrated euro area. The importance of capital flows at the center stage of the euro area crisis is clearly reflected in the combined size of gross capital flows of peripheral countries, which prior to the crisis were several times bigger than the combined size of current account imbalances and by the size of changes in valuation of peripheral countries' foreign liabilities that also surpassed the value of current account imbalances. Valuation changes of foreign liabilities, while netting out over time, reflect important changes in underlying macroeconomic conditions that deserve close policy scrutiny and should be tightly monitored within a macro prudential supervision framework.

The magnitude of the crisis is explained by the leverage of the private sector that took place in the context of financial integration. This is now ex-post considered above prudent levels from the macroeconomic point of view. In particular the size of banking systems balance sheet is substantially bigger than the size of GDP where banks headquarters are located. Prior to the crisis government debt in the euro area was declining. This contrasts with the post crisis evolution where it has increased substantially to cope with the consequences of private sector deleveraging.

The institutional set up in the euro area was not adequate to cope with a systemic financial crisis. The policy response to the crisis seems to have been guided by a controversial diagnosis of its causes—that are still

subject of hot academic debate--or its consequences underestimated until a very late stage when the very existence of the monetary union was at stake.

After an early successful coordination of policies at euro area level (fiscal, monetary and state aid on banks), the policy focus turned to individual countries. As if the financial crisis was not systemic to the euro area (interruption of cross border flows amidst leveraged private sector and large exposure of banks in core countries). The policy response in its sequencing was focused on fiscal dimension, competitiveness, more broadly macro-imbalances, financial regulation and ultimately banking union finally acknowledging the systemic nature of the euro area. While various policy initiatives enhanced the policy framework to cope with future crisis the instrumental policy in defusing the crisis and its systemic nature was the effective ECB communication on the availability of backstop facility for government debt.

By overlooking the financial and systemic nature of the crisis the policy response enabled the coordination of self-fulfilling crisis expectations pushing countries on the verge of debt crisis. The way the policy response steered coordination of expectations was by underestimating the systemic nature of the crisis and by pursuing a redefinition of debt burden sharing arrangements weighting also on private sector creditors amidst the crisis of confidence. The approach started to be developed at the time of the outburst of Greek debt crisis and included in chronological order the following measures: the introduction of "CACs" in government bonds, the Deauville agreement stating that the ESM would include "the role of the private sector" in debt restructuring; private sector involvement (PSI) in the case of Greek government debt restructuring; bail-in of banks' subordinated debt in the case of Spain (2012) and since the beginning of 2013 as a precondition for EU approval of bail out of financial institutions; and finally the bail-in of large bank deposits with Cyprus crisis, which later on in 2014 was made EU legislation and precondition, if needed, for resolving banks under the so-called going concern.

The aim of the approach followed was clearly to minimize the cost of bailing out governments and banks for the "euro area" taxpayer particularly of core countries as the new approach also involves the bailing-in of large bank's depositors. The rationale is also sound as it reduces the moral hazard behavior of debt financing. By redefining ex-ante debt contracts and obligations it contributes to the mitigation of future crisis and handling of burden sharing. However, the policy, by being pursued amidst the most severe crisis of confidence and in absence of backstop facilities for financial institutions and sovereigns it coordinated market expectations and pushed peripheral countries into a bad equilibrium, from which they were only removed by the ECB effective communication and thus preserved the existence of the euro area.

The impact of policy response and its effectiveness in addressing the systemic nature of the crisis is visible in the aftermath in the positive trends in capital flow dynamics, government bond yields, and systemic risk indicators.

The incremental policy response and institutional build up has undoubtedly left the euro area with a better capacity to cope with potential systemic financial crisis in the future but, it has also shown that euro area members are subject to destabilizing speculation in the absence of backstop for government debt. In the new emerged euro area architecture, policy autonomy is practically ruled out for member states and for relatively small members accommodative monetary policy in downturn seems less effective to help counteract business cycle fluctuation. This clearly points out to the need to make further progress towards fiscal union as a backstop to the monetary union. In particular setting up an euro area budget for fiscal stabilization purposes would facilitate smoothing out the impact of temporary shocks and safeguard countries of being cornered on a bad equilibrium. Although the aim of the ESM is to provide countries with access to finance in cases of acute market-financing difficulty, it supports those that still benefit from market access which might lead them into pro-cyclical policy or pushing them out of the market completely. With higher government debt levels in the post crisis period a fiscal stabilization budget would

be even more relevant. One of the key lessons of the crisis is that financial integration can be severely hampered in absence of mechanism that would mitigate such risk. Thus further steps to fiscal union would not only contribute to revert existing financial fragmentation but reduce the possibility of occurrence of such an event in the future.

Finally, it is clear that monetary policy alone cannot move the broad euro area to the right equilibrium which suggests the need for a clear coordination of fiscal policies in case of systemic crisis beyond limited adjustment of automatic stabilizers.

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