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Monetary policy
and banks in the euro area:
the tale of two crises

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Editorial

On 23-24 May 2013, the Bank of Greece organised a conference on “The Crisis in the Euro Area”, in Athens.

The papers and commentaries presented at the conference addressed many important issues related to the functioning of the euro area. Our hope is that these contributions will help improve understanding of the nature of Europe’s monetary union, the underpinnings of its crisis, and the changes that are needed so that crises will be prevented in the future.

The papers examined two main sets of issues. One group of papers, adopting a union-wide perspective, assessed the aspects of the euro area’s institutional architecture that, with the benefit of hindsight, may have contributed to the crisis, and the policy responses to the crisis at the union level. A second group of papers focused on developments in three crisis countries -- Greece, Ireland, and Portugal.

The papers presented at the conference, with their discussions, will be published in the Journal of Macroeconomics.

Here we present the paper by Lucrezia Reichlin (London Business School and CEPR) with its discussion by Mike Tsionas (Athens University of Economics and Business).

MONETARY POLICY AND BANKS IN THE EURO AREA: THE TALE OF TWO CRISES

Lucrezia Reichlin
London Business School and CEPR

Abstract

The paper is a narrative on monetary policy and the banking sector during the two recent euro area recessions. It shows that while in the two episodes of recession and financial stress the ECB acted aggressively providing liquidity to the banking sector, the second recession, unlike the first, has been characterized by an abnormal decline of loans with respect to both real economic activity and the monetary aggregates. It conjectures that this fact is explained by the postponement of the adjustment in the banking sector by showing that banks, over the 2008-2012 period, did not change neither the capital to asset ratio nor the size of their balance sheet relative to GDP and kept them at the pre-crisis level. The paper also describes other aspects of banks' balance sheet adjustment during the two crises.

Keywords: Economic recessions, Financial system, ECB policies, Bank behavior

JEL Classifications: E44, E58, G21

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Monetary policy and banks in the euro area: the tale of two crises¹

Lucrezia Reichlin, London Business School and CEPR

Abstract

The paper is a narrative on monetary policy and the banking sector during the two recent euro area recessions. It shows that while in the two episodes of recession and financial stress the ECB acted aggressively providing liquidity to the banking sector, the second recession, unlike the first, has been characterized by an abnormal decline of loans with respect to both real economic activity and the monetary aggregates. It conjectures that this fact is explained by the postponement of the adjustment in the banking sector by showing that banks, over the 2008-2012 period, did not change neither the capital to asset ratio nor the size of their balance sheet relative to GDP and kept them at the pre-crisis level. The paper also describes other aspects of banks' balance sheet adjustment during the two crises.

Introduction

This paper is a narrative on the monetary policy of the European Central Bank (ECB) in the period 2008-2012 with a specific focus on liquidity operations and the dynamics of the financial sector. Rather than taking the perspective of single countries within the euro-zone [which has been the focus of much commentary since the crisis] I will look at the euro area economy as a whole. Analysis of the collective performance of the union is interesting per se, notwithstanding the heterogeneity it may hide, and is a starting point for understanding the effect of the combination of national and federal policies implemented since 2008.

My narrative starts from the observation that the euro area, unlike the US, experienced a second recession after the global downturn. Since late 2007, the euro area has seen a global financial crisis, a major recession, the sovereign debt crisis and a second recession which followed a brief recovery in 2009-2011. While the first euro area recession was almost coincident with that of the US (see CEPR and NBER dating) with both economies starting to recover at the same time, the second recession is specific to the euro area, a rare decoupling of the US and European business cycles in post-war history (see Reichlin, 2005). As I write now, some signs of a timid recovery are eventually appearing in the most recent data releases (see www.now-casting.com). However, the loss of output and employment in the last five years has been unprecedented, as has the stress in the

¹ Paper prepared for the Bank of Greece conference "The crisis in the euro area", Athens May 23-24 2013. I wish to thank Huw Pill for useful discussion.

financial sector. The damage from these episodes will not be easily repaired and is likely to overhang the recovery.

The timing of the recessions and the extreme episodes of financial stress are not identical although there is a significant overlap. In both periods the European Central Bank (ECB) aggressively injected liquidity into the banking sector in an effort to avoid its collapse due to the paralysis of the inter-bank market which characterize them. The key non-standard monetary policy measures taken by the ECB were liquidity operations, i.e. repo loans against collateral at a fixed rate for up to one year since 2009, and up to three year since 2011 (the so-called Long Term Refinancing Operations – LTRO). As with the quantitative easing measures adopted by other central banks, these operations had the effect of increasing the size of the balance sheet of the euro-system of central banks (ESCB) and increasing its importance as a financial intermediary. Given the predominance of banks as a channel of financial intermediation in Europe, the ECB designed its policy so as to deal directly with banks and focused, in particular, on replacing the wholesale funding market which had come almost to a stop after the collapse of Lehman Brothers in the fall of 2008. As Tommaso Padoa Schioppa correctly anticipated (Padoa Schioppa, 2003) and contrary to claims by some before the crisis, the euro-system proved to be sufficiently robust to be able to face an inter-bank run by providing emergency liquidity and adopting what he called a *‘market operation approach’* to its role as lender of last resort.

In the first phase of the crisis, this approach was not only successful in preventing a collapse of the financial system, but also had a significant positive effect on the volume of bank lending and on the real economy (Lenza, Pill and Reichlin, 2011 and Giannone, Lenza, Pill and Reichlin 2012). In this paper I report data which suggest that this was not the case in the second phase of the crisis when, although the volume of the long term refinancing operations increased and their horizon lengthened to three years, bank lending remained unusually weak, even when taking into account the decline in industrial production and the dynamics of M3.

The correlation between central bank liquidity provision and bank lending has been different in the two recessions, as has the that between bank lending and the real economy. This suggests that the transmission mechanism of non-standard monetary policies was different between the two episodes and that in the second crisis these policies lost their effectiveness.

In an attempt to formulate conjectures about this fact, this paper examines data on banks’ assets and liabilities as well as on central banks’ actions between 2008 and 2012 in order to identify differences between the two crises. In the first section I will briefly describe ECB action. In the second I will report data on the key characteristics of the euro area financial system. I will then review the banks’ balance sheet adjustment during the two crises in Section 3 and finally, in Section 4, I will discuss the nexus between ECB liquidity policies and banks’ behavior.

1. The crisis and the ECB: a personal view

Figure 1 plots euro area and US quarterly GDP growth from 2006 to the first quarter of 2012. The shaded areas highlight US and euro area recessions identified, respectively, by the National Bureau of Economic Research and the Center of European Policy Research (CEPR)²: while the first coincides, the second is specific to the euro area.

The recessions roughly correspond to two periods of stress in financial markets related, respectively, to the post-Lehman global crisis and to the sovereign crisis in Europe. Figure 2 shows the secured three-month euribor rate and the unsecured three-month eurepo rate. The shaded area is the spread between the two, which typically signals tensions in the money market. It exhibits two peaks, one just after the Lehman Brothers collapse, the second at the time of the sovereign crisis in 2011.

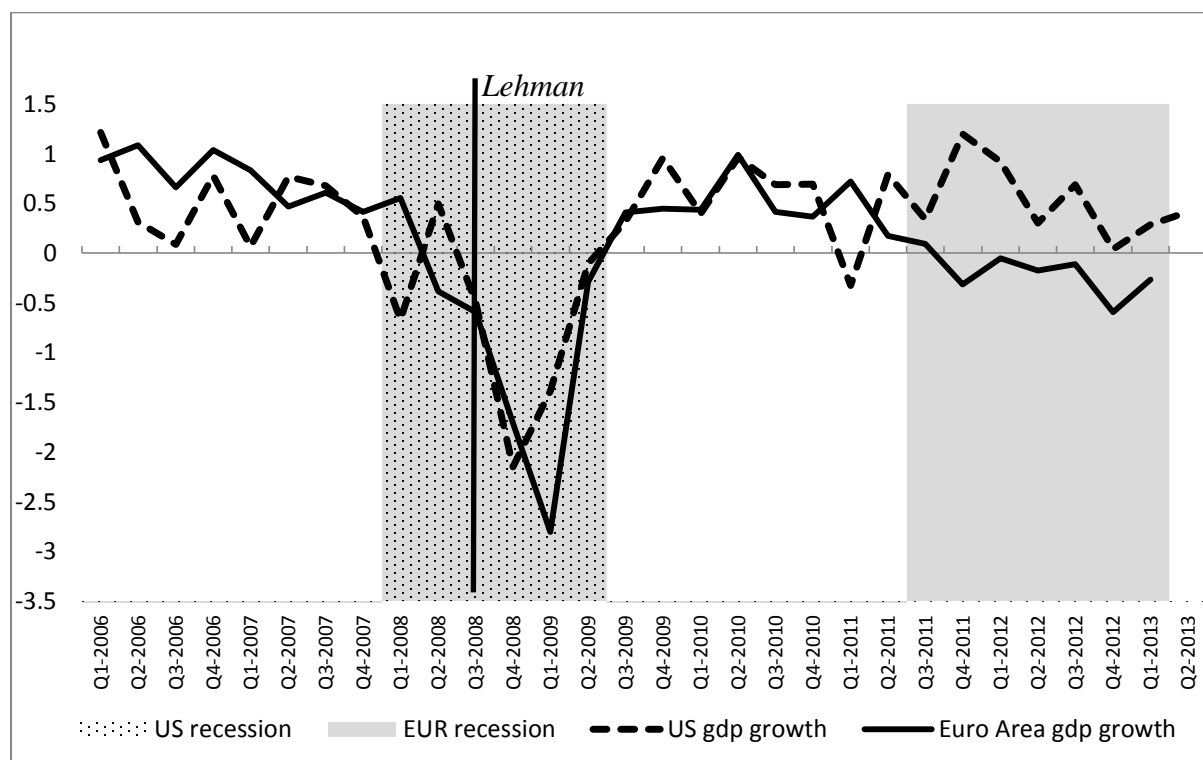


Figure1: US and euro area recessions (GDP, QoQ growth rate). Source: OECD.

² For criteria on business cycle dating see the website of CEPR www.cepr.org and NBER www.nber.org.

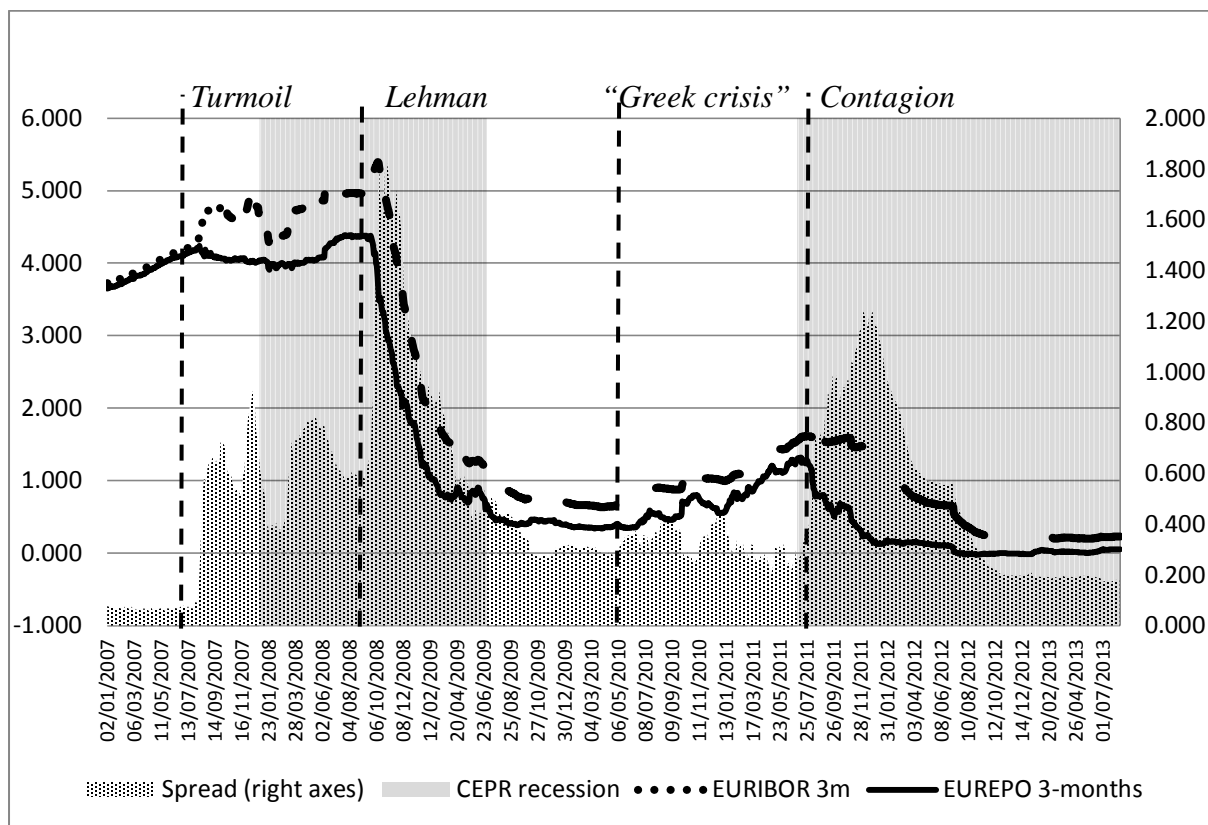


Figure 2: Money market rates and spreads. Source: European Banking Federation

The financial crisis first erupted in the summer of 2007 but really deepened and spread after the collapse of Lehman in the fall of 2008. The recovery started in the second quarter of 2009, more or less coincidentally with that of the US (see www.cepr.org and www.nber.org).

In 2011 the euro area plunged into a second recession, triggered by tensions in the sovereign debt market and more broadly in the financial system as a whole. These tensions were caused by solvency as well as liquidity problems.

The ECB responded forcefully in both cases by implementing, as did other central banks, non-standard monetary policies, i.e. policies beyond setting the refinancing rate. While the ECB did not adopt the rhetoric of “quantitative easing”, it expanded its balance sheet, increasing reserves on the liability side against mostly conventional assets (repos) on the asset side. On the liability side it allowed an increasing recourse to deposit facilities and, on the asset side, expanded the scope of repo operations. These policies did not just have a monetary policy objective; they were also aimed at preserving financial stability. The ECB’s principal means of intervention were the so-called long term refinancing operations (LTRO). Through these operations the ECB made repo loans to banks, at fixed rates and with full allotment (i.e., banks were able to borrow as much as they liked at these rates: an unlimited supply of liquidity). The term of the repo loans was up to one year in 2009 and up to three years in 2011. Therefore these policies involved maturity transformation as well as liquidity provision. At the same time there was also a relaxation of the collateral requirement and an increase in the eligible counterparties (see Lenza, Pill and Reichlin 2010 for details).

Figure 3 shows the volume of ECB operations, distinguishing between the shorter term regular operations and the LTRO. We see two peaks in the LTRO, each following the periods of tension in the money market signaled by the euribor-eurepo spread.

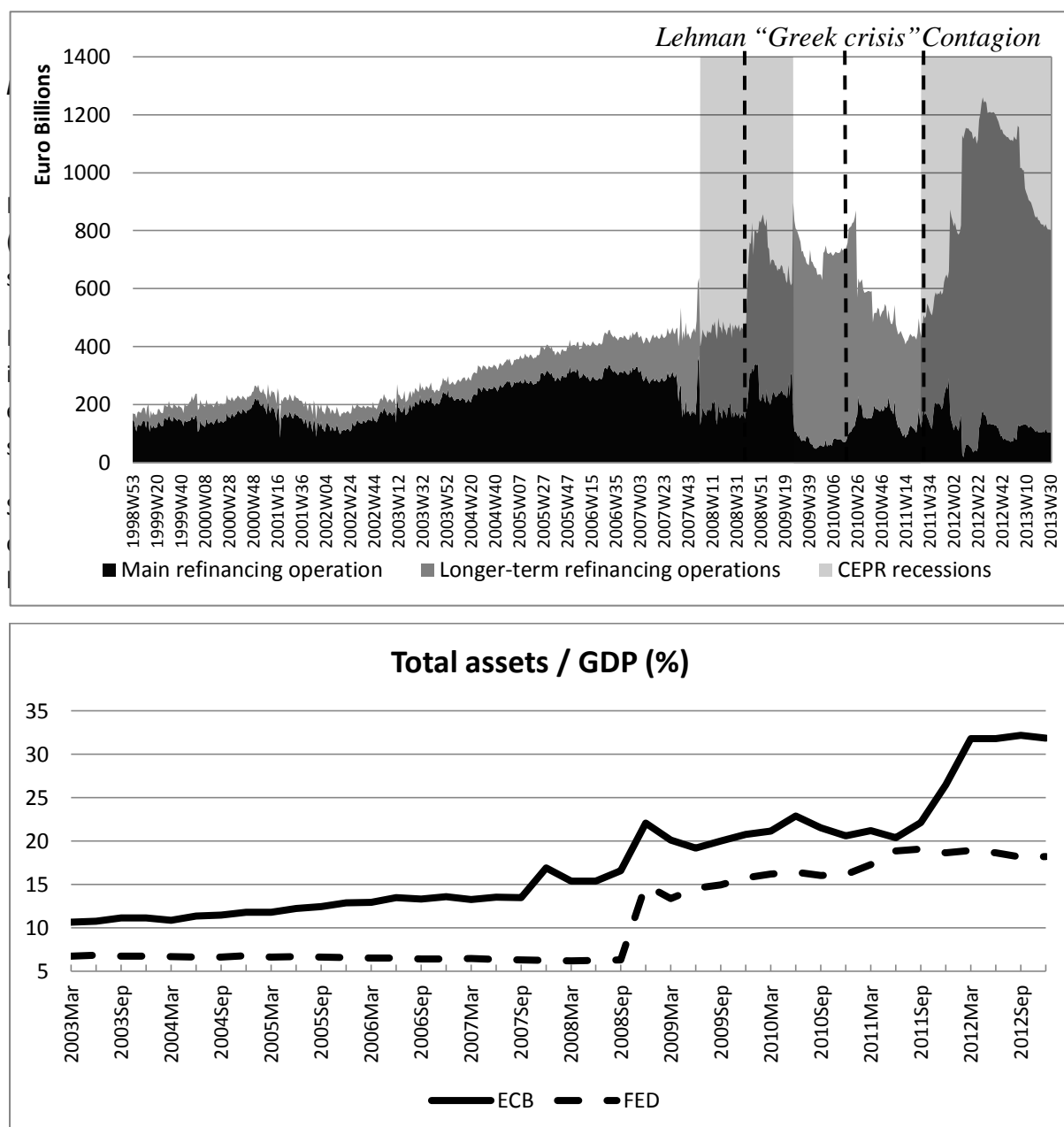


Figure 4: Central banks balance sheets: the Euro area and the US. Sources: ECB, FRB, Eurostat.

³ To be precise, when talking about monetary policy operation in the euro area, one should refer to the euro-system of central banks (ESCB) rather than the ECB since those operations are conducted in coordination with national central banks. In the paper, I sometimes refer to the ECB for brevity.

⁴ The LTRO is not the only non-standard monetary policy implemented by the ECB since the crisis. Other measures were the narrowing of the corridor, the change in eligibility criteria for the collateral, interventions in the covered bonds market and, most importantly, in 2010 the ECB launched the security market program, involving interventions in the secondary sovereign bond market. The latter program was discontinued in 2011.

The ECB adopted what Tommaso Padoa Schioppa (Padoa Schioppa 2003) had defined as the “market operation approach to the lender of last resort” and applied the so-called Bagehot rule of provision of unlimited liquidity against collateral. Its action shows indeed that the euro-system of central banks had the tools in place to deal with a generalized liquidity crisis.

However, underlying the tensions in financial markets there were also solvency problems, and these were late to be recognized. In the early phase of the crisis some financial institutions failed and some were rescued by state intervention. In other cases the problem was deferred. This failure to address the problem was partly due to the fact that there were no tools for crisis resolution at the euro area level, while the size of many banks relative to the size of their home country’s state finances made it impossible for those states to bail them out. But it was also partly due to a collective denial of the problem. As we will see later, euro-area banks, unlike those in the US, did not start deleveraging or decreasing the size of their balance sheets relative to GDP until recently.

The ECB was left to deal with these solvency problems with a tool designed only to address liquidity problems. Things became worse with the Greek sovereign crisis and its subsequent propagation to Portugal and Ireland. Sovereign problems started gradually to emerge as a result of weak economic conditions and the fiscal costs of the banking crisis. These problems, combined with the disintegration of the financial system within the euro area (see later) added further stress to the banking sector creating a vicious cycle between recession, deteriorating bank risks and deteriorating sovereign risk. A characteristic of this new phase was the correlation between sovereigns’ and banks’ risks. The progressive balkanization of the financial system, combined with the persistence of solvency issues affecting banks and sovereigns, led financial institutions to be progressively more exposed to their own government’s bonds. This was exacerbated by the fact that these bonds could be used as collateral in ECB operations. Given the worsening of the sovereign debt problem in some countries, the quality of collateral used in ECB repos by the banks deteriorated and at the same time it became apparent that some banks had become structurally dependent on ECB liquidity provision. Since the non-domestic interbank market did not normalize, the ECB continued to use the LTRO to substitute for it.

These tensions eventually jeopardized the recovery of the real economy. The latter, as in the US, had started in the second quarter of 2009. When sovereign tensions reached Spain and Italy in the second half of 2011, the euro area fell into a second recession. The ECB’s response was a new wave of aggressive LTRO, and at a longer horizon.

The composition of ECB lending to banks then became increasingly skewed towards banks in the euro area periphery; initially, Greek, Irish, Portuguese and Spanish banks but, from 2011, also Italian banks. Data from the inter-bank payment system for the real-time processing of cross-border transfers throughout the European Union, TARGET2⁵, partly illustrates this phenomenon. Figure 5

⁵ TARGET2 is the real-time gross settlement (RTGS) system owned and operated by the euro-system. It mainly settles operations of monetary policy and money market operations and has to be used for all payments

shows the debt and credit positions of two groups of countries: FGLN, including France, Germany, Luxembourg and Netherlands and GIIPS, including Greece, Ireland, Italy, Portugal and Spain⁶.

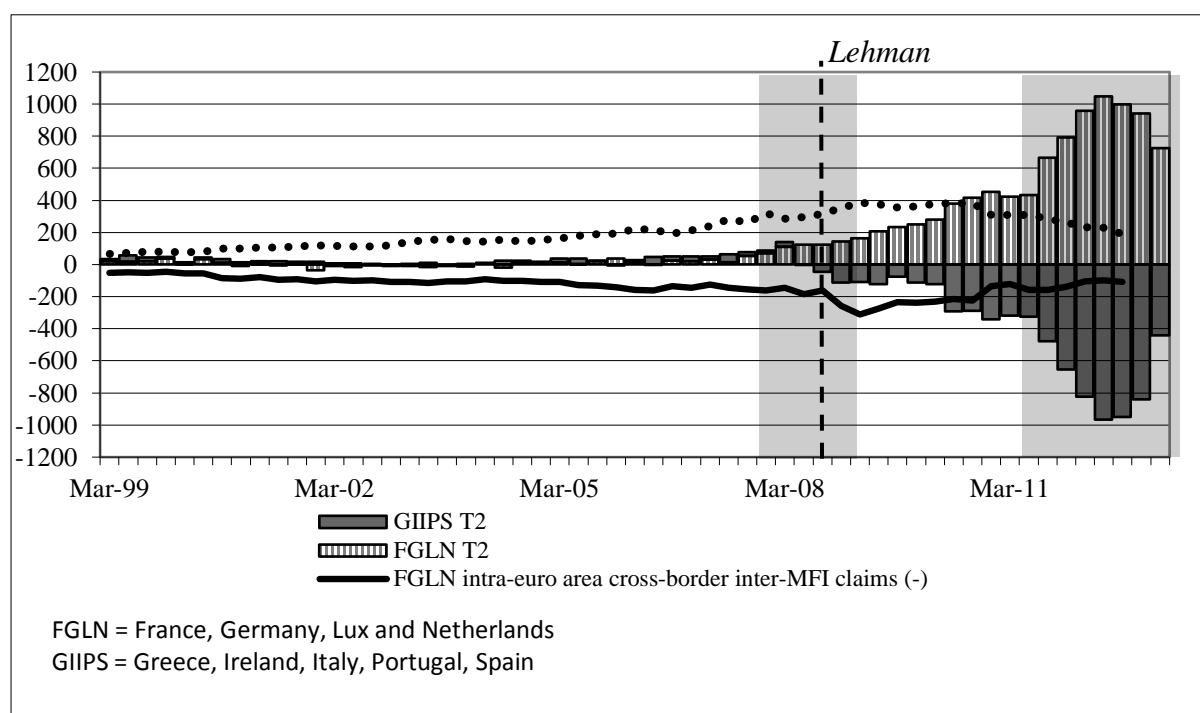


Figure 5: T2 imbalances and intra-euro area cross-border inter-MFI loans. Source: ECB.

2. Financial intermediation in the euro area

In order to provide support for my 'story' in section 1 and to understand the workings of the crisis I will examine the dynamics of banks' balance sheets during the period of the second recession. As background, I will describe the essential characteristics of the euro area financial system. The first is that financial intermediation is dominated by banks. Figure 6 shows data on the respective shares of banks and bond markets in corporate financing in the US and in the euro area.

This feature is critical for understanding the design of the ECB's non-standard monetary policies which mainly consisted, as we have seen, in provision of liquidity to banks⁷. It also suggests that banks' behavior and in particular their balance sheet adjustments has a determining effect on the transmission mechanism of monetary policy to the real economy.

involving the euro-system, as well as for the settlement of operations of all large-value net settlement systems and securities settlement systems handling the euro.

⁶ I thank Antonio Colangelo for providing this picture.

⁷ The other reason for designing non-standard monetary policies as liquidity provision to banks is the controversial nature of interventions in the sovereign market given the limits established by the Treaty.

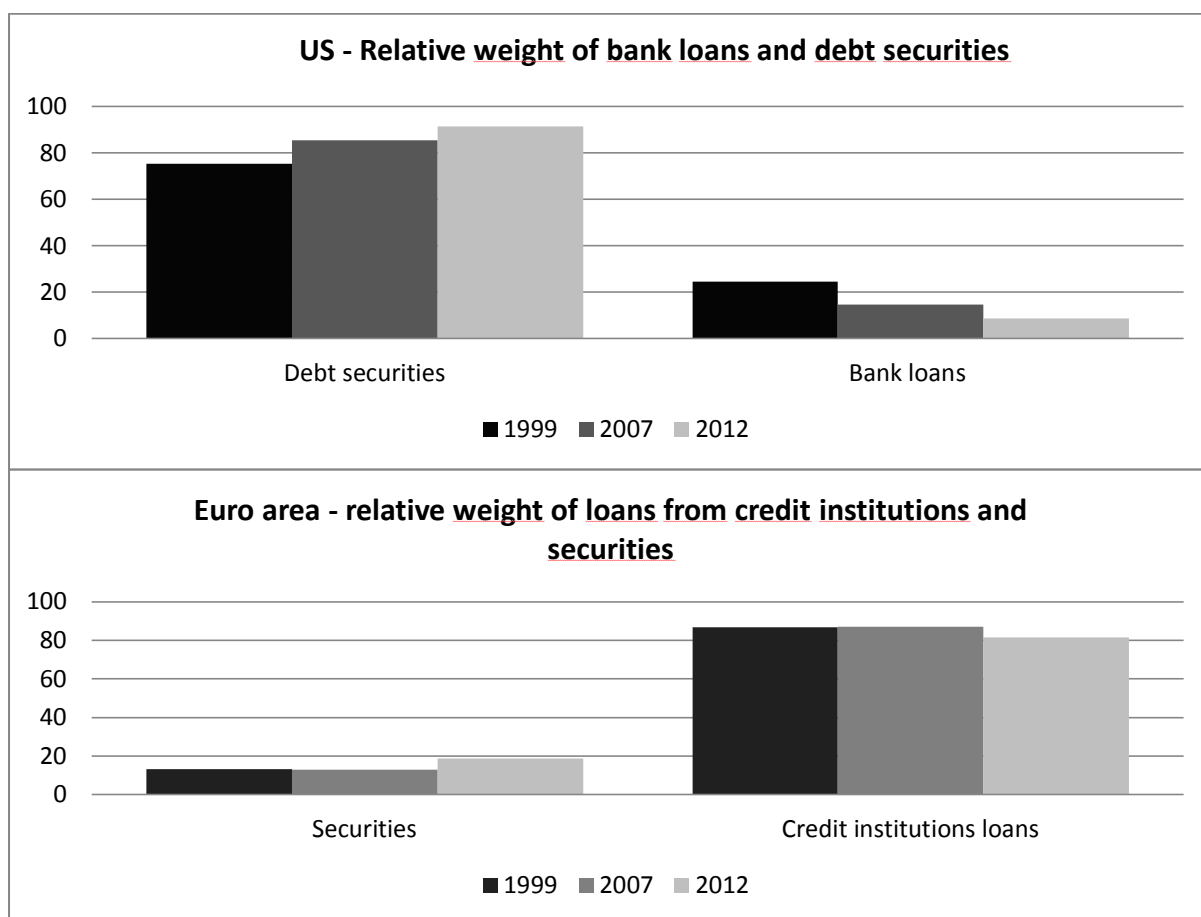


Figure 6: corporate financing in the US and the euro area. Sources: ECB, FRB.

The second key characteristic is the importance of the inter-bank market in banks' funding. The composition of funding is illustrated in Figure 7. It distinguishes between: monetary financial institutions excluding the euro system (MFI), other financial institutions (OFI), insurance companies and pension funds (ICPF) and retail deposits. It shows that the inter-bank market (MFI), since the start of the common currency, has oscillated between 50 and 40 % of total funding. Recently the OFIs have increased their relative importance with the combined OFI and MFI proportion of funding remaining 50%. Given the importance that banks have in financing the real economy and the volatility of the inter-bank market which we will appreciate later, this is a source of fragility in the European financial intermediation.

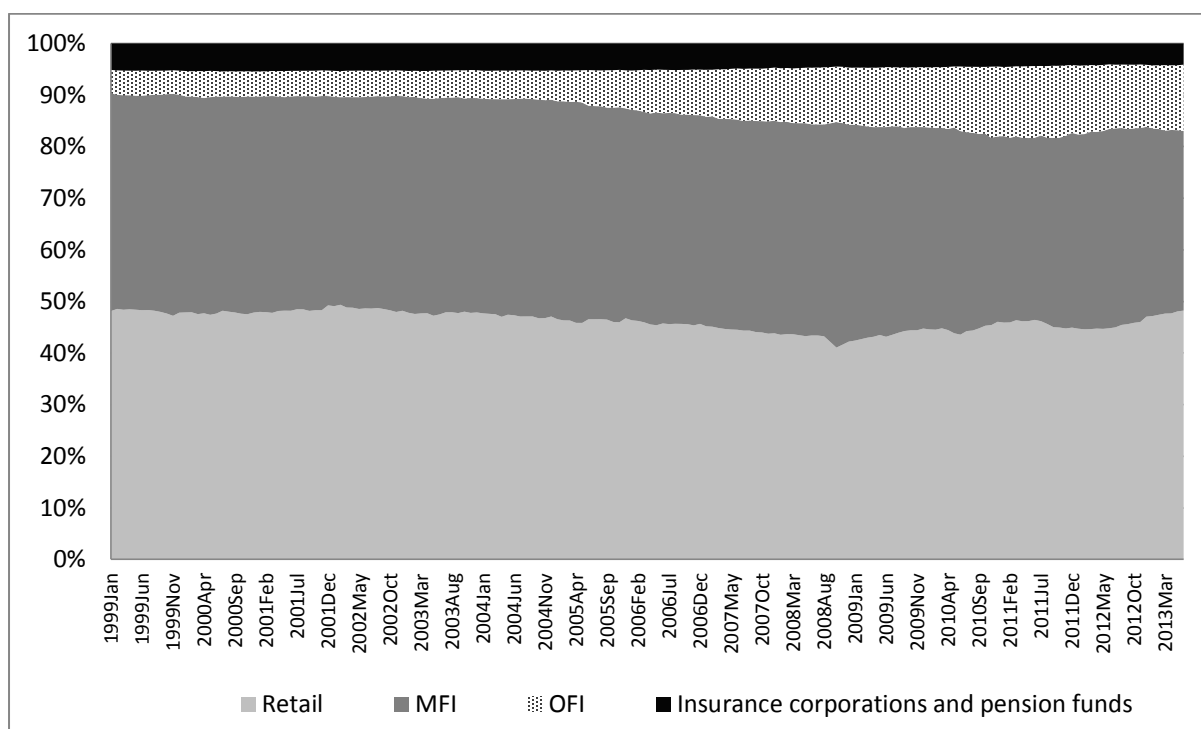


Figure 7: Composition of funding in euro area banks : MFIs (excl. ESCB) deposits - Euro Area counterpart.
Source: ECB.

The third key feature is the degree of international integration of the banking system in Europe. Prior to the financial crisis, the inter-bank market had been increasingly reliant on non-domestic banks, in particular from other euro area countries. As we will see later, the combination of reliance on inter-bank funding and international integration in the interbank market created fragility in the euro area banking sector. Figure 8 shows a trend of progressive integration until the Lehman bankruptcy followed by a trend of dis-integration involving both other euro area and extra- euro area banks .

The degree of financial integration in this segment of the market contrasts with that in the retail banking sector which remains mostly national (see, for example, Hartmann, Maddaloni and Manganelli, 2003).

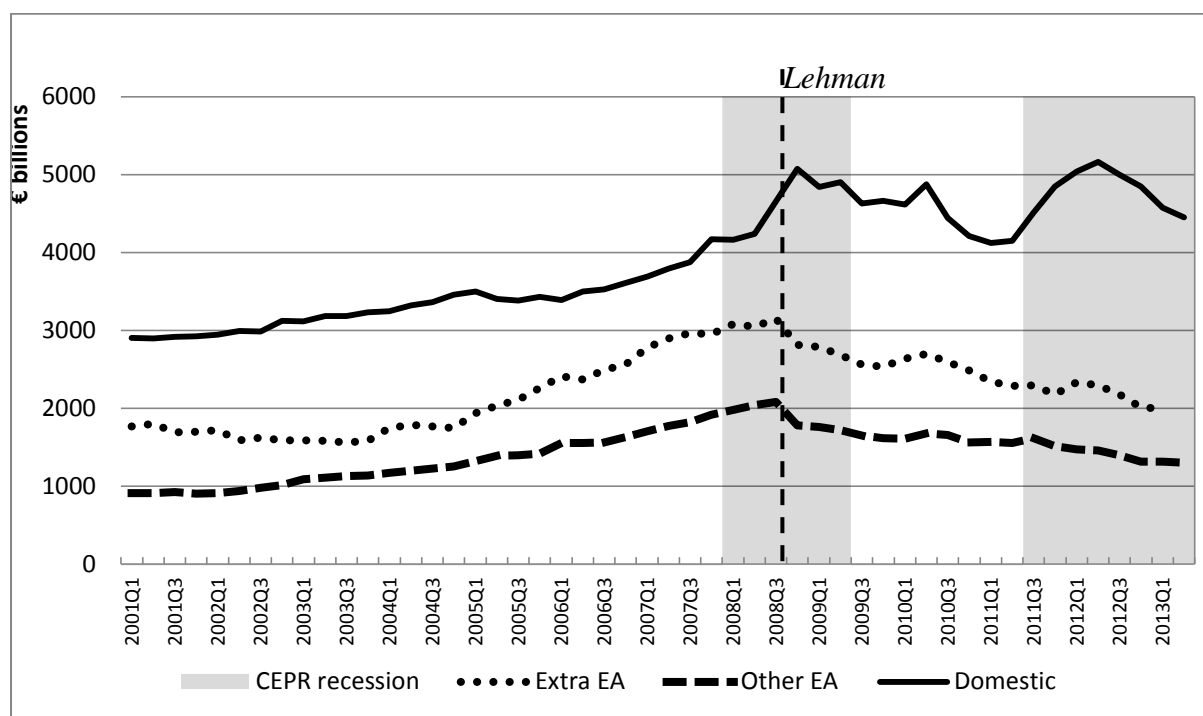


Figure 8: Interbank deposits of MFI (excl. ESCB), by geographical counterpart. Source: ECB

The fourth characteristic of the euro area financial market is the relatively large role that banks play as intermediaries in the sovereign bond markets (see Figure 9 for a comparison between the UK, the US and Germany of holders of government bonds) as well as the increasingly deep financial integration of the government bond markets within the euro area (see Figure 10). The latter has reversed recently and we will return to this fact later.

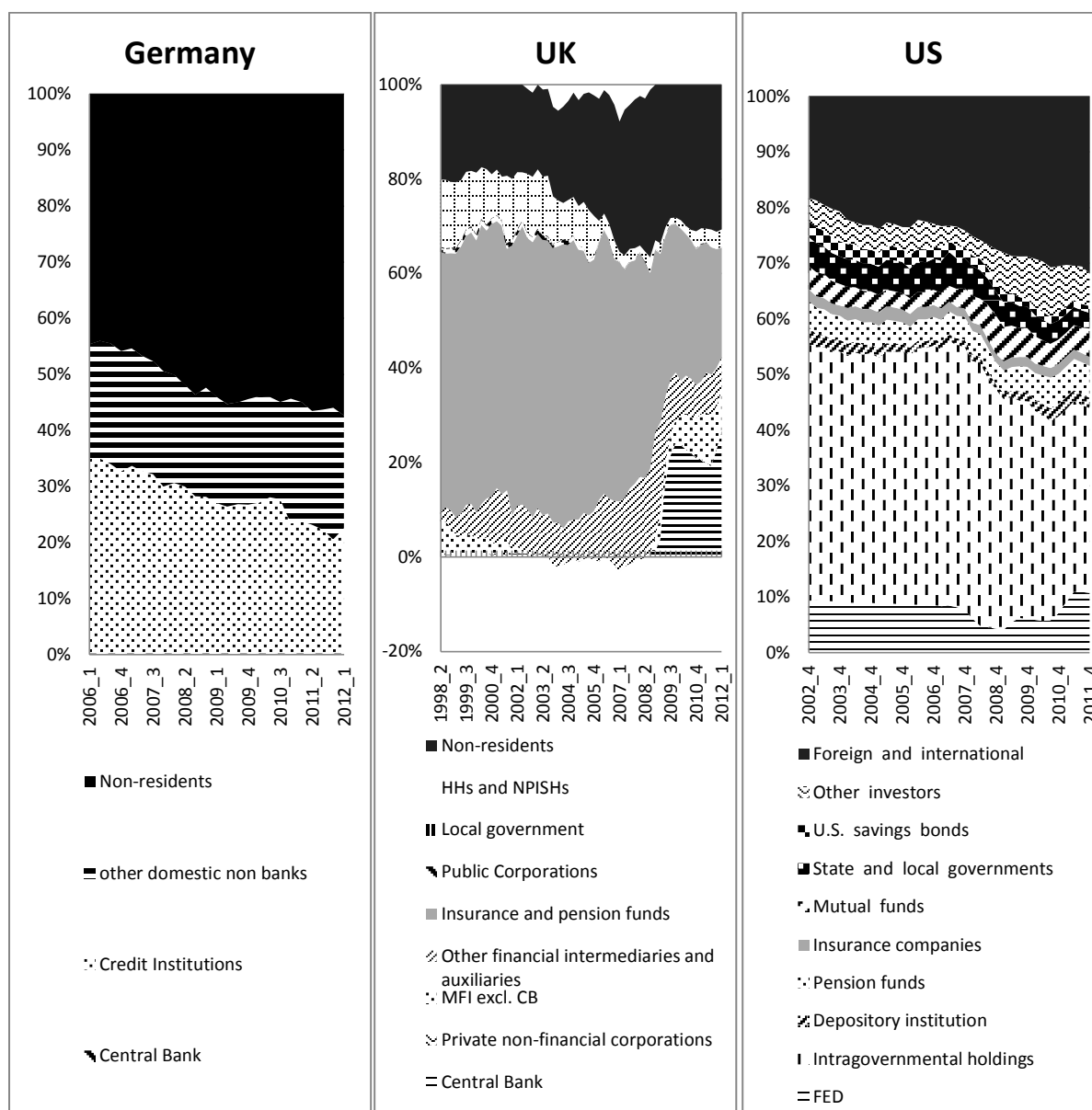


Figure 9: holders of government bonds in Germany, UK, US. Source: Bruegel.

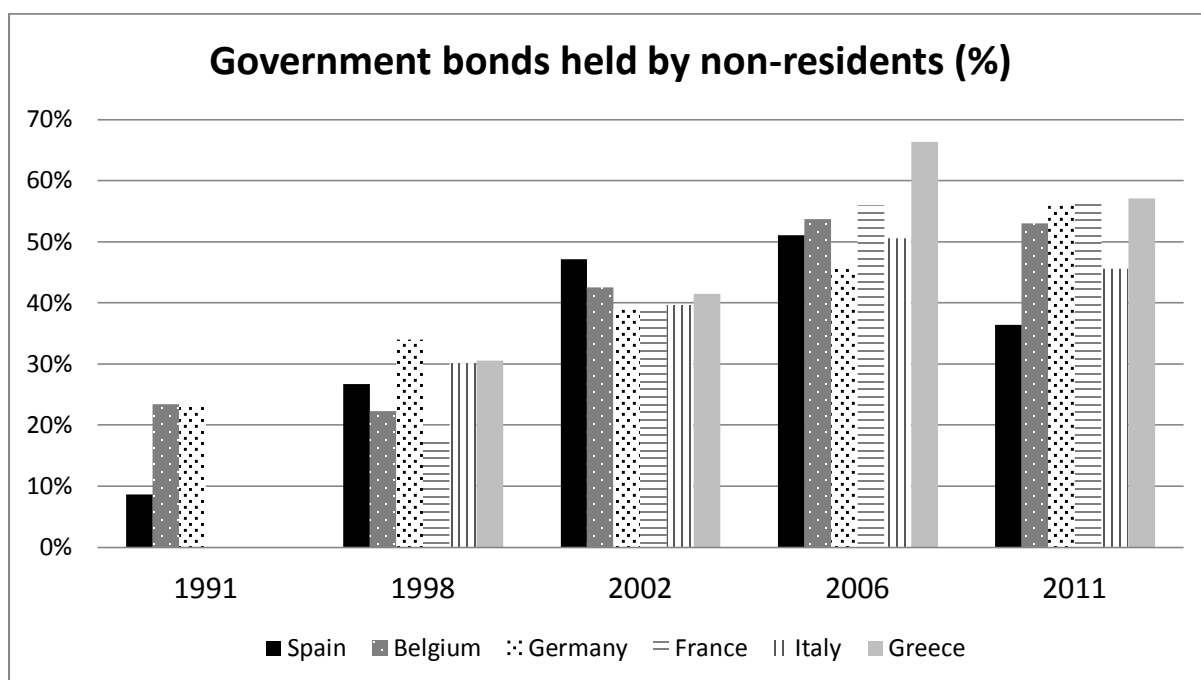


Figure 10: international integration of the sovereign bond market. Source: Bruegel.

As we will see, this latter feature has led to contagion from deteriorating sovereign creditworthiness to deteriorating bank creditworthiness, with further consequences for the transmission mechanism of monetary policy.

3. Banks and the financial crisis

The financial crisis first erupted in the summer of 2007 but really deepened and spread after the collapse of Lehman in the fall of 2008. It manifested itself as a sudden seizing up of the inter-bank market. Transactions with non-domestic financial institutions (from both within and without the euro-area) were particularly affected. Since the inception of the euro the interbank market had become fully integrated geographically, but when the Lehman shock arrived, a generalized perception of counterparty risk came to dominate the market. The empirical literature on the inter-bank market using detailed micro data is growing but still limited and it is therefore premature to identify the nature of contagion of risk in that market. Some evidence, in line with what we observed with balance sheet aggregate data is in Cassola, Holthausen and Lo Duca (2010), who find that the decline in transactions volume is mostly due to cross-border activity. This seems to correspond to what suggested by Freixas and Holthausen (2005) amongst others: integration of the inter-bank market may magnify the asymmetry of information, as banks start trading with a pool of foreign banks on which they have less precise information and inter-bank linkages can act as a channel of contagion, generating chains of bank liquidations (see Allen and Gale 2000 and Freixas, Parigi and Rochet 2000). Indeed, once the fragility of the financial sector was revealed by the first symptoms of the global financial crisis, asymmetric information generated a run involving both weak and sound institutions (see Heider, Hoerova and Holthausen, 2010).

Figure 11 shows how banks' liabilities moved over the period, distinguishing between retail deposits, interbank deposits and deposits from the eurosystem⁸. It is interesting to combine information in Figure 8 and Figure 11, both describing the dynamics of banks' liabilities.

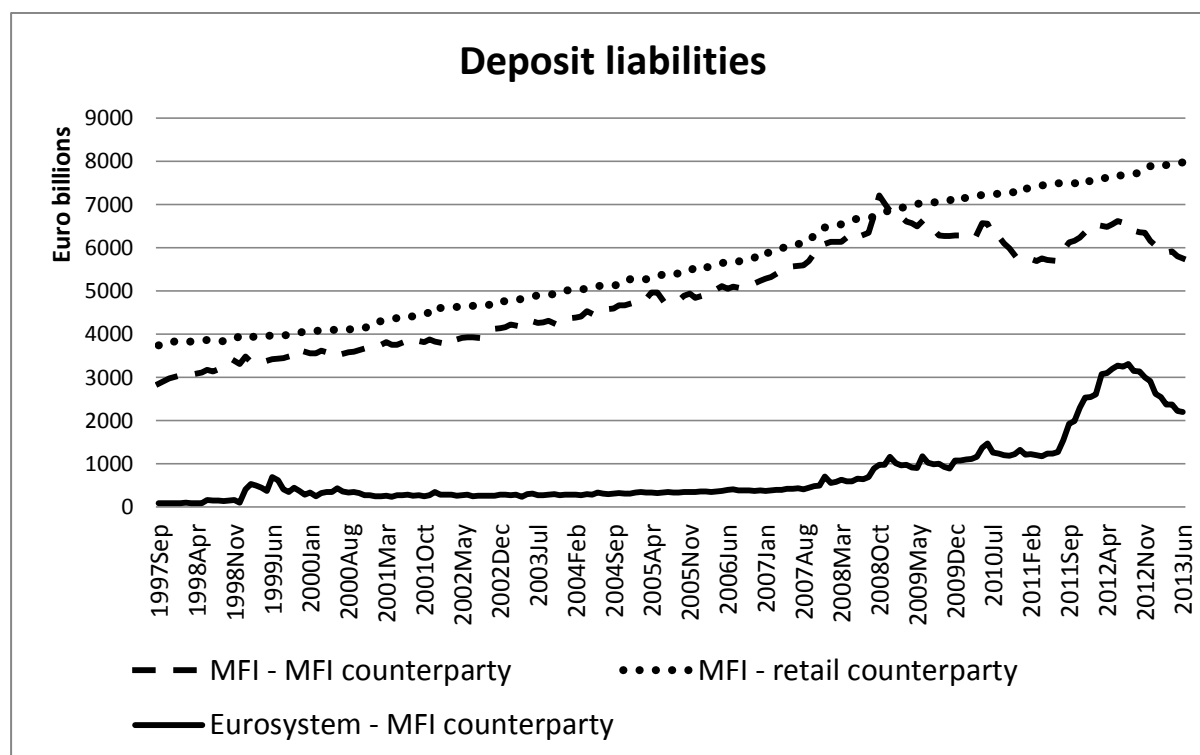


Figure 11: deposits liabilities in the Euro Area, different reporting sectors and different counterparties. MFI do not include ESCB. Source: ECB.

The picture that emerges is the following. Retail liabilities are not much affected by the crisis while the decline of total liabilities is all accounted for by the inter-bank component of funding. However, domestic inter-bank shows a regular cyclical behavior, declining with a lag after the beginning of the two recessions and stabilizing in between. The non-domestic component of the inter-bank, on the other hand, declines persistently after Lehman and does not follow the cycle. Going back to Figure 8 we can see this decline was partly replaced by funding provided by the euro-system.

In related work based on quantitative analysis and focusing on the sample from 2008 to the first part of 2011: excluding the second recession, I have shown that domestic assets and liabilities have been stable if we condition for business cycle developments (i.e., they have moved according to historical correlations with the real economy), while this is not the case for non-domestic assets and liabilities whose decline is larger and unexpected given past behavior (Giannone, Lenza, Pill and Reichlin,

⁸ The ECB defines Monetary Financial Institutions, MFI as "central banks, resident credit institutions and other resident financial institutions whose business is to receive deposits and/or close substitutes for deposits from entities other than MFIs and, for their own account (at least in economic terms), to grant credits and/or make investments in securities". Money market funds are also classified as MFI.

2013). Figure 8 shows data including the second recession and confirms the cyclical dynamics of the domestic component of liabilities which contrasts with the persistent decline of the non-domestic component. Data in Figure 11 suggest that this is explained by inter-bank deposits which, as shown, had a large non-domestic component.

The asset side shows a similar reversal of integration but also reveals significant differences between the two recessions. Figure 12 distinguishes between assets from counterparties which are (a) domestic, (b) from other euro area countries and (c) extra- euro area, each reported as contributions to the growth of total assets. It shows that the decline in growth of total assets since 2008 is almost all explained by the non-domestic component while the domestic component is cyclical.

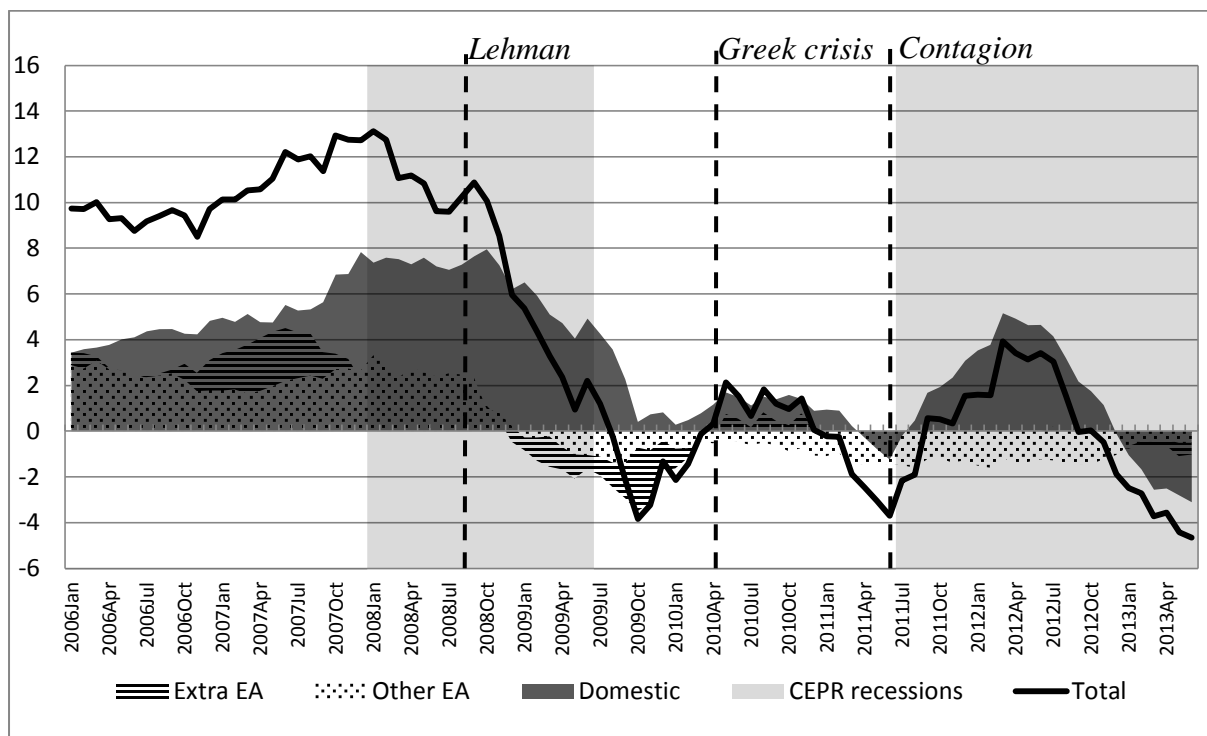


Figure 12: contributions to YoY growth rate of MFIs (excl. ESCB) assets (loans+securities+shares) by counterpart location. Source: ECB .

Remarkably, during the first recession, the relationship between loans to non- financial corporations and industrial production was stable. In Giannone, Lenza and Reichlin, 2013 we showed this point formally by estimating that, conditional on the observed decline of industrial production during the 2008-2010 sample, the decline in loans is not abnormal: loan dynamics during the first euro area recession were in line with historical cyclical regularities. Figure 13 shows the six month moving average of loan flows to corporates and households plotted against industrial production in a sample which includes both recessions. Visual inspection suggests that, in the second recession, the picture was quite different than in the first: from 2011 to 2012 the rate of growth of loans was not only negative but also more strongly so than that of industrial production.

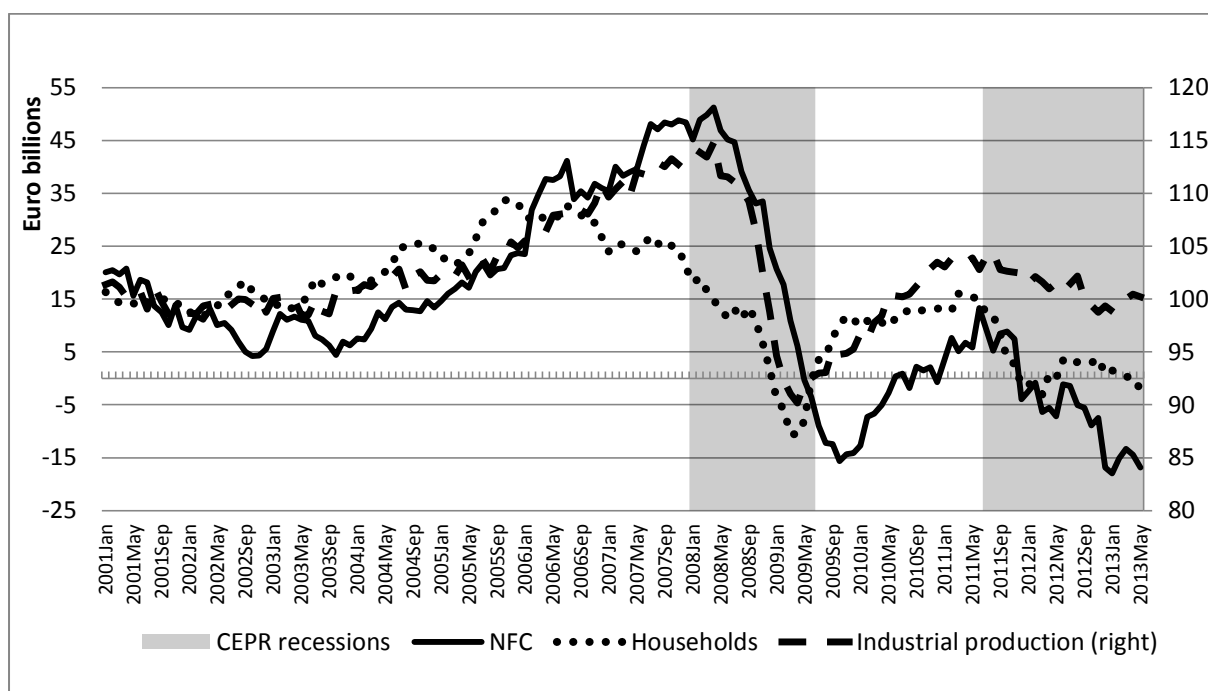


Figure 13: 6-months moving average of industrial production and of loan flows to households and non financial corporations. Source: ECB.

The dynamics of bank lending contrasts with that of banks' holdings of government bonds, which increased relatively to total assets in both recessions. Figure 14 shows that their relative weight in total assets (including securities, loans and shares) increased in the period 2008-2009 and then again after late 2010. Of course, government bonds are in principle "safe assets" and hence their share of total assets can be expected to have counter-cyclical dynamics.

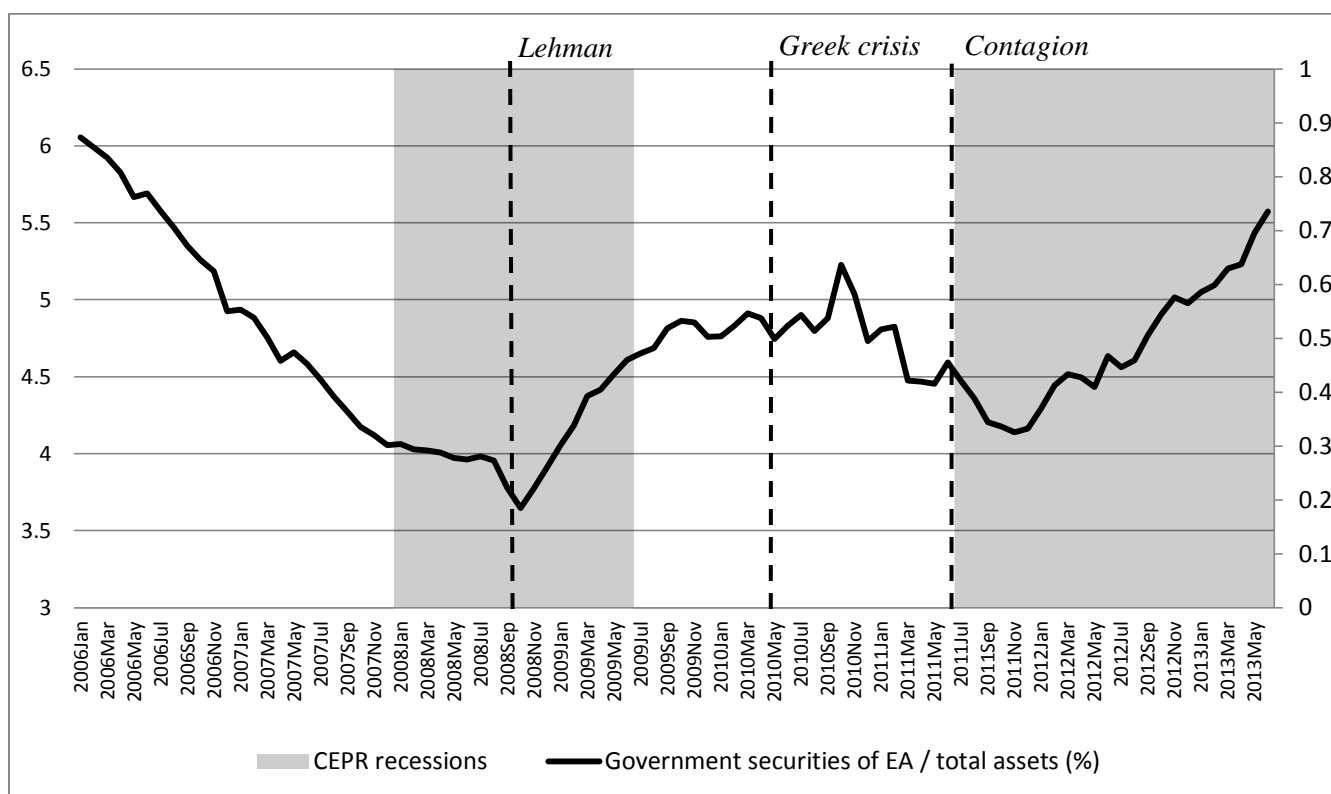


Figure 14: MFI (excl. ESCB) holding of government securities / total assets. Source: ECB

Looking at geographical composition, we can see that since 2010, with the beginning of the sovereign debt crisis, banks have increased their holdings of domestic government bonds while their holdings of bonds of other euro area governments have declined (see Figure 15).

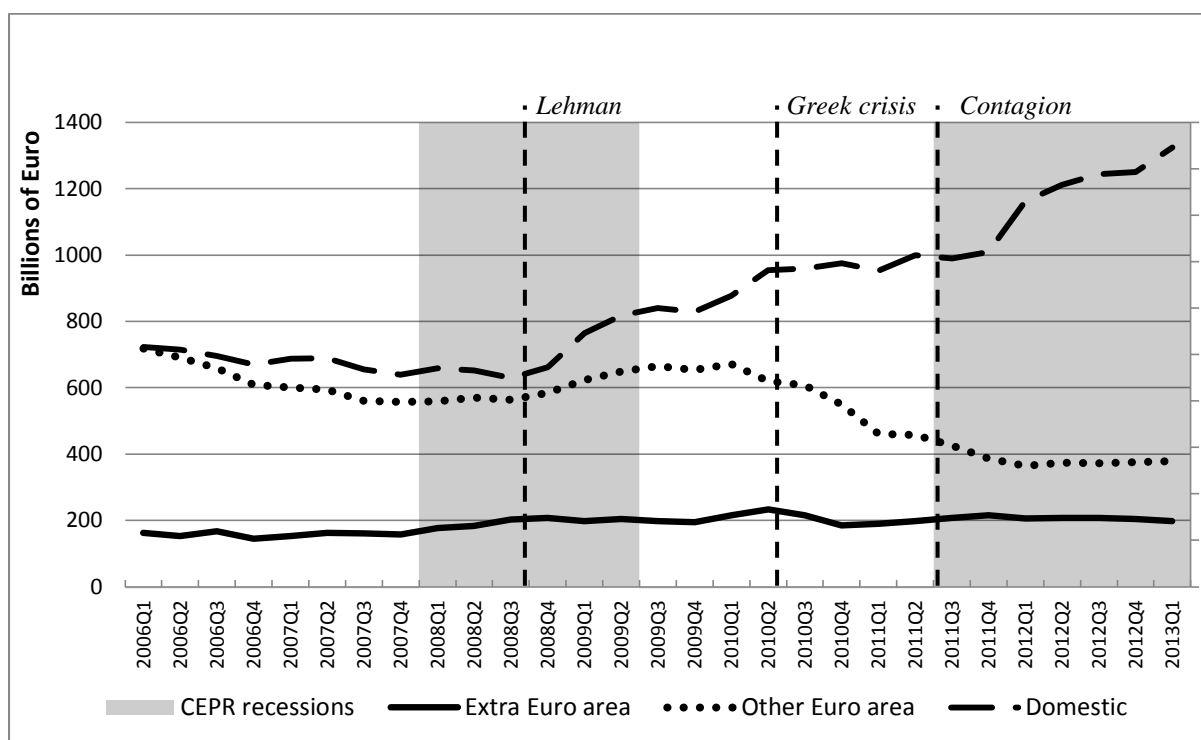


Figure 15: MFI (excl. ESCB) holding of government securities - different counterparties. Source: ECB.

Another way to appreciate this fact is to look at securities in general. Figure 16 shows that, since the sovereign crisis, there has been a dramatic decrease in the contribution of the growth rate of holdings of non-domestic securities to the growth of holdings of securities in total (in particular with other euro area countries). These two facts suggest that a distinctive feature of the second crisis has been a home bias in the government bond market. As observed by many commentators this implies that for banks located in countries with higher government debt/GDP ratios, this trend meant a higher degree of risk and generated a correlation between bank risk and sovereign risk.

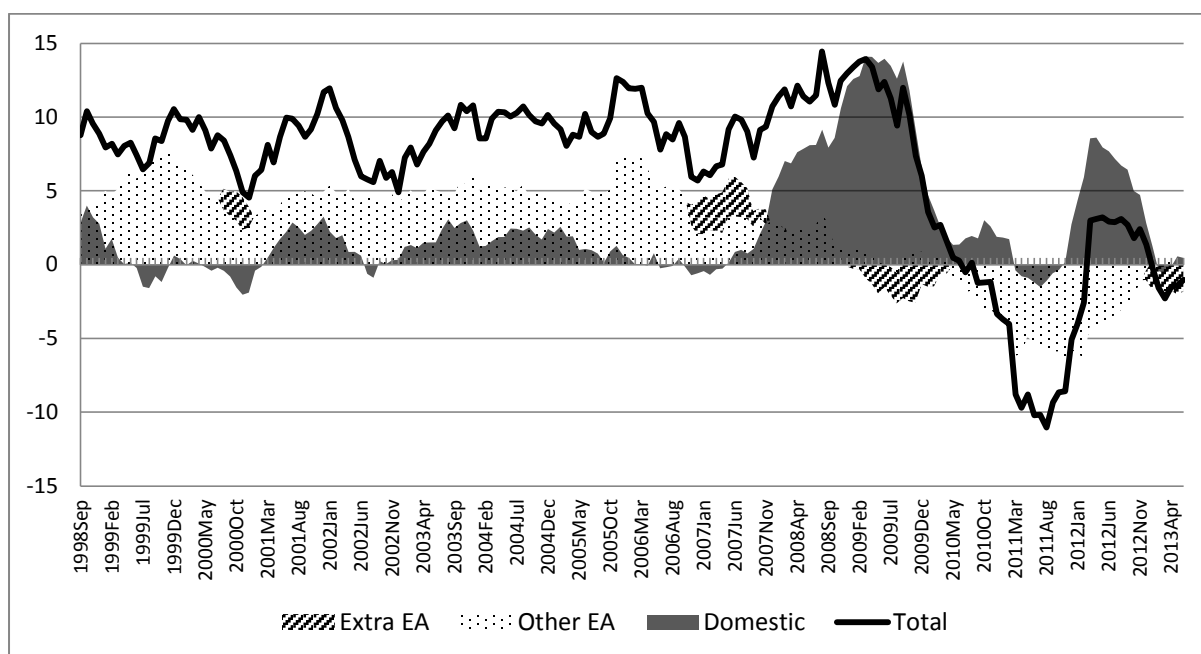


Figure 16: contributions to YoY growth rates of MFIs (escl. ESCB) assets (securities), by counterpart location. Source: ECB .

To summarize, since 2008 the composition of banks' balance sheets shows a progressive shift towards domestic assets and liabilities reflecting the balkanization of euro area financial markets. Holdings of government bonds have been counter-cyclical, showing an increase in the first recession, a subsequent normalization and a new increase in the second part of 2010 with the early signals of the sovereign crisis. However, since then, there has been a further drop in holdings of non-domestic securities combined with an increase in the relative weight of government bonds in the balance sheet. This fact is a significant reversal of a trend in geographical integration of the euro area government bond market (as shown in Figure 10).

Most importantly, while loans to corporates were relatively resilient during the first recession, they have been weaker than the data on the real economy data would have led us to expect during the second recession. This is a remarkable fact, bearing in mind the large size of the ECB liquidity operations which I described earlier.

4. The ECB, loans and the real economy

The explanation for the non-cyclical decline in loans to corporates in the second euro area recession cannot be liquidity, since the ECB stepped in to replace the missing non domestic inter-bank funding while other components of funding were stable. We saw earlier the stability of retail deposits. We can also examine the dynamics of bank lending in relation to movements in $M3^9$. Again, in the second recession loans decoupled from $M3$ and declined more sharply (see Figure 17).

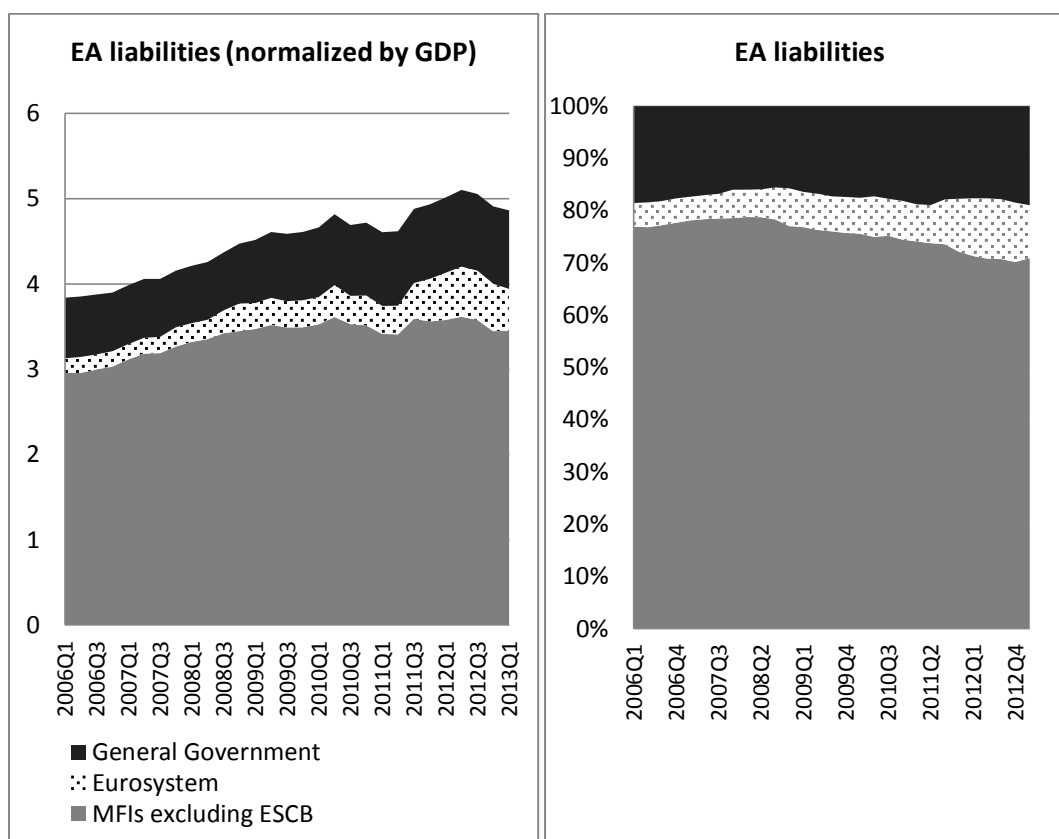


Figure 17: banks, government and ESCB liabilities. Source: ECB.

The explanation cannot be banks' downsizing either since, over the period, the ratio of banks' liabilities to GDP remained roughly constant [while the size of the combined balance sheet of banks and the euro-system of central banks increased] (see Figure 18).

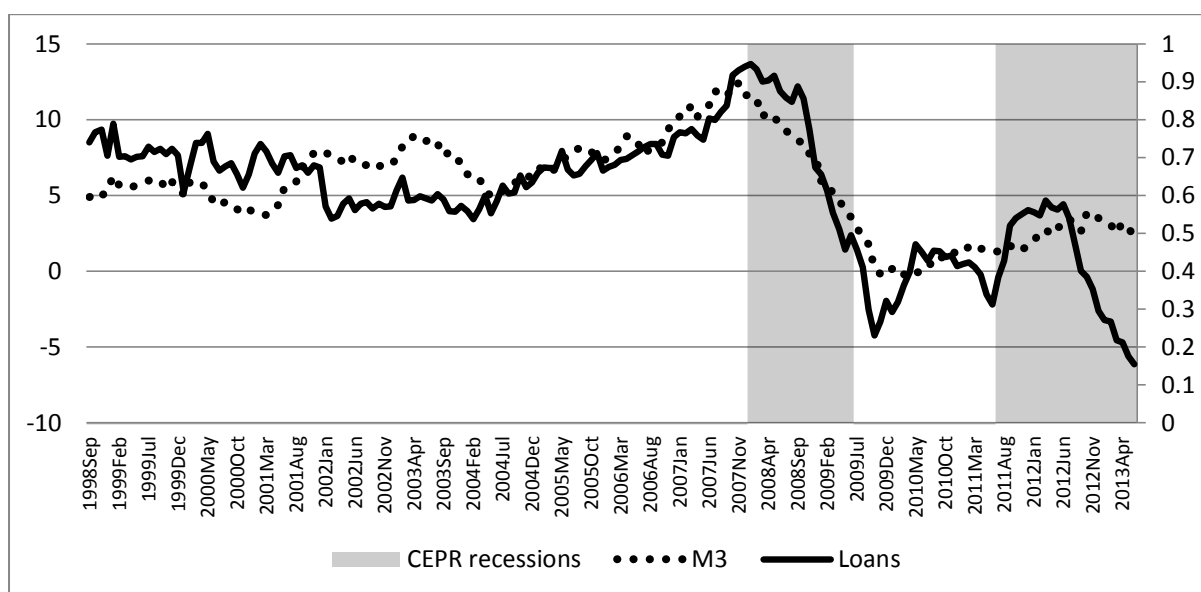


Figure 18: Money and credit. YoY growth rate of M3 and total loans in the Euro area. Source: ECB.

ECB action guaranteed funding to stressed institutions but, unlike in the first crisis, when this had an effect on the flow of loans⁹, in the second, it did not translate into a flow of credit to the real economy to the extent one would have expected given the performance of industrial production.

There are many possible explanations for this and a quantitative identification of its cause is beyond the scope of this paper. However, a conjecture can be formulated combining what we have seen about the stability of the size of the banks' balance sheet relative to GDP with data on the banks' capital to assets ratio. That ratio has also remained roughly constant over the period 2008-2012. Figure 19 compares the movements of banks' capital-asset ratios in the euro area and the US¹⁰.

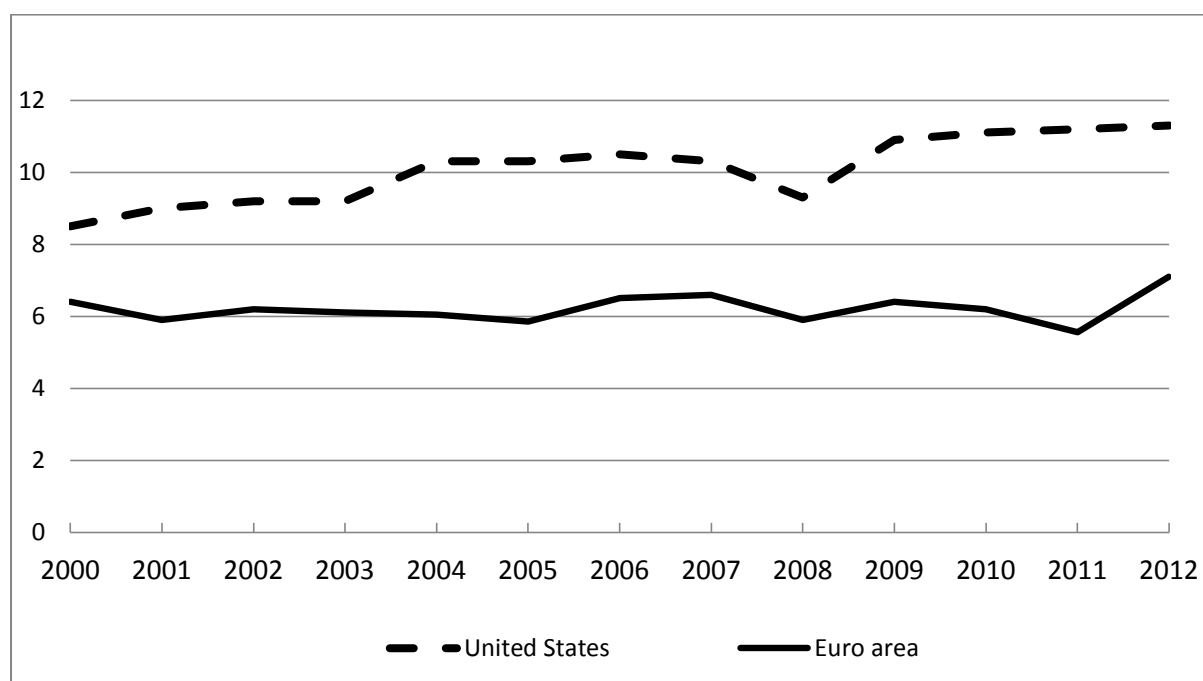


Figure 19: banks' capital to asset ratios (%). Source: World Bank

The overall capital-asset ratio of euro area banks has not only remained relatively constant since 2008 [it started to increase only after the second quarter of 2012], but is now much lower than in the US. US banks were recapitalized immediately after the financial crisis of 2007-08 while this was

⁹ For quantitative evidence on this point, see Giannone, Lenza, Pill and Reichlin 2012.

¹⁰ Bank capital to assets is the ratio of bank capital and reserves to total assets. Capital and reserves include funds contributed by owners, retained earnings, general and special reserves, provisions, and valuation adjustments. Capital includes tier 1 capital (paid-up shares and common stock), which is a common feature in all countries' banking systems, and total regulatory capital, which includes several specified types of subordinated debt instruments that need not be repaid if the funds are required to maintain minimum capital levels (these comprise tier 2 and tier 3 capital). Total assets include all nonfinancial and financial assets."

not the case in Europe where, in the absence of government action, ECB liquidity provision kept insolvent institutions alive.

In this context, the shift in asset composition away from loans and towards government bonds can be explained by at least three factors. First, those bonds could be used as collateral against ECB loans. Second, with the balkanization of the government bond market and the demand for safe assets which came with the second crisis, there was a pressure, in countries with stressed government finances, to convince banks to buy bonds issued by their own governments. Third, regulation may have played a role since, under Basel risk-weighted asset rules, holdings of government bonds require less capital than loans. Had a more aggressive and timely effort been made to recapitalize the euro area banks in the early stage of the global crisis, this paralysis of the banking system might have been avoided. Of course, as we recalled earlier, there are reasons while this was difficult in Europe. The size of individual banks with respect to the size of their national governments was a significant factor that made recapitalization via public money difficult, but this was not the only problem. Governance and structural factors (e.g., cross-shareholding arrangements typical in many euro area countries) were also obstacles to the initiation of a decisive process of recapitalization.

The mechanism that I have described is particularly harmful for the real economy if we consider that banks in the euro area account for around 80% of corporate debt financing. Contagion between sovereigns and banks is even more dangerous if there is financial integration in wholesale banking but not in retail banking, a bank-based financial system, and if banks play an important role in the intermediation of sovereign bonds.

While the ECB, by taking on a larger role in financial intermediation, prevented a collapse of the financial system, it then became progressively more ineffective since, by 2010, it was clear that euro area banks were affected not only by liquidity but also by solvency problems. The LTRO, which had been designed to address liquidity problems, became a vehicle for keeping insolvent institutions alive. In this context, liquidity provision could not possibly stimulate poorly capitalized institutions to lend.

This is especially true because, after 2010 tensions in the sovereign bond markets became pervasive and the interbank market became geographically disintegrated (see Section 3). In this context, and given the traditional role that euro area banks have played as intermediaries in the sovereign bond markets, euro area banks shifted the mix of their assets in favor of bonds issued by their own sovereigns which could be used as collateral against ECB loans.

Both factors, poor capitalization of banks and home bias in the sovereign bond market are the consequence of the combined solvency problems of banks and sovereigns. This issue, together with the balkanization of the financial system in the euro area, led in turn to two further problems which eventually impaired ECB action.

The first of these was that the monetary policy function of the central bank was undermined. Retail loan and deposit rates started diverging between core and periphery countries (Figure 20) as a consequence of the different creditworthiness of banks in the two areas. Since there is little scope

for arbitrage in the retail and corporate lending markets, this led to harsher financial conditions in the periphery and made it impossible for the ECB directly to influence those conditions.

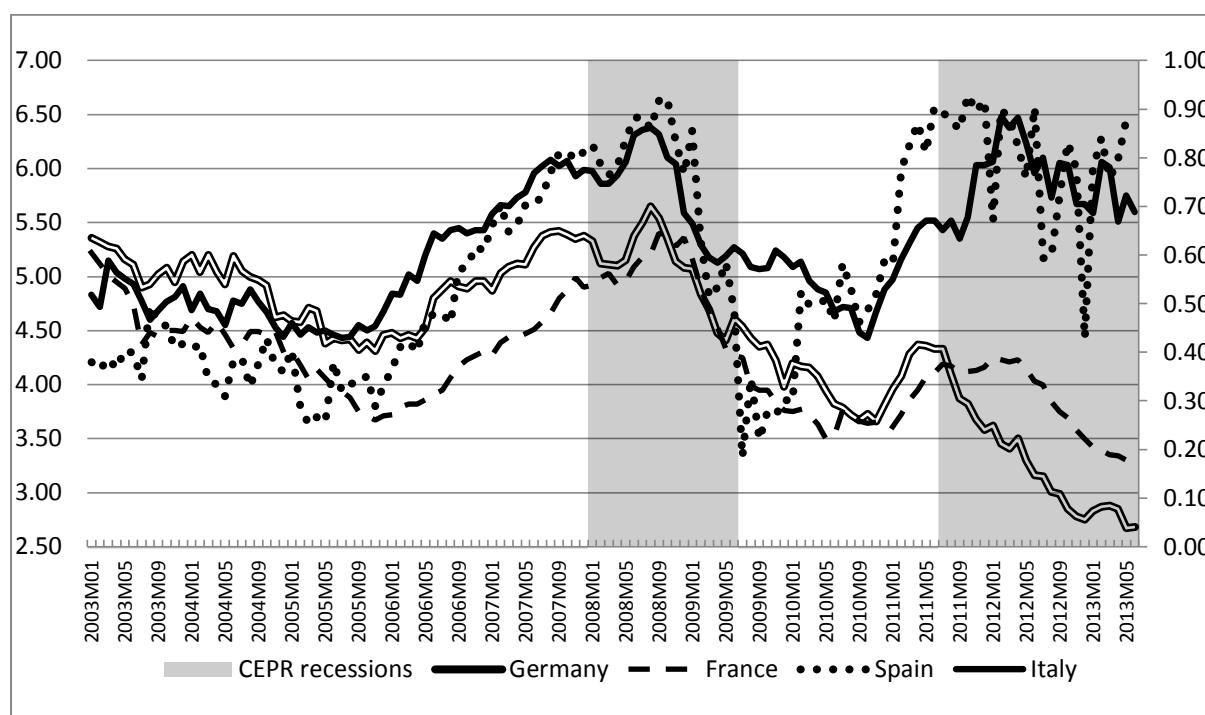


Figure 20: MFI interest rates on loans to non-financial corporations, new business. Maturity: over 5 years. Value: 1 million Euros or less. Source: Eurostat.

The second problem for the ECB has been that its role as intermediary in the interbank market has indirectly created a transfer from the weaker countries of the periphery to the stronger countries of the core. The safer countries have been allowed to extract a rent since the risks on their banks' balance sheets are transferred to the ECB (through repo funding) while their funding costs are kept low by the scarcity of safe counterparties. So, although the credit risks which the ECB has increasingly taken on are in principle borne by each member country in proportion to its GDP, the distribution of winners and losers is not clear as the safer European core has benefited from easy financial conditions. Bolton and Jeanne 2011 effectively illustrate this mechanism by means of a model and make the point that in a financially integrated market banks buy cross-border sovereign bonds to diversify risk but assume the risk of contagion in case of crisis. After the crisis there is an under-supply of safe government bonds and over-supply of risky bonds; consequently the safer countries extract a rent.

Conclusions

The aim of this paper has been to identify the nexus between ECB policy, banks' balance sheet dynamics and loans to the real economy during the two crises experienced by the euro area

economy since 2008. The question I addressed is why ECB non-standard monetary policies implemented during the period are associated with a relatively stable level of bank lending during the global recession and recovery of 2008-2010, but a dramatic decline in bank lending, beyond the decline in real economic activity and deposits, during the recession which started in 2011. This is despite the fact that ECB action through long term refinancing operations with banks has been forceful in both cases and even more aggressive during the second crisis.

The analysis of the central bank and banking sector balance sheets shows that there has been a progressive substitution of inter-bank funding by provision of central bank liquidity but no adjustment of capital ratios and of the size of their balance sheet in relation to GDP since the crisis. In the first recession, the change in composition of banks' assets and liabilities was a decline in the non-domestic component and relative stability in the domestic component, including loans. Banks, even if under-capitalized, kept the loans in line with industrial production (which experienced a similar decline in growth). In the second recession, the asset side of the banks' balance sheet has seen a decline in loans which is unusual even accounting for weak economic activity and is not in line with the behaviour of deposits. At the same time banks have increased their holdings of domestic government bonds and seen a drop in non-domestic securities in general.

This narrative suggests a few conjectures on the role of the financial sector in the second euro area recession and on the effectiveness of ECB policies.

The first crisis had the characteristics of a classic run in the inter-bank market with a consequent shortage of liquidity. The ECB's policy in response was successful. However, the same tools were not appropriate to deal with solvency issues. Given the absence of tools at the European level to deal with solvency we have seen some banks becoming dependent on ECB liquidity provision, as well as a shift from loans to government bonds partly to acquire collateral to be used in repos with the ECB. The fact that euro area banks, unlike those in the US, were not recapitalized in the first phase of the crisis is likely to be an important explanatory factor in relation to the second recession in the euro area.

In this paper we have purposely considered the aggregate euro area economy rather than single countries first, because, the mandate of the ECB is to stabilize the aggregate and, secondly, because the dynamics of the euro area in aggregate can be more meaningfully compared with the US than those of a single country in the union. However, the home bias in government bond investments by banks has the important implication that banks in different countries have different risks associated with them. This has led to a cross-country heterogeneity in retail interest rates which has progressively made monetary policy with respect to the euro area periphery ineffective and generated a vicious cycle between bank weakness, sovereign debt and recession.

This narrative suggests also that the four characteristics of the euro area financial system – bank dominated corporate finance, dependence on wholesale funding markets, cross-border financial integration in wholesale but not in retail, and the key role of banks as intermediaries in the government bond markets – make the system sensitive to shocks. This fragility comes from informational asymmetries which lead to counterparty risks and contagion between bad and good

institutions, to sudden interruptions in cross-border funding which in turn lead to a close correlation between sovereign and bank risks. To address these weaknesses the euro area needs tools to deal with underlying solvency problems and with the scarcity of safe assets which is the consequence of the financial crisis. The central bank, acting through liquidity provision tools, cannot possibly solve this problem alone and may actually make it worse.

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Discussion

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Reichlin is to be congratulated on writing this excellent paper which provides a new look at the evidence of the European recessions following the Lehman event. I would summarize her contribution in her own words:

“First, unlike the Fed, (...) or the Bank of England (...) the ECB’s non-standard policies mainly took the form of liquidity provision to banks. Secondly, and contrary to what is sometimes said, the ECB was relatively aggressive. As a consequence of these policies the size of the euro-system balance sheet, relative to GDP, is now larger than that of the US Federal Reserve (...) This failure to address the problem was partly due to the fact that there were no tools for crisis resolution at the euro area level, while the size of many banks relative to the size of their home country’s state finances made it impossible for those states to bail them out. But it was also partly due to a collective denial of the problem. As we will see later, euro-area banks, unlike those in the US, did not start deleveraging or decreasing the size of their balance sheets relative to GDP until recently”.

Although I agree with almost all of Reichlin’s points in her paper, I tend to think that we should look for the *cause* of the crisis (and thus the efficacy of tools at our disposal) elsewhere. Specifically, preceding the Lehman event and the crisis there has been an expansion of bank credit at low interest rates for many years. The expansion of credit and the low interest rates favored long-term investment which, subsequently, proved to be unprofitable given the real demand for capital and consumer goods. As I have explored elsewhere (Tsionas, 2013) this is consistent with the classical Austrian School’s explanation of crises and depressions. As Mises put it:

“In issuing fiduciary media, by which I mean bank notes without gold backing or current accounts which are not entirely backed by gold reserves, the banks are in a position to expand credit considerably. The creation of these additional fiduciary media permits them to extend credit well beyond the limit set by their own assets and by the funds entrusted to them by their clients. They intervene on the market in this case as “suppliers” of additional created, created by themselves, and they thus produce a lowering of the rate of interest, which falls below the level at which it would have been without their intervention. The lowering of the rate of interest stimulates economic activity. Projects which would not have been thought “profitable” if the rate of interest had not been influenced by the manipulations of the banks, and which, therefore, would not have been undertaken, are nevertheless found “profitable” and can be initiated. The more active state of business leads to increased demand for production and the wages of labor rise, and the increase in wages leads, in turn, to an increase in prices of consumption goods. If the banks were to refrain from any further extension of credit and limited themselves to what they had already done, the boom would rapidly halt. But the banks do not deflect from their course of action; they continue to expand credit on a larger and larger scale, and prices and wages correspondingly continue to rise. This upward movement could not, however, continue indefinitely. The material means of production and the labor available have not increased; all that has increased is the quantity of the fiduciary media which can play the same role as money in the circulation of goods. The means of production and labor which have been

diverted to the new enterprises have had to be taken away from other enterprises. Society is not sufficiently rich to permit the creation of new enterprises without taking anything away from other enterprises. As long as the expansion of credit is continued this will not be noticed, but this extension cannot be pushed indefinitely. For if an attempt were made to prevent the sudden halt of the upward movement (and the collapse of prices which would result) by creating more and more credit, a continuous and even more rapid increase of prices would result.” (Mises et al, 1996).

The crisis erupted in 2007 and was aggravated by the Lehman event. The Lehman event did not act as a cause of the crisis and subsequent recessions so the real causes have to be looked for in the real sector. In my view, the expansion of credit long before the crisis erupted created the conditions for malinvestment and an allocation of resources that was not consistent with the distribution of demand among the various categories of supply. The liquidation of investment that followed as a corrective measure, threw the banking sector into an unprecedented distress which we witness even today in the European south. Any interpretation of the crisis that does not account for the huge distortions of allocation created by years of artificially low interest rates is not convincing. Analyzing only the banking sector in isolation is also not convincing.

One of Reichlin’s important contributions in this paper is the discovery of a second recession in 2010-2011 from which the European economy recovers only as these lines are written. How is one to explain the second recession? From Figure 18 in the paper we can see clearly what was happening in terms of credit and money. Up to 2007 credit has been expanding at an average rate of 7% per year and accelerated after 2003 reaching a maximum of just below 14% by September of 2008. By July 2009 credit has been expanding although at a significantly lower pace. Between July 2011 and August 2012 credit has been increasing again reaching a maximum of 5%. It is only after November 2012 that credit expansion is halted ending up in -5% per year in April 2013. After October 2010 money expansion has been positive throughout the period! It is indeed true as Reichlin argues that the ECB has been quite aggressive in terms of monetary policy. However, the evidence in terms of credit growth is even worse, as it shows that one of the major causes of the crisis has not been accounted for in the policies of the ECB. As Reichlin writes:

“[R]egulation may have played a role since, under Basel risk-weighted asset rules, holdings of government bonds require less capital than loans. Had a more aggressive and timely effort been made to recapitalize the euro area banks in the early stage of the global crisis, this paralysis of the banking system might have been avoided”.

I will not disagree with this recommendation although I have to point out that economists are somewhat selective in their recommendations on regulation. They argue against price controls *with the exception* of the interest rate and they are against regulation *with the exception* of rescuing banks. These exceptions can hardly be justified. What most economists fear as a collapse of the banking

sector is, in reality, not much beyond the collapse of projects that turned out unprofitable but were financed nevertheless by the banks. When banks turned to buying domestic bonds that was considered a healthy decision but not enough: so recapitalization emerged as the solution following the American practice. But at whose expense, and why? Why shouldn't firms in the private sector be "recapitalized" or even the consumers? What is so special about banks in this context that deserves regulation after the eruption of a crisis? How does this affect the reputation of banks and what ensures that the same mistakes will not be repeated in the future?

Although these are considerations that must be addressed, at least in my opinion, there is very little to find in the literature.

"While the ECB, by taking on a larger role in financial intermediation, prevented a collapse of the financial system, it then became progressively more ineffective since, by 2010, it was clear that euro area banks were affected not only by liquidity but also by solvency problems. The LTRO, which had been designed to address liquidity problems, became a vehicle for keeping insolvent institutions alive. In this context, liquidity provision could not possibly stimulate poorly capitalized institutions to lend."

It is, indeed, surprising how the ECB did not diagnose the solvency problems earlier as the cause of the insolvency was rather clear and, of course, had very little to do with the sovereign issue (although the two issues are not totally unrelated). What should one expect from a credit expansion averaging between 5 and 10% since 2003 at low interest rates? Keep the price of a commodity artificially low, lend at unprecedented rates and increase money supply aggressively. What will happen in the market of this commodity is absolutely clear yet many economists will not admit.

I also agree with Reichlin's point that:

"in a financially integrated market banks buy cross-border sovereign bonds to diversify risk but assume the risk of contagion in case of crisis. After the crisis there is an under-supply of safe government bonds and over-supply of risky bonds; consequently the safer countries extract a rent."

Implicitly she suggests that these rents can, somehow, be used to change the distribution of risks in the Eurozone more in accordance with each country's GDP. I am not, in principle, against an ethical argument of this sort (ethical because a country's GDP share does not mean anything). The distribution of risks, however, has to be related to the distribution of credit and monetary expansion and, in turn, to the distribution of resources. Without such evidence we can say very little. Indeed, we cannot convincingly argue that:

“Both factors, poor capitalization of banks and home bias in the sovereign bond market are the consequence of the combined solvency problems of banks and sovereigns. This issue, together with the balkanization of the financial system in the euro area, led in turn to two further problems which eventually impaired ECB action. The first of these was that the monetary policy function of the central bank was undermined. Retail loan and deposit rates started diverging between core and periphery countries (...) The second problem for the ECB has been that its role as intermediary in the interbank market has indirectly created a transfer from the weaker countries of the periphery to the stronger countries of the core”.

Indeed, poor capitalization and home bias in the sovereign bond market are consequences of solvency problems. But what caused solvency problems to begin with? Wrong investment decisions to put it in simple terms. What can trigger wrong investment decisions in markets? The fact that prices are no longer signals of the distributions of resources and demand and the fact that there is excessive regulation. On another note, we have to infer as Reichlin does that monetary expansion has been relatively inefficient judging by the result—the second recession, that is. But what makes us so sure that money and credit expansion just before the second recession, in fact, *caused* it? Was the aggressive behavior of the ECB based on the wrong principles of a somewhat naïve old-school Keynesian prescription?

The ECB relies on commercial banks to exercise its role; no matter how this role is to be understood. It would have been unthinkable to act in a different way other than recapitalizing the banks or providing enough liquidity. One wonders then if alternative measures could have been taken—no matter what the Fed did or did not do as it has the same relationships to US banks. At whose expense is recapitalization or more liquidity? How do we know rates of interest are close to equilibrium values or far from it under conditions of regulation and what wise regulation should have been? Can “ineffective” monetary and credit policies be, in fact, the *cause* of the recession instead of being just “effective” or “ineffective”?

I think these are central questions to be addressed—apparently in the future. Without understanding the answers to these questions we cannot hope to cope with the sacred cows of “financial intermediation” and what they really cause not only to the economy but to the life of millions of people in different European nations. Greece, for example, is still facing grave economic dangers with an outstanding public debt of 321 billion euros. This has been accumulated, no doubt, over many years starting from the early 1980s. The economic decisions of many Greek governments have been unwise to say the least. Reichlin points out, rightly, and documents it very well, that the Eurozone’s GDP as a whole has gone down by an unprecedented amount. Greece in particular has lost more than a quarter of its GDP relative to 2007. What policies do we have to revert the trends and what should be done?

The Eurozone seems to recover in the absence of any specific policies—other than the ones that most likely caused the second recession that Reichlin describes so masterfully. Things in the European south are, however, quite different as the recession continues. Interest rates do not seem to move in the right direction (which is upwards, *not* downwards; see Figure 20). Let us look at Reichlin’s evidence:

“Remarkably, during the first recession, the relationship between loans to non- financial corporations and industrial production was stable. In Giannone, Lenza and Reichlin, 2013 we showed this point formally by estimating that, conditional on the observed decline of industrial production during the 2008-2010 sample, the decline in loans is not abnormal [... But] from 2011 to 2012 the rate of growth of loans was not only negative but also more strongly so than that of industrial production”.

To put it in different words: *“Most importantly while loans to corporates were relatively resilient during the first recession, they have been weaker than the data on the real economy data would have led us to expect during the second recession. This is a remarkable fact, bearing in mind the large size of the ECB liquidity operations”.* One can think that this is a natural reaction given the risk distributions and the lack of funds. However, it would have been wrong to think that this, in fact, was a major cause of the second recession. True, Reichlin does not argue that and it is not an important piece in her analysis of sovereign and bank risks, but it is implicit in her discussion, at least according to my reading. Reichlin seems to imply that the second recession was different compared to the first because loans *“have been weaker than the data on the real economy data would have led us to expect”*.

I am not sure if Reichlin intends this as an explanation or simply as an outcome of the crisis / recessions. It seems to me, however, that there is some “housekeeping” going on in the Eurozone’s banking system in terms of risk exposure. Annual growth rates of loans begin to decrease in November 2012—or, perhaps, somewhat earlier in July. This can only be understood as an adjustment following the second recession and it is not puzzling altogether *even* in the face of evidence of changing correlations with the real economy (industrial production for example). But in order to uncover the causes of the second depression we have to look for developments during 2009 or 2010, not in the subsequent reduction of loans. The evidence in Figure 18 shows that there has been some credit expansion even during July 2009-August 2011 when credit growth expanded to reach 5% in mid-2012. This evidence, along with the positive rate of growth of money cannot be ignored. In fact it is an explanation and a cause of the subsequent second recession confirming earlier evidence that credit expansion at overwhelming rates since 2003 caused, in fact, the adjustments of malinvestment during 2007-2009. As Mises wrote:

“It has often been suggested to “stimulate” economic activity and to “prime the pump” by recourse to a new extension of credit which would allow the depression to be ended and bring about a recovery or at least a return to normal conditions; the advocates of this method forget, however, that even though it might overcome the difficulties of the moment, it will certainly produce a worse situation in a not too distant future.” (Mises et al, 1996).

Once again, I have to congratulate Reichlin on producing a masterful paper on the stylized facts of the recent crisis. The paper is likely to become a standard reference in the field. Similarly, I hope that this will trigger the blossoming of research in credit and recessions.

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