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the financial and sovereign debt crises

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Assessing the ECB intervention during the financial and sovereign debt crises

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Key words: European Central Bank, unconventional monetary policy, liquidity provision, financial crisis, sovereign debt crisis

ABSTRACT:

The impact of the recent global financial crisis on the Euro-area economy necessitated reconsidering the role of the European Central Bank in such economic circumstances. Being committed to the provision of price stability, the ECB has seen the transmission mechanism of its monetary policy to the real economy compromised because of the system malfunctioning conveyed by the financial crisis. The aim of this paper is, first of all, to give a descriptive analysis of the ECB monetary policy as a consequence of the global financial crisis and its fiscal aftermath in the Euro-area. Secondly, we will analyse how banks are using the liquidity provided by the ECB relatively to its non-standard measures, that is identifying how much it is used for the purchase of Euro-area government bonds and how much is, in turn, lent to the private sector. Our hypothesis is that the crisis lowers the power for the ECB to boost the economy via providing banks with the liquidity that would made them expand their lending activity. Furthermore, in deciding whether to purchase Euro-area governments' bonds, banks might be influenced by the ECB balance sheet expansion to the extent that this operation is put in act in order to implement the ECB secondary market bond purchase, rather than by the mere liquidity provision. We will also briefly discuss the ways the ECB could use its resources to restore confidence and demand whether it intervenes through sterilized operations or implementing unsterilized measures.

Assessing the ECB intervention during the financial and sovereign debt crises

Gianmarco Costanzo

1. Introduction

The impact of the recent global financial crisis on the Euro-area economy necessitated reconsidering the role of the European Central Bank in such economic circumstances. Being committed to the provision of price stability, the ECB has seen the transmission mechanism of its monetary policy to the real economy compromised because of the system malfunctioning conveyed by the financial crisis. Examples are the banking sector liquidity issues and the high fragmentation of financial markets which has been observed, among other effects, in:

- disconnection between ECB key interest rates and inter-banking lending activity;
- unjustified, as the ECB defines them, high yields on certain securities, such as Spanish or Italian government bonds¹.

Non-standard instruments have been adopted because of these reasons and, so far, have proved to be suitable in avoiding a more severe banking sector crisis. Despite the “easing” quality of non-standard measures such as unlimited liquidity provision at low fixed rates, the inflation rate has been kept at the desired level, in average, of around 2%², which is the primary goal of the ECB. However, financial markets are still fragmented and, relatively to the secondary objective of full employment, much has still to be done. The high level of unemployment shows the severity of the crisis, which has developed into a recession in a few Euro-area countries. It is necessary, in any case, to underline that the ECB has been rather committed to providing stability to the financial system in order to avoid the eventual even more dangerous effects on the economy of the Euro-area if the ECB lost its power to intervene effectively.

The Stability and Growth Pact, signed by European Union Members, requires governments to run their fiscal policies within the limits of a maximum of 3% deficit-to-GDP ratio and 60% debt-to-GDP ratio. However, most governments of the Euro-area did not comply with these provisions during non-crisis time and, what is more, the economic downturn (referred to as “The Great Recession”³) conveyed by the financial crisis have made fiscal imbalances and public debt even larger, causing these countries to face severe consequences such as high levels of interests on debt that increase the risk of default and therefore borrowing costs. The subsequent sovereign debt crisis in some Euro-area countries have called for fiscal policy makers to intervene through fast and tough solutions, namely the austerity plans mainly dictated by the German Government (being Germany the first economy and the issuer of risk-free government bonds of the Euro-area, and the

1 Mario Draghi, “Introductory Statement To The Press Conference”, 6 September 2012

2 Mario Draghi, “Introductory Statement To The Press Conference” , 4 April 2012

3 Günter Coenen, Roland Straub and Mathias Trabandt, “Fiscal Policy And The Great Recession In The Euro Area”, ECB Working Paper Series No 1429 (2012)

Deutsche Bundesbank -its central bank- also the largest creditor, which means the one who might lose the most from a collapse of the system)⁴.

In such a scenario, in which the austerity plans are not giving the hoped results in terms of *spread* and of swift deficit reduction⁵, what should be the role of the ECB? Should the ECB try to have a strong impact on the government bonds market? Part of the public opinion is calling for the ECB to act as a “lender of last resort”, others believe that such actions would dissuade governments from committing to fiscal sustainability, and therefore the ECB should care the most of the banking sector liquidity issue. Furthermore, as provided by the Treaty on the Functioning of the European Union, the ECB cannot buy bonds issued in the primary market (any form of monetary financing of public debt or deficit is prohibited, plus the “no-bail-out” clause⁶). What the cited treaty provides, however, doesn’t affect the fact that the ECB can be an actor in the secondary market of government bonds, thus legitimating the ECB non-standard measures adopted under the Securities Market Program (SMP) and the most recently announced Outright Monetary Transaction (OMT), both aiming at protecting the right functioning of the monetary policy transmission mechanism by addressing the malfunctioning of the government bonds market.

The aim of this paper is, first of all, to provide a descriptive analysis of the ECB reaction to the global financial crisis and its fiscal aftermath. Secondly, we will analyse how MFI (abbreviation hereafter to indicate Monetary Financial Institutions, e.g. banks, of the Euro-area, excluding National Central Banks) are using the credit provided by the ECB relatively to its non-standard measures, that is identifying how much it is used for the purchase of Euro-area government bonds and how much is, in turn, lent to the private sector. Theoretically, both uses would help accelerating the process of coming out of the recession:

- purchase of bonds lowers the price of these obligations and therefore borrowing costs for governments (boosting the economy via government spending becoming cheaper), making also possible a faster, and desired, termination of the austerity plans and subsequent consequences;
- credit to the private sector (households and firms) would help boosting consumption and investments, therefore the national income.

We will also briefly discuss the ways the ECB could use its resources to restore confidence and demand whether it intervenes through sterilized operations or implementing unsterilized (e.g. “quantitative easing”) measures.

2. ECB monetary policy responses to the global financial crisis

The mandate of the European Central Bank is to keep a inflation rate at the stable level of 2%. In order to reach this primary goal the ECB sets its key interest rates on deposits, long term refinancing operations and marginal lending. In turn these rates influence the decisions by banks and, therefore, the inter-bank Euribor rate. The mechanism, known as the interest rate channel,

4 David C. Unger, New York Times editorial “Inside the Euro Zone, Bracing for Austerity” December 2011

5 Graph 8 and 6, respectively, of this issue (Source Bloomberg and ECB)

6 Art. 123, 124 and 125 of the “Treaty on the Functioning of the European Union” (TFEU)

leads finally to the rates given to the private sector (rates which include inevitably, in the computation, the risk premium, or the specific credit score, of the final household or firm) for consumption and investment purposes. The ECB thus controls the supply of money and, over the medium term after the transmission mechanism is concluded, the price level. Other than that, the ECB monetary policy framework includes the implementation of the desired monetary policy stance through open market operation, which is related to liquidity measures⁷.

However, during a financial crisis and consequent compromised banking sector's lending to households and firms, the transmission mechanism finds some very dangerous obstacles which might affect the capability of a central bank to attain its goals of price stability. As previously stated, these obstacles are mainly related to liquidity issues of MFI and fragmented financial markets. Banks, during a global financial crisis, see their rating downgraded by agencies and, as a consequence, their access to capital is undermined. What is more, that part of their balances which is represented by governments bonds of those countries which are facing a risk of insolvency makes them even more vulnerable (deterioration of their balance sheets). In addition, the manifestation of the financial crisis made banks less willing to lend between themselves, thus favouring a disconnection between core interest rates of the ECB and inter-bank rates.

The transmission mechanism of the monetary policy, employing just standard measures of setting core interest rates, is not sufficient. The ECB has adopted some non-standard measures, which can be summarized in:

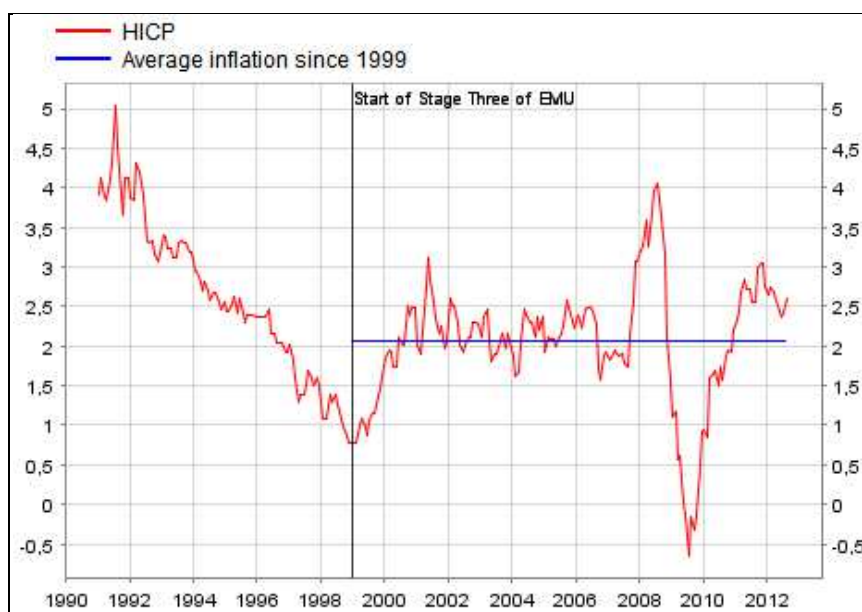
- additional liquidity providing operations to credit institutions to facilitate refinancing between themselves;
- fixed-rate full-allotment procedure, which substitutes the bid mechanism through which banks used to make refinancing operation, thus allowing the banking sector to determine, relatively to its-own demand, the liquidity provided by the ECB to the inter-bank market;
- expansion of the list of eligible collateral accepted in refinancing operations, making easier for credit institutions to access credit;
- fixed-rate full-allotment also in US dollars, thanks to swap agreements with the US *Federal Reserve* (US central bank)⁸.

These measures have helped cooling the system, preventing a collapse of the banking sector in the Euro-area during the global financial crisis. It is clear that, being price stability its primary goal, the ECB cares first of all of the safeguard of the interest rate channel mechanism, making sure MFI meet their liquidity needs. The result is an average inflation approximately close to the 2% target level even during the period of financial turmoil.

7 Hanspeter K. Scheller, "The European Central Bank - History, Role And Functions" second revised edition, ECB Publication (2006)

8 José Manuel González-Páramo, "The ECB's Non-standard Measures during the Current Financial Crisis", March 2011

Graph 1: Euro-area Inflation Rate Graph as shown by the ECB website

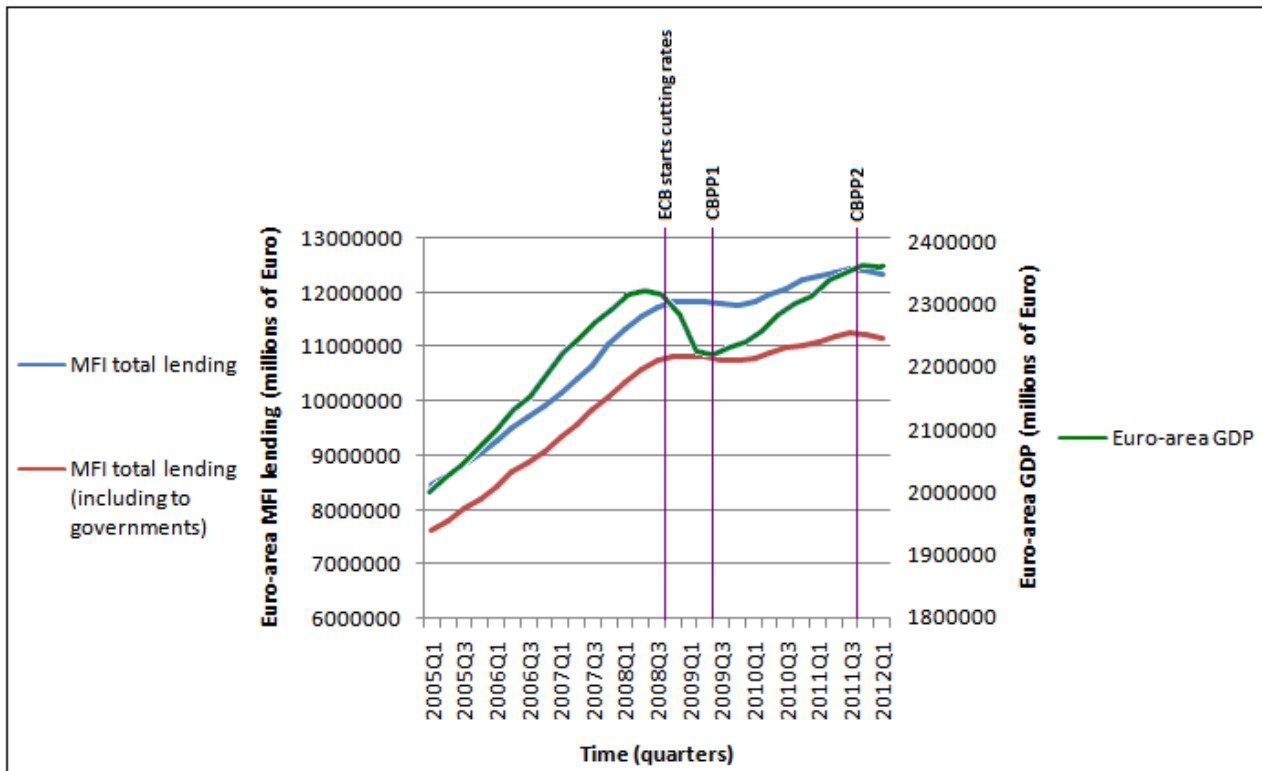


Source: ECB, Monetary policy, available at: <http://www.ecb.int/mopo/html/index.en.html>

From the analysis of the graph we can observe a inflationary pressure preceding the bubble burst (in September 2008) and then a deep deflationary pressure which called for bolder action of the ECB in lowering key interest rates, which results can be found in the following (since the 3rd quarter of 2009) recovery of price levels that leads to the more recent price stability. However, considering the severity of the financial crisis and subsequent economic recession, the results observable in the inflation level graph are appreciable, as the ECB states and highlights in its graph (the horizontal blue line at slightly more than 2% level, on average, since the Stage three of EMU).

The recovery has been made possible also by an innovative non-standard measure of the ECB, which was the “Covered Bond Purchase Programme” (CBPP1). The ECB has purchased €55 billion worth of covered bonds starting from July 2009. Such programme had as an objective, first of all, to make it easier funding credit institutions and firms and, as a consequence, encouraging banks to expand their lending to the private sector, thus boosting the economy through investments and consumption. In order to determine the results obtained under the programme we analyse graphically the effects that it had relatively to the MFI lending activity (Graph 2). We can observe also the effects of the MFI total lending on Euro-area GDP, and vice versa, recovering demand on borrowing by the private sector.

Graph 2: Euro-area MFI total lending and Euro-area GDP⁹



Source: own presentation based on ECB data.

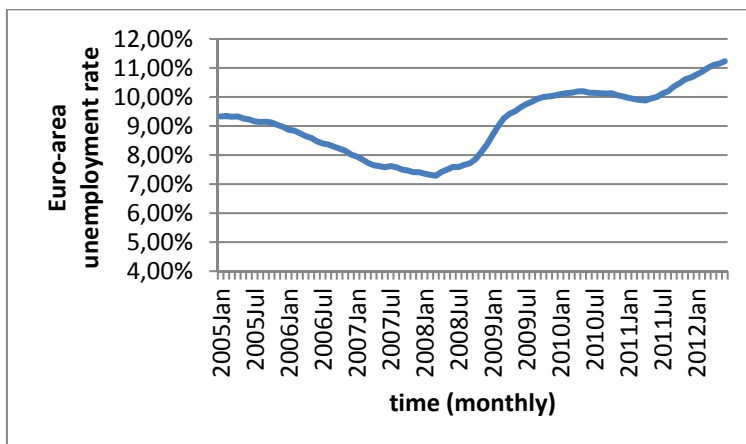
The graph shows the total lending by MFI, including and excluding loans to governments (in this last case, loans to the private sector and other financial institutions). First of all, it is possible to observe that the lending activity to general governments is parallel to lending to the private sector. Secondly, we find a stable growth prior to the beginning of financial turmoil of the years 2007/2008. During the global financial crisis banks started to lend with a slower pace to firms and household, till a period of stop from August 2008 to around March 2010. Especially starting from the second half of 2008 the Euro-area suffered from a deep contraction of its GDP (effects of the global financial crisis). The slight increase of credit to households and firms in the period 1st quarter 2010/ 1th quarter 2011 might reflect the impact of the CBPP1 and other non-standard measures related to low interest rates, as well as recovered aggregate demand. The catching up of MFI lending in 2010 is, indeed, accompanied by a recovery of the Euro-area economy in the same period (recovery started already in the last part of 2009). However, this is followed by a slight reduction and further stop to the expansion of credit to the private sector. The current credit crunch might have slowed the GDP growth. In turn, a lower demand translates again into lower borrowing by the private sector.

If we consider the ECB monetary policy being successful in keeping a desired level of inflation, it is at least questionable, as it was said previously, that it has succeeded relatively to the goal of low unemployment and economic prosperity. Surely the Euro-area GDP partially recovered after the effects of the global financial crisis. However, since mid 2011 the Euro-area economy is clearly in a situation of stagnation, being the GDP growth frozen for a prolonged period in some of its member States. Falling firms' revenues and bankruptcies have as a consequence the unemployment rate in a

⁹ Personal graphical elaboration, (Source ECB)

phase of steep increase (as shown in the Graph 3). High unemployment in a period of recession makes a recovery even tougher.

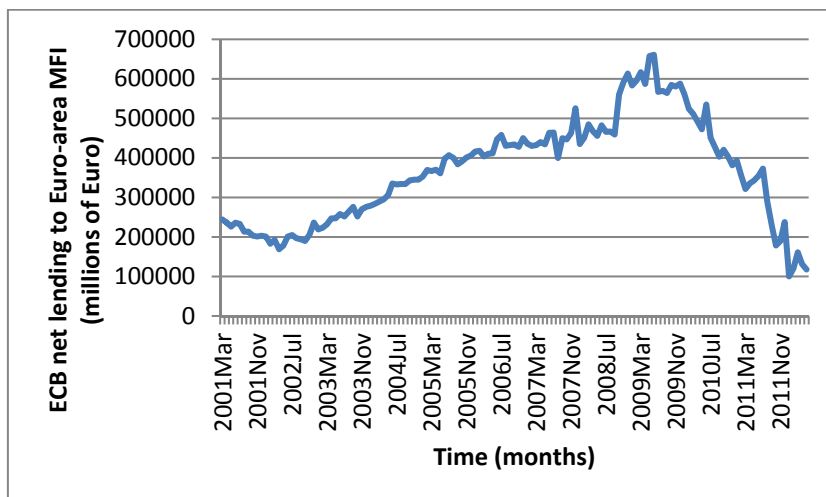
Graph 3: Euro-area Unemployment Rate



Source: own presentation based on ECB data

The monetary policy of the ECB since the global financial crisis has been focused on a strong reduction of its key interest rates. Such low rates, and strong expansion of the ECB balance sheet items put in place in order to obtain the high lending desired¹⁰, is reflected into an expansion of lending activity to banks by the ECB. However, from one hand MFI borrow more from the ECB but, on the other hand, deposit it back even though rates on deposits have been very low, thus leading to a decreased net lending to banks (as shown in the Graph 5).

Graph 4: ECB net lending to Euro-area MFI



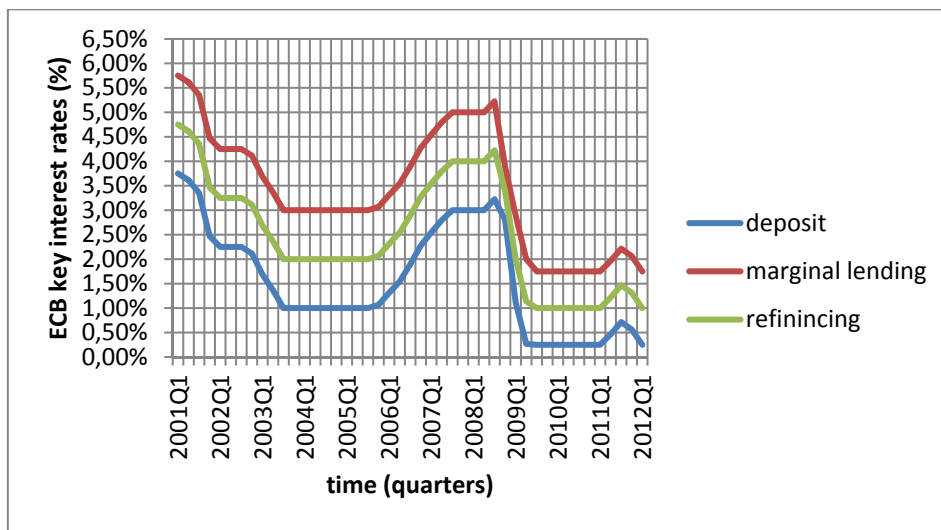
Source: own presentation based on ECB “Consolidated Financial Statement of the Eurosystem”

Again, before the global financial crisis we observe a stable growth of net lending to banks in the Euro-area. Between the end of 2007, 3rd quarter 2008 a decline in net lending might be attributed to the steep increase of interest rates on marginal lending charged by the ECB. What follows is a period of strong increase, till the 3rd quarter of 2009, during a period in which the ECB lowered its

10 For the ECB balance sheet items expansion see Graph 10 of this paper (Source ECB)

rates. Thereafter a strong decline of net lending is backed by increasing deposits by banks at the ECB. It is, however, arguable that ECB lending activity to banks, and accepting the amount lent as deposit, is a substitute to inter-bank lending, which has been affected since the financial crisis. Starting from July 11th 2012 the rate on deposits is at the 0% level (0.75% on refinancing and 1.5% on marginal lending), which implies that if the ECB is to lower more its key interest rates and keep the 0.75% gap between them, the rate on deposit might be lowered under the so called “Zero Lower Bound”¹¹, which means that MFI would have to pay in order to deposit at the ECB deposit facility. Such hypothesis is rather improbable.

Graph 5: ECB Key Interest Rates



Source: own presentation based on ECB data

The ECB has seemingly lost its power to effectively determine the amount of credit given to households and firms in order to offset the recession¹². In such a contest we need to include also the fact that individuals and firms, in a period of economic recession, worsen their credit score, are insolvent, cannot pay checks, employees made redundant that cannot repay loans and so on. Their access to credit is, as it is for banks to capital, compromised, thus making an eventual recovery by boosting investments and consumption via credit expansion very difficult. What is more, such economic circumstances of uncertainty, rising taxes (as governments are doing in order to reduce their deficits) and high unemployment make the aggregate demand shrink. A second covered bond programme (CBPP2) was launched in November 2011, with the declared aim of helping reach price stability. However, the programme is not completed at the time of the writing of this paper (just around €14 billion worth of bonds purchased by the ECB¹³, out of the total of €40 billion set by the programme until October 2012), therefore it is not possible to observe the exact effects.

11 Sandra Gomes (et al), “Global Policy At The Zero Lower Bound In A Large-Scale DSGE Model” ECB Working Paper Series No 1254 (2010)

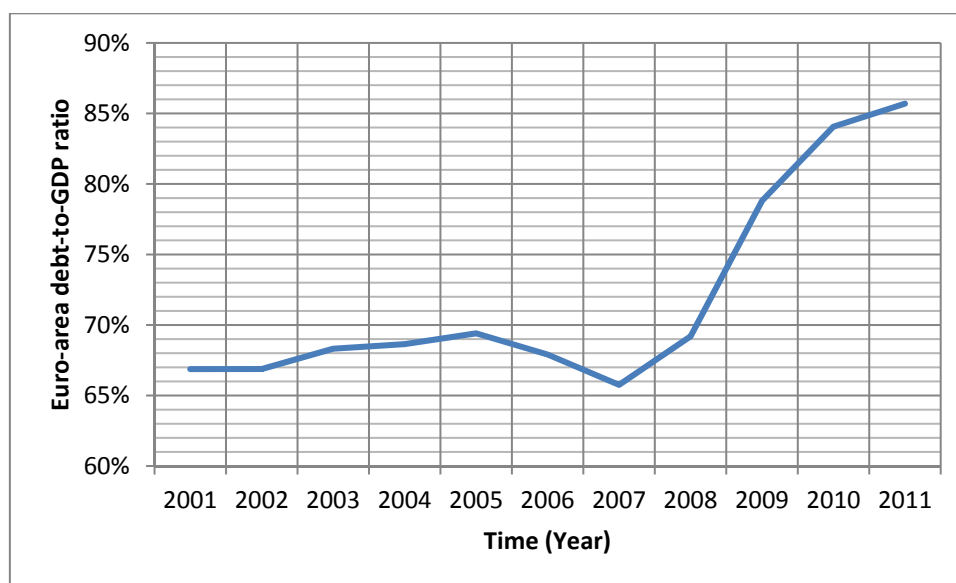
12 See Graph 2 of this paper (Source ECB)

13 As of August 2012 (Source ECB)

3. ECB responses to the sovereign debt crisis

The Euro-area debt-to-GDP ratio has steeply increased since the global financial crisis (Graph 6). Higher debt-to-GDP ratio during crisis time is related mainly to contracting income which causes smaller taxes collected. As the economy is in stagnation the level of sovereign debt relatively to GDP increases because of the consequent higher government deficits. Furthermore, it is necessary to add up the costs that a higher unemployment level generates on a government balance.

Graph 6: Euro-area debt-to-GDP ratio



Source: own presentation based on ECB data

We can count 3 factors that are of great concern for the ECB:

- the possibility of default of one or more of the Euro-area member State and following consequences on the persistence of the Euro itself;
- the fiscal consolidation issue of Euro-area governments, which called for austerity measures in order to quickly reduce deficits in such a hazardous situation of debt-to-GDP ratio/economic growth for these countries;
- what the ECB call “unjustified” high yields on certain government bonds, that sum up in the issue of the financial market fragmentation.

Daniel Gros¹⁴ employs the following argument (shortly summarised):

Governments’ high level of public debt can be sustainable only if the yield to pay is low. What is more, if markets believe that those countries in difficulty can repay their public debt, then they are likely to do so, thanks to lower risk premium that implies lower borrowing costs. Nevertheless, it is valid the opposite, if they are considered to be more exposed to insolvency, then subsequent higher interests on public debt would make governments more likely to default (as if in a self-fulfilling prophecy, ed.). What is more, if

¹⁴ Daniel Gros, “Speculative Attacks Within Or Outside A Monetary Union: Default Versus Inflation (What To Do Today)”, CEPS Policy Briefs (2011)

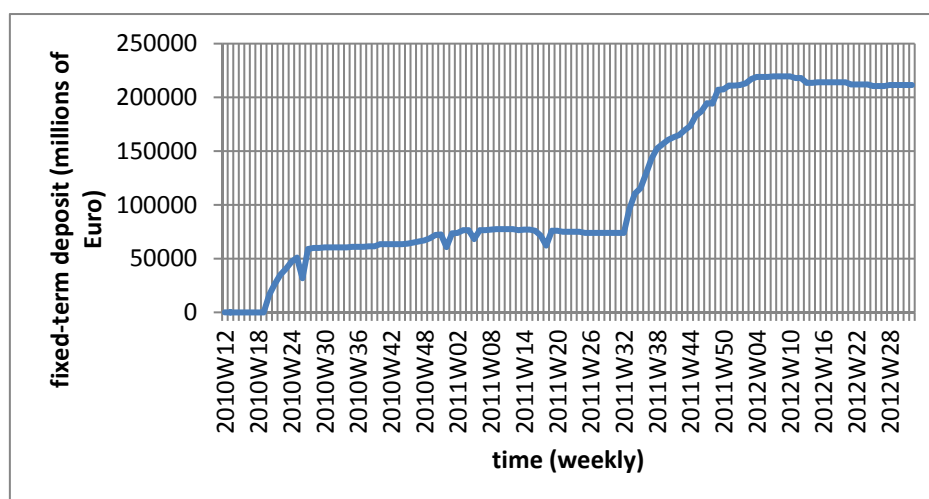
the yield to pay is higher than the growth ratio of GDP, the debt-to-GDP ratio will continue to increase, unless a country runs a primary surplus. The global financial crisis has brought about lack of liquidity, both in sovereign and banking system (which made agencies to lower the rating for government bonds, and banks, in some Euro-area countries, ed.). Outside a monetary union the national central bank could provide the liquidity needed to keep the government solvent in the short run, as occurred, for example, in the Italian past history, when the Banca d'Italia (Italian central bank) could inflate away the value of the public debt. Within the Euro-area, governments need the ECB to intervene, because they are more exposed to liquidity problems. The main issue is that the sovereign liquidity problem has a direct effect on liquidity in the banking system, which is highly leveraged and exposed to capital shortage. The ECB should, therefore, first support the inter-bank market and provide liquidity to the banking system, rather than keeping yields on bonds low (if it can, as we will analyse later on this paper, ed.), and reserve his role as lender of the last resort to governments for extreme situations.

The ECB, as previously said, has acted providing liquidity to banks in order to guarantee the correct functioning of the transmission mechanism and to avoid more severe consequences of a banking crisis. It has also implemented a programme of purchasing of government securities: the Securities Markets Programme (SMP) was launched in May 2010, “*aiming at protecting t the right functioning of the monetary policy transmission mechanism by addressing the malfunctioning of certain government and private bond markets*”¹⁵ brought about by the prolonged crisis. This policy response does not imply a “quantitative easing” by the ECB, being the asset purchases liquidity impact fully sterilised through the conduct of weekly liquidity absorbing operations. In substance, the ECB acts temporarily and episodically purchasing government bonds of those Euro-area countries which are suffering from too high yields on their securities issued, with the purpose, also, of protecting those bonds from speculative attacks of investors, but assuming the risk of a deteriorating balance sheet. Precisely, the ECB, while purchasing government bonds, increases the monetary aggregate M0, and then absorbs the liquidity injected through fine-tuning operations: in order to offset the effects of these open market operations on inflation, the ECB sterilises them by auctioning fixed-term deposit at the ECB, thus stopping credit institutions from increasing the provision of credit to the private sector that might increase inflation. The operation can be named as a “Sterilized Debt Monetization”¹⁶.

15 José Manuel González-Páramo, “The ECB and the sovereign debt crisis” November 2011

16 More on Debt Monetization: Alfonso Palacio-Vera, “Debt Monetization, Inflation, And The ‘Neutral’ Interest Rate” International Review Of Applied Economics, Taylor & Francis, 2011

Graph 7 Fixed-term deposit under the SMP

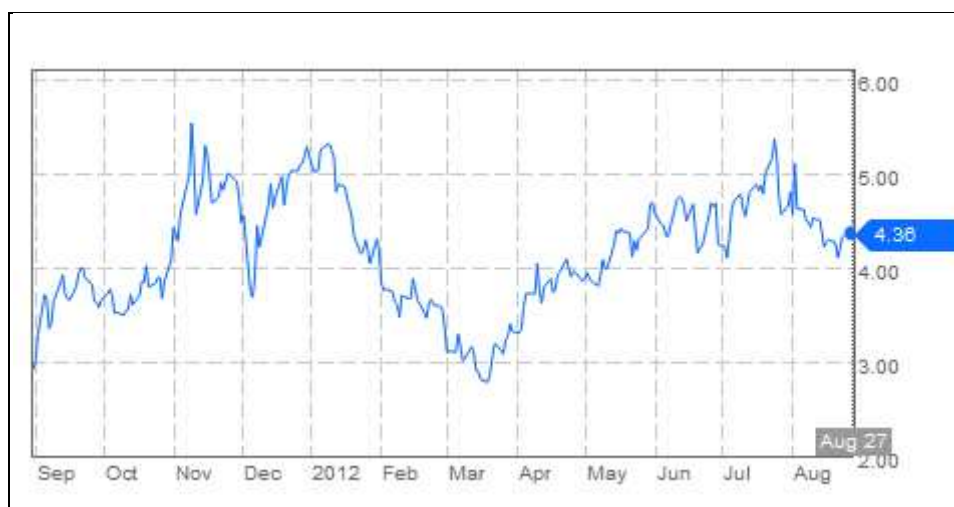


Source: own presentation based on ECB data

The Graph 7 shows the total amount of these fixed-term deposits at the ECB, which imply the corresponding total amount of bond purchased by the ECB under the SMP. Two large interventions have been implemented, the first in May 2010, and a second starting from the summer 2011 throughout the end of that year. The programme has been terminated and will be replaced by “Outright Monetary Transactions” (OMT).

What was peculiar about the SMP was that declarations of the Governing Council of the ECB of purchasing bonds were expected to help by them-selves calming the markets and ensuring a temporary stop to the increase of the spread between the yields of those bonds and the risk-free German government ones. The overall bad results on the spread (as shown in the Graph 8 relatively to the Italian 10 years bonds’ spread), however, testify the fact that investors do not believe, first of all, that those countries in difficulty (Greece, Spain and Italy in particular) could possibly generate primary surplus and cut deficits as intended through the austerity measures, and that they are therefore in risk of default. On the other hand, investors might more willingly purchase those bonds if the ECB would ensure a constant and unlimited intervention in the secondary market, rather than on occasional, albeit massive, purchase operations. The OMT can be seen as a response to this argument. Austerity plans in those Euro-area countries which are facing the debt crisis proved not to be able to definitely lower bonds market yields, as well as the occasional interference of the ECB (especially considering those periods during which it doesn’t intervene).

Graph 8: Italian government 10 years bonds spread against German bonds



Source: Bloomberg

Bolder decisions of intervention in the secondary market by the ECB find the contrasting verdict of the *Deutsche Bundesbank*. Germany, which is the largest economy of the Euro-area, exerts a large influence over decisions at both levels, monetary policy in the Euro-area and fiscal policy guidance of the EU. What is more, relatively to the intervention of the ECB in the sovereign debt crisis, Germany is also concerned about a possible future pressure on inflation. As previously said, the ECB has intervened in the government bonds market in a way that cannot be considered as “quantitative easing” because of the fine-tuning operations (absorption) that it puts in place when purchasing those bonds. However, the absorption mechanism involves fixed terms deposits which, at maturity, will have to be paid back, causing a postponed pressure on inflation¹⁷. What is more, the current critical situation of the sovereign debt crisis and consequences on monetary policy transmission is calling for those even bolder actions of the ECB, which might be, in the future, of “printing money” nature (meaning not sterilized), even though this instruments are not being considered by the ECB yet. The ECB has rather considered a revision of its intervention through the SMP, namely the announced OMT, which will be briefly discussed in conclusion of this paper.

4. ECB balance sheet expansion effects on MFI activity

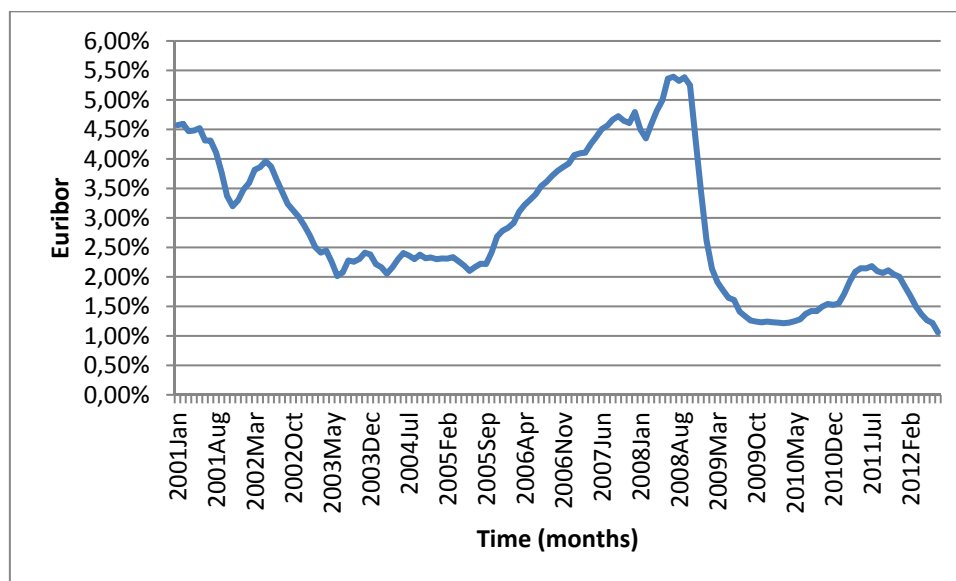
Going deeper into assessing the effects of the ECB monetary policy due to the global financial crisis, sovereign debt crisis and consequent recession in some Euro-area countries, we will first of all analyse the impact of the ECB balance sheet items expansion over the lending activity operated by credit institutions. Consequently, we will try to individuate if there is a relation between the ECB policy relatively, again, to its balance sheet expansion and credit institutions purchase of government bonds.

As we have already seen in the Graph 2, loans granted by MFI have increased steadily till August 2008. Thereafter the Euro-area has experienced a severe stop to the expansion of the lending

¹⁷ “ECB Market Intervention: the Securities Market Programme SMP”, Placeduluxembourg blog online, <http://placeduluxembourg.wordpress.com> 2012

activity by MFI, even though the ECB lowered significantly its key interest rates which, in turn, drag down the 1-year inter-bank Euribor rate (see the graph below).

Graph 3: 1-year inter-bank Euribor



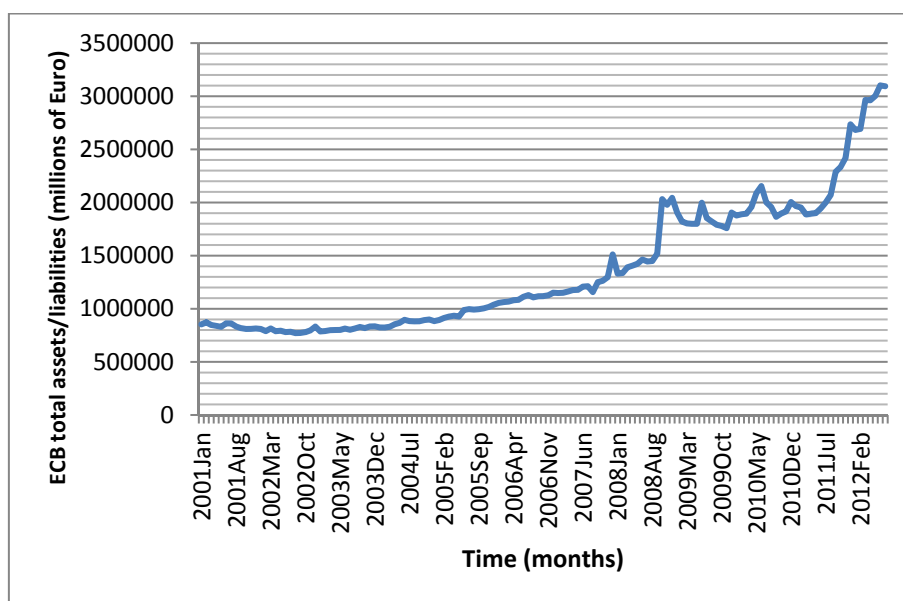
Source : own presentation based on ECB data

Even though it seems that the ECB lowered very much rapidly its interest rate, it took around one year for the Euribor to get from the high peak of August 2008 to the bottom of August 2009. During this period we can observe a decline in lending/borrowing activity¹⁸ which, hypothetically, might have been of lower importance if rates had declined faster, especially if we consider the following recovery of lending to the private sector when the Euribor reached its minimum level for a prolonged period of time (see Graph 2). When the ECB raised its key interest rates during the first half of 2011, the Euribor experienced a sudden rise which is possibly observable in the subsequent credit crunch. However, during a prolonged economic crisis, as falling firms' revenues cause, among other effects, a worsening of credit score for individuals and liquidity issues for the banking sector, the access to credit is made problematic for the private sector. Therefore in the analysis it is proper to consider this aspect of the event together with the mere considerations relatively to the Euribor trend.

In implementing its non-standard measures, the ECB has seen the need of a faster expansion of its balance sheet items. The following graph (Graph 10) shows the ECB balance sheet expansion of its total assets/liabilities:

¹⁸ See Graph 2 of this paper (Source ECB)

Graph 10: ECB total assets/liabilities, balance sheet expansion



Source: own presentation based on ECB data

We can observe a stable increase till the beginning of the financial turmoil, which called for the ECB to act massively in the following 4 months. The other peaks refer, among other reasons, also to the CBPP1 and SMP programmes implementation. The important rise since the summer 2011 is backed by the second tranche of the SMP programme, plus the massive lending/depositing activity which is put in place to ensure liquidity to the banking sector. This last part of the trend demonstrate the strong commitment of the ECB relatively to this last issue: €137.5 billion during the last year (July 2011 to July 2012) under the SMP programme, against a total balance sheet expansion of €1093.7 billion in the same period. We can conclude that the commitment to directly keep low yields on Euro-area government bonds of those countries in difficulty represents, at the moment, the 12.5% of the total activity of the ECB. It might represent more in the future though, if and when the OMT will be implemented.

Our hypothesis is that the effects of the ECB balance sheet items expansion can be seen in a consequent increased credit to the private sector in non-crisis time, whereas the consequences of a prolonged crisis lower the power for the ECB to boost the economy via providing MFI with the liquidity that would made them expand their lending activity. We will build a model (equation 1) in which we put the MFI total lending as a dependent variable, with Euribor and ECB balance sheet as explanatory variables (no lag considered):

$$\ln MFI \text{ total lending} = \alpha_0 + \alpha_1 \text{ Euribor} + \alpha_2 \ln ECB \text{ balance sheet} + \varepsilon \quad (1)$$

Our dataset contains monthly observations starting from January 2001 to July 2012. We will divide our analysis into two sub-periods, the first from 2001 to 2007, the second starting from 2008 till July 2012, considering the substantial change in the economy since the manifestation of the crisis.

Table 1: Regression summary MFI total lending (2001/2007)

		Regression Summary for Dependent Variable: In MFI total lending (2001/2007) R= ,96921390 R ² = ,93937558 Adjusted R ² = ,93787868 F(2,81)=627,55 p<0,0000 Std.Error of estimate: ,03262					
N=84		b*	Std.Err. of b*	b	Std.Err. of b	t(81)	p-value
Intercept				4,387236	0,336574	13,03497	0,000000
Euribor (2001/2007)		-0,175412	0,030370	-0,025784	0,004464	-5,77578	0,000000
In ECB assets/liabilities (2001/2007)		1,032413	0,030370	0,847137	0,024920	33,99420	0,000000

The results relatively to the first sub-period (Table 1) show, first of all, that both Euribor and ECB assets/liabilities expansion used to have a significant impact of MFI lending activity (the software highlights significant β in red). In particular, data shows that an increase in Euribor of 1 unit (1 percentage point) used to give a decrease in MFI lending (or private sector borrowing) of around 2.6%. On the other hand, MFI total lending used to grow with a slower pace as compared to the ECB balance sheet expansion (1% balance sheet expansion used to give a 0.85% increase in MFI lending). Considering also the constant expansion of Euro-area GDP in the years before the global financial crisis (phenomenon easily observable in the analysis of the graphs), we can summarize saying that the interest rate (and the ECB monetary policy) used to have a certain impact on the total borrowing by the private sector. What's more, the high level of R^2 (0,94) proves the goodness of fit of the model, which implies that the MFI lending activity was not very much influenced by other factors.

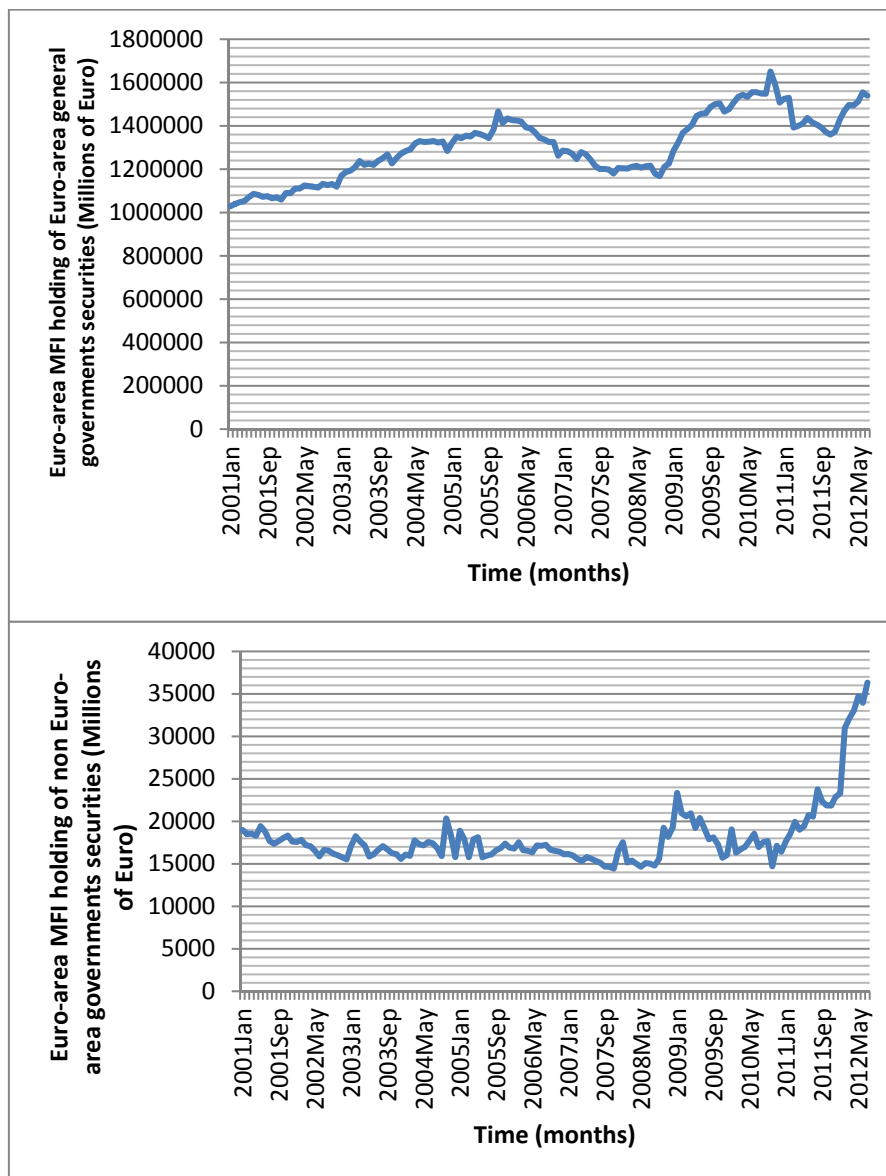
Table 2: Regression summary MFI total lending (since 2008)

		Regression Summary for Dependent Variable: In MFI total lending (since 2008) R= ,76896372 R ² = ,59130520 Adjusted R ² = ,57527795 F(2,51)=36,894 p<,00000 Std.Error of estimate: ,01658					
N=54		b*	Std.Err. of b*	b	Std.Err. of b	t(51)	p-value
Intercept				15,03072	0,199482	75,34872	0,000000
Euribor (since 2008)		-0,088765	0,110161	-0,00164	0,002033	-0,80577	0,424116
In ECB assets/liabilities (since 2008)		0,713841	0,110161	0,08795	0,013572	6,47999	0,000000

Since the global financial crisis (Table 2) the variable Euribor is not significant anymore (it is not highlighted in red), and the ECB balance sheet expansion has had a lower impact on MFI lending activity than during the previous sub-period (0,09% increase in MFI lending due to the expansion of the ECB balance sheet of 1%). A lower R^2 level (0.59) implies that a model which includes only Euribor and ECB balance sheet is not sufficient, because there might be other factors that should be taken in consideration, such as, as previously said, the implications of the economic downturn (e.g. worsening credit scores, slowing down markets, unemployment, liquidity issues and so on). This analysis proves that the crisis has undermined the power for the ECB to control over the lending activity by banks: key interest rates, which influence inter-banks rates and rates granted to the private sector, have an impact on the banking sector liquidity, meaning their setting by the ECB at very low levels averts a severe banking crisis, but are not transmitted into lending activity to private sector as they were before. The ECB balance sheet expansion serves for granting liquidity rather than expanding MFI lending to households, firms and government institutions.

We will perform a second analysis, this time closer to the matter of the sovereign debt crisis which caused yields on government debt to raise to dangerous levels (over 6% in some countries on 10 years bonds): a regression of the MFI purchasing of Euro-area countries' government bonds (dependent variable) and the ECB expansion of assets/liabilities (explanatory variable). The aim is to discover whether banks purchase more government bonds thanks to the liquidity provided by the ECB. The hypothesis is that, as already stated through a graphic analysis, banks borrow from the ECB but don't augment their purchase of bonds (which would lower yields and borrowing costs for governments), neither they grant more loans to the private sector (as proven through the previous analysis). We will divide our dataset, one more time, into 2 sub-periods, between 2001 and 2007 and after 2008, to find out if there has been a substantial change due to the crisis-related circumstances.

Graphs 11-12: Euro-area MFI holding of Euro-area and non Euro-area general government securities



Source: own presentation based on ECB data

A preliminary analysis of the graphs (Graphs 11-12) of the government bonds holding by MFI (Euro-area against non Euro-area governments) shows that there seems not to be a strong relation between them and the ECB balance sheet expansion (this one was stable and linear during the non-crisis time, Graph 11). Relatively to Euro-area government bonds, there is a stable growth trend till 2005, which is followed by a disinvestment in that kind of security. The recovery of Euro-area government bonds purchasing after the Summer 2008 shows a progressive raise in trust for those governments by banks (in 2009 it reached the level of four years earlier, and it increased even more till October 2010). However, since then MFI have started again to disinvest. The emergence of the sovereign debt crisis damaged the financial position of banks because holding these downgraded securities, which were losing their value, affected their balance sheets, so that it was preferable for them to sell. Since the Summer 2011, encouraged by the good example of the SMP programme by the ECB and probably also thanks to the great provision of liquidity, banks have started to purchase again these securities, even though the other graph relatively to the holding of non Euro-area governments' bonds shows they are more active in buying this last kind of securities. It is important, however, to underline that MFI holding of Euro-area governments securities is 42 times larger than non Euro-area governments' securities holding, specifying it to remove all doubts about European banks' capitals literally flown to other continents' governments due to the Euro-area sovereign debt crisis. Even though the holding of non Euro-area governments' securities has more than double during the last year and a half, it keeps on being a very small portion.

The equation (2) for our second analysis would be the following:

$$\ln MFI \text{ holding of government securities} = \alpha_0 + \alpha_1 \ln ECB \text{ balance sheet} + \varepsilon \quad (2)$$

Dividing our dataset into before and after the manifestation of the global financial crisis, we obtain the following results:

Table 3: Regression summary MFI holding of Euro-area general governments' securities (2001/2007)

		Regression Summary for Dependent Variable: In MFI holding of Euro-area general governments' securities (2001/2007)					
		R= ,49241274 R ² = ,24247031 Adjusted R ² = ,23323214 F(1,82)=26,247 p<,00000 Std.Error of estimate: ,08256					
N=84		b*	Std.Err. of b*	b	Std.Err. of b	t(82)	p-value
	Intercept			10,02619	0,780903	12,83924	0,000000
	In ECB assets/liabilities (2001/2007)	0,492413	0,096115	0,29105	0,056812	5,12314	0,000002

Table 4: Regression summary MFI holding of Euro-area general governments' securities (since 2008)

		Regression Summary for Dependent Variable: In MFI holding of Euro-area general governments' securities (since 2008)					
		R= ,54179682 R ² = ,29354380 Adjusted R ² = ,28021443 F(1,53)=22,022 p<,00002 Std.Error of estimate: ,08031					
N=55		b*	Std.Err. of b*	b	Std.Err. of b	t(53)	p-value
	Intercept			10,64042	0,749112	14,20404	0,000000
	In ECB assets/liabilities (since 2008)	0,541797	0,115453	0,24261	0,051699	4,69280	0,000019

All we can see from the results given in Table 3 and 4 is that the effect of a ECB balance sheet expansion was slightly stronger before the global financial crisis (in both cases the balance sheet expansion is significant), but the model lacks of explanatory variables that would give a better goodness of fit (R^2 is very small in both cases). We can draw the following considerations:

The ECB is trying to offset liquidity issues of banks through unlimited liquidity provision at very low rates, and in doing so it is expanding greatly its balance sheet items. As already stated, part of this liquidity provision (marginal lending and refinancing operation) goes back to the ECB in the form of deposits (a declining net lending showed in Graph 5). However, MFI in the Euro-area are significantly expanding their purchase of Euro-area government bonds as a consequence of the ECB liquidity provision, even though at a slower pace than prior to the financial crisis (1% ECB balance sheet expansion gives 0.24% increase in MFI bonds holding, against a 0,29% till 2007). Banks are possibly influenced by factors such as the stability of the Euro: keeping bonds of governments in risk of default (bonds which are downgraded), as already argued in this paper, worsen the financial position of banks which, in turn, already suffer of capital shortage and of downgrading by rating agencies. Therefore we can argue that the ECB, through its balance sheet expansion, has lost part of its influence on bonds purchasing expansion by Euro-area banks, thus not mightily reducing borrowing cost for governments in this sense. What is more, in a globalized financial market, just providing Euro-area banks with the liquidity for a possible purchase of bonds is not sufficient, considering that the yields on government bonds are derived by the risk premium perceived by the totality of investors in the World.

5. Conclusions

In July 2012 the total number of jobless in the Euro-area has reached the level of 18 millions. Firms not only have difficulties in raising capitals, they are adjusting to demand, cutting production and employment. Among the policies that a government could put in place there are labour market flexibility reforms. Such reforms and other structural reforms could shake the bonds market and, in any case, trigger the economic recovery in the medium-term more than other measures. The sovereign debt crisis should be seen also under this aspect and not only as possibly solved through austerity plans and ECB unconditioned intervention.

However, remaining within the limits of the monetary policy instruments, important for the ECB would be to corroborate its leadership against the opposition of part of its members, such as the *Deutsche Bundesbank*. Its leader, the president Mario Draghi, need to restore confidence in the financial markets and this can be done through strong statements that the ECB would never let the Eurosystem fall apart, accompanied by actions such as the CBPP1 and the announced OMT.

The ECB, being close to the “Zero Lower Bound” for its key interest rates, might implement non-conventional monetary policies, such as “quantitative easing”. It could be done through a program of purchasing financial assets (bonds) from private sector firms and credit institutions with increased money supply. It implies, therefore, the expansion of money supply with the purpose of stimulating the economy. It is an unconventional policy that has been implemented by other central banks, but not by the ECB yet. If the ECB lent to banks and private sector businesses without sterilization process, this action would overturn the fate of increasing deposits at the ECB rather

than credit given to the private sector. In turn, this would stimulate the economy by boosting investments and production, restoring as well confidence and hopefully demand would pull up as well, as new jobs would be created. The risk is inevitably inflation if the amount of easing is overestimated. Boosting the economy starting from the real economy might be a solution: credit to firms for investment purposes would help creating new jobs and offset the recession in some of those Euro-area governments in trouble. In turn, this will lead to more tax collected and lower government deficit. Markets would see it and act accordingly buying government bonds. For the ECB to buy government bonds over certain limits in the secondary market, in the way it has been done so far, Has not proved to work well (high yields). Furthermore, governments would always feel free not to implement their action to reduce deficits and attain fiscal sustainability because of this “unconditional” protection from the ECB.

However, it seems like the ECB has for the moment decided not to implement “quantitative easing”, but rather keep on buying bonds in the secondary market through fully-sterilized operations. As of September 2012 the ECB has declared its intention of performing “Outright Monetary Transactions” (OMT¹⁹), which imply the fully sterilized unlimited purchase of Euro-area government bonds with maturity up to 3 years, with the necessary condition that the EU’s “European Financial Stability Facility/European Stability Mechanism” (EFSF/ESM) executes primary market purchases of bonds. It means that the ECB has correctly addressed the task of bailing out governments to the EFSF/ESM (purchasing bonds on the primary market is equal to direct lending), and it has committed it-self to unlimited intervention in the secondary market, which falls entirely within its limits of action as provided by treaty. The ECB thus freezes its intervention through the SMP (even though it keeps those securities purchased till maturity), and addresses the responsibility for a coming out of the debt crisis to EU governments²⁰.

The market participants’ fear is that of a collapse of the Euro (systemic risk connected to the present economic and financial situation). In such hypothesis, investors might see their return on eventually newly created national currencies, which would possibly suffer of high inflation in case they will be established. It seems like the current risk premium on those securities includes the systemic risk premium which, in turn, implies the risk of default and inflation. As long as governments do not show political stability and will of implementing the necessary reforms, together with those primary market purchase of bonds through the EFSF/ESM that will trigger the unlimited intervention of the ECB under the OMT, investors will keep on running away from those bonds, causing high yields and high borrowing costs for governments. The ECB might as well give some other strong signal that may be “quantitative easing”, despite the fear of inflation.

This paperwork has had the aim of assessing the results of the ECB intervention due to the sovereign debt crisis. The results can be summarized in the following arguments:

- MFI are not increasing their lending activity, relatively to the ECB balance sheet expansion and interest rates levels, as much as they used to do before the global financial crisis of 2008, proving that the ECB has lost part of its power to intervene in such issue;

19 Press release of the ECB, “Technical features of Outright Monetary Transactions”, 6 September 2012

20 Mario Draghi, “Introductory Statement To The Press Conference”, 6 September 2012

- MFI significantly purchase government securities as high provision of liquidity at low rates is granted by the ECB, but to a lesser extent than before, possibly because of reasons related to the economic circumstances of the financial and debt crises (more variables should be included);
- Yields, and therefore borrowing costs, can be slightly influenced by the ECB balance sheet expansion. However, banks, in deciding whether to purchase governments bonds, are possibly more influenced by the ECB balance sheet expansion to the extent that this operation is put in act in order to implement the ECB bond purchase (SMP and in future OMT);
- Non-standard measures are adopted thanks to a strong ECB balance sheet expansion, and these instruments are implemented in order to avoid liquidity shortage by banks and ensure the correct functioning of the monetary transmission;
- The overall intervention of the ECB doesn't constitute "quantitative easing", which has been implemented by other national central banks whose governments enjoy lower borrowing costs²¹.

Gianmarco Costanzo

Cracow, September 16, 2012

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Datasets' source for all graphs, if not specified, is ECB website (www.ecb.int). All the speeches of the Governing Council of the ECB, or members of its Executive Board, are available at the same website and are main source of information and ideas for this paper, together with ECB publications. The software used for the econometrics analysis is StatSoft Statistica, whereas graphs were built through Microsoft Excel.

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