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The Euro Area's Experience with Unconventional Monetary Policy

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[1] The views expressed in the paper are those of the author(s) and do not necessarily reflect those of the Central Bank of Brazil.

Abstract

This paper discusses the role of monetary policies implemented by the European Central Bank (ECB) after the 2008 financial crisis, with a special focus on unconventional measures, analyzing to what extent they influenced Euro area's macroeconomic performance in the period. After the 2008 shock in the USA, several conventional and unconventional monetary actions were implemented by the ECB. Although the initial measures prevented a massive failure of banks, they didn't avoid the escalation of the situation into a serious sovereign and banking crisis, which had roots deeply inserted in the Euro area itself. Some programs received strong criticism, but other measures avoided the more acute risks of contagion through the Euro area. Nonetheless, with persistent economic weakness and risk of deflation, the ECB extended its stimulus programs in September 2014 and in March 2015, with a broad unsterilized public sector purchase program. As they corrected some of the problems from previous programs, and conveyed a strong commitment to fight deflation, those programs initially lead to positive effects on several macroeconomic indicators (sovereign yields, euro exchange rate, credit, output, inflation), although with some volatility on yields and the euro later due to intra and extra-Euro area factors. Considering that medium and long-term inflation expectations still remain in low levels, the ECB extended the stimulus measures in December 2015/ March 2016, and intends to continue these programs until at least March 2017, or beyond if necessary, until it gets to its objective of inflation below but close to 2%. Nevertheless, serious problems remain for governments and private agents in the region. It is argued that the path for a sustained growth recovery in the Euro area not only goes through unconventional monetary policies. They should also be complemented by a coordinated fiscal policy, more flexible and countercyclical in periods of economic downturns, coupled with adequate institutional reforms that together foster credit markets, encourage private and public investments in the long term and reduce regional asymmetries. Additionally, it is believed that a more robust and integrated financial supervisory framework (not only on banking but also on capital, insurance and pension markets) would contribute to reduce negative spillovers from financial volatility episodes, break the sovereign-bank "doom loop" and bring more financial stability to the zone.

Keywords: monetary policy, unconventional monetary policy, Euro area.

JEL Classification: E52, E58, F42, F45.

1 Background: Banking and Sovereign Crisis

The use of unconventional monetary policies in the Euro area began in 2008, in the aftermath of the international financial crisis, with its epicenter in the United States and global implications. After the collapse of Lehman Brothers in September 2008, the world's leading central banks, including the ECB, acted quickly to avoid a more severe spread of the crisis to the financial sector and to the real economy. In this regard, they took not only conventional measures (e.g.: rapid and significant reduction of interest rates), but also a series of unconventional measures, such as extensive liquidity provision operations and foreign exchange swap agreements to ensure the liquidity needs of banks in foreign currency, according to Lane (2012). European banks also had significant exposures in the US subprime market. In this sense, the action of central banks in 2008 has helped to contain panic and avoid a massive failure of banks.

However, the worsening of the crisis in the Euro area in 2009 showed that the situation was not just an "external shock" originated in the USA, but a crisis with roots deeply inserted into the monetary union. In the view of authors like Bibow (2012), this intrinsic crisis had two natures: balance of payments and banking. Indeed, since the adoption of the euro as the single currency in 1999, it was hoped that the monetary union would promote an improvement of the economic and financial integration and, coupled by the output expansion that occurred in the 2000s, would help Euro area's least developed countries (*periphery*, namely: Greece, Ireland, Portugal, Spain, Italy, Cyprus) in a movement towards convergence with the development level achieved by Euro area's *core* countries (namely: Germany, Netherlands, Austria, Finland, Luxembourg, France, Belgium).

Nevertheless, what actually happened was a deepening of the zone's economic asymmetries. According to Miranda (2014), the divergence increased significantly in the period 2000-2008, with core countries specializing in manufacturing and capital goods' exports, while the periphery was left with the supply of basic goods, services and construction sectors. This implied that Germany, Netherlands, Finland and Luxembourg widened their current account surplus, while the other countries increased their current account deficits, especially in the periphery. Additionally, the periphery also lost competitiveness to their main trade partner in the period (Germany) due to lower wage growth rates in this country.

According to authors like Brenke (2009), net real wages barely grew in Germany in the 2000's, and actually fell between 2004-2008. The reasons behind this would be the relative loss of bargaining power from labor unions (mainly in industry), and labor market reforms implemented in 2002 and 2008, which increased labor market flexibility and reduced employees' benefits. Those factors are possible explanations why unit labor costs grew much less in Germany than in the periphery. Also, taxes were shifted away enterprises towards individuals. That allowed Germany to increase manufacturing production and exports, keeping lower levels of domestic consumption and imports. Within the monetary union, in the absence of a mechanism to adjust the exchange rate, while Germany could improve its surplus, the periphery remained dependent of basic goods exports and capital goods imports, increasing their current account deficit.

During most of the 2000's, current account deficits were financed by capital flows from the core to the periphery, fostered by the abundance of liquidity and low interest rates (sovereign debt yields from the periphery were close to the ones of core countries). Banks in the core lent money to enterprises and banks in the periphery, which in turn could pay for its imports and lend money domestically cheaply. Credit expansion was accelerated in the periphery in the 2000's, especially in the real estate sector of countries like Spain and Ireland.

After the 2008 financial shock in the USA, due to the scarcity of liquidity, banks in the core interrupted their flows to the periphery and claimed their loans' payment there. Then, banks in the periphery claimed their loans' payment to enterprises and households. This provoked a sharp rise in non-performing loans and default rates, and fire sales of assets. At this point, the banking crisis affected severely private agents and impacted directly the real economy.

Those imbalances in the banking system and the private sector were transferred to the periphery`s public sector through the fiscal channel. Since the 2000's, peripheral countries already had fiscal deficits, once an important share of their economic growth counted on public expenditure. After 2009, the abrupt drop in income and the growth in expenditure needs to rescue banks/firms in difficulty and pay unemployment benefits forced public deficits to rise quickly. At the same time, public debt, which until then was relatively manageable in most peripheral countries (except for Greece, which at that time was 120% of GDP), increased rapidly. This took sovereign yield curves to steepen in these countries.

At that time, mechanisms for the mutualization of risks within the monetary union were temporary or insufficient (e.g., the ECB did not state the lender-of-last-resort status, as suggested by Arestis (2015). Then, each national government had to assume the liabilities of its own banks and private agents. This is what actually turned a banking crisis in each country into a sovereign debt crisis. To make matters worse, since 2010 the sovereign crisis assumed a nature of "contagion": high yields on a single peripheral country's public debt began to transmit to other peripheral countries, perceived by the market as facing similar macroeconomic problems.

This phenomenon began with Greece, which disclosed a record fiscal deficit in late 2009, starting a process that led to the announcement of three rescue programs: € 110 billion in May 2010, € 130 billion in February 2012, and € 86 billion in August 2015, totaling € 326 billion. Rescue packages by the Troika were also announced for Ireland (€ 85 billion in November 2010) and Portugal (€ 78 billion in May 2011), and later for Spain (availability of up to € 100 billion for banks in June 2012, of which € 41 billion were used in recapitalization) and Cyprus (€ 10 billion in March 2013).

Having presented the basic features of the Euro area's banking and sovereign debt crisis, the paper`s following sections will discuss the monetary policy actions taken by the ECB after 2008, evaluating to what extent they were able to contain the crisis and influence the macroeconomic performance of Euro area countries as a whole in the period. Section 2 will discuss conventional and unconventional measures taken between 2008 and 2014, before the implementation of Asset Purchase Programs (APPs). Section 3 will focus on the programs implemented from September 2014 onwards, mainly on APPs and their effects on the monetary union. Section 4 will present the main conclusions and challenges ahead for the monetary, financial stability and economic policies in the Euro area.

2 Pre-Asset Purchase Programs

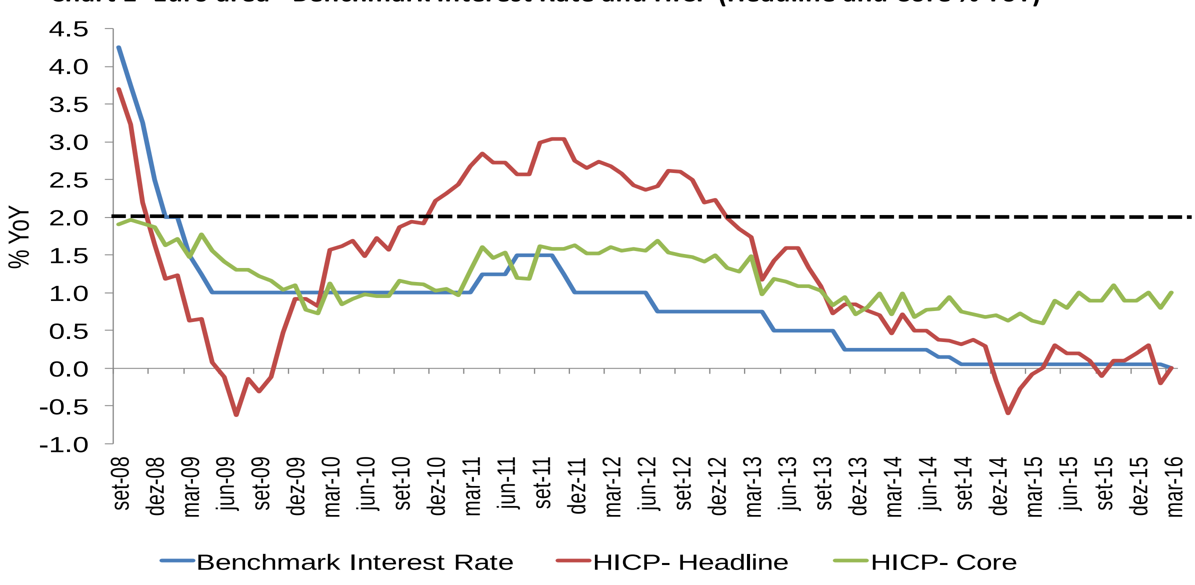
Before discussing ECB's unconventional measures in the post-2008 period, we will present a brief overview of conventional monetary policy, particularly the evolution of ECB's benchmark interest rate during in the period.

2.1 Benchmark Interest Rate

With the adverse events of the financial crisis in the USA in September 2008, the ECB promoted a rapid reduction of the benchmark interest rate, from 4.25% in September 2008 to 1.0% in May 2009, 325 basis points (bps) on total.

The rate has remained at that level until April 2011, when it rose 25 bps, and increased again by 25 bps to 1.5% in July 2011. ECB's Governing Council President at that time was Jean Claude Trichet. He justified the rate hikes based on two reasons: (i) To control inflation expectations' acceleration (headline inflation was at that time 2.6% YoY, above the ECB's objective (ii) To avoid the formation of new "asset bubbles", due to the accommodative liquidity conditions since the end of 2008. Those rate hikes were criticized by many people, as the increase in headline inflation was caused by temporary factors (such as high international commodity price levels), but core inflation remained under control (around 1.6%, as can be seen in the chart 1).

Chart 1- Euro area - Benchmark Interest Rate and HICP (Headline and Core % YoY)



P.S.: Euro area's core inflation excludes energy, food, alcohol and tobacco. Source: Eurostat

Critics argued that those rate hikes brought further restrictions to the then difficult financial conditions on the monetary union, and had negative spillovers from smaller peripheral countries (Greece, Ireland, Portugal) to larger nations (such as Spain and Italy). Hence, there would be no funds available to rescue all those countries together. In fact, with higher interest rates and the worsening of the sovereign crisis, the Euro area experienced a sharp financial volatility during the second half of 2011.

However, it was just in November 2011 (when Mario Draghi assumed as the new President of ECB's Governing Council) that rates began to change their course. Benchmark interest rate was reduced in November (-25 bps) and December (-25 bps), to 1.0%. Since then it was established a downward trend. Between 2012 and 2016 the rate was reduced 100 bps: first to 0.05% in September 2014, and then to the historic low of 0% in March 2016. Interest rates should be kept at this level or lower levels for an extended period, according to the forward guidance mechanism in place.

2.2 Enhanced Credit Support and Covered Bond Purchase Program

When it comes to unconventional monetary policies in the Euro area, some initial measures had already been implemented in 2008, but a formal ECB unconventional program only began in July 2009, with a set of initiatives that was called "Enhanced Credit Support": (i) The conduct of full allotment auctions for liquidity supply at fixed rates; (ii) A broader range of asset types (public and private) accepted as collateral for loans from the ECB; (iii) The extension of ECB's liquidity operations maturities (from 3 months up to 1 year); (iv) The provision of liquidity in foreign currency (mainly dollars) through swap agreements with central banks; (v) The purchase of covered bonds issued by banks.

Regarding the Covered Bonds Purchase Program (CBPP), the universe of assets purchased by the ECB included securities issued by banks in the primary and secondary markets in emissions of at least € 100 million, with a minimum of investment grade rating (BBB- or similar) and backed by public or private guarantees. The first phase of this program (CBPP1) occurred between July 2009 and June 2010. The objectives of the program were: i) To promote lower interbank's market rates; ii) To reduce funding restrictions for credit institutions, and indirectly to non-financial companies; iii) To encourage credit institutions to expand their loans; iv) To improve liquidity conditions, particularly in the private debt market. In the first phase, the ECB bought a nominal amount of € 60 billion, 27% in the primary market and 73% in secondary. The maturity of the purchased securities was between 3 and 7 years, with an average duration of 4.1 years, according to Beirne et al (2011). Despite the CBPP1 managed to buy the previously announced amount of € 60 billion, and in general terms fulfilled its four objectives, it was not enough to prevent covered bonds yields' to steepen in peripheral countries affected by the sovereign banking crisis.

A second phase of the program (CBPP2) was launched in November 2011, the same month the ECB started cutting the benchmark interest rate again. In the second phase, the ECB announced an intention to buy a nominal amount of € 40 billion in covered bonds until October 2012. It required that securities to be purchased by the ECB had to come from bank emissions with at least € 300 million. The CBPP2 lasted until the intended date, but the more stringent conditions in bank bond markets and from the program itself led to ECB's purchases of only € 16.4 billion (36.7% in the primary market and 63.3% in the secondary).

2.3 Long Term Refinancing Operations

Before 2008, the ECB usually offered Long Term Refinancing Operations (LTROs) monthly, to be repaid in 3 months. In 2008, it began to offer also operations to be repaid in 6 months. In June 2009 it added also to its tender procedures operations with repayment in 12 months. In November 2011, when the ECB noticed the sovereign crisis had worsened of and the liquidity available to the banks and the economy as a whole had shrunk, the institution announced two major three-year LTROs, which were held in December 2011 and February 2012. On those occasions, the ECB lent to banks amounts to be paid over three years, charging only the benchmark interest rate (then in a level of 1.0%). The first operation amounted € 489.2 billion, and the second operation € 529.5 billion, thus totaling a liquidity injection of € 1018.7 billion by the ECB within three months. However, due to the high uncertainty level in the Euro area, a large amount of this liquidity had two undesired destinations: i) The ECB's balance sheet itself, parked at the current account or deposit facility (the latter yielded 0.25% until July 2012, being reduced to zero thereafter); ii) Carry trade, speculative operations that used cheap money to buy assets with higher returns, including short term sovereign debt of the periphery. Thus, although three-year LTRO operations have avoided a massive bank deleveraging and promoted a short term positive effect in sovereign yields (as stated by Pattipeilohy et al, 2013), those large liquidity injections did not achieve their goal of restoring credit market's dynamics and channel funds to the real economy.

2.4 Securities Markets Program

This program was implemented in May 2010, same month when the first Greece aid package was agreed, but markets priced high spreads between German's and peripheral countries' bonds. In order to reduce the financial fragmentation in the Euro area and improve monetary policy transmission, the ECB engaged in purchasing peripheral countries' securities, in an attempt to prevent their yields to rise.

Although the program also legally allowed corporate bond purchases in primary and secondary markets, its implementation was through government bond purchases in secondary markets. The program focus was not to make monetary policy more expansionary or to finance member countries. As a consequence, the ECB conducted weekly open market operations to provide fixed-term deposits (with a weekly duration), in order to sterilize the liquidity injected through its purchases.[2]

In the beginning (May 2010 to February 2011), purchases were limited to bonds of Greece, Ireland and Portugal. After a pause between February and July 2011, the ECB resumed its purchases in August 2011, including also bonds of Spain and Italy. The program was officially terminated in September 2012, although purchases have actually occurred until February 2012. According to ECB data, the program has acquired bonds with an average maturity of 4.3 years and a nominal amount of € 218 billion, of which almost half belonged to Italy, as shown in Table 1.

When it comes to the evaluation of SMP impacts, there are several studies working with different methodologies to verify its effectiveness. In general, most authors agree that interventions have managed to reduce the yields of peripheral countries, but only in the short term (a few weeks, as Pattipeilohy et al, 2013, or even a day, as Doran et al, 2013). According to Doran et al, even after ECB's intervention and yields falling in the same

[2] The ECB interrupted SMP portfolio weekly sterilization operations since July10, 2014.

day, with adverse macroeconomic events and a possible lag for a new intervention, yields resumed rising up to pre-intervention levels the next day. From the point of view of private investors, what concerned them the most was that the ECB had seniority over them from a legal point of view. This implied that private investors would be the first to bear the losses of any default in these countries, and the ECB could be charged only after all private investors had been wiped out. This was one of the reasons why SMP's interventions had only very short-term effects, with yields soon returning to rise again.

Table 1 - ECB - SMP - Amount Purchased by Country and Average Bond Maturity

Issuer Country	Nominal Amount (€ billion)	% per country	Average Maturity (years)
Italy	102.8	47.2%	4.5
Spain	44.3	20.3%	4.1
Greece	33.9	15.6%	3.6
Portugal	22.8	10.5%	3.9
Ireland	14.2	6.5%	4.6
Total	**218**	**100.0**	**4.3**

Source: ECB

Indeed, the great controversy both in public opinion and among ECB members themselves were factors that contributed to the interventions be discontinued in time, and actually interrupted seven months before the official end of the program. The disagreement within the ECB was such that it was appointed as a reason to the resignation of Bundesbank President Axel Weber and ECB's Chief Economist Jurgen Stark.

Helm (2012) states that ECB core countries' members (notably Germany) considered that the program did not respect ECB's mandate to keep price stability. According to them, SMP just tried to disguise monetary financing of peripheral governments (although the program didn’t purchase government securities in the primary market, it allowed peripheral countries to delay the much "requested" fiscal adjustment measures).

2.5 Verbal Intervention Strategy and the OMT

With debt yields of peripheral countries rising to unsustainable levels and sovereign contagion threatening to reach even core countries (e.g. France), the ECB introduced a different communication approach. From July 2012 onwards, it started a "verbal intervention" strategy, trying to contain negative expectations on markets and aiming to increase monetary policy credibility. At its meeting of July 4, 2012, the ECB introduced the "forward guidance" mechanism, which affirmed that interest rates would remain at low levels for a prolonged period of time, signaling an accommodative monetary stance. On a speech in July 26, 2012, Draghi affirmed he would do "whatever it takes to save the euro".

This change in the communication strategy culminated in September 2012 with the end of SMP and the creation of a new program, named Outright Monetary Transactions (OMT). This new program intended to restore the transmission mechanism of monetary policy, which was notoriously disrupted. It opened the door for the ECB to buy sovereign debt of specific countries in the secondary markets, in order to stabilize their yields, once they signed a Memorandum of Understanding (MOU) with fiscal and reform conditionalities attached.

ECB purchases would be of bonds with maturities between 1 to 3 years, in unlimited amounts. The OMT focus wasn't on countries which were already receiving assistance from the Troika (Greece, Portugal or Ireland). Instead, it aimed to avoid spreading contagion to countries which had their debt trading on markets, but at high yields (e.g. Spain, Italy). Most importantly, the ECB would be treated *pari passu* with other creditors, eliminating the problem of ECB seniority that existed in the SMP. As the SMP, the OMT received a number of legal challenges in the German Constitutional Court (GCC) and the European Court of Justice (ECJ), related to accusations such as monetary financing of government debt. The OMT had a ruling of "approval with conditions" by the GCC on January 14, 2015. The ECJ dismissed OMT's charges in June 16, 2015. Nonetheless, the OMT was never activated, only remaining in the field of verbal intervention.

The ECB's OMT program is part of a broader set of other institutional actions taken by the EU in that period: (i) The creation in October 2012 of a permanent bailout fund, the European Stabilization Mechanism (ESM), to replace other previous temporary funds (European Financial Stability Facility- EFSF and European Financial Stabilization Mechanism- EFSM). The ESM would have a significant lending capacity (€ 500 billion) and stable guarantees; (ii) The beginning of the project to create a banking union. Under this project, from November 2014 onwards it would exist a Single Supervisory Mechanism, where the ECB would centralize most of Euro area banking supervision authority under its responsibility.

Later, it would be established a Single Resolution Mechanism and a Banking Recovery and Resolution Directive, so that bank resolution costs would rely mostly on private (bail-in), rather that public (bailout) funds. Finally, the harmonization of Deposit Guarantee Schemes would protect Euro area's depositors of up to € 100,000 from potential losses.

All of them intended to convey positive messages to the markets. In the case of the OMT, it showed ECB's unconditional willingness to take bold actions if necessary. The ESM ensured an increase in the amount and duration of rescue funds (now permanent). With the banking union, there would be a substantial advance in the monetary union banking supervision and resolution framework. The combination of these elements had an important role in reducing investors' risk perception about Euro area's countries, so that from the end of 2012 onwards, the former trend of rising sovereign yields was stopped.

3 Asset Purchase Programs

3.1 Background

Despite the less volatile scenario in 2013 and 2014, with some countries of the periphery ending their assistance programs with "clean exits" (Ireland, Portugal, Spain for banks) and the gradual downward trend of sovereign yields, Euro area economy still showed slow signs of recovery in credit and output in those years.

In the second half of 2014, the most serious concern became the threat of deflation, with signs that the low inflation level was not just a temporary phenomenon (related to an oil price drop), but a more lasting element, with second round effects that weakened the economic activity. The risk of falling prices was a heavier burden for an economy with difficulty to recover, which could generate a situation that entrepreneurs would no longer invest, families would postpone spending decisions and the real value of debts would rise. In this context, the ECB began to monitor more closely the medium/long-term inflation expectations. In August 2014, the 5Y5Y inflation swap rate (which reflects how inflation expectations for the next five years will be in the following five years) fell below 2% YoY for the first time on record.

3.2 CBPP3, ABSPP and TLTROs

In an attempt to avoid a deflationary spiral, in September 2014 the ECB launched new initiatives in order to improve the transmission of monetary stimulus to the credit market and the real economy. In terms of interest rates, the benchmark rate was reduced to 0.05%. The deposit rate was also reduced to an even more negative level (-0.20%, from -0.10 in June 2014), in an attempt to avoid that banks kept parking liquidity on ECB's current account. In addition, it announced a set of three unconventional measures:

i) Covered Bond Purchase Program - CBPP3: a third round of ECB's purchases of covered bonds issued by banks;

ii) Asset Backed Security Purchase Program - ABSPP: purchases of securitized corporate bonds by the ECB, based on guarantees from private assets;

iii) Targeted Long Term Refinancing Operations - TLTRO: the provision of long-term liquidity lines to banks, with should target this liquidity preferably for loans to non-financial companies/households, except for mortgages.

Regarding the CBPP3, purchases of covered bonds by the ECB began in October 2014 and are expected to last until at least March 2017, without a predetermined amount. This third stage of the program has acquired an amount of bonds nearly the triple of the first stage. According to ECB data available until March 2016, an amount of € 165.8 billion have been acquired, with a vast majority of purchases in the secondary market (70%).

In terms of the ABSPP, the program started a month later, in November 2014, and is also expected to last at least until March 2017. Nevertheless, there are some technical difficulties in its implementation. This happens because the corporate bond securitization market in the Euro area (based on guarantees offered by small private agents, such as auto loans, credit card bills, etc.) shrank considerably after the 2008 crisis, and the availability of collateral that meets ECB's requirements is small. The ECB has made some changes in the ABSPP framework in September 2015, with national central banks assuming a greater role in ABS purchases. However, it still remains to be seen if those changes can foster the program's implementation. Until March 2016, only € 19 billion of ABS were purchased by the ECB.

As for the TLTROs, it was decided that the ECB would hold eight operations between September 2014 and June 2016, all maturing in September 2018 (i.e., the operations will last between two and four years). The fees charged to banks would be 0.25% in the first two operations, dropping to the benchmark rate in the following six operations (0.05% until December 2015, and 0% in March and June 2016). The idea is that banks can borrow funds respecting their initial limit (7% of their loan portfolio in the first two operations), which can be gradually expanded in the following operations if their loan portfolio directed to non-financial businesses and households (except for mortgages) increase. However, there is no serious punitive mechanism for banks if the borrowed liquidity is not directed towards lending to the real economy. The only "punishment" is that the resources must be repaid two years earlier (September 2016, instead of September 2018). The ECB has offered a total of € 425.1 billion in the first seven operations (€ 82.6 billion in September 2014, € 129.8 billion in December 2014, € 97.8 billion in March 2015, €

73.8 billion in June 2015, € 15.5 billion in September 2015, € 18.3 billion in December 2015, € 7.3 billion in March 2016).

This amount fell far short of the ECB's own initial estimate, which was € 400 billion just in the first two operations. Several analysts sought to explain the initial low demand for loans from banks. At the first operation, one of the causes could be that banks avoided taking new loans until the results of the 2014 ECB Comprehensive Assessment were not disclosed (this release only occurred in October 2014, and capital adjustment needs in the banks were modest, a net amount of € 6.35 billion for eight banks). But according to Merler (2014), the main reason was that banks feared to extend new loans to businesses and households in a still uncertain scenario. The institutions were just swapping the "old LTRO" funds, which matured in February 2015 with a rate of 1%, for new TLTRO funds with lower rates. Thus, the net impact of expansion in ECB's balance sheet with the initial TLTRO was small.

In January 2015, it became clear that ECB's implicit objective to expand its balance sheet by € 1 trillion until September 2016 just with the programs announced in September 2014 would not be met. At the same time, with a sharp fall experienced by energy prices, the inflation rate in the Euro area was -0.6% YoY, deepening in the negative territory (reached in December 2014 with -0.2% YoY) and fueling fears of a deflationary spiral.

In this context, most economic analysts converged to a view that a more incisive action was necessary. This view also became the most suitable alternative for the majority of ECB's Governing Council members, and tolerated by Germany, since the ultimate goal of ECB's purchases would not be monetary financing of governments, but to ensure Euro area’s price stability in the medium/long run. The institution was then ready to follow the path of Quantitative Easing (QE) also adopted by other major global central banks: Fed (USA), BOE (UK), BOJ (Japan), although well after them.

3.3 Public Sector Purchase Program

It was at this scene that in January 2015 the ECB announced it would start in March its QE program, called Public Sector Purchase Program - PSPP. Its focus would be to make unsterilized purchases of bonds issued by governments, national agencies and EU's supranational bodies, initially at least September 2016. Additionally, the ECB would continue the programs announced in September 2014 (CBPP3, ABSPP and TLTROs).

Together, they would promote an initial monthly expansion in ECB's balance sheet of € 60 billion, which implied a net expansion in the institution's balance sheet of over € 1 trillion, to levels observed in early 2012. The focus was on achieving a sustained path in inflation towards the level of below but close 2% over the medium term.

Here we perform a brief description of the main features of the PSPP, valid from March 2015 until December 2015[3]. First, bond purchases were made by the Eurosystem (ECB or National Central Banks - NCBs) in the secondary market, not to incur in monetary financing of governments (violation of Article 123 - Treaty of Functioning of the European Union). Purchases were being divided in a way that the ECB buys 8% of the securities and NCBs the remaining 92%. Of these 92%, NCBs acquired 12% from EU supranational bodies and 80% from their own government or national agencies. Thus, although the program comprises the entire Euro area, the mutualization of risks within the Eurosystem is low (only 20%), with 80% under each country's responsibility through its NCB. In terms of amounts acquired, they follow the share of each country in ECB's capital key, so that the largest countries are responsible for most part of the purchases. Germany (26.6%), France (21.1%), Italy (18.2%) and Spain (13.1%) supply 78.9% of the securities bought by the PSPP.

In terms of ECB´s purchases, there was a limit of 33% per country, in order to prevent the ECB to concentrate its purchases in a single country. There was also a 33% limit per bond issued, to avoid that ECB purchases eventually distort the negotiation of a specific bond in the market. Assets purchased must have a minimum investment grade rating (BBB- or equivalent), except for Greece and Cyprus. These countries can only join the PSPP while fulfilling Troika assistance program conditionalities. In the beginning of the program, when Greece and Cyprus were undergoing revisions of their agreements, their bonds were not eligible. By July 2015, Cyprus completed its review and also joined the program, while that still wasn´t possible for Greece. If it turns out necessary to restructure a sovereign bond in the program, the ECB would receive *pari passu* (not senior) treatment with private creditors. Regarding the maturity of the securities, short and long-term bonds (between 2 and 30 years) were being purchased, with an average maturity of 8 years. The

[3] All the features listed here are currenty in place, except for the modifications mentioned in section 3.4.

ECB/NCBs can buy bonds including ones with negative yields, provided that they are not below the deposit rate.

3.4 APPs Concerns and Modifications

Since the beginning of the APPs, several concerns related to the program's implementation emerged, related to the following issues: (i) The program's duration - too short to have the expected effects on inflation; (ii) The availability of assets to be purchased - scarcity of bonds in markets due to ECB' purchases and (iii) The level of yields - too low, undermining agents' profitability and bringing financial stability problems. Therefore, some important modifications were introduced in APPs in order to face some of those concerns, and try to increase its effectiveness.

In the December 2015 meeting, the ECB implemented the first round of changes. It was announced that APPs would remain at least until March 2017, what meant an extension of 6 months from the original date of September 2016. Furthermore, main refinancing operations and 3 month-LTROs would remain as fixed rate tender procedures with full allotment until at least the end of 2017. And securities bought under APPs would have their principal payments reinvested as they mature, which means the ECB would maintain an expanded balance sheet for as long as it considers adequate for its monetary policy objectives. In addition, it also lowered the deposit rate from -0.2% to -0.3%, so more bonds with negative yields could be bought. In addition, it included regional and local government bonds in the list of eligible assets for the program[4].

In the March 2016 meeting, more incisive modifications were taken. First, not only the deposit rate was lowered 10 bps (from -0.3% to -0.4%), but also the main refinancing and marginal rates were lowered 5 bps (to 0% and 0.25%, respectively). The duration of APPs was kept at least until March 2017, but the volume of monthly purchases was increased from € 60 to € 80 billion per month. The availability of assets to be purchased would also be increased in the following ways: (i) Lowering the yield floor for purchases, with the deposit rate cut; (ii) Increasing the issuer and issue limit of bonds purchased from international organizations and multilateral development banks from 33% to 50%

[4] In July 2015, the ECB had already added 13 new national agencies in the list of agencies whose securities are eligible for the PSPP.

(although the share of those securities in total purchases would fall from 12% to 10%, and ECB's purchase would be increased from 8% to 10%); (iii) Including investment grade non-bank corporate bonds in the list of eligible assets to be purchased, starting from June 2016 onwards[5]. The intention to increase the availability of credit to the real economy was strengthened not only through this decision to buy corporate bonds, but also through the announcement of a new round of TLTROs. TLTRO 2 will be a series of four quarterly operations, from June 2016 up to March 2017. Banks can borrow money for four years, and there will be no requirement for early repayment within two years, as it was the case for TLTRO 1 (banks can roll from TLTRO 1 to TLTRO 2). The limit for each counterparty to borrow will be up to 30% of the stock of eligible loans as at the end of January 2016 (higher than the 7% limit established in the TLTRO 1). But the main change is the incentive introduced for banks to provide credit to the real economy, enabling the ones which lend more to non financial corporations and households (except for housing) to have lower rates. For each operation, the interest rate will be the main refinancing operation prevailing at that time (ex: 0%). But for banks who exceed their loan benchmark to the real economy, the interest rate can be as low as the deposit rate (ex: -0.4%).

As the ECB states that APPs are flexible in size, composition and duration, new changes may be introduced in the future if the ECB considers necessary.

3.5 Effects of the Asset Purchase Programs

To begin our analysis, we present a table with the net amount of bonds acquired by the Eurosystem under the current asset purchase programs, from October 2014 until March 2016.

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[5] The Corporate Sector Purchase Program (CSPP) will purchase corporate bonds denominated in euros in private and secondary markets, with maturities from 6 months until 30 years, and issue limit of 70% . It will be conducted by six central banks (Germany, France, Italy, Spain, Belgium, Finland), in coordination with the ECB.

Table 2- Eurosystem Net Purchases under Current Asset Purchase Programs (€ million)

Month	Flow				Stock			
	ABSPP	CBPP3	PSPP	Total (monthly)	ABS PP	CBPP3	PSPP	Total (cumulative)
Oct 14 / Feb 15	3,463	51,262	-	-	3,463	51,262	-	54,725
Mar 15	1,160	12,587	47,383	61,130	4,624	63,606	47,356	115,586
Apr 15	1,162	11,464	47,701	60,327	5,785	75,070	95,056	175,911
May 15	1,420	10,039	51,622	63,087	7,205	85,108	146,679	238,999
Jun 15	1,590	10,215	51,442	63,247	8,796	94,997	197,530	301,323
Jul 15	944	9,006	51,360	61,310	9,740	104,003	248,889	362,632
Aug 15	1,347	7,459	42,826	51,632	11,087	111,462	291,715	414,264
Sep 15	1,928	10,110	51,008	63,046	13,015	121,151	341,462	475,628
Oct 15	1,563	9,963	52,175	63,731	14,577	131,144	393,637	539,358
Nov 15	624	6,889	55,105	62,598	15,201	138,013	448,742	601,956
Dec 15	144	5,803	44,309	50,256	15,322	143,340	491,215	649,877
Jan 16	2,264	7,197	52,956	62,417	17,586	150,537	544,171	712,294
Feb 16	985	7,784	53,358	61,127	18,571	158,321	597,529	774,421
Mar 16	421	7,819	53,059	61,299	18,994	165,638	648,022	832,654

P.S: Quarter end adjustments (€ million): ABSPP +1 (Jun 15), -23 (Dec 15), +1 (Mar 16); CBPP -54 (Dec 14), -190 (Mar 15), -326 (Jun 15), -422 (Sep 15), -476 (Dec 15), -503 (Mar 16); PSPP: -27 (Mar 15), -592 (Jun 15), -1261 (Sep 15), -1836 (Dec 15), -2565(Mar 16). Source: ECB.

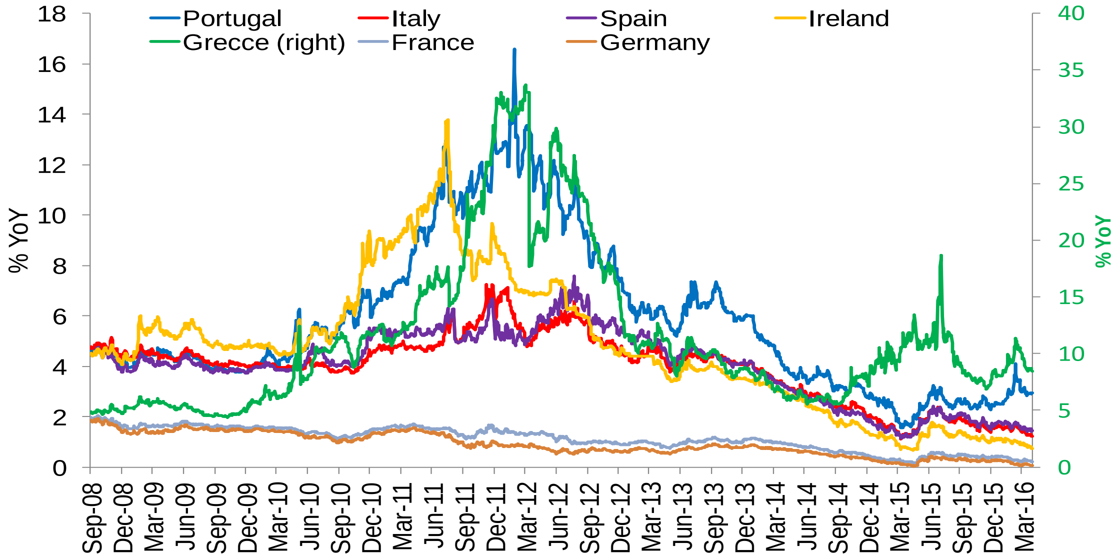
Observing the flow of purchases, we can see that since the Eurosystem began the PSPP in March 2015, the € 60 billion monthly target of balance sheet expansion has been reached (except in August and December 2015, but bond purchases were compensated by ECB in other months, so as to keep the monthly amount of purchases around the mean of € 60 billion).

In terms of the stock of purchases, we notice the significant amount of bonds bought by the PSPP: in one year, it has purchased an unsterilized sum of € 648 billion, much more than the amount bought by the SMP through sterilized purchases during two years. Considering all asset purchases since October 2014, a cumulative amount of € 832.6 billion has been bought until March 2016. Together with the TLTROs, this implies that the ECB is on its way to promote a net expansion of its balance sheet of over €1 trillion, to a size of at least € 3 trillion in assets (level observed in early 2012).

Now we continue our analysis focusing on the asset purchase programs effects[6] on important macroeconomic indicators: sovereign yields, exchange rate, credit, output and inflation. Considering the initial period of the APPs, most of those indicators had positive responses to the programs, except for sovereign yields and the euro exchange rate after May 2015, due to intra-Euro (e.g.: financial volatility in bond markets, political uncertainty in Greece) and extra-Euro area factors (i.e.: price of oil, US and China economies).

3.5.1 Sovereign yields

Chart 2- Euro area - Sovereign bond Yields -10 years (%)



Source: Bloomberg

Sovereign bonds' yields, which had risen significantly between 2010 and 2012, began to decrease since the introduction of ECB's "verbal intervention" strategy in the second half of 2012. The set of initiatives announced in September 2014 and especially the PSPP announcement in January 2015 gave new impetus to this downward trend, as it can be seen on chart 2 (with the exception of Greece, whose yields were under pressure since October 2014 because of doubts over the renewal of financial aid from the Troika). The reduction in yields is important for the periphery, once it diminishes the cost of financing

[6] The analysis also includes the effects of TLTROs, as their implementation is being done in parallel with APPs.

their sovereign debt, and increases their ability to adjust their fiscal accounts, since they have been struggling in recent years to reduce their deficit and debt levels.

Nevertheless, yields also dropped in core countries, which were already in very low levels. In particular, there was a reduced availability of German bonds in the market, since it was the security more often purchased by the Eurosystem (because of the higher German share on ECB's capital key), and the German Finance Agency did not change substantially its issuing schedule after the announcement of the PSPP, keeping its objective of not increasing the country´s debt ratio. In the end of April 2015, the German yield curve had negative yields up to maturities of 7 years, and the 10 year bund was hovering around 0.07%. In the date of April 29, the 10 year bund yield jumped from 0.16% to 0.28%, and in the first week of May it was trading near 0.58%. Analysts explained this sudden volatility (which received the name of "bund tantrum") by the following factors: (i) Macroeconomic data, which implied higher growth and inflation expectations for the Euro area (e.g.: in the end of April 2015, release of first Euro area HICP out of deflation after four months, coupled with higher oil prices); (ii) German bond yields in record low levels took several institutional investors to undershoot their benchmark return rates, which lead some ETFs, mutual, insurance and pension funds to sell those securities on the market at the same time. This sudden reduction in German bonds' demand lowered their prices and increased their term premiums and yields.

In the following months, German and Euro area sovereign yields have experienced periods of higher volatility. When uncertainty rose (i.e. June and beginning of July 2015, with the problems in Greece), Euro area’s yields restored their previous diverging trend: core yields decreased with risk aversion, while peripheral yields increased with contagion fears, albeit still at much lower levels than back in 2011/2012. Also, in days when economic data pointed to higher future inflation, all sovereign yields rose due to higher inflation expectations. Nevertheless, the continuation of the PSPP implies lower yields in general during the program´s implementation.

Even with the episodes of bond market volatility between May and June 2015, yields’ levels remain historically low. During the implementation of the PSPP, yields of several countries were in negative territory, including mid-term maturities (e.g. Germany up to 9 years), some even below the deposit rate, which the ECB determined as the lower bound for its purchases. Some of the concerns related to the low yield's level are: (i) With the costs imposed by negative deposit rates on bank´s excess reserves, banks would have lower profitability and may have problems on their balance sheets. Low profitability can also undermine the balance sheets of institutional investors, such as pension funds; (ii) Possible losses incurred by savers, as they see their income in bank deposits shrink, and may bear the costs of negative deposit rates if banks pass them on to customers; (iii) Extremely low yield levels could feed new asset bubbles, raising financial stability problems.

With regard to those critics, the ECB has its own justifications. In terms of the issues in banks' balance sheets, it states that the banking supervisory framework already had a huge improvement since 2008, and remains vigilant for any excesses, standing ready to act if there is an unwarranted tightening of financial conditions or change in the inflation outlook. As for the potential losses for savers, it states that due to competition, banks have not passed any extra costs related to negative interest rates to customers, but the ECB will continue monitoring this indicator. When it comes to worries about a new asset bubble, it states that the non-financial private sector is still highly indebted, and any new "releveraging" would be gradual. In broader terms, the ECB argues that low yields are due to the extraordinary financial conditions, and that the programs are justified because inflation expectations have not resumed their sustained path towards ECB´s objective.

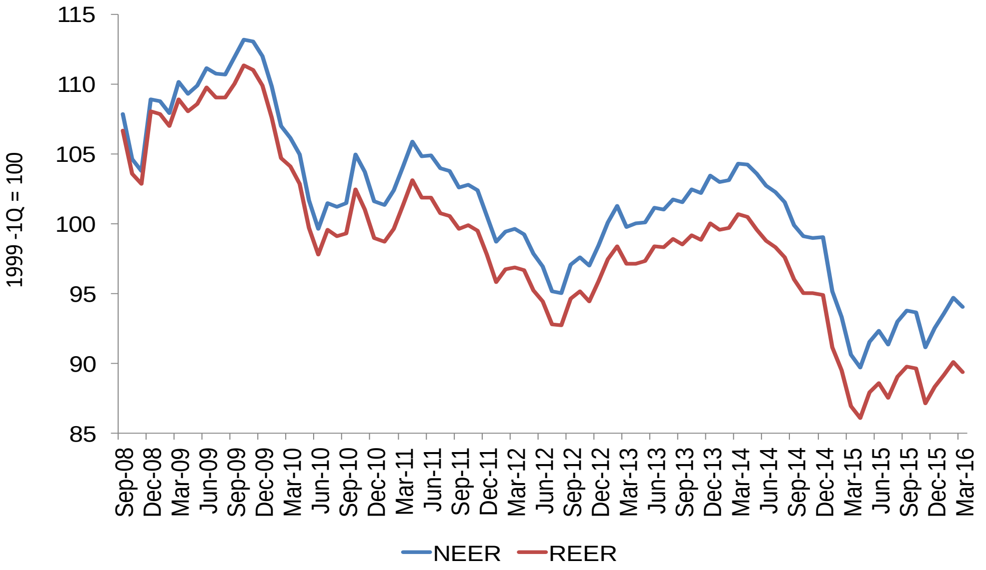
Nevertheless, in the episode of "bund tantrum", important players in the market that were linked to it (e.g.: insurance, pension, mutual and exchange-traded funds) are not under ECB's supervision authority. The "bund tantrum" experience and the possible problems in those agents' balance sheets associated to low interest rates suggest that financial supervision should continue to be strengthened. This is true not only in the banking sector (completing the banking union) but also in other EU financial markets authorities (securities-ESMA; insurance and pension - EIOPA). Those authorities could have more enforcement powers, in order to harmonize rules and avoid that sudden movements of institutional investors provoke sharp volatility, disrupting financial markets and the real economy. This topic could be included in the ongoing discussions regarding the "Capital Markets Union" - which intends to create deeper, more integrated capital markets in the EU, and the Markets in Financial Instruments II Directive (Mifid II)- which aims to introduce a single rulebook for financial services in the EU.

3.5.2 Exchange Rate

The ECB does not have an official exchange rate policy, as the euro has a flexible exchange rate. However, the APPs can play a significant role on the euro exchange rate. In particular, an increase in APPs is usually associated to a depreciation of the euro in currency markets. Maintaining the euro at a more depreciated level is desired for the monetary union at this stage, as it enhances the competitiveness of its exports (which helps in the recovery of GDP) and brings a positive effect for inflation, by increasing the prices of imported goods.

The APPs effect on the exchange rate cannot be observed clearly if we just take into account the rate euro versus dollar. The reason behind it is the end of the QE program by the Fed in October 2014 and the outlook of monetary policy normalization in USA during 2015 onwards. The "Fed effect" led to the appreciation of the dollar against most global currencies (including the euro) between the end of 2014 and the beginning of 2015. Thus, the APPs effect amplified the euro devaluation in a global movement of dollar strengthening. However, whenever the USA disclosed weaker output data and the Fed gave signs it could delay its first interest rate hike, several global currencies (including the euro) partly recovered their losses against the dollar. Nevertheless, with the outlook of normalization of interest rates in the USA and the continuation of APPs in the Euro area, many analysts project that the euro may devaluate further against the dollar in the course of 2016.

Chart 3- Euro Nominal (NEER) and Real (REER) Effective Exchange Rate



Source: ECB

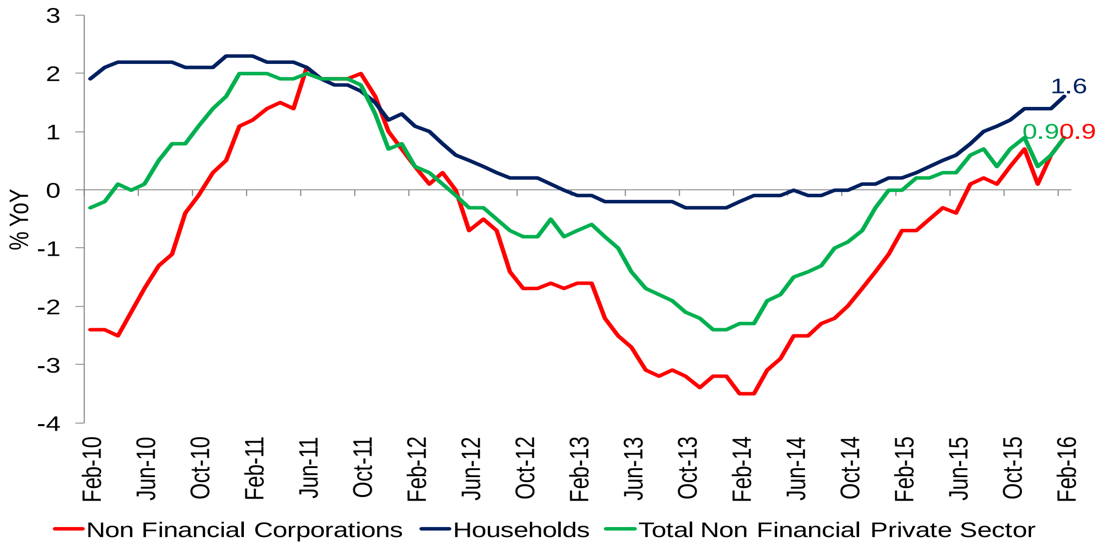
Therefore, in order to better gauge the effects of the APPs on the euro exchange rate, we observe the evolution of the euro against the basket of 19 currencies which are most relevant to Euro area's trade[7], measured through the effective exchange rate. The chart 3 expresses the evolution of nominal (NEER) and real (REER) effective exchange rates from September 2008 to March 2016. The chart shows that, from January to April 2015, the euro's NEER and REER had a significant depreciation. The latter was even more intense than the former, due to the low level of inflation in the Euro area at the beginning of 2015. Since then, those rates took a more volatile path. Between May and September 2015, NEER and REER's drops were partially interrupted, once "safe haven" flows with uncertainties in Greece (until June 2015) and China (devaluation of the renminbi in August 2015) contributed to a relative appreciation of the euro. In October and November 2015, the euro resumed depreciating against the basket of currencies. However, between December 2015 and February 2016, the NEER and REER appreciated again, as currency markets evaluated the stimulus measures disclosed by the ECB in December 2015 as timid. Only in March 2016, with the announcement of a broader package of stimulus measures by the ECB, the NEER and REER began depreciating again.

3.5.3 Credit

With regard to credit, Euro area data area points to a gradual recovery after the implementation of the APPs, as it can be seen on chart 4.

[7] Australia, Canada, Denmark, Hong Kong, Japan, Norway, Singapore, Korea, Sweden, Switzerland, United Kingdom, USA, Bulgaria, Czech Republic, Hungary, Poland, Romania, Croatia and China.

Chart 4- Euro area- Loans to non-financial private sector - Growth Rate (% YoY)



P.S.: Data seasonally adjusted, loans adjusted for sales and securitization. Total non-financial private sector included non- financial corporations, households, insurance corporations and pension funds.
Source: ECB

Loans to the non-financial private sector had declining annual rates of growth since the end of 2011, which became negative in 2012, and only returned to positive territory in March 2015. This growth trend continued with some oscillation, up to 0.9% in February 2016. Loans to non-financial corporations experienced a sharp fall in annual growth rates since end-2011, presenting negative rates until June 2015, growing up to 0.9% in February 2016. On the other hand, loans to households traced a more benign path, not experiencing such a sharp fall such as non-financial corporations. Loans to households growth rates entered in a positive territory since November 2014, up to 1.6% in February 2016.

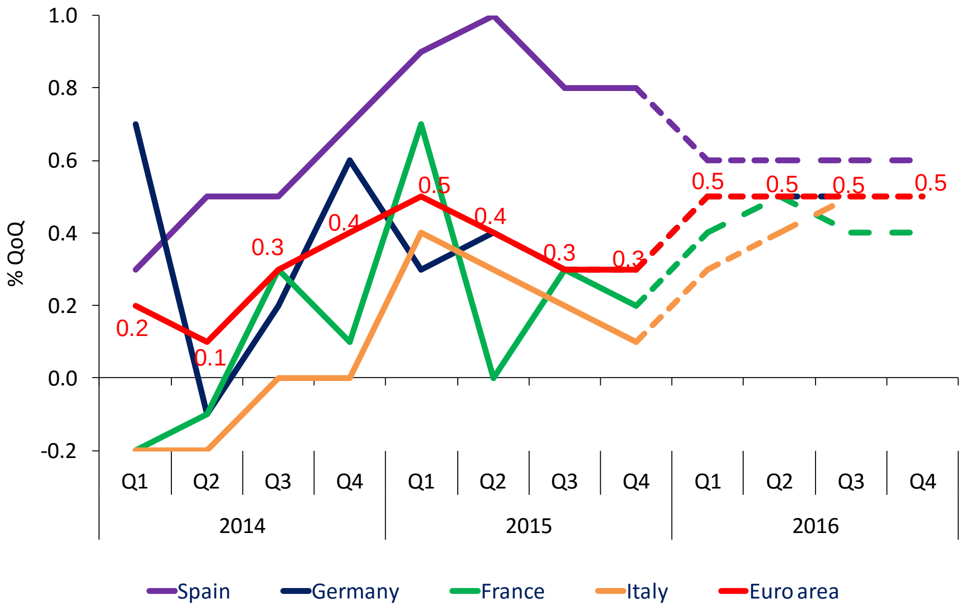
Further information regarding current conditions and future credit expectations in the Euro area can be obtained in the quarterly ECB's Bank Lending Surveys. In general terms, the surveys during the course of 2015 and in January 2016 showed that, in terms of credit supply, there was a reduction in loan restrictions imposed by banks over non-financial companies and households. In terms of credit demand, there was an increase for non-financial companies and households.

Notwithstanding, it´s important to highlight that credit conditions are still heterogeneous inside the Euro area, either among countries (higher credit spreads in the periphery than in the core) or within each country (small and medium enterprises -SMEs- with funding costs higher than large non-financial companies).

3.5.4 Output

The transmission of monetary policy effects to the real economy usually occurs with a lag. Despite that, initial output indicators released since APPs implementation point in a favorable direction. In quarterly terms, after the beginning of the APPs, Euro area's GDP accelerated (0.4% QoQ in Q4 2014, compared to 0.1% in Q2 and 0.3% in Q3 2014). In 2015, the expansion continued in Q1 (0.5%), with a slight reduction in Q2 (0.4%), Q3(0.3%) and Q4 (0.3%). According to the February 2016 European Commission forecasts, Euro area might keep a growth rate around 0.5% over the following quarters, as it can be seen on chart 5. However, each country has its own characteristics, implying in different growth rates for each nation. For instance, since Q4 2014, Spain was the only of the four largest Euro area countries which managed to increase domestic consumption, investment and net exports at the same time.

Chart 5 - Euro Area GDP Growth: 2014-2016 (% QoQ)



P.S. Bold lines are actual values (up to 2015 Q4). Dotted lines are forecasts (2016 Q1 onwards). Source: Eurostat /European Commission - February 2016.

On annual terms, after recording a lower growth in 2014 (0.9% YoY), the Eurozone grew 1.5% in 2015. The European Commission February 2016 forecasts project a GDP growth of 1.7% in 2016. Beside the more accommodative monetary policy, other factors that have supported or will support the monetary union's growth are: private consumption (drop in energy prices increased real household income and boosted consumer confidence) and a more neutral fiscal stance (differing from the tightening that prevailed in last years). Despite the weaker exchange rate in historical terms (that helped net exports growth in the beginning of 2015), the slowdown of foreign demand in important emerging markets (e.g.: China, Russia) may cast some doubts over Euro area's net exports growth on the next quarters. In other words, indicators point more to a domestic-led than a foreign-led recovery in the zone.

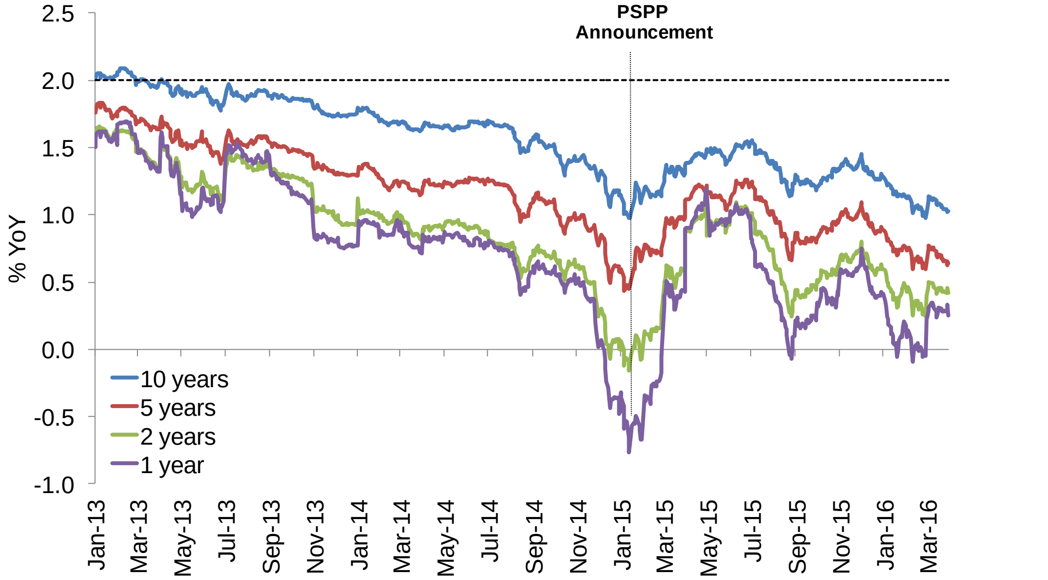
Even the unemployment rate, which is one of the indicators with slower response and presents a chronic problem in the periphery, has begun to fall too. After being stagnant at 11.5% during six months in 2014, Euro area's rate started a downward trend in December 2014 (11.4%), falling to 10.3% in February 2016.

3.5.5 Inflation

When it comes to inflation, after the APPs implementation the HICP headline and core indexes increased, albeit at modest rates. After registering deflation between December 2014 and March 2015, the headline HICP registered 0% YoY in April and 0.3% YoY in May, as negative effects of energy prices moderated, but fell to -0.1% in September, as negative energy price effects regained strength. Then, after some months in positive territory, the headline HICP posted a negative value in February (-0.2%) and zero in March 2016. The core index increased from 0.6% YoY in March to 1.1% in October 2015, oscillating lower in the following months, up to 1% YoY in January and March 2016. This increase was mainly related to non-energy industrial goods (good proxy for domestic demand), which had been registering negative inflation rates from the end of 2014 until the beginning of 2015. After the implementation of the PSPP, these prices rose from 0% YoY in March 2015 to 0.7% in January and February2016

In terms of inflation projections, the March 2016 ECB forecasts point that headline HICP should present an average in the year of 2016 of 0.1% YoY, just a tick up the 2015 average (0% YoY), still low due to downward effects of energy prices. However, the institution projected the HICP at an average of 1.3% in 2017 and 1.6% in 2018. Those projections are based on the assumptions that inflation would pick up further due to higher energy prices, increasing employment/domestic demand and monetary accommodation measures.

Chart 6 - Euro area - Medium/Long Term Inflation expectations (inflation swaps)



Source: Bloomberg

As for long-term inflation expectations, they still remain subdued. The 5Y5Y inflation swap rate indicator increased from around 1.50% YoY in January 2015 to a maximum 1.86% in July 2015. Since then, it established a downward trend, with some oscillations. It was at the end of March 2016 around 1.40%, in a level below the registered in the announcement of the PSPP in January 2015. When we observe inflation swap contracts for maturities from 1 to 10 years (chart 6), we see they have also increased from January to June 2015, then lost steam until August, and began a very modest recovery between September and December 2015. However, swaps fell again during the first quarter of 2016. This shows that the latest recoveries were short lived, and inflation expectations remain well below ECB's objective

4 Conclusions

This paper described the path experienced by the Euro area economy after the 2008 crisis, with a special focus on ECB's unconventional monetary policies. The rapid response from the authorities after the collapse of Lehman Brothers in September 2008 avoided that the US financial crash had more drastic consequences on the monetary union's financial system. However, this episode has turned financial and credit conditions in the Euro area more restrictive, feeding into a crisis that became more acute after 2009. It's important to mention that the Euro crisis had earlier roots within the zone itself, originated in core-periphery divergences which lead to serious imbalances in the banking system and the balance of payments of peripheral countries.

Since then, a number of conventional and unconventional measures were taken by the ECB. Some of the actions taken in 2011 (such as the benchmark interest rate hikes in April and June 2011, the SMP and the three-year LTROs) received strong criticism for not fighting adequately or even aggravating the situation of the banking and sovereign crisis, and fostering financial contagion among countries. This crisis only began to show signs of softening in the second half of 2012, with the implementation of the "verbal intervention" strategy by the ECB (e.g.: OMT), together with other actions by the EU (permanent stabilization fund - ESM and banking union project).

However, in 2013 and 2014 the output continued to present a sluggish recovery, and fears of deflation began to increase towards the end of 2014. Therefore, the ECB implemented new stimulus programs in September 2014 (TLTROs, CBPP 3, ABSPP), which were complemented by a massive public sector bond purchase program (PSPP), announced in January 2015 and implemented from March 2015 onwards.

When we undertake an analysis of these recent ECB programs on macroeconomic indicators, we observe that sovereign yields and the euro exchange rate presented initial positive effects (e.g.: up to April 2015, yields fell and the euro depreciated, what would reduce debt service costs for countries, improve net exports and later raise inflation). Since May 2015, this trend was partially interrupted and those indicators became more volatile, due to reasons related to the own Euro area (e.g. bond market financial volatility, tensions in Greece) and other countries (i.e. uncertainties surrounding monetary tightening timing in the USA and in Chinese economy). Other macro indicators usually take longer to present favorable effects, but have already presented positive outcomes:

credit (reduction of restrictions in credit supply and increased demand for credit to the real economy, mainly households), output (relative increase in growth rates and reduction in unemployment) and inflation (recovery in core HICP). However, headline inflation and medium term inflation expectations are still at very low levels, well away from ECB's objective of below but close 2%. That´s why the ECB in the December 2015 and March 2016 meetings decided to take additional stimulus measures, and stated that it is prepared to undertake further modifications on APPs' size, composition and duration if necessary, in order to achieve its objective.

Despite the initial positive effects, the ECB has received a number of criticisms over the programs, to which the institution has presented its justifications. Nevertheless, it should be borne in mind that these ECB programs are no unique solution to the various problems currently experienced by the Euro area.

From the point of view of private agents (non-financial companies and households), their debt levels are still very high. It will still take several years for the deleveraging process to be completed, and thus the credit recovery may be slow. In addition, funding costs remain unequal, either in terms of countries (higher in the periphery than in the core), or among agents (higher to households and small businesses than to larger companies).

From the point of view of public accounts, most countries remain with high levels of fiscal deficit and public debt. At times when ECB's PSPP manage to reduce sovereign yields, they tend to lower countries' cost of debt service. Nevertheless, critics to the PSPP state that it stimulates moral hazard, by postponing the "necessary" fiscal adjustments in countries. On the other hand, other voices argue that what Euro area countries need in fact is to avoid procyclicality in fiscal policies (stricter austerity, deeper recessions). Instead, they should have more flexibility in meeting their fiscal targets, and increase public investment to resume growth.

This controversy is closely related to the intricate monetary union's political framework, both inside countries, and within the Euro area/EU. The case of Greece is emblematic to show how the political game is complex within a union that has a common currency, but different sovereign countries with distinct development levels and independent fiscal policies. This turns the decision-making mechanisms extremely complicated, and in several times slower than financial market reactions.

Summing up, unconventional monetary policies are necessary – and they have shown some efficacy in the Euro area – but they are not sufficient to solve a crisis with very complex and multiple roots. To restore growth in a sustained path, Euro area should also try to complement its monetary policy measures with the following actions: (i) Adopting a more coordinated fiscal policy among its countries, with a common budget institution ("Euro Treasury") that could pool funds collected through Euro area' common securities or taxes, and use these resources to foster public and private investments (while each country would retain its sovereignty in its own fiscal issues) ; (ii) Allowing a higher degree of fiscal flexibility and being countercyclical when appropriate, to avoid deepening recessions; (iii) Actions towards reducing regional economic asymmetries, such as an increase in the role of the European Investment Bank and other national development banks in offering support for key areas (infrastructure, innovation, SMEs, jobs creation), mainly in the periphery; (iv) Conducting institutional reforms in the countries and the EU, to increase integration and supervision in bank/capital markets and foster productivity, to enhance countries' resilience to financial shocks and improve their competitiveness.

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