

Assessing ECB Quantitative Easing: One Year On

IN-DEPTH ANALYSIS

Abstract

The ECB's expanded asset purchase programme (EAPP) adds the purchase programme for public sector securities to the existing private sector asset purchase programmes to address the risks of a too prolonged period of low inflation. It now consists of a covered bond purchase programme (CBPP3), asset-backed securities purchase programme (ABSPP) and public sector purchase programme (PSPP).

However, as the transmission mechanisms of monetary policy remains characterized by long, variable and uncertain time lags, the impact of asset purchases on the real economy continues to be a matter of discussion as confirmed by the slow recovery in bank lending. Some economists even argue that the most effective transmission channel of unconventional monetary policy is the exchange rate. Against this backdrop, the note assesses the effectiveness of the ECB programme of asset purchases one year after its first implementation.

This document was requested by the European Parliament's Committee on Economic and Monetary Affairs.

AUTHOR

Eddie GERBA, London School of Economics
Corrado MACCHIARELLI, London School of Economics

RESPONSIBLE ADMINISTRATOR

Dario PATERNOSTER
Policy Department A: Economic and Scientific Policy
European Parliament
B-1047 Brussels
E-mail: Poldep-Economy-Science@ep.europa.eu

EDITORIAL ASSISTANT

Irene VERNACOTOLA

LINGUISTIC VERSIONS

Original: EN

ABOUT THE EDITOR

To contact the Policy Department or to subscribe to its monthly newsletter please write to:
Poldep-Economy-Science@ep.europa.eu

Manuscript completed in June 2016
© European Union, 2016

This document is available on the Internet at:
<http://www.europarl.europa.eu/committees/en/econ/monetary-dialogue.html>

DISCLAIMER

The opinions expressed in this document are the sole responsibility of the author and do not necessarily represent the official position of the European Parliament.

Reproduction and translation for non-commercial purposes are authorised, provided the source is acknowledged and the publisher is given prior notice and sent a copy.

CONTENTS

EXECUTIVE SUMMARY	4
1. INTRODUCTION	6
2. QE AT WORK	7
2.1. Direct evidence on the effects of bond purchases	8
2.2. The signalling transmission channel	9
3. ASSESSING QUANTITATIVE EASING	11
3.1. Inflation and expectations	11
3.2. A weaker euro	14
3.2. Growth	14
3.3. Lending	15
3.4. Yields and the yield curve	17
CONCLUSIONS	19
REFERENCES	20

EXECUTIVE SUMMARY

Albeit estimating the macroeconomic effects of ECB's quantitative easing (QE) is clearly challenging given that only one year has passed since its first implementation, policies to reduce pressure on government bond yields have generally been effective. However, the liquidity in the credit markets has so far not returned evenly, forcing the ECB to flood the financial system with fresh liquidity in order to sustain the yet fragile euro area recovery.

With these limitations in mind, this note attempts to assess the effectiveness of the ECB programme of asset purchases one year after its first implementation. We find that:

- (Preliminary) empirical evidence is supportive of the latest ECB's expanded asset purchase programme (EAPP) in that it succeeded in lowering bond yields and pushing the investors out from the sovereign debt market.
- Talking about the EAPP extension in the direction of buying investment-grade euro-denominated bonds issued by non-bank corporates, previous private asset purchases have generally shown positive results, though mostly in the US. This, however, happened in an environment when the spread over US Treasuries was unusually high. While Portugal's and Greece's 2 and 10 year spreads are on the rise, it is not the case for the whole euro area at the moment.
- All in all, and based on the previous (non-euro area) evidence available, the medium to long-term effects of European QE may depend on the quality of market signalling by the ECB and the extent to which markets will react to it going forward. The immediate market reaction to the extension of assets purchases has been a lot more liquidity into the fixed income segment. However, it is not clear whether this rapid influx of liquidity is improving the market functioning, or it is simply used to engage in speculative short-term gains.
- Inflation is still subdued. Only the 5-year ahead inflation expectation comes somewhere close to (even if still significantly under) the 2 percent target. What is not clear is whether those expectations have priced in a possibility of the ECB continuing the EAPP 5 years ahead. If so, should the ECB decide to tamper off sooner, there might be further downward pressure for medium-term expectation. Evidence on inflation expectations may be difficult to evaluate, given the counteracting effects of oil prices and weak demand from emerging market economies at the same time. Consistent with the ECB's inflation forecasts' figures, however, the Survey of Professional Forecasters last reported that the risks to the baseline inflation outlook are perceived as relatively on the downside for 2017 and 2018, with these downside risks stemming indeed primarily from external factors.
- The EUR-USD has been depreciating and has - since then - remained stable, fluctuating at around 1.1 since March last year. The ECB clearly wishes for the euro exchange rate to continue to weaken as it continues with the EAPP, in the hope of spurring growth via external demand. However, its success will crucially depend on several factors, including trade. While the EUR has weakened with respect to several other currencies, since ECB engaged in EAPP, the EUR has consistently appreciated with respect to the basket of its trade-weighted currencies. The index is currently at the same point as it was in early 2015, just before the QE.

- The euro area economy expanded 0.5 percent on quarter-to-quarter in the first three months of 2016, lower than a preliminary estimate of 0.6 percent. This still represents the fastest growth rate in a year as large economies such as Germany, France and Italy accelerated while Greece and Latvia contracted.
- While bank lending is picking up in the euro area, ECB's programme seems to have had so far limited impact on the lending-decisions. If anything, it is having an impact on the terms and conditions of loans, not the quantity of credit. However, significant regional disparities have been observed in lending. In particular, mainly banks from the core seem to be (re)gaining confidence about national (sovereign and credit) conditions.
- Even if the supply shortage is not an imminent problem for the ECB, it might become a problem at a later date when the ECB will try to execute further purchases and the universe of 'acceptable' bonds will shrink, particularly in the core. At the same time, on the demand side, more than 53 percent of total foreseen purchases of bonds under the EAPP have been executed, but there is at least one year to go. Hence the logistics of accessing bonds for ECB may become a supply, as well as a demand problem, if the characteristics of the Program do not change.

1. INTRODUCTION

The ECB's expanded asset purchase programme (EAPP) adds the purchase programme for public sector securities to the existing private sector asset purchase programmes to address the risks of a too prolonged period of low inflation. It now consists of a covered bond purchase programme (CBPP3), asset-backed securities purchase programme (ABSPP) and public sector purchase programme (PSPP). According to the latest ECB's Governing Council release, monthly purchases in public and private sector securities will amount to €80 billion (updating the previous figure of €60 billion from March 2015 until March 2016). They are intended to be carried out until the end of March 2017 and in any case until the Governing Council sees a sustained adjustment in the path of inflation that is consistent with its aim of achieving inflation rates below, but close to, 2% over the medium term.

Large asset purchases have a more direct impact on bank's balance sheet and the availability of credit for firms and households. The ultimate goal is the same, namely to stimulate spending, but quantitative measures changing the size/composition of the balance sheet remain the only effective tools to achieve further monetary policy accommodation, when the lower bound for policy interest rates is reached.

Nevertheless, impact of asset purchases on the real economy continues to be a matter of discussion as confirmed by the mixed macroeconomic results and the slow recovery in bank lending. Some economists even argue that the most effective transmission channel of unconventional monetary policy is the exchange rate, i.e. via the depreciation of the euro. Against this backdrop, we assess the (macroeconomic and financial) impacts of ECB's QE one year since it was first implemented. In particular, we assess the continuing impact it has on inflation (expectations), exchange rate, bank lending, corporate credit, bond yields, and ultimately, the growth prospects for the euro area.

2. QE AT WORK

Albeit estimating the macroeconomic effects of European quantitative easing is clearly challenging given that only one year has passed since its first implementation, policies to reduce pressure on government bond yields have generally been effective. However, the liquidity in the credit markets has so far not returned, forcing the ECB to flood the financial system with fresh liquidity in order to sustain the yet fragile euro area recovery.

The aim of the QE is, as expressed by ECB President Mario Draghi, to do “whatever it takes” to bring the core consumer-price-index (CPI) back to the 2%-target. However, by November 2015, it became clear that the core CPI was still far below the ECB’s threshold. In fact, since the start of QE inflation has had hard time to even cross 1% (see Macchiarelli and Gerba, 2016). In light of this, and following the ECB’s Governing Council meeting of 3 December 2015, it was announced that the EAPP would be first extended in scope, time, and possibly even size: in particular, the list of eligible collateral would be extended to include securities issued by regional and local governments, and the programme would be extended by at least 6 months until March 2017. At the same time, the deposit rate was cut by 10 b.p., down to -0.30%. A second extension in scope (but not in duration) came with the last ECB’s Governing Council Decision of 10 March 2016, one year since the start of the Program, with the decision to cut the interest rate on the deposit facility at a historical low, by 10 basis points, down to -0.40%, and to extend the monthly purchases under the asset purchase programme to €80 billion starting in April, with corporate bonds being the latest assets to be added to a growing list of securities the ECB will be open to buy.

This latest extension is primarily targeted at investment-grade type of corporate bonds. While the exact details of these purchases are still unclear, the start date of their purchases has been set to Wednesday 8 July 2016. Moreover, it is highly probable that most of the bonds will come from the primary market (Suter, 2016), i.e. where the highest liquidity is concentrated. Nevertheless, until a significant amount of corporate bond purchases have been executed, it will be difficult to know their exact origin and status.

This additional extension is intended to last until the end of March 2017 and in any case until the Governing Council sees a sustained adjustment in the path of inflation that is consistent with its aim of achieving inflation rates below, but close to, 2% over the medium term. As demonstrated by this further extension, the ECB is hoping that the program does not become obsolete, at least in the near term, and that further liquidity injection will help market conditions normalize.

In conjunction with an extension of the Program, a new series of four targeted longer-term refinancing operations (TLTRO II), each with a maturity of four years, has been launched, with the start date set in June 2016. As highlighted previously, another targeted long-term funding operation for banks was to be indeed expected (Gerba and Macchiarelli, 2016).

Looking at the history of the long term refinancing operations, in the euro area, the previous three-year full-allotment LTROs avoided massive bank deleveraging and an ensuing contraction in credits, following frozen interbank markets (Ciccarelli et al., 2013; Paries et al., 2013). They also increased carry-trade opportunities for banks to get cheap liquidity and invest into government bonds over the same maturity, resulting into further buy-back of sovereign bonds. Banks either deposited the cheap central bank funding at the ECB, or purchased higher yielding government bonds. Thereby, the LTROs in effect supported liquidity, ensured stable medium to long-term financing of banks, and temporarily supported further distressed government bond markets (Claeys, 2014).

Figure 1: The ECB's deposit facility rate since the start of the EAPP



Source: ECB data

With the EAPP, however, the story is completely different (see Gerba and Macchiarelli, 2016). Cutting the ECB deposit rate below -0.2 (-0.4 as of April 2016 – Cf. Figure 1) indeed makes banks want to reduce their exposure to the ECB to the minimum. Hence, instead of increasing their lending to households and businesses, banks would likely respond by moving money to non-euro zone central banks (Gerba and Macchiarelli, 2016). To avoid such scenario and get banks to lend more, the ECB will therefore need to wave “a lending carrot” (e.g. TLTRO) discouraging banks from simply putting their money into safe assets like overseas sovereign bonds. In addition, the indirect stimulus to government bond markets coming from carry trade is very limited at the moment, given that by mid-November 2015 already, about a third of the debt issues by euro area governments had negative yields. For ‘safe’ countries, almost the entire maturity spectrum of bonds trades at negative yields. If we take the shorter-end spectrum of debt (for instance 2-years), already by November 2015, almost all European debt was trading at negative yields (this will be discussed in greater detail in Section 3).

2.1. Direct evidence on the effects of bond purchases

A recent ECB paper by Altavilla, Carboni and Motto (2015), evaluating the impact of the most recent EAPP on asset prices, reports the impact of the latter to be “sizeable”, despite an environment of relatively low financial distress (indeed, the program came at a time when the pressure on sovereign bond yields was plummeting). The authors attribute the result to the interplay of the EAPP with the asset composition of the programme, via “portfolio rebalancing” (scarcity and duration; see also Gerba and Macchiarelli, 2015) as well credit channel effects, whereby changes in the maturity composition of nominal government debt affected other – non-targeted – asset prices.

This complements the empirical evidence for the other purchasing programs previously implemented by the ECB, and having different scope. Under the SMP, initiated in May 2010, the ECB bought Greek, Irish, Portuguese, Italian and Spanish government bonds. At the time, the ECB announced that the bonds would be held to maturity and that the purchases were entirely sterilised; hence “not-inflationary”. The intervention was justified in light of the severe tensions in certain market segments that were hampering the transmission of the ECB’s monetary policy. Ghysels et al. (2012) have tried to assess the impact of SMP and conclude that it had a positive but short-lived effect on market functioning by reducing

liquidity premia and reducing the level as well as the volatility of government bond yields. Likewise, while no transaction materialized, the announcement of OMT (outright monetary transactions) significantly decreased bond yields in euro area countries under market stress (see Altavilla, Giannone and Lenza, 2014), thus strengthening bank balance sheets and (to some extent) limiting potential sovereign-bank linkages.

The (preliminary) empirical evidence is thus supportive of the latest EAPP in that it succeeded in lowering bond yields and pushing the investors out from the sovereign debt market. This evidence is consistent with other studies, including Gagnon et al. (2011), D'Amico et al. (2012), and McLeay, Radia and Thomas (2014) looking at other central banks' Asset Purchases programmes. Gagnon et al. (2011), for instance, studied the Fed's 2008-09 QE and found that large-scale asset purchase (LSAP) announcements reduced U.S. long-term yields. Similarly, Joyce et al. (2011) found that the BoE's QE program had bond yield effects quantitatively similar to those reported by Gagnon et al. (2011) for the U.S.

As a part of this extended package, the ECB will buy investment-grade euro-denominated bonds issued by non-bank corporates. This is very novel since ECB is now entering the private sector financing market. Previous private asset purchases have generally shown positive results, though mostly in the US. In the first phase of LSAP 1, the Fed purchased mortgage-backed securities and Agency bonds. LSAP 1 appears to have decreased MBS yields by 150 bps (Krishnamurthy and Vissing-Jorgensen, 2010), and mortgage rates by nearly 50 bps (Hancock and Passmore, 2011). This, however, happened in an environment when the spread over US Treasuries was unusually high. While Portugal's and Greece's 2 and 10 year spreads are on the rise (see Section 3.3), it is not the case for the whole euro area at the moment.

With the latest extension EAPP the ECB has increased the monthly asset purchases to €80 billion. This recent move can be viewed in two ways. On one hand, ECB is signalling its solid commitment to fulfil its price stability mandate, and a greater tolerance for risk. On the other hand, however, the recent extension may also unveil concerns that the ECB is having a hard time in managing a stubbornly low inflation and growth, as well as facing shortage of supply in the bond markets (this will be discussed in greater details in the next section).

2.2. The signalling transmission channel

The previous empirical evidence on asset purchase programmes points to the prevalence of the signalling channel, though the scarcity and duration channels occasionally played important roles. In the case of the euro area, the latter two have been particularly strong (Altavilla, Carboni and Motto, 2015). Overall, however, IMF staff estimates based on the US, UK and Japanese experiences, suggests that the signalling channel seems to have had the largest macroeconomic effects. On average, IMF (2013) found that a decrease in long-term yields coming through the signalling channel has an effect on GDP growth approximately twice as large as the same shock coming through the portfolio rebalancing channels. This result is consistent with theory, whereby shocks to long-term rates due to "portfolio rebalancing" are expected to be more provisional and reversible, in part due to the volatile market conditions on which this channel relies.¹

In this respect, Draghi made clear that the ECB would be unwinding "unconventional" measures in the (near) future. He also said that they do not anticipate "it will be necessary to reduce rates further", signalling that the -0.4 deposit rate could be the ECB's very floor, hence avoiding sending the signal that rates can go into negative territory indefinitely.

¹ Stein (2012) provides another explanation: lower premia on riskier long-term bonds induced by portfolio rebalancing might lead firms to buy back shorter-term debt with longer-term issuance.

Hence, yet again, despite the ECB's EAPP further extension, the ECB's action in non-standard mode was based on a principle of separation between the interest rate policy and recourse to exceptional measures (see Gerba and Macchiarelli, 2016).

This latest extension of the EAPP has, nevertheless, attracted criticism, particularly as the ECB was not prompt enough to distil the type of non-banks which are eligible for purchases, or the composition of the additional €20bn bond purchases. Going forward, as purchases will increase over time, monetary-fiscal policy interactions will be very relevant, as we underlined in a previous note (Gerba and Macchiarelli, 2016), and echoing the current debate. More recently, Draghi opened the possibility of "helicopter money" calling it "a very interesting concept" (even if recognizing that it involves accounting and legal "complexities, on the other hand"). All in all, the medium to long-term effects of European QE may depend on the quality of market signalling by the ECB and the extent to which markets will react to it going forward. The initial market reaction to the extension of assets purchases has been a lot more liquidity flowing into the fixed income segment. Data from Morningstar show that European investors returned to fixed income funds from March, following a nine-month period of constant outflow. Data for March show that around EUR 3 (11.6) billion flew in into the corporate bond (fixed income) market (Suter, 2016). At the same time and following announcement that investment-grade European corporate bonds would be purchased, the issuance of this category of bonds increased by EUR 30.6 billion in the same month.² However, not all bond issuers were equally successful in drawing funds. While Shroders and Pioneer's saw liquidity pouring in into their high-yield funds, BlackRock and US-Dollar denominated funds lost EUR 1.8 billion and EUR 4.3 billion respectively only in 2016 (Suter, 2016). Also the equity markets have gone up for two months since March, after having fallen for most of last year (Melin, 2016). However, it is not clear whether this rapid influx of liquidity to those markets is improving the market functioning, or it is simply used to engage in speculative short-term gains. Only more data and a structured financial stability analysis will be able to disentangle the two and answer this concern.

² This influx has been the largest since the QE programme started in March 2015.

3. ASSESSING QUANTITATIVE EASING

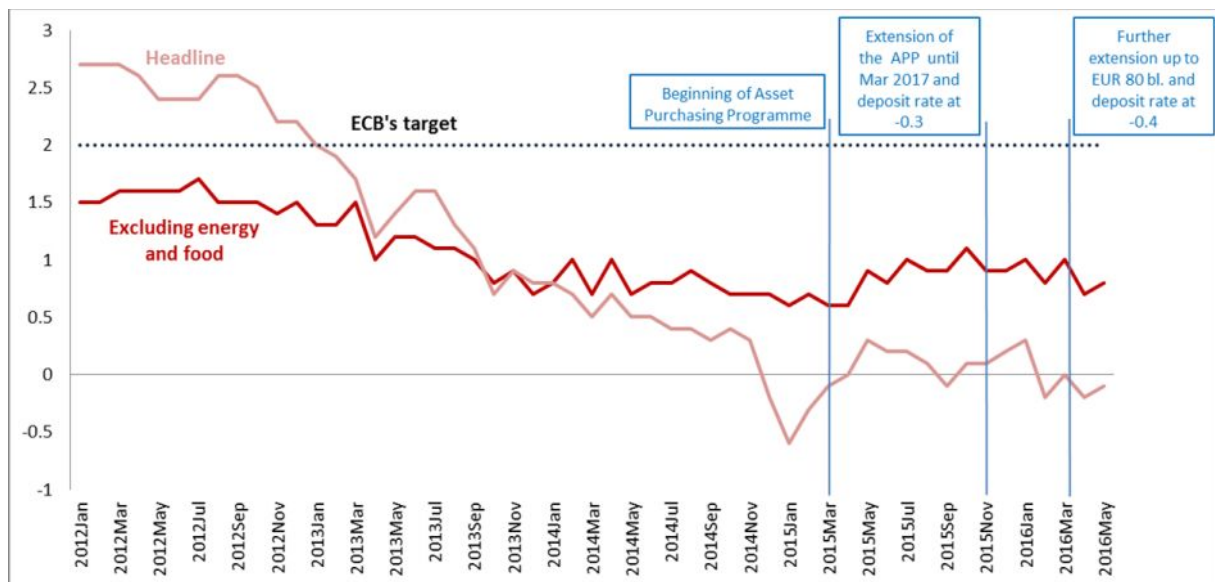
3.1. Inflation and expectations

As underlined in a previous note (Gerba and Macchiarelli, 2016), the ECB does not have a mandate to support employment or growth, as, e.g. the Fed. Its primary objective is to keep inflation below, but close to, 2 percent — a goal the ECB has missed since the start of the EAPP. If we were to use inflation as “yardstick” for the EAPP’s success, the Program felt short of its objectives: inflation has been running well below the ECB’s target for the past three years (Cf. Figure 2, core inflation increased to 0.80 percent in May 2016 over the same month in the previous year), although some of the slump reflects the fall in energy costs.

The latest inflation expectations monitor from Allianz Global show that the slight increase in expected inflation during the past month (May 2016) has mainly come from a recovery in crude oil prices (Petersen, 2016). While this is good news for euro area, it brings into question the successfulness of ECB QE in driving up prices.

Inflation expectations are indeed relevant going ahead since they give projections on the future path of inflation. According to the ECB’s forecast, the central bank expects no inflation this year (0.1 percent). But it expects the EAPP can help raise inflation to 1.3 percent next year and to 1.6 percent in 2018. These last figures revise down the ECB’s previous more optimistic figure of bringing inflation at 1.8 percent already by 2017. Those calculations depend, however, on future (further) rises in crude prices.

Figure 2: Euro area CPI headline and CPI core developments
(Annual % change)

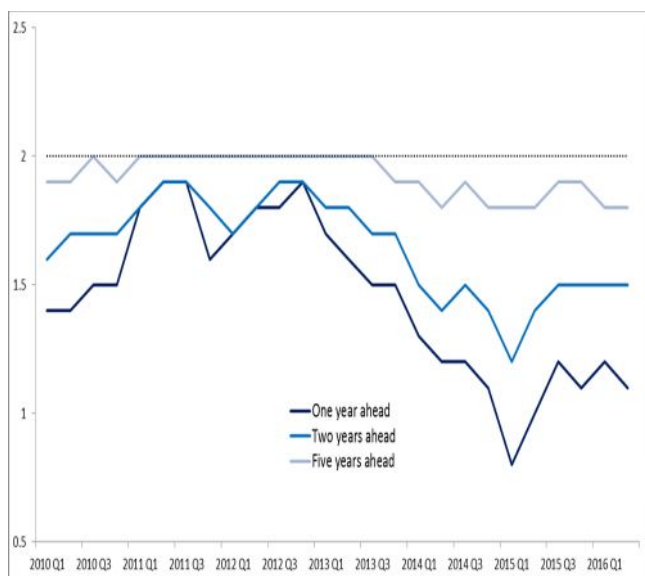


Source: ECB Data Statistical Warehouse

Survey of Professional Forecasters’ expectations have remained flat, or even decreased at a 5 year horizon (Figure 3) and the aggregate uncertainty surrounding longer-term inflation expectations, as measured by the standard deviation of the aggregated probability, has overall increased (Figure 4). At the same time the probability of inflation at or above 2%

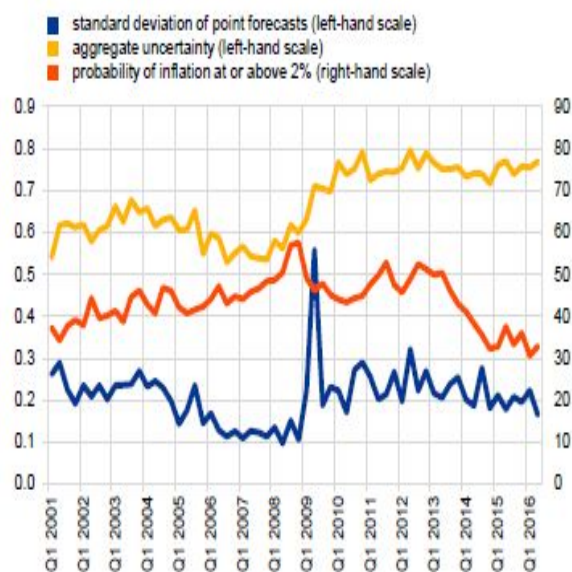
has been trending downwards since 2013Q1, with the Asset Purchasing Program not being able to invert this trend. From Figure 4 it is clear that only the 5-year ahead inflation expectation comes somewhere close to (even if still significantly under) the 2 percent target. What is not clear is whether those expectations have priced in a possibility of the ECB continuing the EAPP 5 years ahead. If so, should the ECB decide to tamper off sooner, there might be further downward pressure for medium-term expectation.

Figure 3: Survey of Professional Forecasters expectations



Source: ECB Data. Last observation 2016Q2

Figure 4: Disagreement and uncertainty regarding longer-term inflation expectations

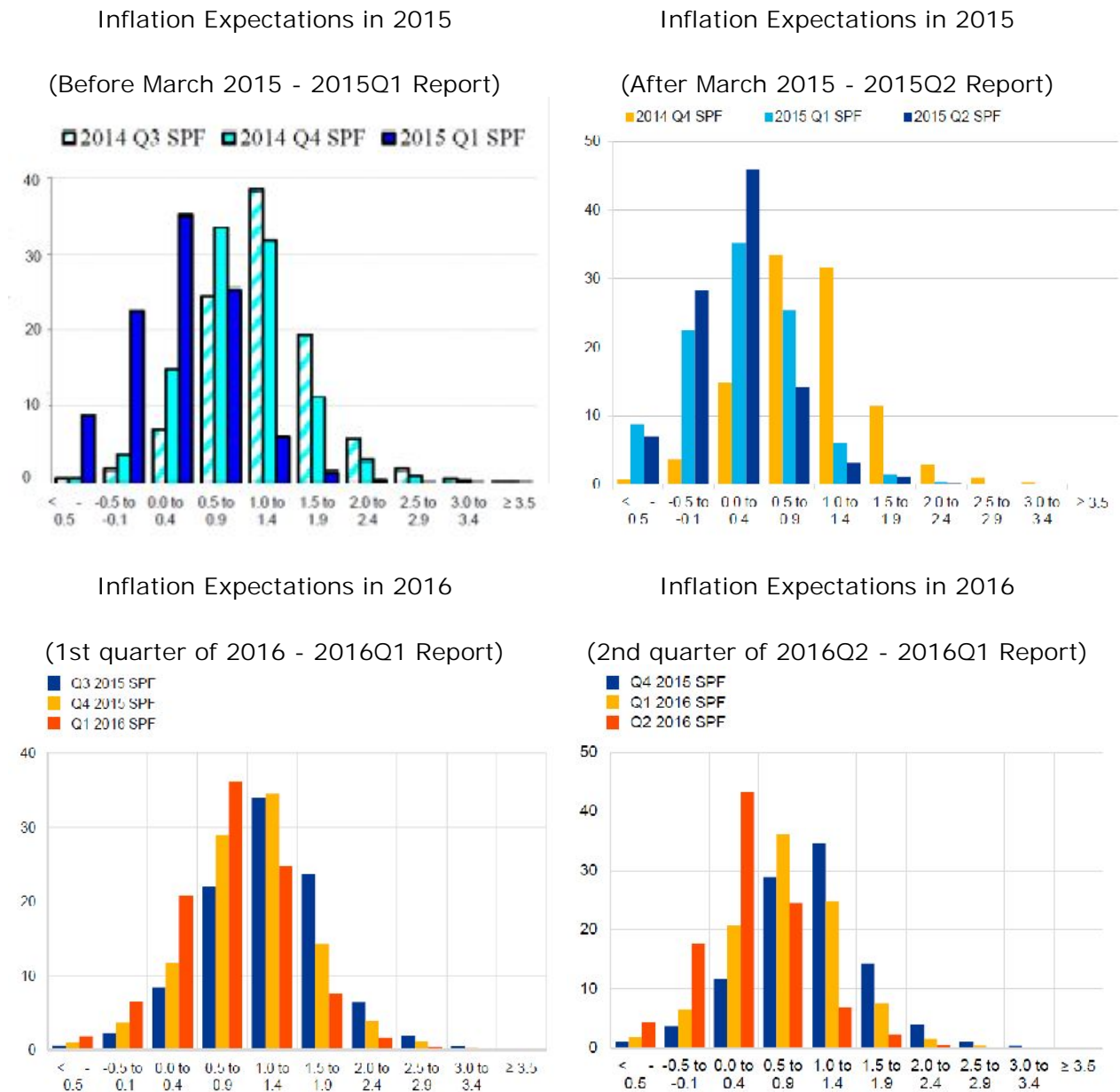


Source: ECB SPF 2016Q2 Report

According to SPF respondents, the main factor behind the strong downward revision and low inflation forecast in 2015 was the sharp drop in oil prices observed since mid-2014. This survey was taken shortly before European QE took place (Figure 5, top left panel). During the first year of QE in 2015, the most likely outcome has shifted down one bin to the 0.0 - 0.4% range, from the 0.5 - 0.9% range (see Figure 5, top-right panel). As reported by the ECB Survey of Professional Forecasters Report for 2016Q2, for the current year, although the most likely outcome remained in the same bin (i.e. 1.0 - 1.4%), the probability associated with lower outcomes has generally increased.

After Europe QE was implemented (see Figure 5, top-right panel), survey expectations considered that the slack remaining in the euro area economy would have been removed only gradually, with the ongoing adjustments in some euro area countries being reported as some of the factors behind the very low inflationary pressure. The main factor cited as being behind the downward revisions for the 2015 post-QE outlook compared with the previous survey round (pre-QE) was the lower oil prices observed at the beginning of the year. On the other hand, exchange rate developments and the expected effects of the EAPP were cited as counteracting factors in the revisions. These factors, however, did not seem to counteract the aggregate probability distribution for expected inflation in 2015 to further towards lower outcomes. For the last two quarters of 2015 (Figure 5, bottom panels), there was a relatively high probability of inflation remaining below 1.0% in 2016 (38-48% in between the two quarters' forecasts). Said that, the probability of negative inflation remained moderate.

Figure 5: Aggregated probability distribution of inflation expectations



Source: ECB Survey of Professional Forecasters

In this respect, the empirical evidence would suggest that inflation tail risk are normally reduced (the inflation skewness based on surveyed expectations decreases) as per the effect of central bank purchases – if purchases are announced (see IMF, 2013).³ Evidence for the ECB’s purchases on inflation expectations may be difficult to evaluate, given the counteracting effects of oil prices and weak demand from emerging market economies at the same time. Consistent with the ECB’s inflation forecasts’ figures, the Survey of Professional Forecasters last reported that the risks to the baseline inflation outlook are perceived as relatively on the downside for 2017 and 2018 (not reported here), with these downside risks stemming indeed primarily from external factors.

³ Of course, with the mitigating factor that surveys are not necessarily perfect measures of agents’ beliefs.

3.2. A weaker euro

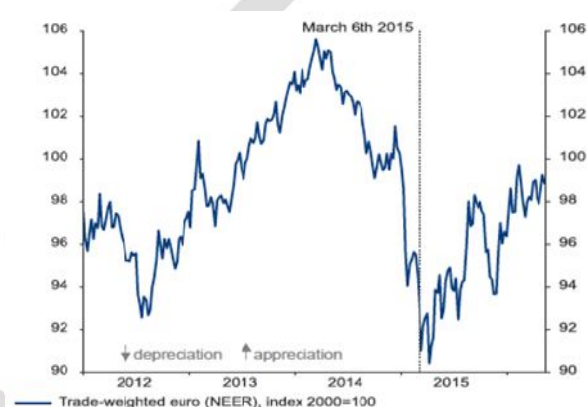
The start of the European QE came just days following the announcement of a better-than-expected round of US employment figures prompting rumours that the US Federal Reserve was to raise interest rates shortly after. The expected diverging paths of the ECB and the Fed have contributed keeping the euro weak against the dollar throughout 2015-16. In light of the unexpectedly weak US job growth figures over the past few months, the Fed has postponed the idea of raising interest rates, possibly to its next July or September meetings. This has prevented the euro to depreciate further, and reach parity with the dollar, with the exchange rate now standing at 1.14 (Figure 6).

Figure 6: EUR-USD Exchange rate developments



Source: ECB Data Statistical Warehouse

Figure 7: Trade-weighted euro index (NEER)



Source: Petersen (2016)

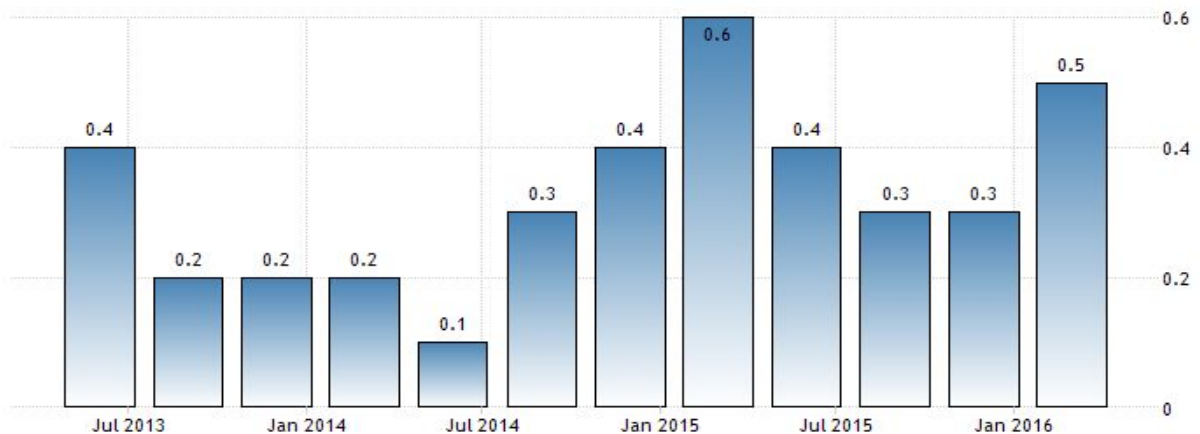
The extent to which parity will be achieved will largely depend on Fed's moves during the coming months. The ECB clearly wishes for the euro to continue to weaken as it continues with the EAPP, in the hope of spurring growth via external demand. However, its success will crucially depend on several factors, including trade. While the EUR has weakened even with respect to other currencies, since ECB engaged in EAPP, the EUR has consistently appreciated with respect to the basket of its trade-weighted currencies, as shown in Figure 7. The index is currently at the same point as it was in early 2015, just before the QE. Hence, its success will crucially depend on whether it manages to turn the trend on the NEER trade-weighted rate towards depreciation.

3.2. Growth

The euro area economy expanded 0.5 percent on quarter-to-quarter in the first three months of 2016, lower than a preliminary estimate of 0.6 percent (Figure 8). This still represents the fastest growth rate in a year (Trading Economics) as large economies such as Germany, France and Italy accelerated while Greece and Latvia contracted.

As underlined previously (Gerba and Macchiarelli, 2016) QE will not work alone, as the eurozone's recovery will depend on much more than the ECB's EAPP. Confidence is likely to play a significant role. Contributing to a lower outlook may be the still high unemployment figures and geo-political threats (e.g., Brexit). The ECB has recently revised down its growth forecasts to 1.4% this year, 1.7 percent in 2016, and 1.8 percent in 2017. In addition, the combination with fiscal stimulus (Gerba and Macchiarelli, 2016) is crucial as monetary-fiscal interactions become more important over time.

Figure 8: Euro area GDP growth rate



Source: Trading Economics based on Eurostat data

3.3. Lending

As discussed previously, the EAPP is supposed to push banks to sell their holdings of government debt and take on more risk, either by focusing on other asset classes or lending more to households and firms (the latter, under the additional stimulus of the TLTRO).

There are signs that credit conditions are easing for the businesses and households in the euro zone. In the euro area, loans to household increased 1.5 percent year-on-year in April 2016, slowing from a 1.6 percent rise in the previous couple of months, whereas credit to non-financial corporations grew 1.2 percent, higher than a 1.1 percent rise in March. Total annual credit growth in the euro area including governments accelerated to 3.3 percent from 3.1 percent in the previous month: credit to governments went up to 10.4 percent, 0.3 percent higher than 10.1 percent in March and private sector credit growth also increased at a faster rate of 1.2 percent from 1.1 percent (Cf. Figure 9; Trading Economics).

However, a further look into the disaggregated figures from the ECB lending survey shows a much more diverse picture. QE is not the main driver of the expansion in credit. Most banks surveyed say that the extra liquidity they receive has basically no impact on their decisions to grant (or not) loans. For firm loans, fewer banks now claim QE liquidity is helping their lending than in the previous survey in October last year. Moreover, banks are complaining that the EAPP is eroding their profits (see the discussion in our previous note, Gerba and Macchiarelli, 2016). Taken together, it is safe to conclude that the net easing impact of bond purchases appears to be improving terms and conditions of loan granting rather than credit standards themselves (see also Bloomberg, 2016).

Figure 9: Loans to private sector (% change)

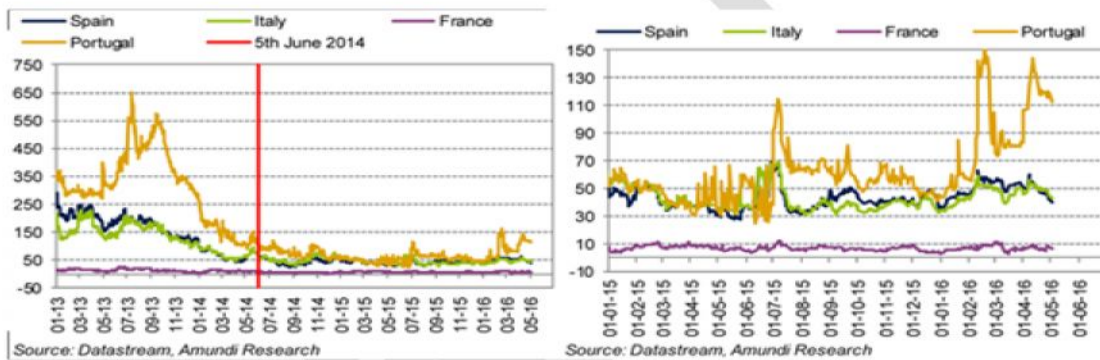


Source: Trading economics based on Eurostat data

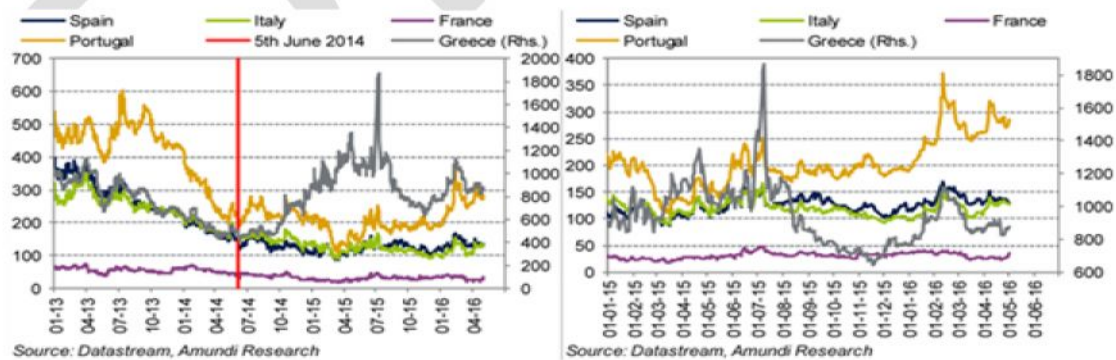
Figure 10: Sovereign spreads

Spreads channel

> 2Yr sovereign spreads



> 10Yr sovereign spreads



Source: Amundi Research

In addition, there is a regional disparity in the lending figures. While banks in the core countries are buying bonds from their own governments, the banks in the periphery (such as Spain, Italy, Portugal) are engaging in carry-trade opportunities by buying bonds from the core. Capital Economics noted that periphery banks have used some of the proceedings allocated to them to buy sovereign bonds from core countries, thus reflecting a lack of confidence in the performance of their own economies, and clearly reducing lending opportunities for the local economy. The consequences from this can also be seen in peripheral bond spreads in Figure 10. Both the 2-year and 10-year spreads have started to rise again, particularly for Portugal and Greece, since March this year. Also the stock markets of the core countries have seen a much sharper rise than in the peripheral countries, shedding further doubt on the economic prospects of the periphery (Melin, 2016).

Thus, while bank lending is picking up in the euro area, ECB's EAPP seems to have limited impact on the lending-decisions. If anything, it is having an impact on the terms and conditions of loans, not the quantity of credit. However, significant regional disparities have been observed in lending. In particular, mainly banks from the core seem to be (re)gaining confidence about national (sovereign and credit) conditions.

3.4. Yields and the yield curve

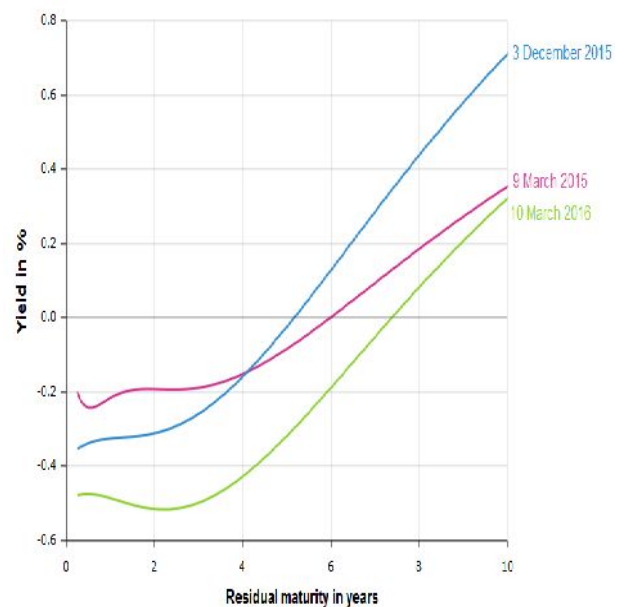
One of the intended impacts of QE is to push down longer-term interest rates. As discussed in Section 2.1 this is consistent with recent evidence of the EAPP. For instance, 80% of German debt is trading at negative yields, with 19% below the new ECB's threshold, and borrowing costs for many euro area countries are already at their lowest.

Figure 11: Share of German bonds with negative yields



Source: Frederik Ducrozet

Figure 12: Euro area yield curve with key ECB dates



Source: ECB Statistics

However, not only the German bonds are trading at negative yields, but many of the other northern European and Swiss bonds (Figure 13). For most of the core countries, all bonds up to 7 years are trading negatively. From Figure 14, it is clear that while core countries have around 50 percent of their total outstanding debt (all maturities) traded in the

negative territory (or even with yields lower than -0.4 percent), for periphery, most or all of the debt trades at positive yields. Hence there is still a high spectrum for bringing those yields down. Yet, ECB's purchases may be constrained by capital keys.

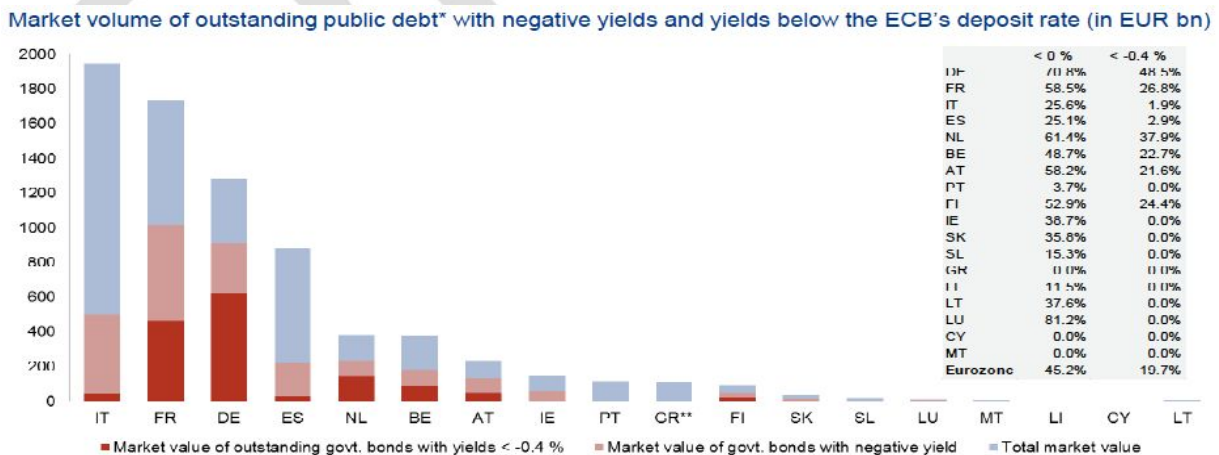
Figure 13: Sovereign bonds trading at negative yields (in red)

	3M	1Y	2Y	3Y	4Y	5Y	6Y	7Y	8Y	9Y	10Y	15Y	20Y	30Y
Germany	-0,58	-0,51	-0,51	-0,52	-0,47	-0,37	-0,32	-0,23	-0,13	0,01	0,15	0,31	0,57	0,86
France	-0,52	-0,49	-0,43	-0,38	-0,30	-0,17	-0,10	0,03	0,16	0,34	0,49	0,97	1,26	1,46
Netherlands	-0,53		-0,50	-0,46	-0,45	-0,39	-0,15	-0,04	0,09	0,24	0,37			0,99
Belgium	-0,54	-0,51	-0,48	-0,46	-0,39	-0,32	-0,20	-0,08	0,21	0,39	0,54	1,01	1,13	1,60
Austria		-0,48	-0,47	-0,40	-0,38	-0,34	-0,15	-0,11	0,01	0,17	0,35	0,46		1,36
Finland		-0,49	-0,46	-0,43	-0,29	-0,23	-0,08	-0,01	0,12	0,25	0,42	0,82		1,03
Switzerland		-0,80	-0,85	-0,87	-0,82	-0,75	-0,66	-0,57	-0,46	-0,37	-0,31	-0,05	0,07	0,21
Sweden	-0,62	-0,50	-0,60		-0,44	-0,19		0,13			0,51			
Denmark	0,08	-0,55	-0,36	-0,15		-0,08	0,31				0,43			0,94
UK	0,52	0,39	0,40	0,57	0,73	0,82	1,01	1,16	1,29	1,39	1,95	2,13	2,27	
US	0,28	0,57	0,84	0,99		1,31		1,58			1,78			2,60
Japan	-0,27	-0,30	-0,24	-0,22	-0,23	-0,21	-0,22	-0,20	-0,18	-0,14	-0,09	0,05	0,28	0,37

Source: Allianz Global

Despite this picture, most analysts believe that this per se does not represent a problem in terms of supply shortage even under the new extended purchase limits. The willingness to issue new bonds at those negative yields is still high. The complication rather lies within the existing bond holders, or 'captive investors'. Concerns remain that they will not be willing to sell their share of bond holdings to the ECB despite the negative yields (Petersen, 2016). Even if the supply shortage is not an imminent problem for the ECB, it might become a problem at a later date when the ECB's universe of 'acceptable' bonds will shrink. At the same time, on the demand side, more than 53 percent of total foreseen purchases of bonds under the EAPP have been executed, but there is at least one year to go. Hence the logistics of accessing bonds for ECB may become a supply, as well as a demand problem, if the characteristics of it do not change. Nevertheless, this risk remains limited since the ECB President has, on multiple occasions, showed his readiness to amend the QE programme to fit the changing market environment.

Figure 14: Bond yields trading in negative territory out of the universe of all bonds



Source: Allianz Global

CONCLUSIONS

The recent move to expand ECB's asset purchase programme (EAPP) adds the purchase programme for public sector securities to the existing private sector asset purchase programmes to address the risks of a too prolonged period of low inflation. It now consists of a covered bond purchase programme (CBPP3), asset-backed securities purchase programme (ABSPP) and public sector purchase programme (PSPP). According to the latest monetary policy decision, monthly purchases in public and private sector securities will amount to €80 billion (updating the previous figure of €60 billion from March 2015 until March 2016). They are intended to be carried out until the end of March 2017 and in any case until the Governing Council sees a sustained adjustment in the path of inflation that is consistent with its aim of achieving inflation rates below, but close to, 2% over the medium term.

A new extension of the QE programme requires a new evaluation of its successfulness in achieving its objectives. While we recognise that it is still too early to grant a full objective evaluation of the ECB's policies, we do provide some insights into the EAPP's impact on the different segments of the financial market and the real economy. The results are quite mixed. While inflation expectations rose during the last month, they are still well below the 2 percent target. Moreover, most of the rise can be attributed to the recovery in crude oil prices rather than the QE policy itself, and the Professional Forecasters' outlook for the next years is on the downside. Also bank lending has increased, including lending to SME's. However, following the bank lending survey executed by ECB, the direct effects of QE on their bank-lending decisions has been estimated to be very limited. The impact on the exchange rate and growth has been more clear and visible. More needs to be done if the trend is not to revert. To conclude, there should be pressure for further fiscal stimulus in the euro area, the ECB should monitor the markets for any potential shortage of supply risk (particular in the core), and most importantly, push banks in the periphery to engage in their local lending markets and buy their own country's bonds instead of those from the core - all in all - to ensure the ECB's expected boost to the economy to be more even.

REFERENCES

- Altavilla Carlo, Carboni Giacomo and Roberto Motto (2015), Asset Purchase Programmes and Financial Markets: lessons from the Euro Area, European Central Bank, <https://www.ecb.europa.eu/pub/pdf/scpwps/ecbwp1864.en.pdf>
- Altavilla, Carlo, Domenico Giannone, and Michele Lenza (2014). The financial and macroeconomic effects of OMT announcements, Working Paper Series 1707, European Central Bank; <http://www.ecb.europa.eu/pub/pdf/scpwps/ecbwp1707.pdf>
- Bloomberg, 2016, "ECB's QE Mightn't Have Much to Do With Europe's Lending Recovery", by Alessandro Speciale on Tuesday 19, April 2016. Available on: <http://www.garp.org/#!/risk-intelligence/detail/a1Z40000003C6A9EAK>
- Ciccarelli, Matteo, Angela Maddaloni, and José-Luis Peydró, 2013, "Heterogeneous Transmission Mechanism: Monetary Policy and Financial Fragility in the Euro Area," ECB Working Paper Series No. 1527; www.ecb.europa.eu/pub/pdf/scpwps/ecbwp1527.pdf
- Claeys, Grégory (2014), The (not so) Unconventional Monetary Policy of the European Central Bank since 2008, European Parliament POLICY DEPARTMENT A: ECONOMIC AND SCIENTIFIC POLICY, IP/A/ECON/2014-02
- D'Amico, Stefania, William English, David Lopez-Salido and Edward Nelson (2012). The Federal Reserve's Large-Scale Asset Purchase Programs: Rationale and Effects. Federal Reserve Board Finance and Economics Discussion Series No. 2012-85. Available at <http://www.federalreserve.gov/pubs/feds/2012/201285/201285abs.html>
- European Central Bank, Survey of Professional Forecast Report, various releases (2015Q1 through 2016Q2)
- Gagnon, Joseph, Matthew Raskin, Julie Remache and Brian Sack (2010). "Large-Scale Asset Purchases by the Federal Reserve: Did They Work?" Federal Reserve Bank of New York Staff Reports No 447. Available at http://www.ny.frb.org/research/staff_reports/sr441.pdf
- Gerba, Eddie, Macchiarelli, Corrado, 2015, "Financial (in)stability low interest rates and (un)conventional monetary policy", with E. Gerba, Monetary Policy Dialogue, note to the European Parliament, IP/A/ECON/2015-01, Mar.
- Gerba, Eddie, Macchiarelli, Corrado, 2016, "Policy options and risks of an extension of the ECB's quantitative easing programme: An analysis", Monetary Policy Dialogue, note to the European Parliament, IP/A/ECON/2016-01, Feb.
- Ghysels, Eric, Idier, Julien, Manganelli, Simone, Vergote, Olivier, 2014. A high frequency assessment of the ECB's Securities Markets Programme. ECB Working Paper 1642, European Central Bank.
- Hancock, Diana and Wayne Passmore, 2011, "Did the Federal Reserve's MBS Purchase Program Lower Mortgage Rates?" Journal of Monetary Economics, vol. 58, no. 5, pp. 498-514.
- IMF Report on Unconventional Monetary Policies – Recent Experience and Prospects (2013) www.imf.org/external/np/pp/eng/2013/041813a.pdf Published in 18-04-2013
- Joyce, Michael, Ana Lasasosa, Ibrahim Stevens and Matthew Tong (2011). "The Financial Market Impact of Quantitative Easing in the United Kingdom" International Journal of Central Banking, Volume 7, Number 3. Available online at <http://www.ijcb.org/journal/ijcb11q3a5.htm>
- Krishnamurthy, Arvind and Annette Vissing-Jorgensen, 2010, "The Aggregate Demand for Treasury Debt," working paper, Northwestern University.

- McLeay, Michael, Amar Radia and Ryland Thomas (2014). "Money creation in the modern economy" Bank of England Quarterly Bulletin, Quarter One. Available online at <http://www.bankofengland.co.uk/publications/Documents/quarterlybulletin/2014/qb14q102.pdf>
- Melin, Mark, 2016, "ECB QE is Uneven Benefiting Core More Than Periphery: Capital Economics, Available online on: <http://www.valuewalk.com/2016/06/ecb-qe-benefits-rich/>
- Paries, Matthieu and Roberto De Santis, 2013, "A Non-standard Monetary Policy Shock: The ECB's 3-year LTROs and the Shift in Credit Supply," ECB Working Paper Series No. 1508.
- Petersen, Ann-Katrin, 2016 "A Summer of Wait-and-See?" QE Monitor, Global Capital Markets and Thematic Research, Allianz Global Investors.
- Suter, Laura, 2016, "Investors rush to fixed income funds after ECB's QE expansion", Available online on: <https://www.fundstrategy.co.uk/investors-rush-to-fixed-income-funds-after-ecbs-qe-expansion/>