One year of quantitative easing

- One year has passed since the European Central Bank started to implement the Asset Purchase Program (its quantitative-easing [QE] program). We review what happened during this year and discuss the main effects of the program.
- The overall assessment is that the program has been successful in stopping further deterioration in inflation but not for reaching the inflation target. The main channels through which QE is supposed to work are only marginally effective. Further expansion of the program is unlikely to provide sufficient stimulus to inflation. Nevertheless, by easing credit conditions for firms and households, and by decreasing borrowing costs for governments, QE generates an economic environment that can make fiscal policy very effective. The next monetary stimulus should come together with fiscal expansion in order to improve business expectations and stimulate the economy sufficiently to reach the inflation target.
- Europe's inflation rate is below target but its negative trend stopped despite the collapse in energy prices. Inflation of industrial goods and food, traditionally key drivers of inflation, are on the rise with respect to last year, which is good news.
- After some recovery, inflation expectations are de-anchoring sharply. This will undermine the ECB's ability to achieve the inflation target in the near future because of possible effects on lower investments, lower wage growth, and higher real interest rates increasing the burden on debtors.
- There has been some effect on the exchange rate's depreciation, which favored the preservation highly positive trade balance during a period of weak trade environment.
- QE led to a significant decline of borrowing costs for governments with sizable savings on interest expenditure. However, these savings have been used mostly for fiscal consolidation and did not contribute to stimulating the economy.
- There is scarce evidence from macro data of the credit channel being effective. There is some growth in credit, but investments are still 15% below the pre-crisis pick – and aggregate consumption is only slightly above the pre-crisis pick.

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One year of quantitative easing: what happened?

The president of the ECB, Mario Draghi, announced the ECB's Quantitative Easing program (QE) in January 2015, and its implementation started in March 2015. An expansion of the program is expected this week. The following offers an analysis of what happened to key economic variables, which QE was supposed to affect, and discusses future implications.

- **Fact 1 – Inflation recovered but is still far from target, with good improvement for industrial goods and unprocessed food.**

Before the program was announced, inflation was on a negative trend and it bottomed out in January 2015 at -0.6%. After the implementation of QE, inflation recovered throughout the year; it picked up by +0.4% in January 2016, despite the decrease in the oil price. Nevertheless, inflation dropped into negative territory in February 2016, reaching -0.2% on a year-to-year basis. However, the overall assessment of QE's effect on inflation should be done looking at the overall dynamics throughout the year and not at the latest figure only. Moreover, February's inflation drop is mainly driven by energy prices, which are beyond ECB's control, and whose contribution to the overall inflation went from -0.52% to -0.78% (Chart 1). In the meantime core inflation (inflation that excludes energy and food) showed a more-stable recovery since the announcement of the program and it moved from 0.6% to 1% in January 2016 and then back to 0.7% in February 2016.

CHART 1: EUROZONE INFLATION RATE

Eurozone, headline and core inflation
(monthly, annual rate of change)

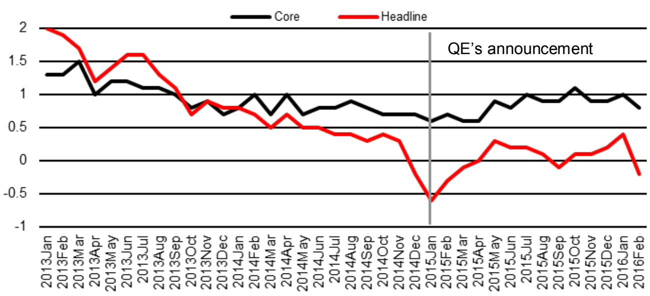
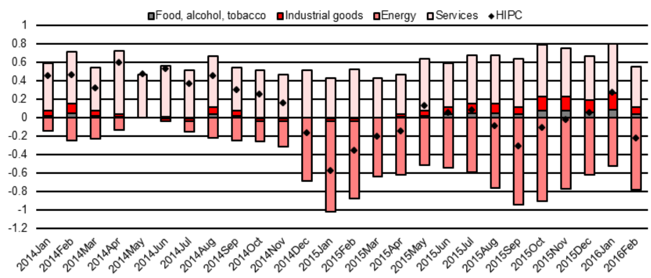


CHART 2: KEY ROLE OF ENERGY, FOOD ARE PICKING UP BUT INDUSTRIAL GOODS AND

HIPC inflation decomposition by category
(categories sum to overall inflation)



Source: ECB, Eurostat, UniCredit Research

Chart 2 shows a decomposition of the drivers of inflation across different categories of goods. Since the start of QE, inflation of industrial goods and of food (especially unprocessed food) has risen, giving a key contribution to the slight recovery of inflation. The consumer price of unprocessed food accounts also for core components like retail service and transports, so it is still an indicator of demand's pick-up. The drop in energy prices has driven inflation down since the second half of 2014. The decline of the price of oil has had a negative effect on inflation from an accounting point of view. However, it also increases disposable income for households and firms. Thus, it can provide a positive inflationary effect on other categories through higher demand. Nevertheless, the quantitative relevance of this effect also depends on consumers' expectation about the future economic outlook and on the disruptive effects that the price of oil's fall has had on financial markets. So, it is unlikely that the positive effect has fully unraveled.

- **Fact 2 – Inflation expectations have been recovering for some months but are now declining.**

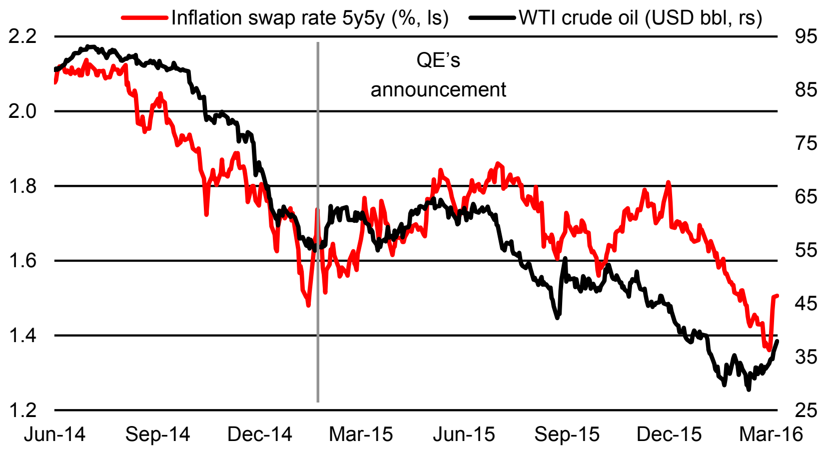
Despite some recovery in the actual inflation rate, inflation expectations have de-anchored further from the 2% target. Expectations had already deteriorated in the second half of 2014 and the 5y5y swap rate traded below 2% since then (Chart 3). This was one of the key elements that led to the launch of QE. This is why we expect the ECB to take a strong expansionary step with its next monetary-policy decision.

After the launch of QE, inflation expectations recovered until the summer of 2015. Nevertheless, the continuous decline of oil prices and the turmoil in China, and in other emerging countries, led to a decline in inflation expectations until October of 2015. Positive news on the US recovery and expectations about a sharp extension of QE led to an improvement of expectations until December of 2015. However, since December 2015, inflation expectations have embarked on a steady decline, reaching an historic minimum of 1.4%. This decline can be partly explained by oil and the two series are strongly correlated. However, it is unlikely to be the only factor. For instance between October 2015 and December 2015 inflation expectations were rising from 1.6% to 1.8% despite the continuous drop in oil. Probably this was due to expectations surrounding the ECB's further expansion of its QE program. A key turning point comes at the time when markets were disappointed by the ECB's decisions at its December meeting.

From an economic point of view, the decline in inflation expectations deserves particular attention. This can have a negative effect on investment, which, as discussed later, shows no sign of recovery. It can reduce wage adjustments, making it harder for the ECB to reach the 2% target. It can also raise the real interest rate, having a negative effect on debtors, which harms the recovery.

CHART 3: INFLATION EXPECTATIONS ARE DETERIORATING

Euro inflation swap rate 5Y5Y (% points, daily) and WTI Crude Oil (daily



Source: Bloomberg; UniCredit Research

■ Fact 3 – QE had a partial effect on the exchange rate and on trade

Chart 4 shows the evolution of the nominal EUR-USD exchange rate and of the real effective exchange rate (REER). The euro started to depreciate in March-April 2014, mainly because of the strengthening of the US dollar at the global level. Expectations about QE played a minor role in that period, given that, according to Bloomberg, the 4Q14 consensus about the exchange rate forecast with the dollar for 2015 was at 1.22. The euro then depreciated further since January 2015 after the start of the QE program.

At UniCredit we think the ECB's QE originally helped weaken the euro, but recent evidence suggests that this effect is now evaporating. After depreciating sharply in the first months of 2015, the euro has suffered an appreciation of the REER since March 2015. This was led mainly by a depreciation of the renminbi and the Swiss franc. However, the level of the REER is still below its level at the beginning of QE.

Chart 5 shows the trade adjustment associated with those exchange-rate movements. We observed that trade started to pick up in September 2014, with almost two quarters of lag since the beginning of the euro's depreciation. The trade balance with those countries outside of the eurozone improved by a hefty 50% between September 2014 and December 2015, compared to the period from January 2013 to August 2014. The contraction stabilization of the exchange rate at a lower level favored the preservation of higher exports throughout 2015 despite the weak world trade environment. This was favored by lower import prices of oil.

The relevance of the exchange rate in ECB rhetoric has increased remarkably over the past year. However, the ECB denies that it is targeting the exchange rate. We do not believe that the ECB is trying to fine tune the exchange rate, but it is likely not to tolerate an eventual appreciation of the euro above a certain threshold. It is hard to identify that threshold, as it would move according to market expectations and inflation dynamics. However, for the next six months, it is reasonable to assume that any sustainable upward pressure that pushes EUR-USD above 1.12 will be met by the ECB's rhetoric and/or action.

CHART 4: DEPRECIATION STARTED IN MARCH 2014, BUT QE KEPT THE EXCHANGE RATE LOW

REER (2010=100) and EUR-USD rate

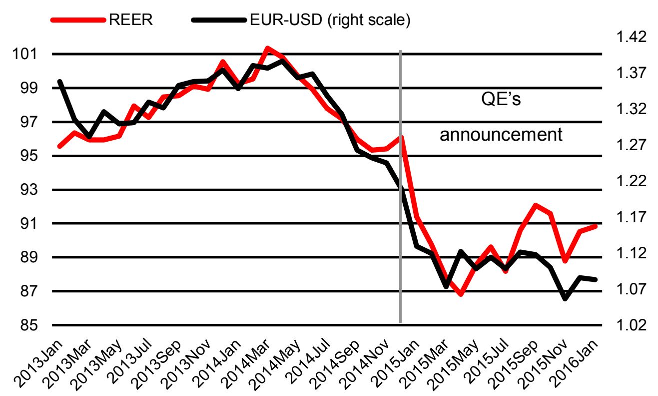
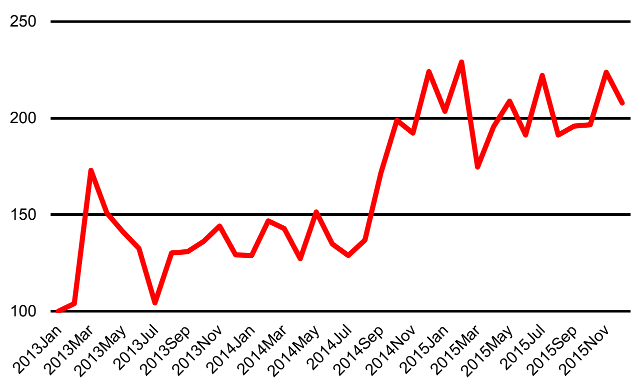


CHART 5: TRADE BALANCE IMPROVED GREATLY

External trade balance of the eurozone (Jan 2013=100)



Source: Bloomberg, UniCredit Research

- **Fact 4 – The yield curve on public bonds declined across Europe with good savings for governments**

Chart 6 shows the decline in the yields of euro-denominated government bonds issued by European governments. The yield curve declined on average by 42 basis points across maturities, with the largest decreases on the 25Y and 30Y tenors. After QE yields have fallen sharply, then risen over 100bp and then declined again. QE can lower yields only up to a point and a further expansion of the program is likely to have a limited effects on yields.

Chart 7 shows the heterogeneous changes of the yield curve across countries. Obviously, there are political and country-specific factors that influence this curve, but it is still useful to check the status after one year of QE. Italy turns out to be the country that experienced the strongest decline in yields across all maturities. This can only partly be explained by the higher credit spreads at long tenors that Italy had at the beginning of the period. Spain and France benefited from a sizable decline at short maturities, but less so for the longer ones, which casts some mild doubt on the longer-term market perception of these countries. Finally, Germany had a more balanced shift of the curve across maturities with longer ones experiencing a larger decline.

CHART 6: THE COST OF DEBT DECLINED ACROSS EUROPE…

Euro BVAL yield curve, monthly value pre and post-QE

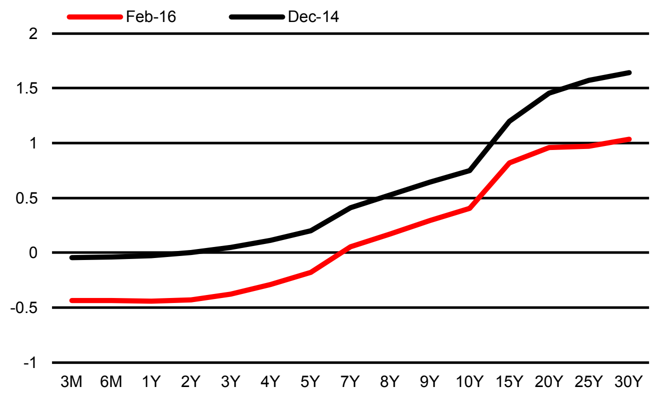
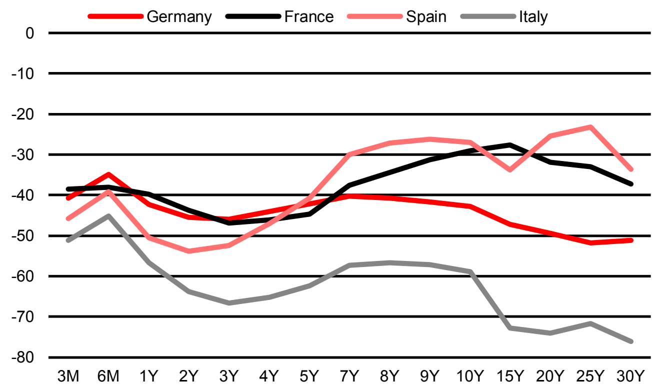


CHART 7: …WITH HETEROGENEOUS EFFECTS ACROSS COUNTRIES AND MATURITIES

Yield curve difference between Dec-14 and Feb-16 across countries



Source: Bloomberg; UniCredit Research

How does this decline in yields affect government savings? We estimate this by looking at the change of nominal yields on outstanding marketable debt and outstanding marketable debt between 2014 and 2015. Table 1 shows that the size of the yearly savings is remarkable, especially for Italy and Germany. Moreover, the interest payments that the national central banks receive on the bonds they hold will eventually go back to the central government.[1] Potentially, all this creates some fiscal space for higher public investment or expenditure that can stimulate the economy and raise inflation. However, in 2015, Italy decreased its primary surplus by only EUR 232mn, whereas Germany increased it by more than EUR 4bn. Hence, so far, these savings have been used mainly for fiscal consolidation.

[1] National central banks retain the bonds purchased through QE, so interest rate payments contribute to the profits of the central banks. These profits can be transferred to the government as the owner of the central bank according to national regulations. In Italy, where private banks are the main shareholders of the central bank, the government is entitled to a minimum of 54% of the central bank's profits; while only a maximum of 6% can be distributed to the shareholders.

TABLE1: SIZABLE PUBLIC SAVINGS FROM LOWER INTEREST RATES

Estimated yearly reduction in interest payments on outstanding debt, 2014 vs. 2015

	EUR mn	% of Primary Expenditure (2014)	Change in Primary Surplus (2014-15) EUR mn
Germany	5,120	0.53%	4,016
France	3,300	0.28%	n.a.
Spain	802	0.19%	n.a.
Italy	6,561	0.87%	-232

Source: ECB; Haver; UniCredit Research

- **Fact 5 – The credit channel: credit growth to households increased and consumption picked up; but investments remain well below pre-crisis level**

One of the main channels through which QE was supposed to raise inflation was through higher liquidity leading to higher credit, hence to higher aggregate demand. Chart 8 shows that the growth rate of loans to households switched back into positive territory after March 2013 and grew throughout 2015, peaking at 1.9% in November 2015, where it has remained since. Therefore, we can observe an increase in household loans that is time-consistent with QE and which could has been partly favored by the convergence in lending rates between core and periphery. However, this is less clear for loans to non-financial corporations. Even if it is true that the growth rate of these loans turned into positive territory in the second half of 2015, they had already been on an improving trend since late 2013, albeit still negative.

Finally, Chart 9 shows that consumption started to recover after 1Q13 and surpassed pre-crisis level in 1Q15. However, part of this raise could also be coming from the impact of lower oil prices in supporting the performance of private consumption. Importantly, investments, even if on a little raise since 1Q13, are still 15% below their peak. Therefore, there is little evidence of a significant rise in aggregate demand from consumption and investments following QE.

CHART 8: CREDIT TO HOUSEHOLDS GREW AFTER QE, BUT HAD A WEAK EFFECT ON NON-FINANCIAL CORPORATIONS

Eurozone, growth rate of outstanding debt (monthly rate yoy, SA)

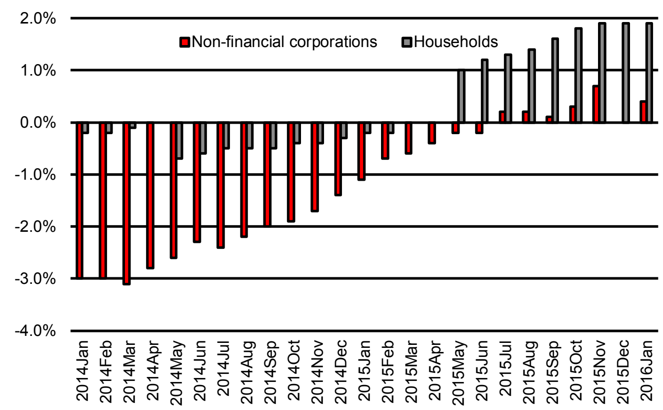
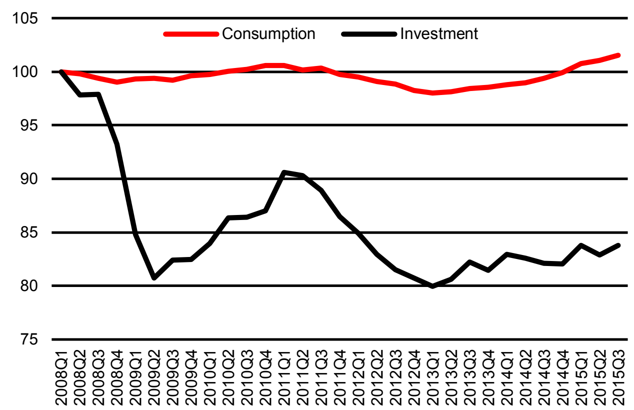


CHART 9: CONSUMPTION HAS SURPASSED PRE-CRISIS LEVEL, BUT INVESTMENT IS STILL VERY LOW

Real consumption and investments, Eurozone (1Q08=100)



Source: Bloomberg; ECB; Eurostat; UniCredit Research

Fact 6 – Micro evidence on credit: credit conditions have eased and demand is on the rise

Even if we cannot see a sharp increase in aggregate consumption and investment, at the micro level there are significant signals of improvement in terms of credit easing and credit demand coming from the Bank Lending Survey. Chart 10 shows that banks have reported an easing of credit conditions for both households and firms since 2Q14 and this picked up in 1Q15 (a negative net tightening implies a credit easing). These effects are heterogeneous across countries and across firm-size. Credit conditions have eased mostly in Italy, while they have remained constant in Germany and Spain and have tightened slightly in France. Moreover, credit conditions have eased especially for SMEs and only marginally for large firms. While at the Eurozone level the main factor behind higher easing is increased pressure from competition, in Italy it comes mainly from the decrease in funding costs and balance sheet constraints, as well as from a lower perception of risk. However, the main change in terms and conditions for loans that banks report is lower bank margins on average loans, which puts some strain on the financial sector.

Chart 11 looks at the change in loan demand from firms and consumers. Demand started to increase in 2014, but it was boosted further in 2015. This rise is common across countries, with the notable exception of France, where demand has stabilized in the last two quarters. For both households and firms, the decrease in the general level of interest is the main factor behind such an increase in demand.

Although, it is hard to disentangle the effects of QE from T-LTRO and cuts to the deposit rate, all this suggests that monetary policy is having some influence on credit, but probably the effects are not yet big enough to have a sizable impact on aggregate demand.

CHART 10: CREDIT CONDITIONS ARE EASING…

Changes in credit standards: net tightening

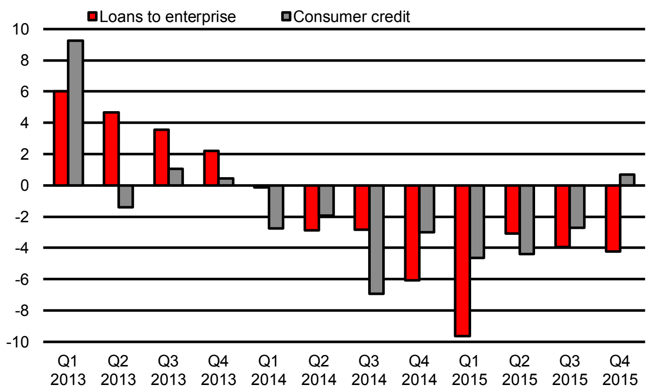
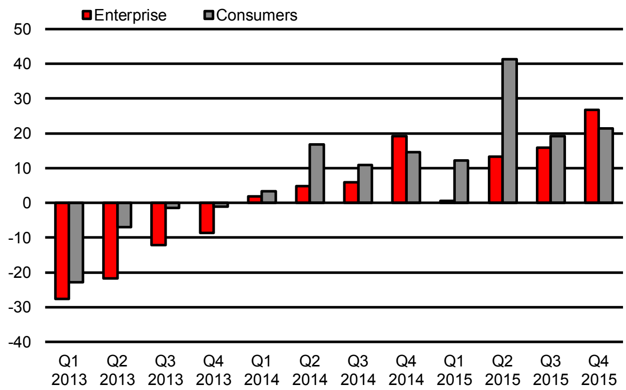


CHART 11: …AND CREDIT DEMAND IS INCREASING

Changed in credit demand



Source: ECB; UniCredit Research

Fact 7 – Excess liquidity is rising and the "money-premium" is declining

Since the beginning of QE, the excess reserves that banks hold at the ECB have increased significantly, reaching more than EUR 700bn and estimated to rise to EUR 1tn in the coming months. Contrary to popular opinion, this is not evidence of the lack of credit growth, but it is an intrinsic consequence of the asset purchase program (Lattuga, 2016)[2].

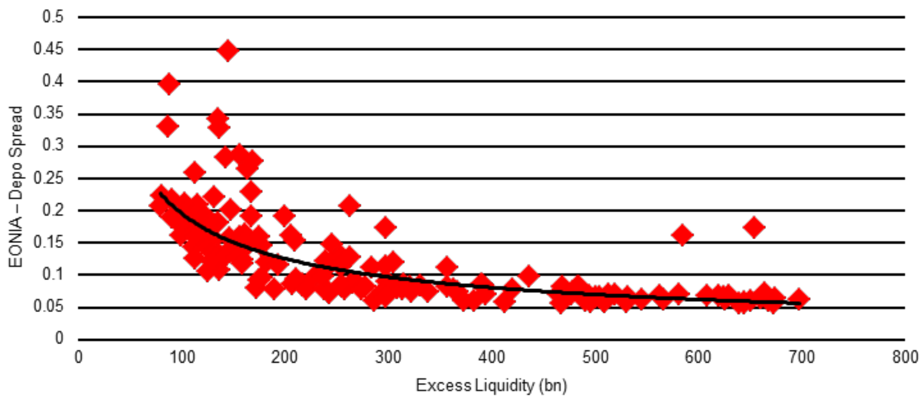
[2] Elia Lattuga 2016: "Fixed Income Strategy", *The UniCredit Macro & Markets Weekly*, 26 February 2016.

Even if credit increases, the money will be spent and it will ultimately be deposited back into some Eurosystem bank account, unless it is spent abroad.

Chart 12 shows that that the increase in excess liquidity is associated with a decrease in the spread between the EONIA and the depo rate. This implies that the opportunity cost of holding liquidity to be employed in the next safest allocation is rising. The higher opportunity cost should be supportive for lending and it could push banks to lend to more risky projects and on a longer-term basis, which might stimulate the economy. However, as we have seen previously, there is no compelling evidence concerning this channel at the macro level. Finally, it seems that expanding the ECB's balance sheet even further and increasing excess liquidity would have a very marginal effect on this spread.

CHART 12: THE OPPORTUNITY COST OF HOLDING LIQUIDITY INCREASES

Excess Liquidity and EONIA-Depo spread (1M, average)



Source: Bloomberg; ECB; UniCredit Research

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