

STUDY

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The ECB's Unfinished Business: Challenges ahead for EMU Monetary and Fiscal Policy Architecture

Monetary Dialogue September 2019



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Monetary and Fiscal Policy Architecture

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Abstract

Under Mario Draghi's Presidency, the range of measures and tools of the ECB expanded significantly, both by enhancing transparency and in the direction of stretching the ECB's competences beyond the limits to the existing monetary framework. Notwithstanding these achievements, significant challenges remain. In this note, we assess the potential limits to the amount of ECB's easing available for the future, including credit and political considerations. We argue that monetary policy stimulus alone may not resolve the situation of having the euro area stuck in a slowing growth environment, and ask whether the next President may want to pass the ball more strongly to national governments.

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LIST OF ABBREVIATIONS

CE	Credit Easing
CJEU	Court of Justice of the European Union
CSPP	Corporate Sector Purchase Programme
(E)APP	(Expanded) Asset Purchase Programme
ECB	European Central Bank
EHTS	Expectations Hypothesis of the Term Structure
EIB	European Investment Bank
EMU	Economic and Monetary Union
ETF	Exchange-Traded Fund
FG	Forward Guidance
GC	Governing Council
IMF	International Monetary Fund
NCB	National Central Bank
NIRP	Negative Interest Rate Policy
OIS	Overnight Index Swap
PSPP	Public Sector Purchase Programme
QE	Quantitative Easing
SHS	Securities Holding Statistics
SMEs	Small and Medium Sized Enterprises
TFEU	Treaty on the Functioning of the EU
TLTROs	Targeted Longer-Term Refinancing Operations

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EXECUTIVE SUMMARY

- Together with pushing the deposit facility rate into negative territory, in recent years, the ECB has focused on using a broad range of instruments, including forward guidance on the forthcoming path of the EONIA, outright balance-sheet policy through its (Expanded) Asset Purchase Programme, and targeted LTROs.
- The observed extent of stubbornly low inflation expectations certainly poses a challenge in terms of consistently and proactively responding to shocks that might delay convergence to the ECB's (medium-term) inflation objective. To this end, in a world of subdued growth prospects (i.e. secular stagnation), forward guidance is regarded as a crucial step to providing the necessary state-contingency of policy to revive the euro area economy. It is vital, at the same time, that the central bank will remain available to maintain the most effective tools to deliver on its mandate. The decision, among others, of 12th September 2019 of the ECB's Governing Council meeting to restart its net purchases "for as long as necessary" under the APP confirms this necessity.
- As it stands, the package of measures that the ECB announced in September 2019 include a further deposit facility rate reduction; additional open-ended balance-sheet purchases starting in November 2019; a new (pre-announced) round of TLTRO, with the introduction of a two-tier system for reserve remuneration.
- While the evidence suggests improved financing conditions and improved macroeconomic performance overall as the result of QE, the association between core inflation and longer-term expectations, based on the Survey of Professional Forecasters, has weakened again recently.
- In discussing the limits that politics and credit risk may create in making quantitative easing more aggressive, we ask whether the economic slack is a fiscal, rather than monetary, issue. In particular, the question remains as to which other instruments the ECB will still have in its arsenal. Those could be summarised as:
 - Unconstrained monetary policy, i.e. the ECB could embark into ever more negative interest rates, by so-doing relieving the government from using fiscal policy;
 - Extension of asset purchases, as well as changes to its technical rules;
 - Outright money creation to support aggregate demand, in the form of direct cash transfers to economic agents or other measures of outright finance via the central bank's balance sheet (also referred to as 'helicopter money' or central banks 'going direct', respectively);
 - Lifting the optimal inflation target in order to achieve the anchoring of expectations.
- The extension of asset purchases could be both *qualitative*, i.e. an extension of asset purchases particularly in the realm of corporate sector bonds – as well as the purchase of other risky private assets including equities (such as exchange-traded funds or ETFs); and *quantitative*, i.e. purchasing larger amounts by lifting the issuer and issue limits of the PSPP and/or deviating from the Eurosystem's capital keys.
- The Governing Council has faced calls to raise or even overthrow the self-imposed issue and issuer limits on the PSPP and to reconsider its adherence to the capital key. The ECB itself assumes to have broad technical discretion over these limits: particularly, the increasing scarcity of bonds in a number of jurisdictions had to be offset by increased purchases in other jurisdictions, above and beyond the predicted capital key shares.

-
- While buying equity/ETF purchases would mark uncharted territory for the ECB, risk-taking and potential balance sheet losses would, in theory, carry less of a political threat in the euro area given the ECB's far-reaching independence. At the same time, the finance ministers of the Member States have not provided the ECB with an explicit recapitalisation guarantee.
 - Arguably, expansionary fiscal policy – in conjunction with continued expansionary monetary policy – could boost aggregate demand, and therefore push wage and spending growth up, resulting in a substantial rise in GDP and inflation.
 - The empirical evidence reviewed in this note finds that spending policies are more effective in expanding output during less turbulent times when less uncertainty prevails. In addition to that, unless the intertemporal effect of debt is taken into account, the fiscal multiplier tends to be biased and overstated. This means that debt in the euro area represents an important constraint on potential growth, and therefore fiscal expansion is likely to have limited (although) positive impact, specifically in fiscally constrained countries.
 - Considering that financial policy – both micro-and macroprudential – has gained much significance since the Great Recession, the scope of conventional monetary policy has been significantly reduced. The 'new monetary policy' should be much more considerate of low growth prospects, the interplay between macroeconomic-and financial cycles, private sector balance sheets, and interaction with other policies, in particular, financial policy.
 - In this respect, having the ECB to target an inflation interval, of for instance between 1.5-2.5%, also going beyond the current target of 2%, might be a more effective way to proceed, as the evidence suggests, particularly considering the significant uncertainty on the expected inflation path and the context of structural change and demographic shift taking place.
 - Other structural policies could entail taking into account technologies and prepare societies for the automation age.

1. THE ECB'S NON-CONVENTIONAL STIMULUS: WHERE DO WE STAND?

Under Mario Draghi's presidency, the range of tools and measures the European Central Bank has adopted over the last years expanded significantly. Together with the extended nature of macro-financial adjustment since 2008-09 and post-2010, there have been several downward revisions in inflation and inflation expectations in recent years (Lane, 2019). In this context, the ECB has complemented its standard toolkit with a number of non-standard measures, including extending the range for the policy rate into negative territory; enhancing communication and forward guidance to focus on the medium-term inflation goal; buying private and public debt securities as part of the Expanded Asset Purchase Programme (EAPP); and finally, targeted longer-term refinancing operations (TLTROs) to reduce financial institutions' carry-trade and create opportunities for bank lending to the real economy.

The observed extent of stubbornly low inflation expectations certainly poses a challenge in terms of consistently and proactively responding to shocks that might delay convergence to the ECB's (medium-term) inflation objective. To this end, in a world of subdued growth prospects (i.e. secular stagnation), forward guidance is regarded as a crucial step to providing the necessary state-contingency of policy to revive the euro area economy. It is vital, at the same time, the central bank will remain available to maintain the most effective tools to deliver on its mandate, including the possibility of using balance sheet policy whenever necessary. The decision, among others, of 12 September 2019 of the ECB's Governing Council meeting to restart its net purchases "for as long as necessary to reinforce the accommodative impact of its policy rates" under the asset purchase programme (APP) confirms this necessity.

Figure 1 summarises some key interest rates and developments in recent years. When the ECB cut the deposit facility rate to zero, first, and then progressively down – in negative territory since 2014, currently projected at -0.5% with the latest Governing Council decision – banks felt less and less the need to move money to the ECB's deposit facility, as money yielded zero interest or even it became costly to hold deposits. The implication of this policy was that banks started to pay a charge for their excess deposit holdings. This overall increased the quantity of excess reserves and reduced the amount of money in the deposit facility (see also Svendsen and Wojt, 2014). With the negative rates, individual banks had, therefore, to try to minimise this charge by reducing their excess liquidity holdings through active portfolio rebalancing and balance sheet adjustments, including reduced wholesale borrowing – on the liability side – and/or increased loan provisions or government bond holdings – on the asset side (see also Macchiarelli, 2018). From mid-2014 onwards, liquidity in the system has thus increased substantially. With the exemption of (targeted) longer-term refinancing operations, the observed increase in liquidity during 2014-18 primarily derives from the APP and not from the standard Eurosystem liquidity operations. As a result, the Eurosystem has become the principal driver of the rise in liquidity itself.

To date, the APP programme has been extended three times since the first implementation – the last expected to start in November 2019 – raising the expected level of excess liquidity from the original EUR 300 billion, before the programme, to EUR 1.7 trillion extending, at the same time, the horizon until full reabsorption (Demiarlp et al., 2017). On 13 December 2018, the Governing Council decided to end the net purchases under the APP in December 2018, to which it followed a "reinvestment phase". In September 2019, it was announced net purchases were to be resumed starting from November 2019 at a monthly pace of EUR 20 billion (Table 1).

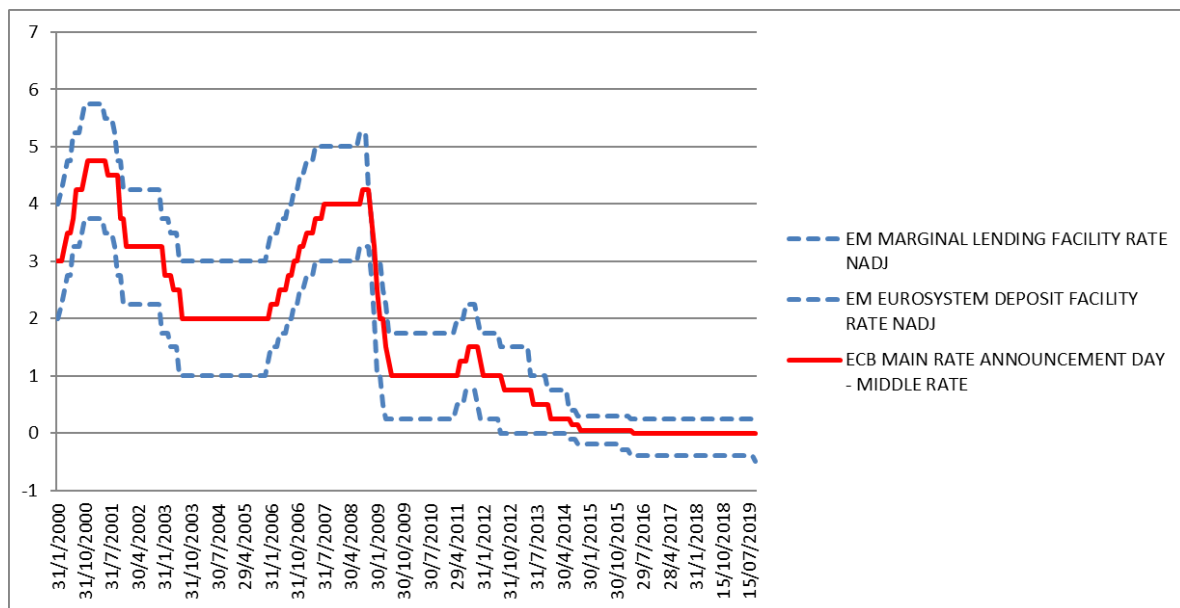
Table 1: Average of monthly purchases during the APP

	March 2015 until March 2016	April 2016 until March 2017	April 2017 to December 2017	January 2018 to September 2018	October 2018 to December 2018	November 2019 to --
Net monthly purchases (average pace)	EUR 60 billion	EUR 80 billion	EUR 60 billion	EUR 30 billion	EUR 15 billion	EUR 20 billion

Source: Data from the European Central Bank.

Looking at Figure 1, we visually assess the response of interbank interest rates (like the Euribor) to changes in the ECB policy thus far. Prior to the crisis, the market interest rate has been mostly close to the ECB's policy rate, as the Eurosystem kept short-term market rates close to the policy rate by adjusting the amount of liquidity to be adequate for the prevailing conditions in the market, in a situation of liquidity deficit indeed. In 2008, the amount of central bank money was not enough to cope with banks' needs, so the latter had to resort to the marginal lending facility. This is well evidenced by the Euribor rate climbing up to levels close to the interest rate on the marginal lending facility. This situation was evidently different from when the system experienced a liquidity excess. Here, banks reacted by making overnight deposits with the ECB, through recourse of the deposit facility, driving the interbank rate close to the deposit facility rate. This has been the case since 2012, and particularly so with the extension of the APP.

Figure 1: Short rates and liquidity management



Sources: Data from ECB Statistical Data Warehouse.

Note: Last observation Sept. 2019. Deposit facility rate at -0.5% effective from 18 Sep. 2019.

Together with pushing the deposit facility rate into negative territory (1), in recent years, the ECB has focused on using a broad range of instruments, including: (2) forward guidance on the forthcoming path of the EONIA, (3) outright balance-sheet policy through its (Expanded) Asset Purchase Programme, and (4) targeted LTROs. Out of these measures, the ones in (1), (2) and (4) mainly exploited the flexibility of the existing monetary policy framework in the Eurosystem.

As it stands, the package of measures that the ECB announced in September 2019 include:

- A further deposit facility rate reduction (to a new minimum of minus 50 basis points), to recalibrate the technical limitation in the APP purchases and circumvent the problem of bond scarcity, i.e. Germany;
- Additional open-ended balance-sheet purchases at a monthly pace of EUR 20 billion starting in November 2019;
- Change in the TLTRO with the interest rate in each operation being set at the level of the average rate applied in the Eurosystem's main refinancing operations over the life of the respective TLTRO. For banks whose eligible net lending exceeds a benchmark, the rate applied could be as low as the average interest rate on the deposit facility prevailing over the life of the operation. The maturity of the operations is also planned to be extended from two to three years.

Those announcements change *de facto* also the forward guidance policy of the bank. The latter was previously focused on keeping rates at current or lower levels "at least through the first half of 2020". This last release confirms the so-called *easing bias*, with the possibility of further rate adjustments until when the prospects for inflation will not show signs of "robustly" converging to target and stabilising at a level just below 2%.

These measures are aimed chiefly at impacting the markets by making the yield curve steeper, in particular, the long-term end; help the Euribor and the universe of German bonds currently trading at negative rates; make TLTRO3 more attractive; and convince the markets about the consistency of the stimulus, by keeping together euro area spreads *vis-à-vis* the *bund*. They overall represent an audacious move – mainly the open-ended nature of the APP purchases – which is bound to set an important standard before Draghi passes the torch at the end of October.

Once these measures have been implemented, however, the question will be which other instruments the ECB will still have in its arsenal and whether limits to the monetary policy stimulus do exist.

Lilley and Rogoff (2019), as well as previously Goodfriend (2000), have called unconstrained negative interest rate policy as "the most elegant and stable" solution to the ZLB constraint to monetary policy. The ECB could embark into ever more negative interest rates, by so-doing relieving the government from using fiscal policy. The appropriateness of these and any risks will be discussed in Section 2.

In August, a Blackrock proposal has pushed the discussion in a different direction, reviving the debate on the hypothesis of unconventional manoeuvres based on the proposal of "helicopter money" evoked in 1969 by Milton Friedman. Outright money creation to support aggregate demand is understood as an effective way of providing liquidity directly to households and businesses without generating new debt. Applied to the euro area, the hypothesis would mean the direct disbursement of funds by the ECB, either directly, or indirectly through international bodies such as the European Investment Bank (EIB), to firms and consumers. This is a discussion that has been long ongoing but it strongly clashes with the Treaty on the Functioning of the EU (TFEU): since the ECB does not have the mandate to give money away directly to institutions other than banks, just exchange one asset for another (in respect of article 123 TFEU which prohibits direct monetary financing of public debt) helicopter money would possibly need to be backed by fiscal decisions (Section 2).

Finally, a possibility to discuss will be whether low inflation targets create the risk of persistence of recessions and low growth, thus requiring a lift of the optimal inflation target in order to achieve the anchoring of expectations and stabilisation in the context of structural change and demographic shift taking place. This will be discussed in Section 3.

In the next paragraphs, we will outline the effectiveness of the measures adopted so far. In so doing, we will reflect on how the effectiveness – as well as limits – of these instruments could provide leeway for further easing. In this note we wish to overall discuss the limits that politics and credit risk may create in making quantitative easing (QE) more aggressive; and ask whether the economic slack is a fiscal, rather than monetary, issue. The euro area is continuing to face several uncertainties (trade war, Brexit, ECB's future stance, as well as the current/future US stance). The ECB has done much to improve the monetary policy transmission mechanism and reduce financial market volatility. However, it seems that pessimism, reinforced by political risk, is still on the high-side, as confirmed by expectations or other standard indicators for confidence. This goes back to understanding which type of monetary accommodation could be adopted in the future and the possible political and credit implications.

A second, and partly related, issue to uncertainty and markets' perception has to do with the growing worries about the economic slowdown and subdued inflation in the eurozone. With Italy in recession and Germany having cut its projected growth rate, there are still supply-side problems. We will reflect on the fact that demand *stimuli* alone will not resolve the situation of having the euro area stuck in a slowing growth environment. In this context, it will be important to ask whether individual Member States missed an opportunity for reforms and if so which the auspicial outlook for monetary/fiscal policy in the eurozone should be. The suspicion is that albeit the ECB's monetary policy instruments will not change "in principle", the next President may want to pass the ball more strongly to national governments. Also, without further supply-side reforms, the eurozone economic activity risk to remain relatively anaemic – also in the context of demographic and "secular" factors (Gerba, 2018).

1.1. The negative-interest rates environment

The ECB's decision to bring the deposit facility rate into negative territory in 2014 – with subsequent cuts having brought the rate to the current level of minus 40 basis points as of April 2016, and with a further 10 basis point cut in September 2019 – was an important step, as it triggered several changes in the monetary framework of the euro.

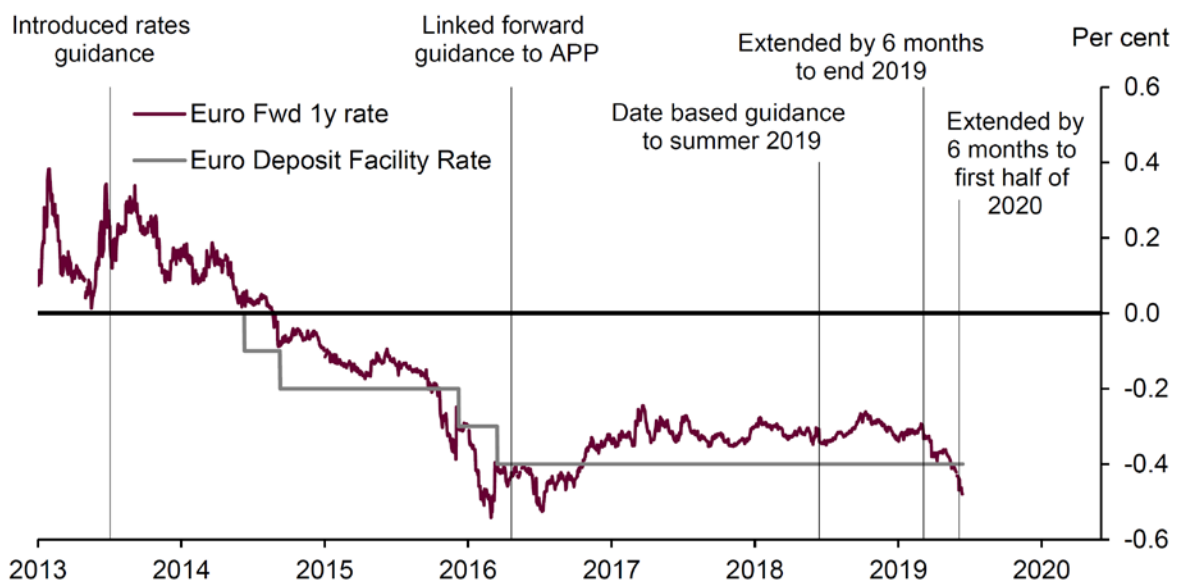
As outlined by Lane (2019), such a negative interest rate policy (NIRP) factually contributed to the disappearance of the qualifier "zero" in the debate on the nominal lower bound. Through this mechanism, negative rates push down the short and medium segment of the risk-free interest rate curve, which for the most part is the segment of the curve that determines the pricing of loans to non-financial corporations. In order to get banks to lend more, the ECB had to decide on waving a "lending carrot" (e.g. TLTROs) discouraging banks from simply putting their money into safe assets. There has been an indirect stimulus to government bond markets as well. This effect has nevertheless been uneven in the eurozone; being very limited in higher-rated countries such as Germany – where since mid- November 2015 already, about a third of the debt issued by euro area governments had negative yields – and more accentuated in lower-rated countries. Under negative deposit facility rate, the incentive of banks to expand their supply of loans has been strengthened by the fact that additional reserves created by the central bank entailed now a cost. Thus, while the negative deposit facility might have weakened the interest rate channel by reducing the ability of banks to pass this cost to retail depositors, the empirical evidence suggests it exacerbates the home-bias in banks' asset holding and amplifies the lending channel, in particular for countries in the euro area periphery (Demiarlp et al., 2017; Baldo et al., 2017), where (risky) lending became a way for banks to adjust their balance-sheet.

Altogether, there is a consensus that NIRP contributed to providing monetary accommodation. Concurrently, however, it is clear that empirically there may have been some side effects: the current conditions – namely, the interaction of remaining risk aversion, the investment opportunities created by yield differences across the euro area versus the negative rate on the deposit facility, and the incentives created by new regulations – have left liquidity in much the same countries as before, with banks in lower-rated countries daft to invest liquidity into home bonds or assets with higher yields (foreign assets and repurchasing agreements against domestic collateral), while banks in higher-rated countries often found excess liquidity holdings more attractive (see Macchiarelli, 2018).

1.2. Forward guidance

Forward guidance (FG) has become an important tool to ensure the consistency of monetary policy over the longer horizon. Asset purchases provide a strong signal that policy rates will remain low for an extended period of time. This effect is reinforced indeed by the ECB’s forward guidance: in this sense, the APP dampened volatility by further interacting with forward guidance; at the same time, the ECB’s forward guidance has helped anchor forward interest rates (Figure 2) and reinforced APP reinvestments.

Figure 2: ECB forward guidance and forward interest rates



Sources: Carney (2019).

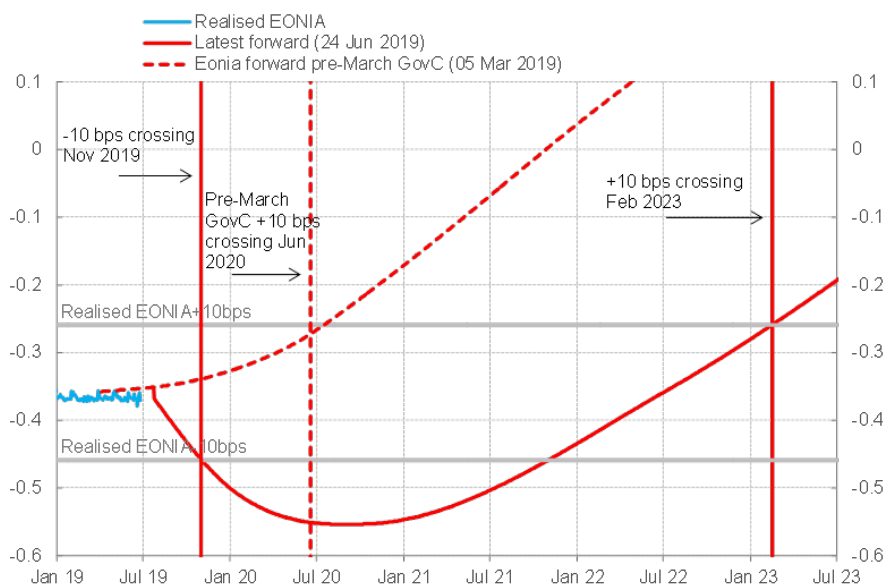
Under the assumption of the expectations hypothesis of the term structure of interest rates (EHTS), longer-term interest rates should reflect the path of the expected interest rates at short maturities. It is thus by influencing expectations about the evolution of short-term rates in the future that the central bank can actually impact the economy. This puts a great onus of responsibility on central bank communication and transparency about the future policy orientation (Blinder et al., 2008), as it removes the unnecessary uncertainty about the bank’s commitment to price stability (see also Woodford, 2012).

Put simply, the FG operated by the ECB is a forecast based on current information, consistent with the central bank’s broad-based projections about the underlying economic conditions for the foreseeable future. This policy is both ‘state-contingent’ – i.e. it allows the relevant policy rates not to be raised until

the Governing Council is confident that inflation will reach levels at most consistent with the ECB's inflation objective – and 'data-based' – i.e. when new information is available, the forecast is updated.

The evidence reported in Lane (2019) and Hubert and Labondance (2018) shows that the ECB's forward guidance has been effective overall, particularly at longer maturities. In March, June and September, 2019, the Governing Council assessed that the risks to price stability warranted a recalibration of the policy.

Figure 3: EONIA, forward curve estimates from OIS
(percentages per annum)



Sources: Lane (2019) based on ECB calculations.

Notes: Latest observation: 24 June 2019.

The state-contingency of the policy is well captured by the EONIA forward curve. The ECB's Staff calculations in Figure 2 point out how, since the monetary policy meeting of the Governing Council on March 2019, investors' behaviour has priced-in the Governing Council's updated assessment of the direction of the ECB's key interest rates to follow, leading them to expect a somewhat longer horizon over which rates were more likely to remain unaltered. Accordingly, the EONIA forward curve has shifted down (Figure 3).

1.3. Central bank communication

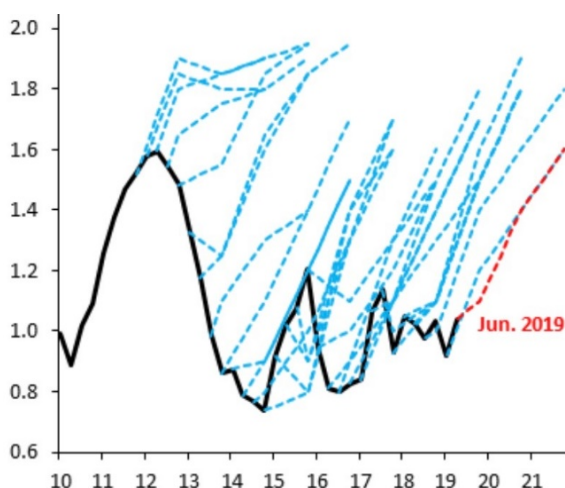
The ECB has followed each monetary policy decision with a statement and press conference at each meeting since its creation in 1999. Since 2015, the frequency of these meetings has been reduced, to allow for a fuller passage of time between decisions and ensure a time span long enough to be consistent with its medium-term objective.

Following on from the previous discussion, maintaining a medium-term – and state-dependent – strategy rest on inflation expectations remaining sufficiently anchored. To a large extent, the ECB

communication strategy currently relies on forward guidance which helps set a future policy path conditional on reaching the ECB’s primary objective of price stability over the medium horizon.

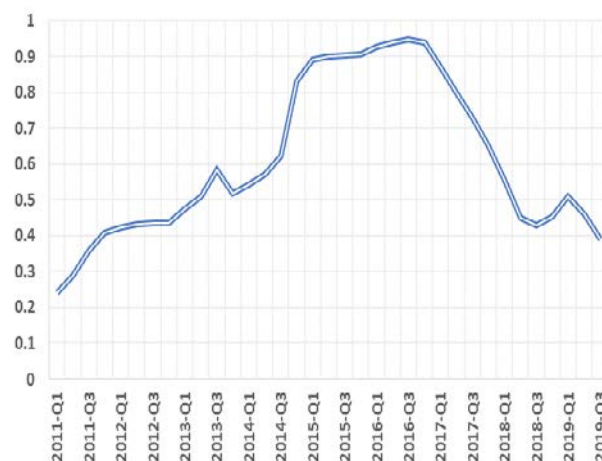
When looking at the ECB forecasts, it emerges the ECB has however consistently forecasted, somehow more optimistically, a swifter return of HICP close to 2% (Figure 4).

Figure 4: Euro area HICP inflation and ECB forecasts
(y-o-y percentage change)



Sources: Data from ECB Statistical Data Warehouse.

Figure 5: Time-varying correlation between Euro area HICP inflation and long-term SPF inflation expectations (5y ahead)



Sources: Data from ECB Statistical Data Warehouse.

Note: Own calculations. Note: SPF (Survey of Professional Forecasters) denote the expected long-term inflation expectations in five years as inferred from the average point estimate of the survey. The time-varying correlation refers to a 5-year window with quarterly data. Last observation: 2019 Q3.

An additional piece of evidence on this issue can be obtained by looking at the association of longer-term inflation expectations with the average of actual inflation. The evidence suggests that the association between core inflation and longer-term expectations, based on the Survey of Professional Forecasters, has weakened, possibly signifying that participants have not been very extrapolative in forming their inflation expectations (Lane, 2019); Figure 5.

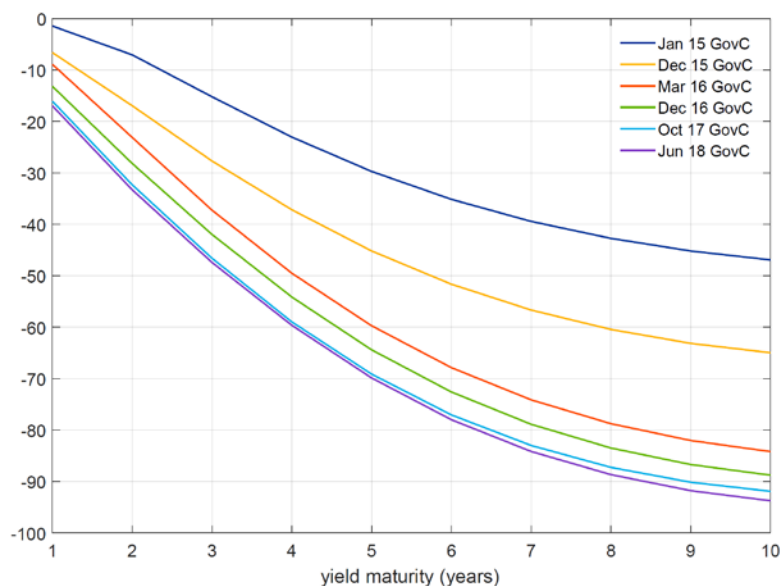
1.4. The Asset Purchase Programme

The period of the second extension of the APP net asset purchases ended in December 2018. The Eurosystem currently reinvests the principal payments from maturing securities purchased under the APP. In September 2019, it was announced the third round of APP, with net purchases restarting at a monthly pace of EUR 20 billion as from 1 November 2019 (Table 1). The Governing Council expects them to run “for as long as necessary to reinforce the accommodative impact of its policy rates, and to end shortly before it starts raising the key ECB interest rates”. This will have no impact on the reinvestment of maturing securities purchased previously.

The literature has provided a rich and extensive assessment of the contribution of the ECB's APP to monetary easing. Some of the briefing papers we prepared for the Monetary Dialogue in the context of the scrutiny activity of the European Parliament on ECB monetary policy during the past legislature provide an account of these developments (see Gerba and Macchiarelli, 2016a; b).

The previous empirical evidence on asset purchase programmes, including for the US, the UK and Japan (see IMF, 2013) 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; Eser, Lemke, Nyholm, Radde, Vladu; 2019).

Figure 6: Impact of different APP vintages on the yield curve
(basis points)



Source: Eser, Lemke, Nyholm, Radde, Vladu (2019).

Notes: The figure shows the contemporaneous impact of the APP on the term structure of interest rates. For the indicated dates t and maturity n , the respective point on the line provides an estimate of how much the sovereign n -period yield at the respective time t is compressed due to the impact on the term premium via the duration extraction channel.

Eser, Lemke, Nyholm, Radde, Vladu (2019), in particular, developed an empirical measure of duration risk in the market exploiting security-level information on sectoral bond holdings from the ECB's Securities Holding Statistics (SHS). They estimate that overall the APP has compressed 10y sovereign term premia through the duration channel by around 95 bps (see Figure 6). They find such a term premia compression due to the APP to be persistent and that the expected length of the reinvestment period after net purchases has a significant impact on term premia. Thus, the APP contributes to the easing of financial conditions through the reduction of yields, particularly at the longer end of the curve, also through large duration and scarcity effects. These effects are also the result of the bonds purchased remaining on the ECB's balance sheet as the maturing principals are reinvested.

1.5. TLTROs

The Governing Council recently decided to start its third round of targeted refinancing operations, TLTRO3. The ultimate goal of those is to help the smooth functioning of the transmission mechanism, by keeping bank lending conditions even more favourable. In the light of the decision of September 2019, the interest rate in this last round of TLTROs operations will now be set at the level of the average rate applied in the Eurosystem's main refinancing operations over the life of the respective TLTRO. This is because, for the TLTROs to prove effective, the costs to access the scheme have to be calibrated to be less than alternative funding costs. For banks whose eligible net lending exceeds a benchmark, the rate applied in TLTRO3 operations will be lower and can be as low as the average interest rate on the deposit facility prevailing over the life of the operation. The maturity of the operations will be extended from two to three years.

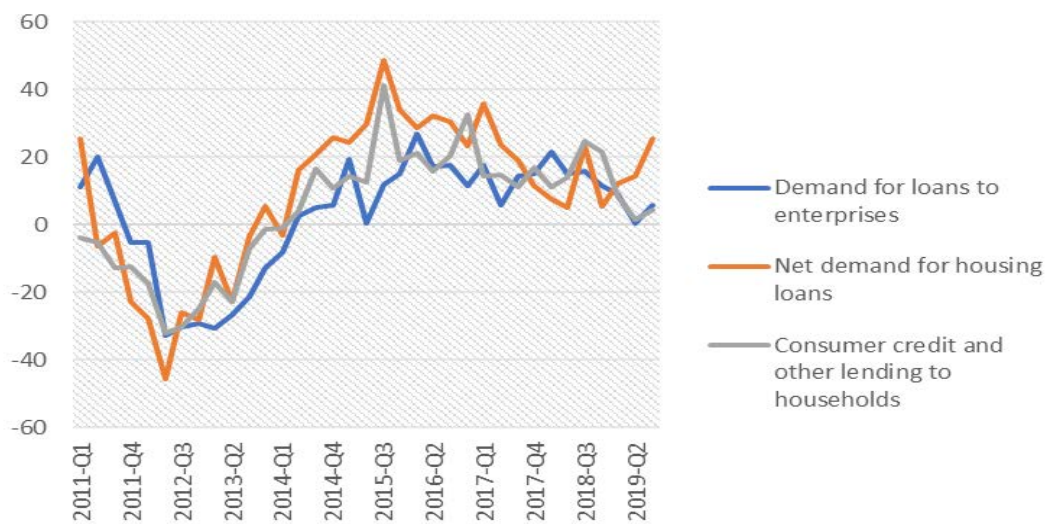
In order to support the bank-based transmission of monetary policy, a two-tier system for reserve remuneration is also being introduced, in which part of banks' holdings of excess liquidity will be exempt from the negative deposit facility rate. This will be in order not to penalise banks relying on excess liquidity holdings (for a discussion see Macchiarelli, 2018), such as those in higher-rated countries, i.e. Germany.

As reminded previously, the TLTROs works as a "lending carrot" discouraging banks from simply putting their money into safe assets. Such operations are contingent on the provision of new lending to SMEs, directly supporting credit to this sector and improving the quality of banks' assets.

Lane (2019) suggests that the TLTRO is having a significant effect on funding costs, particularly in more vulnerable countries in the area. The evidence suggests that financial institutions drew TLTRO funds by postponing or abandoning plans to raise funds through the market by issuing bonds. This helped create a scarcity in the supply of bank bonds which put further downward pressure on these securities' yields, resulting in lower funding costs overall.

The experience with market conditions is that TLTROs did exert the expected positive effect on lending as banks opportunely relied on cheaper funding through the refinancing operations over longer periods. The observed funding cost relief across the board was possibly stronger than in the absence of these operations, according to Lane (2019). However, the recent evidence in terms of the ignition effect TLTROs had on lending is mixed. The existing results suggest that albeit loan supply did pick-up, particularly as the results of lending by larger banks (Baths and Hudepohl, 2019), both directly – through a change of margins on loans to relatively safe borrowers – and indirectly – through an easing of credit standards of non-TLTROs bidders banks, via changes in the competitive environment in banks' credit and deposit markets; see Andreeva and García-Posada (2019) – the problems are on the demand side.

Figure 7: Demand for loans in the eurozone



Sources: Data from ECB Statistical Data Warehouse.

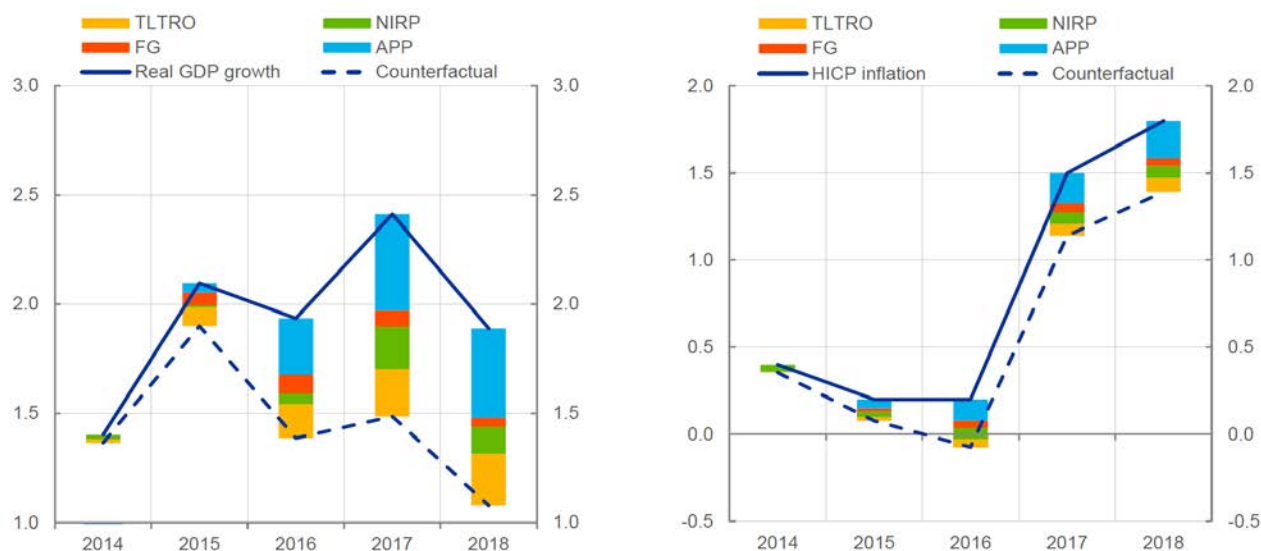
Note: Euro area (changing composition) - Loan demand - Weighted net percentage (tightened minus eased or reverse) based on the share of each country in the total loan outstanding amounts of the area aggregate and of each bank in the total loan outstanding amount of the BLS banks sample (Bank Lending Survey Statistics). Last observation: 2019 Q3.

The ECB's latest lending survey shows that despite the low-interest rates, banks reported an only timid increase in demand for loans to businesses and consumer credit and other lendings to households. This was after the halt observed during the April 2019 survey, with net loan demand having shrunk in Spain and Italy. Albeit loan supply side-problems still persist (it is fair to ask how much loan supply would be sustained if LTRO will normalise), demand, i.e. firms and households, might not be keen on borrowing facing uncertain prospects. As it stands, there is agreement that without TLTROs monetary conditions facing SMEs and households would become unnecessarily tight.

1.6. The big picture

In assessing the impact of the ECB's different measures, one must take into account the existing complementarities: measures such as the aforementioned TLTRO are normally operated in conjunction with QE – the last extension of September 2019 being no exception – broadly respecting the separation principle between monetary policy and liquidity management (see Gabor, 2014). Through negative rates in the deposit facility, banks were pushed to increase lending to the real economy instead of hoarding liquidity. While helping the portfolio rebalancing effect of the APP, this has however often been the result of banks in the euro area periphery adjusting balance-sheets (Macchiarelli, 2018).

Figure 8: Contribution of ECB non-standard measures to real GDP growth (left) and HICP-inflation (right) 2014-2018 (year-on-year percentage changes)



Source: Altavilla (2019) based on Rostagno, Altavilla, Carboni, Lemke, Motto, Saint-Guilhem, Yiangou (2019), ‘A Tale of Two Decades: The ECB’s Monetary Policy at 20’, mimeo.

Notes : FG = Forward Guidance; NIRP = Negative Interest Rate Policy; APP = Asset Purchase Programme. The figure reports the impact of ECB non-standard measures on macro variables based on a macroeconomic model with financial variables conditioning on the yield curve impact at 2,5,10-year horizon.

While the evidence suggests improved financing conditions and improved macroeconomic performance overall (Altavilla, 2019), it should be asked whether a lower bound for the monetary stimulus exists (Lilley and Rogoff, 2019) or, on the contrary, the cyclical stance of fiscal policy could, and should, “play its role” and be used in tandem with the monetary stimulus (Draghi (2019), as we shall discuss in the following sections.

2. BEYOND THE ZERO LOWER BOUND

In light of increasingly evident difficulties to reach its inflation target in a self-sustained fashion or in case of a persistent macroeconomic downturn, the ECB is likely to face calls for continued monetary stimulus in the future. This section first reviews and refutes the frequently-held assertion that monetary policy is 'out of ammo' and then discusses different policy options still available to independent central banks. The next sub-section explores the potential credit and political risks associated with these options. In doing so, both sub-sections also take the experience of other major central banks into account, where appropriate.

2.1. Expanding the monetary stimulus by increasing risks: the alternatives

An assertion that is often heard in both academic and public debates is that monetary policy has been 'stretched to the limit'¹ since the financial and Eurozone crises and that central banks therefore increasingly find themselves 'out of ammo' (e.g., Bartsch 2019). At least in theory, however, the ECB's toolkit is arguably far from exhausted.

Generally speaking, the majority of policy options that are currently still available to central banks may fall into the following three categories, namely

- further cuts to interest rates (and the introduction of a tiered deposit system in the euro area);
- a resumption and extension of asset purchases as well as changes to the technical rules governing those purchases; and
- direct cash transfers to economic agents or other measures of outright finance via the central bank's balance sheet (also referred to as 'helicopter money' or central banks 'going direct', respectively).

Whereas the option and limitation of lowering interest rates have been reflected in the previous section, this brief is commissioned to focus on the second category in particular (renewing and extending asset purchases as well as amending the rules which govern them). Nevertheless, some of the consequences of a further expansion of the Eurosystem's consolidated balance sheet discussed in the next section equally apply to the question of outright cash transfers as well.

In the context of the euro area, in particular, the second category entails two main avenues which merit further scrutiny, namely

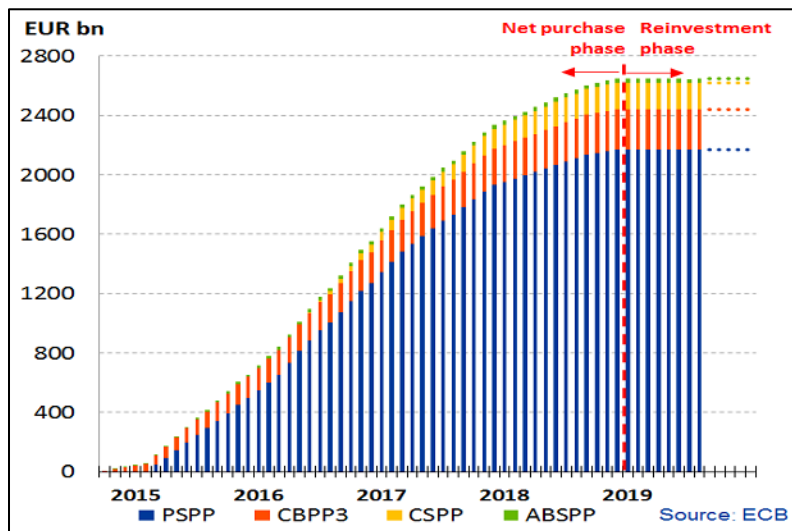
- the extension of asset purchases – particularly in the realm of corporate sector bonds – as well as the purchase of other risky private assets including equities (such as exchange-traded funds or ETFs); and
- raising or lifting the issuer and issue limits of the Public Sector Purchase Programme (PSPP) as instated by the ECB Governing Council and/or deviating from the Eurosystem's so-called capital key.

As discussed in Section 2, in June 2018, the ECB Governing Council announced that it would seek to end net purchases under its Asset Purchase Programme (APP) at the end of 2018 (see ECB 2018a). In December of the same year, it further specified its intention to 'continue reinvesting, in full, the principal payments from maturing securities purchased under the APP for an extended period of time

¹ See, for example, Van Riet (2017).

past the date when we start raising the key ECB interest rates, and in any case for as long as necessary to maintain favourable liquidity conditions and an ample degree of monetary accommodation’ (ECB 2018b). This is illustrated by the cumulative net purchases in Figure 9 below, which also displays how the pace of net asset purchases had already gradually declined throughout the year of 2018 (see also Table 1).

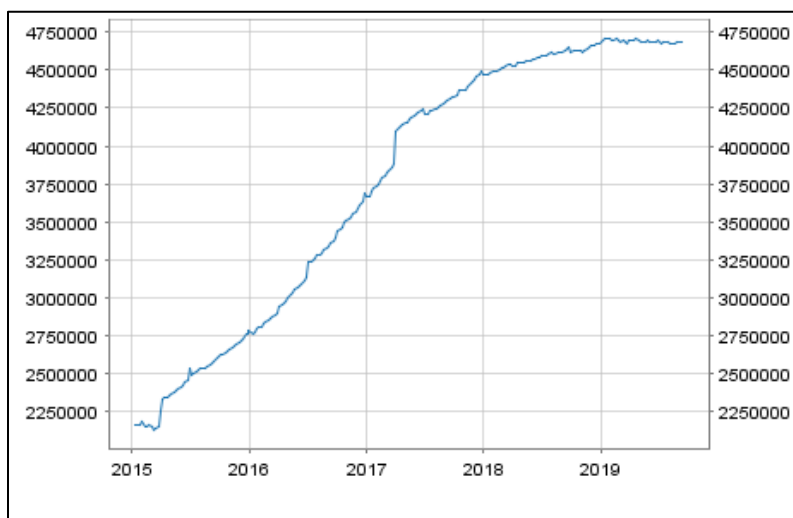
Figure 9: Cumulative APP net purchases and reinvestments, 2015-2019



Source: ECB website, <https://www.ecb.europa.eu/mopo/implement/omt/html/index.en.html>.

As a result, the size of the Eurosystem’s consolidated balance sheet has essentially stagnated since the beginning of 2019, hovering around EUR 4.7 trillion. Figure 10 below charts the Eurosystem’s total assets and liabilities between January 2015 (i.e., just ahead of the launch of the APP in March 2015) and September 2019.

Figure 10: Eurosystem total assets/liabilities, 2015-2019



Source: ECB Statistical Data Warehouse.

2.1.1. Expanding net asset purchases and purchasing riskier private assets

The most recent meeting of 12 September 2019 confirms that the ECB Governing Council has the discretion to resume net asset purchases at any point in time, if warranted in light of its primary objective to maintain price stability. This view has been vindicated not least by the ruling of the Court of Justice of the European Union (CJEU) of December 2018 concerning the validity of the PSPP, which makes up the bulk of ECB asset purchases (C-493/17; see CJEU 2018).

A potential obstacle to a further expansion of net asset purchases in the future, however, may lie in the ECB's very own limits which it had placed on the PSPP, as we shall discuss below. In light of this self-limitation, a conceivable alternative would be to focus on expanding net purchases in the other facilities of the APP as well as venturing into different asset classes. The most obvious candidates in this regard – given the relatively wide range of assets already purchased by the ECB – would be equities (such as ETFs) on the one hand, as well as bank bonds on the other. This leaves monetary policy-makers with at least two broad avenues in terms of future iterations of QE.

First, with regard to expanding purchases in APP facilities other than the PSPP, most of the potential seems to lie in bond purchases under the Corporate Sector Purchase Programme (CSPP). The ECB's current holdings of around EUR 178 billion of corporate bonds indeed remain far below the universe of eligible, investment-grade assets, which is currently estimated at around EUR 700 billion with an additional EUR 150 billion to be issued per year in the future (van den Broek and Brzeski 2019). Similarly, in terms of purchasing *bank* debt in particular, research conducted by ING suggests that the universe of eligible bank bonds currently stands at around EUR 300 billion, with annual issuance projected to be at around EUR 100 billion (*ibid.*). In past reports, the ECB has repeatedly signalled a preference for corporate bond purchases (see ECB 2018c; 2018d), while civil society and academics have suggested that these be geared more directly towards investments in green bonds (Jourdan and Kalinowski 2019; Battiston and Monasterolo 2019). Importantly, market participants seem to increasingly expect CSPP purchases to play a greater role in future constellations of euro area QE (Reuters 2019).

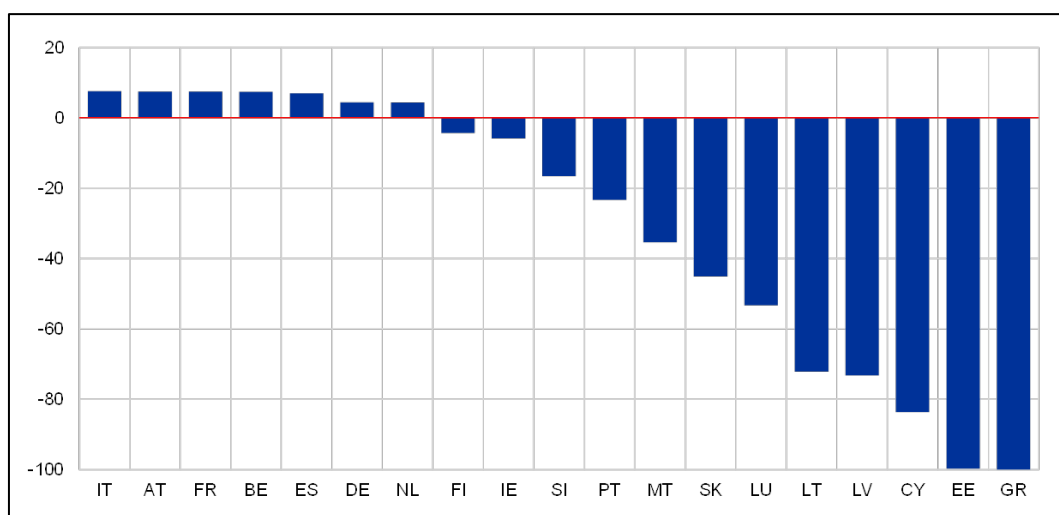
Second, with regard to equity/ETF purchases, these would mark uncharted territory for the ECB, whereas other central banks have already embarked on such operations in the past, including, most prominently, the Bank of Japan, the Bank of Israel and the Swiss National Bank. While the jury is still out as to the effectiveness of increased stock-buying by central banks (Nangle and Yates 2017; Shirai 2018), global purchases have reached around EUR 1 trillion over the past years, notwithstanding a bout of stock market corrections particularly during 2018 (OMFIF 2019a; 2019b). Similar to the above, the purchase of equities is generally considered more 'risky' for central banks than QE programmes which are restricted merely to the purchase of government securities. The issue of risks is further discussed below (see 2.2).

2.1.2. Amending the rules that govern asset purchases

When announcing the Public Sector Purchase Programme in January 2015, the ECB Governing Council specified that the total amount of bonds purchased would be capped at 25% of a given issue and that there would be an aggregate holding limit of 33% per issuer (see, e.g., Van Riet 2017: 16). Interestingly, the issue limit was subsequently raised to a total of 33% as well, namely in November 2015. The main idea behind the instalment of these ceilings was two-fold. On the hand, the issue limit was deemed to ensure that the ECB would not have a blocking minority in a debt restructuring event, in which case collective action clauses in government bond contracts would be activated. On the other hand, the issuer limit was seen to ensure that the ECB would not become a dominant creditor in any one government bond market in the euro area (*ibid.*).

Another striking feature of the PSPP is that it is, for the most part, conducted through the balance sheets of euro area national central banks (NCBs), broadly in accordance with the Eurosystem's capital key which underwent its most recent quinquennial adjustment in December 2018. Thereby, the capital key was also meant to serve as a guidepost for the allocation of monthly purchases between Member States (with the notable exclusion of Greece). In reality, however, public sector bond purchases have come to deviate from the key to some extent, and in a number of cases substantially, as illustrated in Figure 11. The ECB has explained these deviations by pointing to the increasing unavailability of bonds in a number of jurisdictions, which consequently had to be offset by increased purchases in other jurisdictions (see, e.g., ECB 2019a).

Figure 11: Deviation in the share of net cumulative purchases from ECB capital key at end 2018 (%)



Source: ECB Economic Bulletin March 2019.

Nevertheless, the Governing Council has faced calls to raise or even overthrow the self-imposed issue and issuer limits on the PSPP and to reconsider its adherence to the capital key. The ECB itself assumes to have broad discretion over these limits.² Indeed, the central bank exercised such discretion both when instating the thresholds in January 2015 and when raising the issue limit from 25% to 33% later on in November 2015. However, after the most recent ECB Governing Council meeting of 12 September 2019, ECB President Mario Draghi revealed that there was 'no appetite' among members of the Governing Council to raise the limits despite a resumption of asset purchases on an open-ended basis (ECB 2019c), which raises pertinent and unresolved questions about the actually possible duration of these purchases. Moreover, the President also communicated during the Q&A on 12 September that the composition of asset purchases would remain broadly unchanged – or, in other words, that there would be no larger role for private asset purchases in the APP than there had been before. Considerations about the potential risks associated with these and other purchases could be one of the factors that have played into these decisions.

² In the words of ECB Executive Board member Benoît Cœuré: 'the ECJ has also affirmed the principle that we should have broad discretion in designing our instruments. (...) We already have some degree of freedom across securities. For instance, we already buy up to 50 per cent of supranational bonds, while for individual sovereigns the limit is lower' (ECB 2019b).

2.2. Credit and political risks

A key question for central banks across the globe is how to provide a necessary degree of monetary stimulus while signalling prudence with regard to risk-taking. As the crisis has underlined, central banks perform a crucial function as risk-takers and 'balance sheets of last resort' in times of financial distress (Cour-Thimann and Winkler 2016). At the same time, central banks seem keen to avoid the impression of taking on excessive risk. Purchasing private securities or venturing into other asset classes is often perceived as carrying more risk than public sector purchases, not least in case a private entity defaults. Against this backdrop, most central banks have installed operational frameworks which pay increased attention to managing risks.³ Nevertheless, as President Draghi pointed out during the Q&A after the ECB's December 2018 press conference, 'accidents may happen and they have happened in the past' (ECB 2018a). One example of such an accident were the losses accrued by the Eurosystem on bonds issued by South African retailer Steinhoff in January 2018, which were never fully disclosed.

Even though central banks generally do not see themselves as profit-maximizers, avoiding balance sheet losses has been a conspicuous feature of independent central banking post-crisis (Diessner 2019). The reasoning behind such loss aversion seems to be that posting losses would entail political risks.⁴ However, the actual political risk which a central bank faces is hard to assess and even harder to predict. At best, it might be approximated as a combination of the political levers that exist to exert pressure on the central bank as well as the likelihood and political willingness that these levers will actually be used. In the case of the US Federal Reserve, for instance, the general assumption appears to be that if the central bank were to post a sizeable balance sheet loss, the political reaction on behalf of Congress would be far from favourable and eventually provoke retaliation.

In order to protect themselves from political risks that may stem from posting losses in the first place, central banks across the globe have engaged in a range of strategies to safeguard their balance sheets. In the US, policy-makers rely on an accounting procedure which enables them to book losses as a negative liability in the form of a so-called deferred asset (Federal Reserve Act, section 7, 12 USC 290) which can be offset by future earnings, to the effect that the central bank will always post a profit in each given period. In the UK, the Bank of England received an indemnity during the crisis which ensured that quantitative easing operations would be conducted on a separate balance sheet fully backed by the Treasury. This arrangement was later formalized in a Memorandum of Understanding which includes an explicit recapitalisation scheme (HM Treasury 2018). In the euro area, the matter is less straightforward. Member State finance ministers have not provided the ECB with an explicit recapitalisation guarantee. The central bank instead relies on profit retentions and capital buffers, amongst others (Diessner 2019).

At a more general level, these questions tap into fundamental debates about the nature of central banks. While for some observers balance sheet losses and capital ought to be seen as accounting fictions which should not cause too much concern, others deem a situation of prolonged losses and negative capital unacceptable, as exemplified not least by the seemingly never-ending discussion around TARGET2 imbalances in the euro area (see, e.g., De Grauwe 2013; Fuest and Sinn 2018; Whelan 2018).

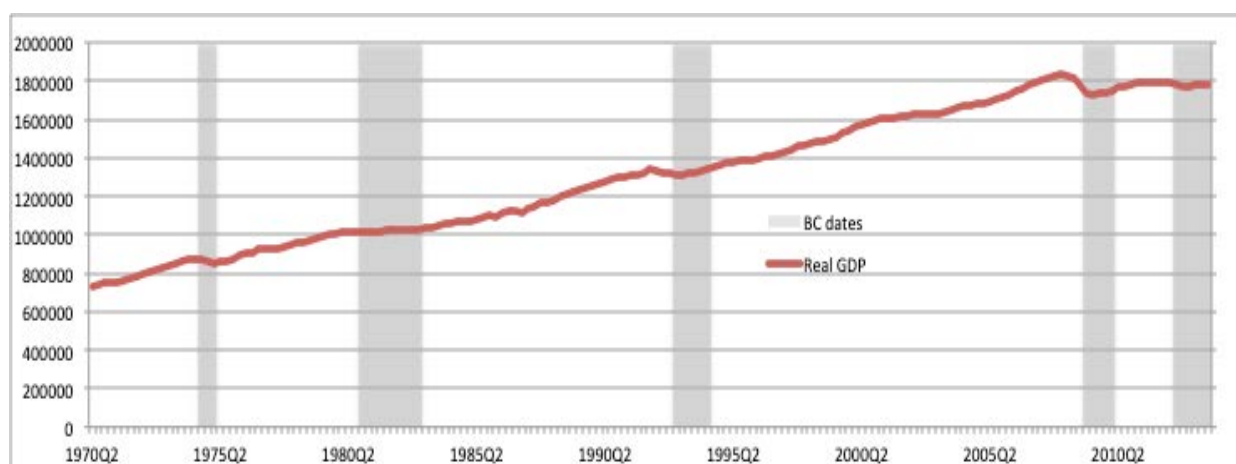
³ For an overview and discussion, see Bindseil (2016).

⁴ In the words of ECB Executive Board member Yves Mersch, for example: 'First, central bank revenues are public funds, meaning any losses by central banks are losses for the public purse in each euro area country. Second, losses can affect the financial independence of central banks and therefore, potentially, their operational independence. Third, losses can harm our credibility and reputation in the eyes of the public, and thus their confidence in the central bank to maintain price stability' (ECB 2018e).

3. DEMAND VS SUPPLY SIDE STIMULUS: A LONG RUN VIEW

To understand the type of stimulus that is required, we start by having a look at the long-run evolution of euro area GDP since 1970:Q2 (Figure 12). For the pre-euro period, the series was constructed using the individual country's GDP figures and their respective weights. This long-run series is useful in order to directly contrast the performance of the union before and after its formal establishment. The first striking observation is that the euro area economy enjoyed the longest period of growth around the time it was formally established. Looking at earlier episodes of upturns, the period between 1996 and 2011 was the longest without any interruption or negative business cycle shocks. By 2010 GDP had started to decrease, but it wasn't until 2011 that the CEPR Euro Area Business Cycle Dating Committee considered it sufficient to call it a recession (the shaded area in the graph). This growth for consecutive 15 years is extraordinary even if, a priori, it is not clear how much of that growth can be imputed to the establishment of the euro.⁵

Figure 12: Time-varying trend of real GDP in the Euro area



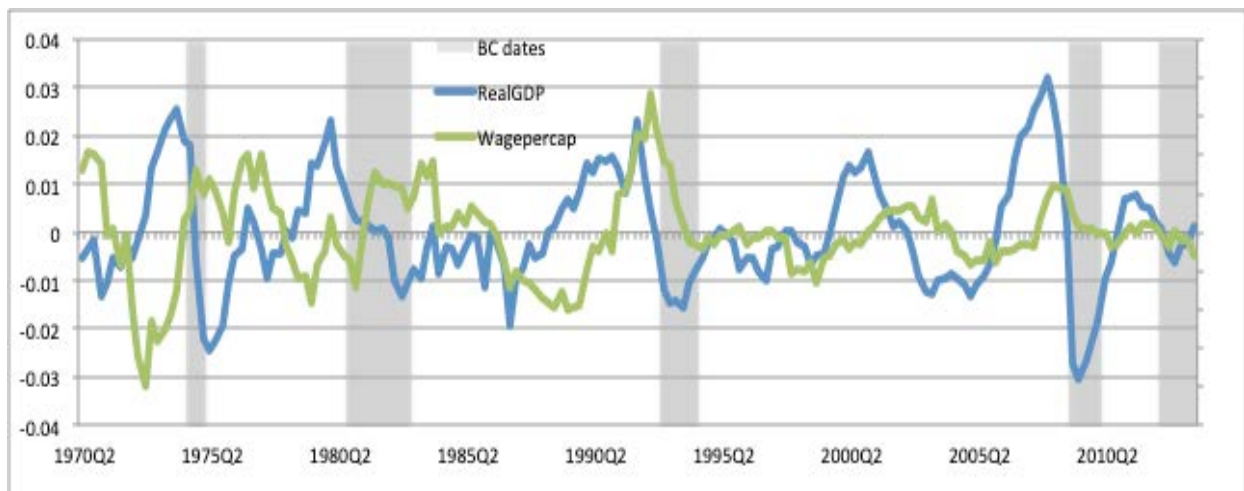
Source: Gerba et al (2017a).

Since 2010, however, GDP growth in the euro area has basically flattened and has remained at roughly the same level throughout. At the same time, growth in wage per capita, a common measure of the income level per person, since the introduction of the euro area has been much more moderate, both in historical perspective, and compared to GDP (Figure 13). Compared to previous episodes, growth in wage per capita was, on average, 2 to 3 times smaller. Compared to the business cycle, income growth has also been, on average, 2 to 3 times smaller since 1999. Thus, income stability (or its lower volatility) has come at the cost of lower income growth in particular since the onset of the Great Recession, similarly to GDP.⁶

⁵ Since the establishment of the Euro and until the subsequent recession in 2011, GDP grew by 30%. In contrast, during the previous expansion, GDP had grown by 40%. Expressed differently, the 30% growth rate had been achieved in only 9 years during the previous upturn (1984-1993).

⁶ Prior to that, on the other hand, growth in wage per capita had been similar to that of GDP and sometimes even larger. Yet, the volatility in wage per capita has dropped. Compared to early 1990's or 1980's, swings in income were 50% to 70% smaller, even during the period of sovereign debt turmoil.

Figure 13: Evolution of GDP and wage per capita for EMU in business cycle frequency



Source: Gerba et al (2017b).

The key question is what policies will allow the euro area economy to exit such a low-growth trap. Despite unprecedented expansion in monetary policy, as discussed in Section 1 and 2, the effects on the real economy have been uneven. Arguably expansionary fiscal policy – in conjunction with continued expansionary monetary policy – could boost aggregate demand, and therefore push wage and spending growth up, resulting in a substantial rise in GDP and inflation. From a monetary perspective, a fiscal stimulus would help push the economy out of the deflationary band and allow the ECB to reach its 2% target; as well as, from an economic perspective, it would push growth back to its long-run trend and thus improve the general welfare. Yet, it can be argued that the problem is not on the demand side, but rather on the supply side and that any fiscal expansion would result in further debt ballooning and public finances, aggravating the stabilisation problems that were at the core of the sovereign debt crisis during 2010-11. The underlying reason, according to those who advocate against further demand stimulus, is that the Philips curve – expressing the positive (linear) relationship between inflation and employment/output – has flattened, which means that any demand stimulus would be vain. Advocates of this view maintain that the reforms must focus on the supply side, to boost the financial sector, improve productivity and technology, as well as prepare for demographic changes and technological crowding-out (the so-called *secular stagnation*). In the next section, we discuss the rationale underlying each view.

3.1. The monetary-fiscal policy mix in the eurozone: what role for fiscal?

The empirical results by Gerba (2018) examine the role of fiscal policy in the euro area in a model where both monetary and fiscal policies are included. Such evidence is useful to this discussion as the study examines the role of fiscal policy in expanding output, conditional on the actions of the monetary authority, and over time. Moreover, it contrasts the potential effects that an increase in spending may have on GDP compared to decreases in taxation.

For the period 1980:Q1-2015:Q4, the author finds that the spending multiplier – or, the expansionary effect of spending on output – is consistently higher than the tax multiplier – or the effect of tax decrease on output – once the action of monetary policy and the effect of sovereign debt have been taken in to account. On average, the spending multiplier is 0.6, while the tax multiplier lies at 0.5. These numbers are similar to the ones found by the European Commission (2012), and Cleaud et al (2014) (although their sample is 10 years shorter than that of Gerba (2018)). Yet, both multipliers are below

one, which means that for every euro spent by the government – either as higher spending or reduced taxes – the resulting expansion in GDP is less than that euro. Country-specific studies who have analysed similar issues have found that multipliers are highest for Germany and France, while they are lowest for Italy and Spain. For Italy, both multipliers are even negative, as shown by Alloza et al. (2017).

Yet, Gerba (2018) also finds that spending policies are more effective in expanding output during less turbulent times when less uncertainty prevails. To put the numbers into perspective, while in the pre-2008 sample, the spending multiplier was 0.8, it decreased to 0.5 in the sample up to 2010Q1, and then further to 0.42 in the sample up to 2011Q2. On the other hand, during times with higher uncertainty, tax multipliers become more effective. While in the pre-2008 sample it was as low as 0.29, it increased to 0.37 in the sample stretching to 2010Q1, and even further to 0.41 in the sample up to 2011Q2. Since 2014, however, the spending multiplier has again begun to increase.

Another important outcome of this study is that unless the debt is taken into account in the estimations, the multiplier will be biased and overstated. Thus, in specifications where debt is absent, the spending multiplier goes up to 1, while the tax multiplier increases to 0.58. The difference is therefore sizeable. The reason behind this is that debt has arguably a dampening effect on (future) output growth. When it is omitted, only the contemporaneous (or short-run) effects of fiscal stimulus are taken into account (these effects are strictly positive). When debt is also considered, the dampening effect of higher debt on future output growth becomes relevant intertemporally, and thus the multiplier is pushed down. Because the difference in the two specifications is very different, it means that debt in the euro area represents an important constraint on potential growth, and therefore fiscal expansion is likely to have limited (although) positive impact, specifically in fiscally constrained countries.

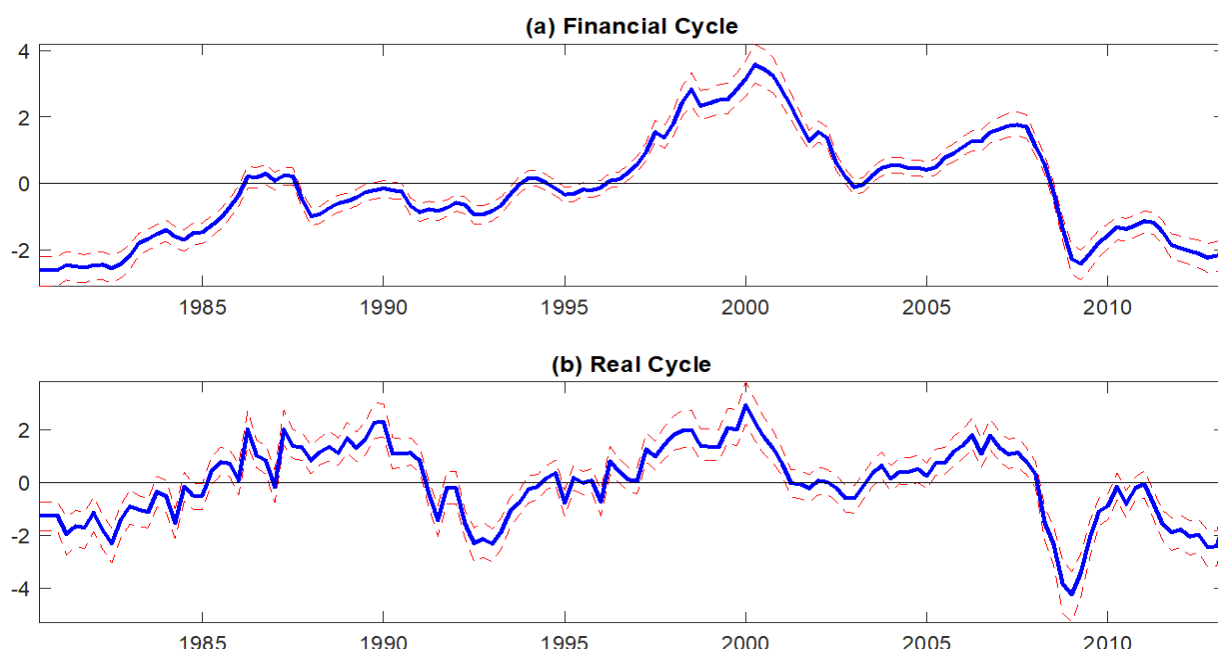
To summarise, the empirical analysis referenced here seems to show that there is some potential for future growth coming from fiscal stimulus, but that could be limited. Throughout the entire sample since 1980, the multiplier has been lower than 1, even during the less turbulent times when spending increases have a higher impact on output. The reason is that these *stimuli* lead to higher debt which has dampening effects on future GDP growth; which is particularly true in countries with limited or no fiscal space. In the context of a currency union, it should be mentioned, however, that the consensus is that there should be reciprocity in fiscal policy such that the short-term growth ‘losses’ of potential reforms in one country could at least be partially offset by other Member States’ demand. If that is not the case, then there should be flexibility on the existing debt/GDP threshold, especially in the context of the ECB keeping the costs of debt service so low. With this in mind, let us turn to supply-side policies in the next section.

3.2. What role for structural policies?

In the 2018 November issue of Monetary Dialogue, Gerba (2018) described in-depth the reasons for the slow growth in the advanced world, including the euro area. Amongst those, he acknowledged the anaemic growth in the financial sector activity since the onset of the Great Recession, productivity stagnation, shifts in demographic distribution, and technological progress and crowding-out of labour. While that paper describes in detail the structural causes behind these shifts and the evolution over time, we will summarise some of these findings here, albeit our interest lies now in policies that could be implemented to mitigate these risks.

A more recent study by Gerba and Leiva-Leon (2018) examines the degree of macroeconomic and financial cycle interactions: the authors find that the correlation between the two cycles has increased to above 0.7 at the end of 2014.

Figure 14: Evolution of EA financial and macroeconomic cycles between 1980-2014



Source: Gerba and Leiva-Leon (2018).

Focusing on the last five years in Figure 14, it seems that the two cycles have been below trend ever since the 2008 crisis. Gerba and Leiva-Leon (2018) run a number of estimations and counterfactual exercises and find that there are strong mutual feedbacks between the financial and the real sector and that the magnitude of these cross-impacts has more than doubled over the past two decades. Likewise, they find that financial shocks have caused (relatively) higher impact on the macroeconomy since mid-1990's while, during the same period, the persistence in the transmission has been higher for macroeconomic shocks. Taken together, this suggests that there is an important feedback loop between the two sectors, which can explain the prolonged current downturn. The initial shock was generated in the financial sector, which caused a severe macroeconomic downturn. However, the downturn was so heavy that it sent negative prolonged disturbance to the financial sector, causing a delay in financial sector recovery, and so on.

In light of the weak employment recovery in Europe since the Great Recession, there has been an increasing concern that technological progress may be reducing employment levels in advanced economies. Most studies separate between the complementary technology that augments labour productivity from the one which crowds out labour. One could think of the first group as a technology that complements the activities of labour, making labour more productive. The other group can be thought of as a substitute, where technology absorbs the tasks of labour leading to a reduction in employment levels. Automation is believed to be a prime example of such an activity where manual labour and routine tasks are substituted away for machines (Dachs, 2018). Chiacchio et al (2018) find that each additional robot per thousand workers reduces the employment rate by 0.16-0.20 percentage points. Frey and Osborn (2017) take this task even further and predict that 47% of all jobs in the US will be at risk of being taken over by intelligent machines in the next 10-20 years. Similarly, the numbers for Sweden and Germany are 53% and 42% (Fölster, 2014). The reason for these high numbers is that labour substitution (or crowding out) is not only concentrated to manual and low-skilled labour but also affects analytical routine and cognitive non-routine tasks in the medium- and high skilled segments.

A number of structural policies have been proposed to accelerate the economies and prepare society for the automation age. Lawrence et al (2017) propose more fundamental institutional measures in order to manage the automation. First, automation should become a priority of industrial strategy and there should be an increase in investment in automation technologies. Second, an Authority on Ethics in Robotics and Artificial Intelligence should be set up. Third, new models of capital ownership should be implemented including new policies for the diffusion of capital ownership, equitable division of earnings from automation via, for instance, a Citizen's Wealth Fund and Employee Ownership Trust, and a reduction in working hours while improving the quality of life.

3.1. Monetary policy and target inflation rates

These structural policies will not be effective in the shorter-run unless monetary policy strategy (and stance) is also re-considered. First, unconventional quantity-based instruments (such as QE, CE, or balance sheet expansion) will still be required in order to support further corrections in the balance sheet of the private sector while keep bringing down NPLs or other 'bad debt'. Second, and more fundamentally, serious considerations should be given to re-formulating monetary policy in terms of objectives, targets, and instruments. The current consensus on monetary policy was built during the Great Stagflation and the reintroduction of volatility resulting from the collapse of Bretton Woods. The (apparent) Great Moderation provided the tailwind that made possible to implement such a clear and powerful instrument (policy interest rate) that simultaneously anchored the expectations and respected the strict version of the Tinbergen rule. The same instrument provided both economic and financial stability – or at least it was believed so. However, currently, there is evidence suggesting that expectations have been de-anchored (Section 1) and that the tectonic shifts that have occurred in the advanced economies will prevent the conventional policy from being effective as other information (or signals) matter in the current state. Moreover, considering that financial policy – both micro-and macroprudential – has gained much significance since the Great Recession, the scope of conventional monetary policy has been significantly reduced. The 'new monetary policy' should be much more considerate of low growth prospects, the interplay between macroeconomic-and financial cycles, private sector balance sheets, and interaction with other policies, in particular, financial policy.

It is also very important to recognize that under the current environment of de-anchored inflation expectations and inflation rates still within the deflationary confidence bound, it may be more useful for ECB to use an inflationary bound target rather than a fixed target. Since there is significant uncertainty on the expected inflation path (considering endurance of the low inflation rate) and somewhat perceived disentangling in the Philips curve, it may be more effective to target an inflation interval, of for instance between 1.5-2.5%, since it would allow some re-anchoring of expectations and a useful evaluation of the performance of the ECB policy. Considering that the structural changes in the economy outlined earlier, the optimal inflation rate may also be different from the one determined during the Great Moderation: for instance, by factoring-in structural policies, as well as fiscal stimuli, the new optimal inflation rate may well lie at a higher level (somewhere between 4-5%). The euro area must make all efforts to avoid a deflationary trap, reinforced by a low target rate and stimulate growth while keeping track of expected inflation. Certainly, experiences of keeping this balance in some emerging economies may prove useful for the new challenges facing the euro area. Some recent evidence, e.g. De Grauwe and Ji (2019) make similar recommendations, suggesting that when the inflation target is too close to zero, the economy can get gripped by "chronic pessimism" that leads to a dominance of negative output gaps, and in turn feeds back on expectations producing longer waves of pessimism. Lifting the inflation target rate may thus be adequate to restore optimism.

4. CONCLUSIONS

In this note, we have reflected on the effectiveness of the measures adopted by the ECB so far. In particular, we assessed how the efficacy – as well as the limits – of the ECB's monetary policy instruments could provide leeway for further easing in the future. We further discussed the limits that politics and credit risk may create in making quantitative easing (QE) more aggressive; and raised the question whether the observed economic slack is a fiscal, rather than monetary, issue. To this end, we also discussed the outlook for the euro area's prospective monetary/fiscal policy mix. The eurozone is continuing to face a number of uncertainties (including the rising prospect of a global trade war, Brexit, Member State elections and national fiscal and economic policies, as well as the current and future US stance on salient economic issues). The ECB has done much to improve the monetary policy transmission mechanism and reduce financial market volatility. However, it seems that pessimism, reinforced by political risk, is on the rise. This requires a better understanding of which type of accommodation should be adopted in the future. The answer, we propose, cannot be monetary policy alone.

QUESTIONS FOR MEPS

1. Some scholars, Lilley and Rogoff (2019) among others, have recently called for *unconstrained* negative interest rate policy as “the most elegant and stable” solution to the ZLB constraint to monetary policy. This means ECB could embark into ever more negative interest rates, by so-doing relieving the government from using fiscal policy. Without giving any numbers, should there be a specific bound to negative rates in the euro area?
2. The so-called unconventional monetary policy has now been in place for more than a decade. Considering that QE is just about to be extended and expanded at the same time as risks of subdued growth and low inflation continue to mount, when will the monetary strategy and stance be re-considered and unconventional become conventional? At what point will the current inflation target be revised?
3. At the latest ECB press conference, you announced that you would resume asset purchases on an open-ended basis from 1 November onwards, stressing that there was 'ample headroom' for further purchases. At the same time, you said that there was 'no appetite' to change the ECB's self-imposed limits on public-sector purchases. These statements are incompatible. Under current projections, financial markets expect the limits for German government bonds to be reached within 9 to 10 months already. The question therefore is - will your asset purchases only run for 9 to 10 months, or will you change or ignore the limits?

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Under Mario Draghi's Presidency, the range of measures and tools of the ECB expanded significantly, both by enhancing transparency and in the direction of stretching the ECB's competences beyond the limits to the existing monetary framework. Notwithstanding these achievements, significant challenges remain. In this note, we assess the potential limits to the amount of ECB's easing available for the future, including credit and political considerations. We argue that monetary policy stimulus alone may not resolve the situation of having the euro area stuck in a slowing growth environment, and ask whether the next President may want to pass the ball more strongly to national governments.
