STUDY

Requested by the ECON committee

Monetary Dialogue, December 2019

European Parliament

Task Ahead: Review of the ECB's Monetary Policy Strategy

Compilation of papers

Policy Department for Economic, Scientific and Quality of Life Policies
Directorate-General for Internal Policies
PE 642.363 - November 2019

EN

Task Ahead: Review of the ECB's Monetary Policy Strategy

Compilation of papers

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

AUTHORS
Christophe BLOT, Jérôme CREEL and Paul HUBERT (OFCE-Sciences Po)
Daniel GROS, Angela CAPOLONGO (CEPS)
Jérémie COHEN-SETTON, Christopher G. COLLINS, Joseph E. GAGNON (Peterson Institute for International Economics)
Professor Karl WHELAN (University College Dublin)
Christopher A. HARTWELL (CASE-Center for Social and Economic Research)

ADMINISTRATOR RESPONSIBLE
Drazen RAKIC
Dario PATERNOSTER

EDITORIAL ASSISTANT
Janetta CUJKOVA

LINGUISTIC VERSIONS
Original: EN

ABOUT THE EDITOR
Policy departments provide in-house and external expertise to support EP committees and other parliamentary bodies in shaping legislation and exercising democratic scrutiny over EU internal policies.

To contact the Policy Department or to subscribe for updates, please write to:
Policy Department for Economic, Scientific and Quality of Life Policies
European Parliament
L-2929 - Luxembourg
Email: Poldep-Economy-Science@ep.europa.eu

Manuscript completed: November 2019
Date of publication: November 2019

This document is available on the internet at:
http://www.europarl.europa.eu/supporting-analyses

For citation purposes, the study should be referenced as: European Parliament, *Task Ahead: Review of the ECB's Monetary Policy Strategy*, Study for the Committee on Economic and Monetary Affairs, Policy Department for Economic, Scientific and Quality of Life Policies, European Parliament, Luxembourg, 2019.

CONTENTS

Thoughts on a Review of the ECB's Monetary Policy Strategy

Authors: Christophe BLOT, Jérôme CREEL and Paul HUBERT (OFCE)

Abstract

Time is ripe for a review of the ECB strategy: the economic context and the audience for communication have changed, and the tools for policy decisions and for analysing the environment have expanded. The definition of the inflation target, the two-pillar strategy and the use of "non-standard" policy measures need discussion. A change in the ECB mandate is also worth discussing for it would permit to evaluate the current strategy and mandate against an alternative.

This document was provided by Policy Department A at the request of the Committee on Economic and Monetary Affairs.

CONTENTS

LIST OF ABBREVIATIONS

ABSPP	Asset-Backed Securities Purchase Programme
CBPP	Covered Bond Purchase Programme
DSGE	Dynamic Stochastic General Equilibrium
EA	Euro area
ECB	European Central Bank
ELB	Effective Lower Bound
FRFA	Fixed Rate Full Allotment
HANK	Heterogeneous Agents New Keynesian
HICP	Harmonised Index of Consumer Prices
LTRO	Long Term Refinancing Operations
MRO	Main Refinancing Operations
OMT	Outright Monetary Transactions
SMP	Securities Market Programme
TLTRO	Targeted Long Term Refinancing Operations
VLTRO	Very Long Term Refinancing Operations
ZLB	Zero Lower Bound

EXECUTIVE SUMMARY

- While the ECB monetary strategy has certainly evolved over time, no comprehensive review by the ECB itself has been carried out since 2003. However, monetary policy strategy has evolved since the global financial crisis, knowledge on monetary economics has improved and structural changes of the economies have occurred. A comprehensive review is therefore needed.
- The previous review took place during the so-called "Great Moderation" whereas now economists fear "secular stagnation". A lower natural rate of interest environment would call for a reflection on how monetary policy should be implemented.
- Academic knowledge about monetary policy has accumulated. The strategy should evolve in line with the science on the transmission of monetary policy, communication policies, the signalling of monetary policy, the design and the decision-making process and the model that best helps to understand the functioning of the economy.
- The preceding review of the ECB monetary policy happened in a period where social media were not that present and the next review should investigate all the ins and outs of these new communication standards.
- If the mandate is unchanged, the Governing Council may change the definition of the inflation target. What should be the level of the target, should it be a symmetric target or not? Beyond the reference value, there is a need to discuss the strategy: would a price-level targeting or an average inflation targeting be more appropriate?
- The ECB may also revise its monetary policy strategy to account for the effects of globalisation. The ECB should better target what it can control.
- The review should investigate whether the heterogeneity of country inflation rates matters for promoting price stability for the euro area (EA) as a whole and regarding the need to contribute to fostering convergence in the EA.
- Is the current two-pillar strategy still relevant? The ECB may think about the horizon over which the balance of risk is assessed and separate short-term prospects for inflation and long-term risks for inflation.
- It would be useful to complement the strategy with guidelines regarding the use of what were called "non-standard measures". Should the ECB resort to those measures not only in exceptional periods but also in normal times?
- Do we need a radical change in the ECB mandate? Reviewing the monetary policy strategy against the alternative of a dual mandate and even a triple mandate (encompassing financial stability) would provide a comprehensive review of monetary policy as it would account for its effect on real activity and financial stability. The review of the ECB monetary policy strategy should also investigate the role that this public institution wants and needs to play in fighting climate change.

1. GENERAL INTRODUCTION

As of today, the European Central Bank's (ECB's) monetary policy strategy rests on an inflation target and an economic and monetary analysis (known as the two-pillar approach), a long list of monetary policy instruments and a communication framework (section 2).

It is well known that monetary policy strategy evolves according to the knowledge of the economics profession on monetary economics and according to the structural changes of the economies, and that it also evolves following the failures or shortcomings of former policies (Fuhrer et al., 2018). For instance, monetary policy has been blamed for its inability to prevent the outbreak of the most dramatic financial crisis since 1929 and the Great Depression. There has been a lot of criticism against the inflation-targeting approach that has overlooked financial stability and overrated the inflation bias, although the world economy was going through a Great Moderation. Since the financial crisis, a new environment characterised by low inflation, low economic growth and low natural (or real) interest rates has emerged and it questions the design of optimal monetary policy strategy were this environment to last. While the ECB's monetary strategy has certainly evolved over time, no comprehensive review by the ECB itself has been carried out since 2003.

Considering the richness of academic research in monetary economics and the nature and size of shocks that the Euro Area (EA) has been going through since the 2000s, time is certainly ripe for such a review (section 3). It remains to be acknowledged that central bankers have regular interactions with academics about their objectives and strategies and that their policies and strategies are periodically reviewed by academics. The type of review that the ECB ought to carry out distinguishes itself though by its comprehensiveness[1]: it should highlight all facets of the ECB monetary strategy.

What should the review encompass (section 4)? Answering to this question requires clarity on the objectives assigned to the ECB. In this respect, three options are possible.

If one takes for granted that the mandate of the ECB is left unchanged, there are three elements worth a review:

a. Can the ECB best meet its statutory objective with its existing monetary policy strategy, or should it consider strategies that aim to reverse past misses of the inflation objective? Stated differently: should the ECB change its inflation target and should it adopt an alternative strategy?

b. Is the two-pillar approach (still) relevant in the pursuit of price stability?

c. Are the existing monetary policy tools adequate to achieve and maintain price stability, or should the toolkit be expanded? And if so, how and when?

A second option for the review is to question the quantitative definition of price stability. Firstly, the delegation of monetary policy to an independent central bank like the ECB requires that the central bank can control the inflation target. In this respect, one may ask whether the current definition of harmonised index of consumer prices meets this requirement. If it is not the case, alternative measures may have to emerge. Secondly, the optimal functioning of a monetary union, like the EA, requires nominal and real convergence. In this respect, an inflation target set at the EA level, say on average, may hide divergence and prevent differentiated monetary policies within the EA that would not jeopardise the EA average inflation target. So far, the objective of limiting nominal divergence between

[1] Accordingly, the review cannot be carried out too often because of the heavy work it involves (that can be spared for the daily improvement in the implementation of monetary policy within the given monetary policy framework) and because it requires a sufficient time span to evaluate the performance of the monetary policy framework.

EA countries is not part of the ECB mandate. Indeed, when the mandate was written in the Maastricht Treaty, there was a widespread, though misplaced, belief among policymakers that the nominal convergence criteria would be sufficient to escape this issue. However, the early years of the euro showed the contrary. Hence, a differentiated monetary policy per EA country would not violate the spirit of the mandate while it may help dampen price discrepancies.

Thirdly, the nature of the ECB mandate is also worth discussing (section 5). In contrast with the US Federal Reserve, the ECB has a single mandate of price stability, and not a dual one in which the objectives of maximum employment and price stability are equally weighted by the central bank. In light of the real divergence in the EA and after financial shocks, can a single mandate best fit the needs of the EA economies? Or should a change in the statutory objectives, including a dual or triple mandate – including financial stability -, best meet the requirements of an optimal monetary policy in a monetary union? While the latter proposal is generally viewed with suspicion in political and policymakers' circles in Europe, this is not so much unusual in the world of central banks. Fuhrer et al. (2018) recall that the Bank of Canada conducts periodically a review of the goals of monetary policy as well as alternative approaches to attaining those goals.

Finally, climate change issues and best practices on reviews of monetary policy strategy deserve a discussion.

2. ECB MONETARY POLICY STRATEGY

Since the original setting of the ECB monetary policy strategy in 1999, two events contributed to changes in the strategy: first, the Review implemented in 2003 has noticeably clarified the definition of price stability and, second, the Global Financial Crisis has contributed to an extension of the policy instruments, hence modifying the operational framework of the ECB.

2.1. The early days

In 1999, the ECB started to implement the monetary policy strategy that it deemed fit the primary objective of monetary policy in the EA, namely price stability. The adopted definition of price stability stated that: "(it) shall be defined as a year-on-year increase in the Harmonised Index of Consumer Prices (HICP) for the EA of below 2%." The medium-term strategy of the ECB included in the definition of price stability ("Price stability is to be maintained over the medium term.") highlighted the adoption of an inflation-forecast targeting strategy. It was meant to be helpful in avoiding that monetary policy would be excessively activist and would destabilise the whole EA economy. The ECB monetary strategy rested on a two-pillar approach including the announcement of a quantitative reference value for the growth rate of a broad monetary aggregate (the target for M3 was set annually at 4.5%)[2], and a broadly based assessment of risks to price stability, which includes the macroeconomic projections. The legal independence of the ECB *vis-à-vis* governments has been complemented with accountability requirements like communication after meetings and policy decisions of the ECB Governing Council in press conferences and quarterly hearings of the president of the ECB before the European Parliament within the so-called Monetary Dialogue. Last, the strategy included an operational framework. It rested on three main instruments (open market operations, deposit and marginal lending facilities and minimum reserve requirements) to achieve price stability.

After the Review of 2003 of the ECB monetary policy strategy, there were three main changes to the original strategy. First, the definition of price stability was clarified. Since then, the Governing Council has been aiming at a year-on-year HICP inflation rate "of below, but close to 2% over the medium term". This clarification has two motivations. On the one hand, it avoided a possible misunderstanding about the effective inflation target and about possible leniency towards deflation in the whole EA[3]; therefore it helps anchor inflation private expectations at 2%. On the other hand, it enables wage inflation to reach the same 2% target, hence "greasing the wheels of the labour market" (Hartmann and Smets, 2018), while it also reduces the risk of hitting the lower bound of the policy rate.

Second, the annual review of the reference value for M3 growth vanished. This change arose because of the tenuous relationship between inflation and the growth rate of money[4], and because of the decoupling between money growth and private credit to the private sector[5].

Third, the introductory statement of the President of the ECB at the monetary policy press conference now starts with the economic analysis followed by the monetary analysis. The two-pillar approach has turned out to be based (in this order) on economic analysis and monetary analysis where both keep on helping the Governing Council of the ECB to assess the risks to price stability. The separate analysis of economic dynamics and shocks from the analysis of monetary trends makes the latter crosscheck the information relevant to take monetary policy decisions. The economic analysis reviews real activity

---

2 Since its inception, the strategy of the ECB has rested on the application of the quantity theory.

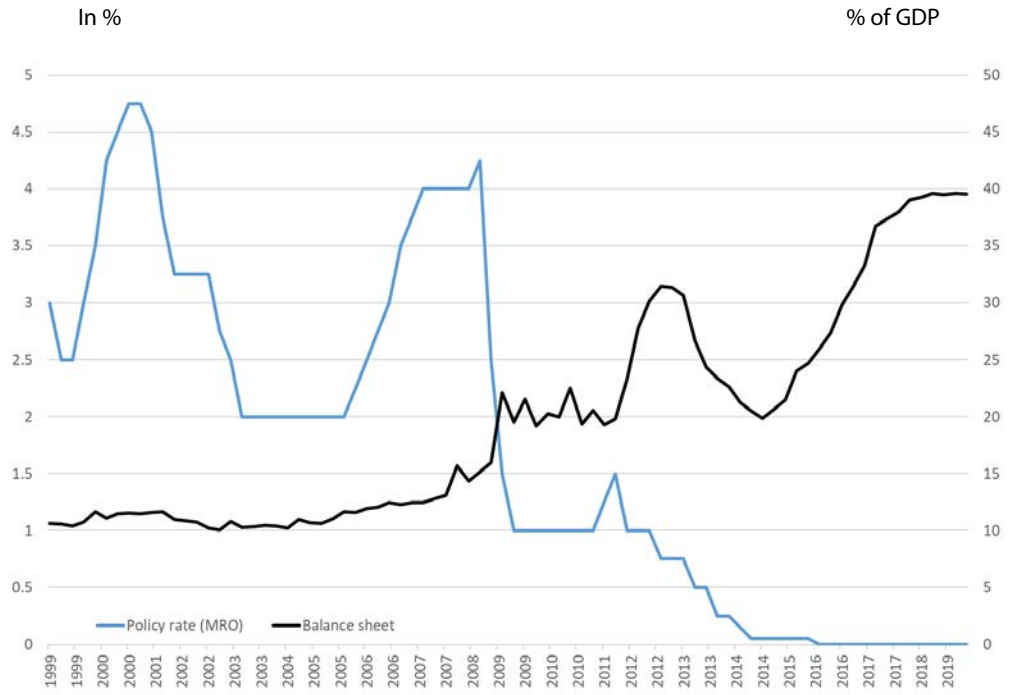
3 Hartmann and Smets (2018) recall that since 1999, successive Presidents of the ECB made clear statements that prolonged inflation or prolonged deflation were inconsistent with the maintenance of price stability.

4 Later evidenced by Sargent and Surico (2011) in the US, Avouyi-Dovi and Sahuc (2016) in the EA and Teles et al. (2016) in OECD countries.

5 As exemplified in figure 9, p. 23 in Hartmann and Smets (2018).

conditions, like price and costs indicators and labour market conditions, and financial conditions, like asset prices and financial yields that are used to extract information about private expectations on inflation and output. The monetary analysis takes a longer-term view and consists of a detailed analysis monetary and credit developments.

Figure 1: The policy rate and the size of the Eurosystem's balance sheet



Source: ECB.

2.2. The post-Global Financial Crisis period

The advent of the financial crisis has not been officially enshrined in a change of the ECB monetary policy strategy. However, it has had a huge impact on the breadth of monetary policy instruments and collateral rules at the disposal of the ECB. Both have shifted the ECB strategy from the primary objective of price stability (which was substantially missed shortly after the financial crisis and once again between 2013 and 2016 during the European crisis) to the enhancement in the monetary transmission mechanisms that has merged with an objective of banking and financial stability.

Indeed, the ECB has significantly modified the conduct of its monetary policy since the financial crisis to achieve two different though related purposes: liquidity management and default management.

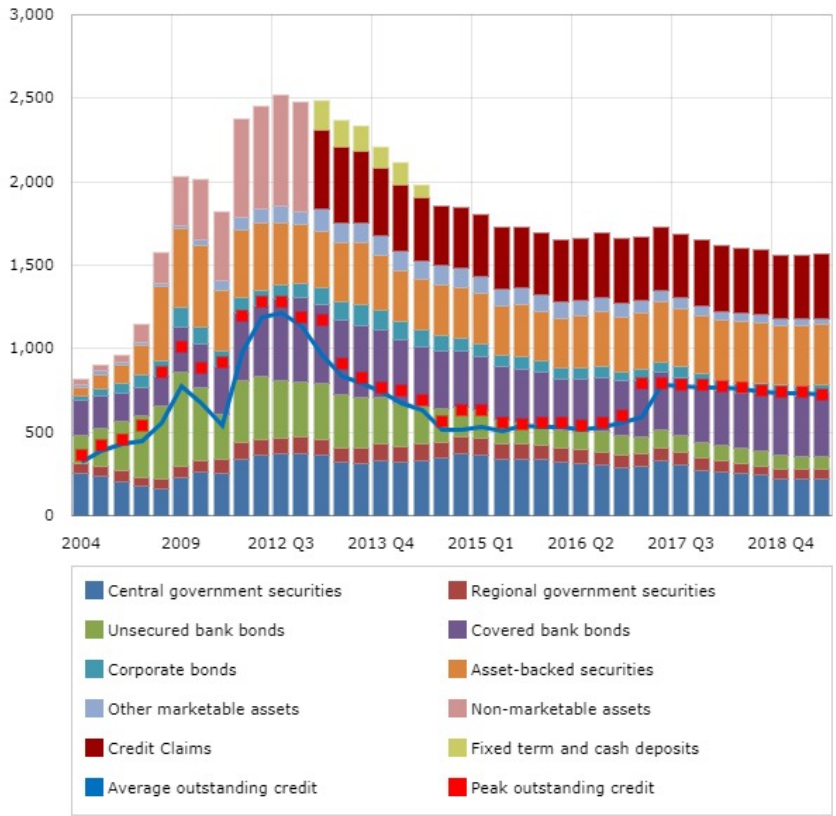
To fulfil its missions as a liquidity provider, the ECB abandoned its bid-related Main Refinancing Operations in 2008 and instead adopted a Fixed Rate Full Allotment (FRFA) policy. To facilitate the access of commercial banks to funding, the ECB launched three programmes of covered bond purchases (CBPP 1, 2 and 3). To secure and stabilise the liabilities of commercial banks, the ECB extended the maturity of its long term refinancing operations (LTRO) and then tendered very-long term refinancing operations (VLTRO) and targeted long term refinancing operations (TLTRO 1, 2 and 3).

With the rise of the European government bond crisis, the increase in sovereign yields hampered the transmission of the common monetary policy to the real economy. In this context, the ECB launched a series of assets purchases: the securities market programme (SMP), the asset-backed securities

purchase programme (ABSPP), and the public sector purchase programme (PSPP). Meanwhile, the outright monetary transactions (OMT) programme announced in the summer of 2012 rapidly enhanced confidence on European sovereign markets where spreads declined substantially, although the programme has never been implemented. All these programmes, except the OMT, have entailed a rise in the size of the ECB balance sheet which *de facto* became the main instrument of monetary policy while the policy rate – the rate for main refinancing operations (MRO) – was stuck at the effective lower bound (ELB) as highlighted in Figure 1.

Over the course of the crises, the ECB has constantly adapted the list and amount of eligible marketable and non-marketable assets for collateral use. Figure 2 below shows the change in the allocation of assets before and after the crises. The bulk of collateral in 2004 included safe financial assets (government securities and bank bonds) whereas at the beginning of 2019, half of the collateral includes asset-backed securities and non-marketable assets. While the extension of collateral towards assets of lower quality has permitted commercial banks to keep on accessing base money, it has made the ECB more prone to managing risk in the EA.

Figure 2: Use of collateral and outstanding credit by the ECB



Note: vertical axis in EUR billion, after valuation and haircuts. Use of collateral: averages of end-of-month-data over each time period shown; credit: based on daily data. Since Q1 2013, the category "Non-marketable assets" is split into two categories: "Fixed term and cash deposits" and "Credit claims".

Source: ECB website.

3. WHAT MAKES A REVIEW OF ECB MONETARY POLICY STRATEGY RELEVANT?

There are good reasons to review the ECB's monetary policy strategy against the backdrop of structural changes of the economies. References to the academic literature also show that the knowledge of the economic profession has gathered momentum and richness and that it may influence the evaluation of past and present monetary policies and the design of future monetary policies.

3.1. The macroeconomic environment

In 2008, countries of the Eurozone experienced the worst financial and economic crisis not just since the inception of the euro but of the last 80 years. Policy rates hit their ELB, economic growth fell while unemployment and poverty rates increased in most of the countries. The way monetary policy has been conducted since then has dramatically evolved. Over the period 2008-2017, average growth in the EA has reached 0.6%, while it amounted to 2.3% between 1999 and 2007. The reduction in growth has raised concerns about a risk of a persistent decline in GDP growth. However, the "low growth" environment has also been largely driven by cyclical factors and empirical evidence suggests that recessions associated with financial crises last longer, and are more severe than "normal" recessions.[6] The post-2008 period has been characterised by a double dip recession in 2008-2009 and 2012-2013 caused by the global financial crisis – the most severe financial crisis since the 1929 crisis – and the subsequent sovereign debt crisis specific to the Eurozone.

These cyclical factors have yet now reversed in most European countries. Uncertainty has fallen, confidence indicators have improved, investment has picked up and fiscal policy is consolidating less or no longer in most Eurozone countries. The ongoing recovery has also coincided with the implementation of non-standard measures by the ECB (see section 2.2). In addition, various measures of risk premia in risky assets have declined together with measures of uncertainty, that have fallen back to their lowest levels across the last 2 decades. That said, there is still an issue about the length and the pace of the recovery. The preceding review of the ECB's monetary policy took place during the so-called "Great Moderation" – those years during the 1990s and up to 2007 with exceptional macroeconomic stability – and focused on the best practices to adopt in such an environment. The responsiveness and effectiveness of monetary policy measures should now be investigated in another context, in order to shed light on when and which instruments should be used in an environment that may be characterised by "secular stagnation", or with recurrent financial crises or economic recession.

3.2. Structural changes

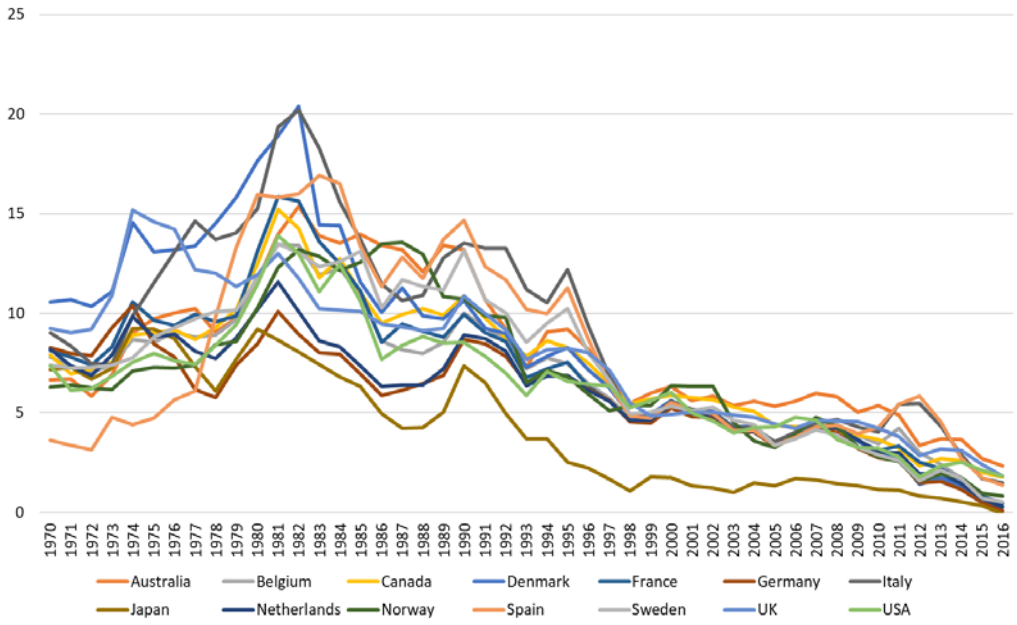
The persistent decline in GDP growth has also suggested that structural changes could be underway. Holston et al. (2017) have shown a correlation between the value of the natural rate of interest (also called R-star) and the dynamic of trend growth. Part of the decline of R-star would be explained by a reduction in trend growth over the last decade in Eurozone. A variety of economic factors have pushed natural interest rates very low. This is the case not just for the EA but also for many other advanced economies. The underlying determinants for such a decline are related to the global supply and demand for liquidity, shifting demographics, slower trend productivity, strong demand for safe assets, and a more general global savings glut. The global scarcity of safe assets since the financial crisis may have magnified the evolution of R-star in the most recent period compared to more low-frequency determinants. The financial system is characterised by a strong demand of safe assets – Treasury bills

[6] See Jorda, Schularick and Taylor (2015).

issued in most advanced countries – from both private agents and the public sector and notably central banks in emerging countries. Strong demand has triggered a fall in interest rates as highlighted by the decline in R-star. The change in the supply of safe assets is therefore a crucial determinant of the natural rate of interest. When the Fed and the ECB will reduce their balance sheet, the flow of asset purchases or reinvestment by these central banks is expected to reduce or even disappear. This should contribute to an increase in long-term interest rates.

Importantly for central banking, low interest rates are not due to loose monetary policy; low R-star is the interest rate prevailing when the economy is at full strength and the stance of monetary policy is neutral. However, the understanding of the economy and the functioning of monetary policy are closely related to the concept of the natural interest rate. A new challenge for central banks would therefore be to deliver stable inflation in a low R-star environment.

Figure 3: The decline of long-term interest rates



Source: Macrohist database. Vertical axis in %.

A low natural rate of interest environment can be characterised by a low policy rate on average. Larger monetary policy responses may also be required in response to economic disturbances than during normal times because the macroeconomic relationships may be different at the ELB (Bernanke, 2004, and Stock and Watson, 2003). The probability that policymakers should set the policy rate below the ELB increases with macroeconomic volatility when the policy rate is close to the ELB. In the low growth environment, the "riskiness" of the economy becomes much more significant. Because monetary policy would be occasionally constrained in its ability to provide sufficient stimulus, but never in its ability to respond appropriately in expansions, risk is skewed to the downside. As a consequence, in a low growth scenario, monetary policy should have to be too loose rather than too tight.

Kiley and Roberts (2017) have found a deterioration of US macroeconomic performance in the Federal Reserve Board model if the natural rate of interest drops to 1 % absent any unconventional policy tools. The zero lower bound (ZLB) binds for close to a third of the time, inflation falls short of target, averaging about 1.2%, and the average output gap falls to about -1.3%. For the UK, Haberis et al. (2016) suggest

that the policy rate would be negative with a 5 to 20% probability if the natural rate of interest is between 0 and 0.5%. Therefore, monetary policy is likely to be constrained with a clearly non-negligible frequency if central banks follow their current strategy in a low growth scenario. Macroeconomic performance in general would be negatively affected as a result.

One can worry that a low growth environment would alter the behaviour of banks and financial institutions. Financial stability risks and vulnerabilities are likely to intensify because of lower profitability, or due to the response to lower profitability, such as a search for yield. However, it seems that banks have been successful in maintaining steady net interest margin since the 1990s - with high and low policy rates and varying slopes of the yield curve. The standard response to low profitability is balance sheet expansion and increased search of yield. If banks, pension funds and insurers all over the world chase the same assets, then asset bubbles are likely to emerge, and their burst would create financial stability risks.

Monetary policy frameworks should be reconsidered to identify potential improvements in the context of a low R-star. Although targeting a low inflation rate has been successful at anchoring inflation expectations during the Great Moderation, it might not be sufficient in a low R-star environment as there is not enough room for central banks to reduce policy rates in response to an economic slowdown when both natural rates and inflation are very low.

Two alternatives have been discussed in the literature so far and should be discussed in a review of the ECB's monetary policy strategy. First, policymakers may seek to increase the room for manoeuvre for monetary policy through increasing the distance between the usual level of the policy rate and the ELB. For a given level of the natural rate of interest, there are two options: lower the ELB or increase the inflation target. A lower ELB goes through negative nominal interest rates while a higher inflation target would imply a higher level of interest rates (Blanchard, Dell'Ariccia, and Mauro 2010) and would involve a change of the ECB mandate. This proposition needs to analyse the costs and benefits of achieving a higher inflation rate. Second, the dominant monetary policy strategy around the world since the Great Moderation - inflation targeting - could be replaced by price-level or nominal GDP targeting frameworks (Eggertsson and Woodford 2003). These frameworks in which policymakers always correct for past inflation target misses by delivering subsequent overshoots in the opposite direction - "history dependence" according to Woodford (2003) or a "make-up policy" according to Bernanke (2017) have some potential advantages over standard inflation targeting. Eggertsson and Woodford (2003) show that a credible commitment to such a path for the price level delivers very good outcomes when the ELB is binding. Moreover, a commitment to bringing prices back to a predictable path reduces uncertainty about the future price level. They may be better suited to periods when the lower bound constrains interest rates because they automatically provide the "lower for longer" policy stimulus needed. A nominal GDP targeting incorporates the trade-off between inflation and real GDP in a single target, mechanically deals with debt deflation and automatically leads to a higher rate of trend inflation, providing a larger room for manoeuvre to respond to economic slowdowns. Again, this proposition requires to analyse the costs and benefits carefully.

3.3. Academic knowledge advances

Beyond the cyclical and structural changes in the macroeconomic environment since 2003 and the last review of the ECB's monetary policy strategy, a wealth of academic knowledge about the transmission of monetary policy has been accumulated. First, communication policies and their effects after policy meetings or during inter-meeting periods have been extensively studied by Woodford (2005), Ehrmann and Fratzscher (2007a, b, c, 2009a, b), Berger et al. (2011) among others. Second, the signalling component of monetary policy has been largely documented with Gurkaynak, Sack and Swanson

(2005) providing one of the seminal contributions about the information perceived by market participants from monetary policy announcements. These information issues have given rise to an abundant literature on the effects of monetary policy decisions (see Bernanke and Boivin, 2003, Melosi, 2017, Nakamura and Steinsson, 2018, Jarocinski and Karadi, 2019, Miranda-Agrippino and Ricco, 2017). Third, the design and the decision-making process of monetary policy committees has been investigated (Meade, 2005, Meade and Stasavage, 2008, Riboni and Ruge-Murcia, 2007, 2008, 2010, 2014, Hansen, McMahon and Prat, 2017). Fourth, the academic profession is moving more and more from the single representative agent hypothesis to models with heterogeneous agents. Kaplan, Moll and Violante (2018) have shown how much the transmission of monetary policy is different from one to another. This literature shows the importance of constrained households in how monetary policy affects the economy (see also Debortoli and Gali, 2017, Bilbiie and Ragot, 2017).

3.4. Communication in a social media era

Whereas news providers, like Reuters and Bloomberg, or the financial press, like the Financial Times or the Wall Street Journal, are focused on narrow and specialised audiences, the emergence since the 2000s of social media like Facebook, Twitter and Instagram has made communication to wider audiences much easier. Monetary policy does not depart from this evolution. Central bank communication has long been tailored to the specialised narrow audience. However, monetary decisions can reach the general public and are commented by a larger number of people. Besides, recent literature pays now more attention to indicators of households or firms' expectations suggesting differences with market and professional forecasters' indicators.[7] This raises a number of issues on whether and how the central bank communication should be thought of differently. For instance, should the communication to the general public be about policy objectives and the mandate or about cyclical factors (policy decisions and macroeconomic forecasts)? Limited attention and economic literacy could justify to focus on the main message – price stability – to anchor expectations rather than on elements that could blur policymakers' messages. The preceding review of the ECB's monetary policy happened in a period when social media were not that present and the next review should investigate all the ins and outs of these new communication standards.

[7] See Coibion and Gorodnichenko (2015) and Coibion, Gorodnichenko and Ulate (2019) for instance for the implication on Phillips curves' estimations.

4. WHAT COULD BE THE SCOPE OF THE REVIEW?

There are several possible assumptions when reviewing the ECB's monetary policy strategy. One is to assume a constant mandate; another one is to build the review on a somehow rewritten/reinterpreted mandate questioning the quantitative definition of price stability.

4.1. Key issues under a constant mandate

4.1.1. The inflation target

If the mandate is unchanged, price stability for the EA as a whole remains at the centre of the monetary policy strategy. As the inflation target is not set by the Treaty but has been defined by the Governing Council, it must be the first dimension of the strategy to be reviewed. What should be the level of the target, should it be a symmetric target or not?

In a context of persistent low inflation some have questioned the opportunity of giving up the reference to 2 % and contemplate a lower figure that would be more appropriate in the current environment.[8] It may be indeed argued that the credibility of the ECB would be undermined if the "equilibrium" level of inflation is now lower while monetary policy still targets 2 %. Besides, the stance of monetary policy would be kept excessively loose raising side-effects. However, there is no fatality in low inflation and giving up too early would also affect the central bank's credibility and lead to a further decline in inflation expectations. Conversely, Blanchard et al. (2010) and Ball (2013) have suggested during the crisis to raise the inflation target in order to anchor inflation expectations at a higher level, say 4 %. A higher target would reduce the probability of hitting the zero lower bounds on interest rates without hurting the economy. Although this proposition may seem out of step with the recent slowdown of inflation expectations, it must be kept in mind that the review of monetary policy should be considered as a reflection over the long-term strategy of the ECB.

Beyond the level, the strategy should also make clear whether the target is an upper limit or an average. From 1999 to the previous review in 2003, the 2 % target was seen as an upper value. By adjusting the wording in 2003, it is now considered that inflation in the EA should be "close" to 2 % even if it is still stated that it should be kept "below" 2 %. Yet, during his last two press conferences, Mario Draghi pointed out that regarding the inflation target, the ECB committed to symmetry. He went further and declared that "symmetry means that we [the ECB] react to inflation rates that are below our aim with the same strength we would react to inflation rates which are above our aim". Consequently, 2 % is now the average inflation. The next review might draw attention on this novelty and include such a precision in its evaluation.

There are alternative strategies, which have been proposed in the literature regarding the definition of the target. It may be defined as an average inflation targeting (AIT).[9] Here, it is made clear that the target is not an upper limit and that the central bank will react symmetrically when the inflation rate is below the target. But it also implies that inflation must be kept above the target if it has stood below previously so that, on average and over a given period, inflation is at the target. For instance, if we consider a 5-year period, average inflation in the EA amounted to 0.9 % in 2019-Q3. To reach a 2 % average, inflation should be maintained at 3 % until September 2021 or at 2.5 % until March 2022. This strategy may be equivalent to a price-level targeting (PLT) where the central bank commits over a path for the price level (see also section 3.2).[10] Therefore, if the price level undershoots its path, inflation

[8] See Frankel (2019): https://www.theguardian.com/business/2019/jul/26/why-central-banks-should-forget-about-2-inflation.

[9] See King (1999) for an early discussion.

[10] See Eusepi and Preston (2018) for a recent discussion and Ambler (2009) for a survey.

should rise above the implicit target in order for the price level to converge towards its path. For both AIT and PLP and compared to the inflation targeting (IT) strategy, the critical issue relates to the consequence of missing the target. With standard IT, if inflation undershoots the target, the central bank endeavours to converge toward the target. With AIT and PLP, inflation should first overshoot the target and then converge.

This discussion echoes the reaction of the central bank regarding deviations of inflation and to what extent those deviations should be tolerated. The objective could also be defined not as a strict numerical value but rather as a narrow band so that no or weak reactions would be expected as long as inflation remains within the band. For example, the Reserve Bank of Australia is expected to reach an inflation rate between 2 and 3 %. In the case of the Bank of England, there is no explicit definition of a narrow band but yet, the Governor must send a letter to the Chancellor if the inflation target is missed by more than 1 percentage point, whether it is above or below 2 %. In the letter, the Bank of England is expected to explain why the target has not been achieved and how the central bank has reacted.

4.1.2. The two-pillar approach

Since 1999, all press conferences include a paragraph on the "economic analysis" and one on the "monetary analysis" referring to the two-pillar strategy which is used as a communication device to support monetary policy decisions. The review should therefore deal with this issue and set whether these two pillars are still relevant. It makes no doubt that monetary policy decisions should still be explained regarding the current environment and the prospect for future inflation. The point is mainly how to address the frame of communication around two features one of which is "monetary analysis" referring to the growth of M3. If the monetary analysis does not convey information on future inflation even in the long run, it would not provide useful information for motivating the monetary policy decisions.

As the ECB will set the stance of monetary policy considering all relevant information on the current environment and the prospect for inflation, what we need to know is how this information is organised – it certainly has to be – and if this organisation deserves a specific communication that would be formulated in the strategy. Instead of the current two-pillar strategy, the ECB may think about the horizon over which the balance of risk is assessed. The strategy would for example separate short-term prospects for inflation and long-term for inflation with the long-term prospects focusing on financial variables that may entangle risk for economic activity and inflation over the long-term.

4.1.3. Toolkit

Under the current strategy, the toolkit mainly emphasizes the operational framework for monetary policy. The policy rate serves as a signal of the stance of monetary policy and open market operations, deposit and marginal lending facilities and minimum reserve requirements provide the framework that helps the ECB to control short-term market rates and achieve its mandate of price stability. The advent of crises, global and European, has led to the extension of monetary policy tools, mostly because the ELB of policy rate had been hit. Beyond the change in the policy rate, the ECB can now implement asset purchases (through quantitative easing and credit easing), forward guidance policy (communication on the future path of interest rates), targeted liquidity operations, programmes dedicated to repair the transmission of monetary policy in a fragmented currency area (through the SMP and the OMT) and negative interest rates. Each of these non-standard measures have been motivated by the ECB to achieve specific goals and to help the monetary policy to comply with the objectives.[11] The ECB has

[11] See Cour-Thimann and Winkler (2012) and Durré et al. (2014).

provided information on when those tools are needed and on how they work.[12] They all have been introduced when the policy rate (the MRO rate, central policy rate on the main refinancing operations) was at the ELB. There is yet a debate on the opportunity to keep these instruments in the toolbox of central banks even during "unconstrained" periods. Blot, Creel and Hubert (2017) have for instance suggested to use balance sheet policies in normal times in order to strengthen the effect of change in the policy rate when the transmission is impaired. If financial markets are characterised by market imperfections, there may be a role for asset purchases.

Consequently, it would be useful to complement the strategy with guidelines regarding the use of what was called "non-standard measures". If the natural interest rate has lowered, central banks will hit more frequently the ZLB and will make use of those "non-standard" measures more often. Should the ECB resort to those measures not only in exceptional periods but also in normal times, it should be made clear when, how and to what extent some of the instruments would be integrated in the permanent toolkit, hence even outside the ELB constraint. In the next review, it will also be important to explain how the stance of monetary policy is signalled when there is excess liquidity. Actually, with excess liquidity, the overnight market rate does not fluctuate around the MRO rate but is closer to the rate on deposit facilities, which is now considered as the policy rate.

4.2. Key issues under an updated mandate

In the following, while we do not object to the primary objective of price stability endorsed by the ECB, we propose opening a discussion on the quantitative definition of price stability.

4.2.1. The measure of inflation: domestic vs. international components

One reason to review whether the ECB should revise its monetary policy strategy is related to the effects of globalisation. Inflation rates could be determined more and more by global factors such that monetary policy targets a variable that it cannot control, or controls only a small share of the dynamics of this variable.

The review should investigate to what extent inflation in the EA is determined by global factors such that real activity of trade partners, oil shocks, import prices, international competition, etc. A good knowledge about inflation and its determinants is central to optimal monetary policymaking. Inflation is crucial in the implementation of monetary policy: it is not only an important objective – the mandate of the ECB is to achieve price stability – so that *ex post*, a gap *vis-à-vis* the objective may be interpreted as an indicator of monetary policy ineffectiveness; but *ex ante* inflation (or inflation expectations) is also triggering monetary policy; for instance, after inflation has increased, a restrictive monetary stance is implemented. Then central banks should not only consider relevant information when assessing the risk to price stability but also be able to influence the variable which they target. As a matter of fact, central banks should not be held responsible for missing a target they do not influence, a situation which will happen if inflation is mainly driven by global factors.

A distinction between headline inflation and the so-called core inflation is already widely used to inform policymakers' decision. However, this distinction should also be used in the mandate of the central bank. Usually, core inflation is the difference between headline inflation and inflation of energy products and commodities as if the latter were the sole global factors behind inflation. However, if there are some others and they are not fully accounted for, core inflation will not be useful as an assessment tool of domestic-driven inflation. In contrast, if one estimates the share of global inflation in headline inflation, the ensuing difference between headline and global inflation will be genuinely

[12] See here: https://www.ecb.europa.eu/explainers/topic/non-standard-measures/html/index.en.html.

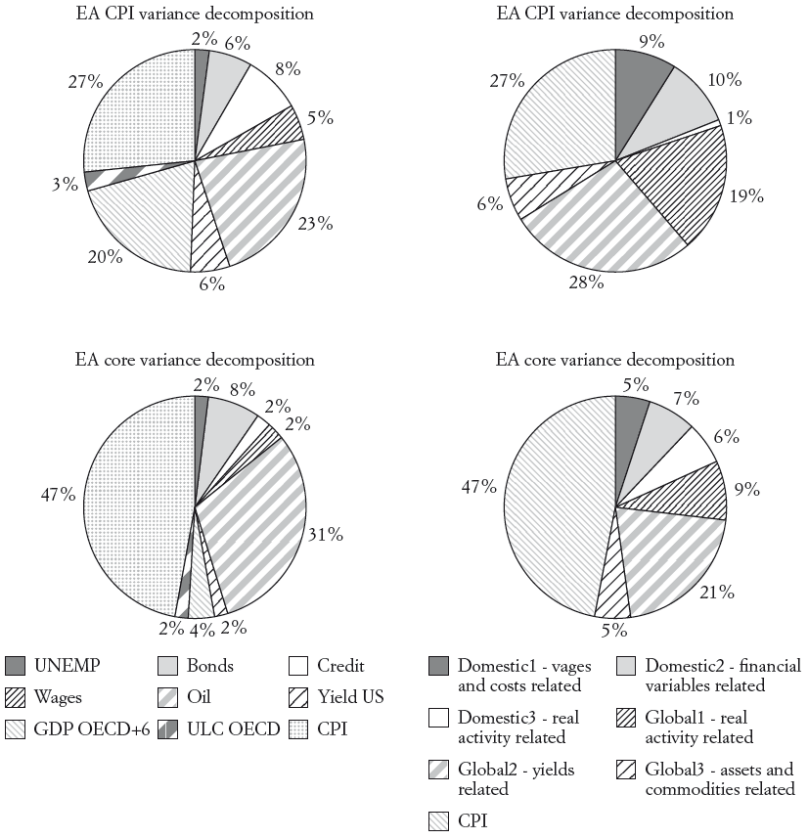
domestic; it will provide a proper assessment of the domestic market mismatches and will be useful as a guide for optimal economic, public and structural policies.

The "Great Moderation" has spurred a contrasted literature on the impact of globalisation on inflation. Gamber and Hung (2001) argued that globalisation does not lead to less inflation but produces higher sensitivity to foreign economic conditions. According to Ball (2006), globalisation has contributed neither substantially nor negatively to the inflation process. Conversely, Ciccarelli and Mojon (2010) show that inflation in industrialised countries is largely a global phenomenon where inflation rates have a common factor that accounts for nearly 70% of their variance.

The lack of consensus on the global nature of inflation raises the issue of the definition of global factors. Blot et al. (2016) estimate two models, one with observable variables capturing global and domestic factors, the other using principal component analysis to generate global and domestic factors, to investigate this question. Using the first model, they find that domestic determinants of inflation capture a relatively small portion of inflation, i.e. about 20%; with only less than one-third related to the labour market (wages and unemployment). Global determinants are prominent in explaining inflation, with global output and the price of oil capturing significant portions of inflation with contribution above 20% each. Quite interestingly, oil prices explain up to 30% of the variance of core inflation. This is at odds with what a core index of inflation is meant to represent, i.e. a domestic-driven inflation. As it stands, the uncorrected ECB's core inflation is not informative about the domestic determinants of inflation.

The second model shows a similar picture on global determinants. The contribution of global factors to inflation is more than twice that of domestic factors, whatever the inflation index. The model also highlights the substantial contribution of factors related to foreign yields; they explain between 20% and 30% of the variance of CPI or core inflation. These results suggest that CPI, which is the inflation indicator targeted by the ECB, is substantially explained by global factors, around 50%, whereas only a quarter of the variability of inflation is driven by domestic factors. The remaining quarter is explained by past CPI. Results explaining the variability of core inflation also show a larger influence of external factors than domestic ones. Conclusions are twofold: first, inflation, not only headline but also core inflation, in the EA is largely driven by global factors, and, second and consequently, a substantial part of inflation is out of control of the ECB.

Figure 4: Variance decomposition of EA headline and core inflation



Source: Blot et al. (2016).

The global nature of EA inflation raises the question of whether the ECB is able to control inflation, in accordance with its mandate. The ECB cannot be expected to have a direct influence on the "global" part of inflation, and its ability to reach its mandate should be assessed with respect to its ability to control the remaining "domestic" part.

Blot et al. (2016) also show that the ECB is able to control the domestic part of inflation. This finding raises an important policy recommendation, that of a change in the inflation target pursued by the ECB. The ECB mandate of "price stability" will remain adequate provided the ECB targets a domestic index (that it can control) rather than an overall CPI index (that it cannot control). In this respect, targeting an index that corrects only for the evolution of some regulated and some volatile prices like core inflation is not adequate. With the ECB missing its inflation target for more than 8 years now, the question of the definition of the variable used to define its mandate is crucial for the credibility of the institution in the long-run.

4.2.2. The heterogeneity of country inflation rates

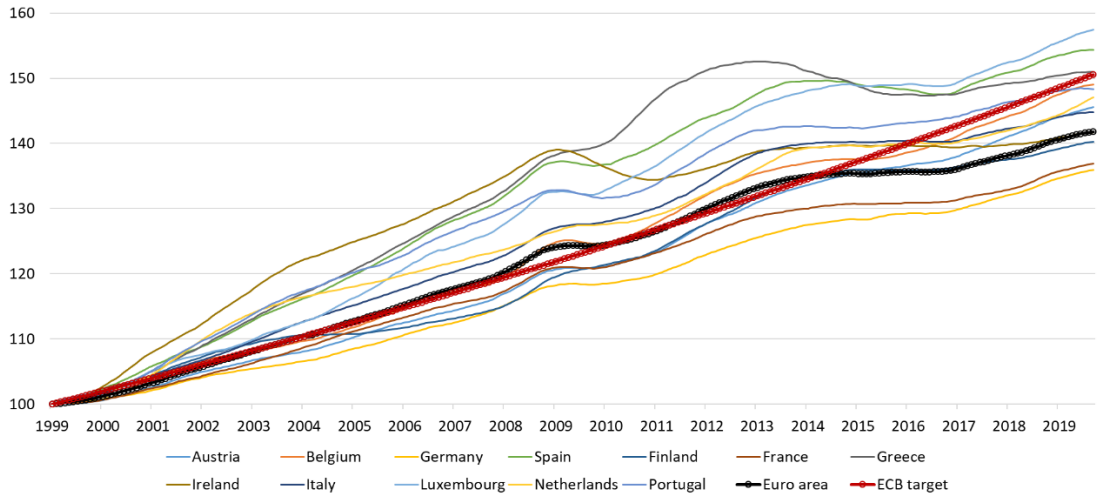
Another reason to review whether the ECB should revise its monetary policy strategy is related to the effects of heterogeneous inflation rates in the EA. While the overall EA inflation rate could be in line with the ECB mandate, country inflation rates could be very heterogeneous in the meantime such that price levels between country groups tend to diverge.

The review should investigate to what extent the mandate of the ECB should be expressed in terms of the overall EA inflation or should also take into account the heterogeneity of country inflation rates. An overall EA inflation rate in line with the target with country inflation rates all off the target raises 2

issues. First, heterogeneous inflation dynamics may help but also be detrimental to real convergence. The synchronisation of inflation dynamics would also be one way – even though modest – to achieve synchronisation of economic cycles in the EA. Second, because monetary policy decisions are taken based on EA aggregate variables, the policy stance would be different for countries if their inflation rates are different. Eventually, policy could be too tight for half of the EA countries and too loose for the other half with the setting of policy tools satisfying nobody in the EA.

The figure below shows the evolution of the price level of most of the countries of the EA together with the EA aggregate price level (blue) and the price level if the EA aggregate price level had been in line with the ECB target for all years. After 20 years, the difference between the two extremes is more than 20 percentage points. The question of the heterogeneity of inflation rates should therefore be investigated in the review.

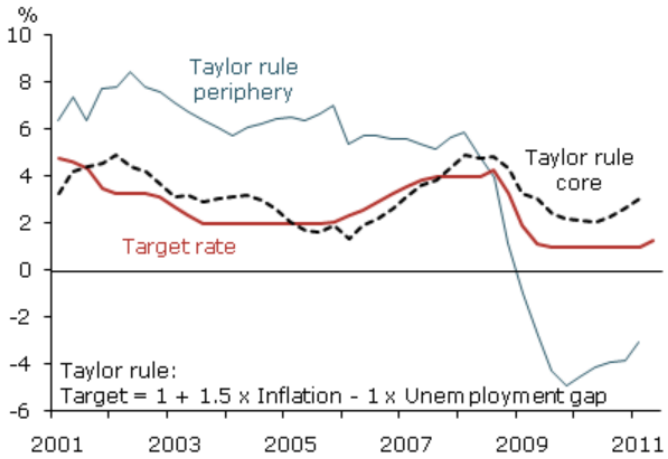
Figure 5: Heterogeneity of inflation dynamics



Source: ECB SDW.

The figure below – taken from Nechio (2011) – shows the impact of different inflation (and unemployment) rates at the country level on the way the monetary policy stance affects each country. The figure illustrates a marked divergence between the peripheral countries of Greece, Ireland, Portugal, and Spain and the core European countries of Austria, Belgium, France, Finland, Germany, the Netherlands and Italy. Nechio (2011) argues that although Italy is often categorised as a peripheral country, its inflation and unemployment rate are more comparable to those of core countries. In the periphery, monetary policy was too loose up to 2008 and not loose enough then. It would be relevant for the review of the ECB monetary policy strategy to take account the issues raised by heterogeneous inflation rates.

Figure 6: Taylor rule estimates of the ECB rate for core and periphery countries



Source: FRBSF Economic Letter 2011-18. Data: Eurostat, OECD.

5. FURTHER ALTERNATIVES TO CONSIDER FOR THE REVIEW

When reviewing the ECB's monetary policy strategy, it can be insightful to contemplate a few alternatives. They all require enlarging the scope of the review.

5.1. A model shift

The underlying theoretical model on which this strategy rests is important for the review. The model gives insights on the optimal features of monetary policy that guide the review. The content of the review would have to change if the underlying model shifted to a new one.

Since the Review of 2003, the development of Dynamic Stochastic General Equilibrium (DSGE) models towards the inclusion of fiscal policy (see Davig and Leeper, 2006, 2011) has modified the perception of the optimal setting of monetary policy. Indeed, in contrast with the seminal model of Smets and Wouters (2003), Davig and Leeper (2006, 2011) introduce the intertemporal budget constraint in a DSGE model and study the interactions between monetary and fiscal policies on equilibrium consumption, output and inflation. In this respect, the review of the monetary policy strategy has to include a thorough analysis of the strategical relationships between the ECB and EA governments. The independence of the former *vis-à-vis* the latter does not preclude a policy influence of governments on the EA optimal policy mix. If, for any reason, governments have deviated from a debt-stability-oriented policy, the optimal monetary policy shall not be restrictive (as it would foster default risk for governments) but expansionary (Leeper, 1991).

The development of other macroeconomic models, notably those with heterogeneous agents, nominal rigidities, incomplete markets and inequality features (like HANK for Heterogeneous Agents New Keynesian model, see Kaplan et al., 2018 already cited in section 3.3) has also had an impact on the design of an optimal monetary policy and on its main channels of transmission. Indeed and like in a modern (post-2003) DSGE model with fiscal interactions, a HANK model introduces a non-Ricardian setting for fiscal policy (neutrality between public debt and taxes does not hold) that raises coordination issues with monetary policy.

Hence, while the ECB monetary policy strategy was reviewed against the backdrop of a pre-2003 DSGE model, there was no need to review the interactions with fiscal policy. However, in so far as the underlying model to evaluate the optimality of the overall strategy changes and introduces the realistic assumption that not all households are able to smooth consumption on a long-term horizon, the interactions between fiscal and monetary policies need scrutiny. Moreover, during financial crises or at the ZLB, Buiter (2004) argues that the monetary and the fiscal authorities should cooperate. Reviewing the functioning of their cooperation is thus important.

5.2. A radical change in the ECB mandate

A radical change in the ECB mandate is worth discussing for at least, it would permit to evaluate the current strategy and the current mandate against an alternative.

The ECB mandate of price stability is empirically consistent with the pursuit by the ECB of an *ex-post* monetary policy rule that gives a non-zero weight to real activity (e.g. Blot et al., 2015). While this result may be interpreted as exemplifying the flexibility of the current mandate, it may highlight two possible defaults with this mandate: first, it does not make it legitimate to review the monetary policy strategy against a secondary objective like real activity. However, it may overlook the evaluation of the ability of the ECB to support real activity in the EA against, for instance, the backdrop of its macro projections which participate in the ECB communication strategy. Second, the gap between the official mandate and monetary practice introduces discretion in the latter. While it gives some leeway in the

interpretation of the mandate by the Governing Council, it may have an impact on the ability of the ECB to anchor private expectations.

Reviewing the monetary policy strategy against the alternative of a dual mandate would limit the scope for an under-estimation of the ability of the ECB to support real activity; meanwhile, it would also shed light on the occurrence of discretion in the interpretation of the mandate by the Governing Council, i.e. after a deviation from the expected price-stability-based monetary policy, and then measure the induced costs and benefits of discretion.

Finally, the global and European crises have shown the extent to which financial and banking instability could be detrimental to economic growth (Arcand et al., 2015). Moreover, a period of banking fragility, highlighted e.g. by a rise in non-performing loans, tends to imply deleveraging and reduced risk-taking by banks (Creel et al., 2019). Both situations may trigger a monetary reaction by the central bank to ensure sufficient market liquidity, although price stability would still be achieved.

Evaluating the monetary policy strategy of the ECB without taking due account of this financial context can be potentially misleading. It may thus be recommended to review the monetary policy strategy against the alternative of a triple mandate, in which financial stability would be included in the objectives of the ECB. It would limit the scope for a misinterpretation of monetary policy. It would then put potential doubts that the monetary policy framework behind the policy is ill-designed into perspective.

5.3. Climate change and the central bank mandate

With the year 2019 about to be the most tragic year for extreme weather worldwide over the last decades, the question of whether climate should be part of central bank mandates has been raised. This question can be traced back to a 2015 "tragedy of the horizon" speech by Mark Carney, the Governor of the Bank of England. According to him, central banks have "a clear interest in ensuring the financial system is resilient to any transition". Climate change may affect economic activity and asset prices, especially the cost of food and energy, creating potential inflationary effects. Climate change poses a risk to financial stability, and so, looks like a central bank concern. Eventually climate change through a rise in extreme weather incidents could spur more volatile economic developments, and so would make monetary policy decision-making more difficult. Once renewable energies will be more advanced, they would cause a decline in traditional sources of energy prices. This would constitute a positive supply-side shock pushing the general level of prices down. If the transition is too slow, there is a risk that the fall in energy prices transmits to a fall in long-term inflation expectations.

Christine Lagarde, the ECB's new President, announced to the European Parliament in September this year that the ECB needs to make climate change a priority because it poses "macro-critical risks". In November 2018, Benoit Coeuré was saying at a conference on the role of central banks in green finance that "The ECB, acting within its mandate, can – and should – actively support the transition to a low-carbon economy", for instance by introducing Environmental, Social and Governance (ESG) criteria for the selection of asset purchases. In November this year, the Riksbank announced that it will sell its holding of sovereign debts from coal-producing provinces of Queensland and Western Province in Australia as well as of Alberta in Canada, which invests in oil sands extraction. "We will not invest in assets issued by issuers with a large climate footprint," said the Swedish central bank's Deputy Governor Martin Flodén. However, the ECB actions are still far from those of the Riksbank. The ECB currently holds bonds from fossil fuel companies through its Corporate Sector Purchase Programme: it invests unknown amounts in high-carbon companies such as Shell, Eni and Total. The review of the ECB's monetary policy strategy should also investigate the role that this public institution wants and needs to play in fighting climate change.

5.4. Reviews elsewhere

A comparison of the review process with earlier experiments in other countries can bring insights on the best practices that other central banks have adopted. In the following, we only mention two recent experiences in this regard that may be worth considering before the review of the monetary policy strategy.

In 2012 and 2014, it is remarkable that the Bank of England asked individual and external experts, David Stockton in 2012 and Kevin Warsh in 2014, both former members of the Federal Reserve, to conduct a review of forecasting and transparency at this institution. It is also remarkable that some of their recommendations were adopted swiftly.

In contrast, the Federal Reserve Board and its Reserve Banks are conducting 'Fed Listens' events. During these events, a broader range of individuals have participated in hearings. They include business and labour leaders, community development professionals, and academics. 'Fed Listens' events are not exclusively related to monetary policy and monetary policy strategy *per se*. They also give information to the Fed officials on how firms are dealing with the scarcity of qualified labour force, on how they are filling training gaps and how they adjust flexibility in the workplace (modifying entry requirements and working arrangements) (Clarida, 2019).

REFERENCES

- Ambler, S. (2009). "Price-level targeting and stabilisation policy: a survey". Journal of Economic Surveys, 23(5), 974-997.
- Arcand J.-L., E. Berkes and U. Panizza (2015), "Too much finance?", Journal of Economic Growth, 20(2), June, 105-148.
- Avouyi-Dovi S. and J.-G. Sahuc (2016), "On the sources of macroeconomic stability in the EA," European Economic Review, 83(C), 40-63.
- Ball, L. M. (2013). "The case for four percent inflation", voxeu.org 24 May.
- Ball, L.M. (2006), "Has Globalization Changed Inflation?", NBER Working Papers, No. 12687.
- Berger, H., Ehrmann, M., & Fratzscher, M. (2011). "Monetary policy in the media". Journal of Money, Credit and Banking, 43(4), 689-709.
- Bernanke, B. (2017). "Monetary policy in a new era". Peterson Institute for International Economies.
- Bernanke, B. S., & Boivin, J. (2003). "Monetary policy in a data-rich environment". Journal of Monetary Economics, 50(3), 525-546.
- Bilbiie, F. and Ragot, X. (2017). "Optimal monetary policy and liquidity with heterogeneous households". CEPR Discussion Paper 11814.
- Blanchard, O., Dell'Ariccia, G., and Mauro, P. (2010). "Rethinking macroeconomic policy". Journal of Money, Credit and Banking, 42, 199-215.
- Blot C., J. Creel and X. Ragot (2015), "Flexible inflation targeting vs. nominal GDP targeting in the EA", In-Depth Analysis, European Parliament's Committee on Economic and Monetary Affairs, September.
- Blot, C., Creel, J., & Hubert, P. (2017). "What should the ECB "new normal" look like?". OFCE Policy Brief, 29.
- Blot, C., J. Creel, P. Hubert, F. Labondance and X. Ragot (2016). "Euro Area Inflation and ECB Policy in a Global Environment", Politica Economica Journal of Economic Policy, 32(3), 539-554.
- Buiter, W. H. (2004). "Two Naked Emperors? Concerns about the Stability & Growth Pact and Second Thoughts about Central Bank Independence". Fiscal studies, 25(3), 249-277.
- EACiccarelli, M. and Mojon, B. (2006), "Global Inflation", Review of Economics and Statistics, 92(3), 524-535.
- Clarida R.H. (2019), "The Federal Reserve's Review of Its Monetary Policy Strategy, Tools, and Communication Practices", Paper presented at the Bank of Finland Conference on Monetary Policy and Future of EMU, Helsinki, July 1.
- Coibion, O., & Gorodnichenko, Y. (2015). "Is the Phillips curve alive and well after all? Inflation expectations and the missing disinflation". American Economic Journal: Macroeconomics, 7(1), 197-232.
- Coibion, O., Gorodnichenko, Y., & Ulate, M. (2019). "Is Inflation Just Around the Corner? The Phillips Curve and Global Inflationary Pressures". In AEA Papers and Proceedings (Vol. 109, pp. 465-69).

- Cour-Thimann, P., & Winkler, B. (2012). "The ECB's non-standard monetary policy measures: the role of institutional factors and financial structure". Oxford Review of Economic Policy, 28(4), 765-803.
- Creel J., P. Hubert and F. Labondance (2019), "The intertwining of credit and banking fragility", International Journal of Finance and Economics, forthcoming.
- Davyg T. and E. Leeper (2006), "Fluctuating macro policies and the fiscal theory", NBER Macroeconomics Annual 2006, MIT Press, 247-298.
- Davyg T. and E. Leeper (2011), "Monetary-fiscal policy interactions and fiscal stimulus", European Economic Review, 55(2), 211-227.
- Debortoli, D. and Gal, J. (2017). "Monetary policy with heterogeneous agents: Insights from tank models". Manuscript.
- Durré, A., Maddaloni, A., & Mongelli, F. P. (2014). "The ECB's experience of monetary policy in a financially fragmented euro area". Comparative Economic Studies, 56(3), 396-423.
- Eggertsson, G. and M. Woodford (2003). "The zero bound on interest rates and optimal monetary policy". Brookings Papers on Economic Activity, 1, 139-211.
- Ehrmann, M. and Fratzscher, M. (2007a), "Transparency, Disclosure and the Federal Reserve", International Journal of Central Banking, 3(1), 179-225.
- Ehrmann, M., & Fratzscher, M. (2007b). "Communication by central bank committee members: different strategies, same effectiveness?", Journal of Money, Credit and Banking, 39(2-3), 509-541.
- Ehrmann, M., & Fratzscher, M. (2007c). "The timing of central bank communication". European Journal of Political Economy, 23(1), 124-145.
- Ehrmann, M. and Fratzscher, M. (2009a), "Explaining Monetary Policy in Press Conferences", International Journal of Central Banking, 5(2), 41-84.
- Ehrmann, M., & Fratzscher, M. (2009b). "Purdah—On the rationale for central bank silence around policy meetings". Journal of Money, Credit and Banking, 41(2-3), 517-528.
- Eusepi, S., & Preston, B. (2018). "The science of monetary policy: An imperfect knowledge perspective". Journal of Economic Literature, 56(1), 3-59.
- Fuhrer J., G. Olivei, E. Rosengren and G. Tootell (2018), "Should the Fed Regularly Evaluate its Monetary Policy Framework?", Brookings Papers on Economic Activity Conference Drafts, September 13-14 2018.
- Gamber, E. and Hung, J. (2001), "Has the Rise in Globalization Reduced US Inflation in the 1990s?", Economic Inquiry, 39, 58-73.
- Gürkaynak, Refet, Brian Sack, and Eric Swanson (2005). "Do Actions Speak Louder Than Words? The Response of Asset Prices to Monetary Policy Actions and Statements", International Journal of Central Banking, 1(1), 55–93.
- Haberis, A., R. Masolo and K. Reinold (2016). "Deflation probability and the scope for monetary loosening in the United Kingdom". Bank of England Working Paper No. 627.
- Hansen, S., McMahon, M., & Prat, A. (2017). « Transparency and deliberation within the FOMC: a computational linguistics approach". The Quarterly Journal of Economics, 133(2), 801-870.

- Hartmann P. and F. Smets (2018), "The First 20 Years of the European Central Bank: Monetary Policy", Brookings Papers on Economic Activity, Fall.
- Holston, K., T. Laubach and J. Williams (2017). "Measuring the natural rate of interest: International trends and determinants". Journal of International Economics, 108, S59-S75.
- Jarocinski, Marek, and Peter Karadi (2019). "Deconstructing monetary policy surprises: The role of information shocks", American Economic Journal: Macroeconomics, forthcoming.
- Jordà, Ò., Schularick, M., & Taylor, A. M. (2015). "Leveraged bubbles". Journal of Monetary Economics, 76, S1-S20.
- Kaplan G., B. Moll and G.L. Violante (2018), "Monetary Policy According to HANK", American Economic Review, 108 (3), 697-743.
- Kiley, M. and J. Roberts (2017). "Monetary policy in a low interest rate world". Brookings Papers on Economic Activity.
- King, M. (1999). "Challenges for monetary policy: new and old". Quarterly Bulletin-Bank of England, 39, 397-415.
- Leeper E. (1991), "Equilibria under 'active' and 'passive' monetary and fiscal policies", Journal of Monetary Economics, 27(1), 129-147.
- Meade, E. E. (2005). "The FOMC: preferences, voting, and consensus". Federal Reserve Bank of St. Louis Review, 87(March/April 2005).
- Meade, E. E., & Stasavage, D. (2008). "Publicity of debate and the incentive to dissent: evidence from the US Federal Reserve". The Economic Journal, 118(528), 695-717.
- Melosi, Leonardo (2017). "Signaling effects of monetary policy", Review of Economic Studies, 84(2), 853-884.
- Miranda-Agrippino, Silvia, and Giovanni Ricco (2017). "The Transmission of Monetary Policy Shocks", Bank of England Staff Working Paper, No. 657.
- Nakamura, Emi, and Jón Steinsson (2018). "High Frequency Identification of Monetary Non-Neutrality: The Information Effect", Quarterly Journal of Economics, 133(3), 1283-1330.
- Nechio, F. (2011). "Monetary policy when one size does not fit all". FRBSF Economic Letter, 2011-18.
- Riboni, A., & Ruge-Murcia, F. (2014). « Dissent in monetary policy decisions". Journal of Monetary Economics, 66, 137-154.
- Riboni, A., & Ruge-Murcia, F. J. (2007). « Preference heterogeneity in monetary policy committees". Available at SSRN 1548069.
- Riboni, A., & Ruge-Murcia, F. J. (2008). « The dynamic (in) efficiency of monetary policy by committee". Journal of Money, Credit and Banking, 40(5), 1001-1032.
- Riboni, A., & Ruge-Murcia, F. J. (2010). « Monetary policy by committee: consensus, chairman dominance, or simple majority?". The Quarterly Journal of Economics, 125(1), 363-416.
- Sargent T. and P. Surico (2011), "Two illustrations of the quantity theory of money: Breakdowns and revivals", American Economic Review, 101, 113- 132.

- Smets F. and R. Wouters (2003), "An estimated dynamic stochastic general equilibrium model of the EA", Journal of the European Economic Association, 1(5), 1123-1175.
- Stock, J.H. and Watson, M.W. (2003), "Has the Business Cycle Changed and why?", NBER Macroeconomics Annual 2002, vol. 17.
- Teles P., H. Uhlig and J. Valle e Azevedo (2016), "Is Quantity Theory still alive?", Economic Journal, 126 (591), March, 442-464.
- Woodford, M. (2003). Interest and Prices. Foundations of a Theory of Monetary Policy. Princeton, New Jersey: Princeton University Press.
- Woodford, M. (2005). "Central bank communication and policy effectiveness", NBER WP No. 11898.

The Two-pillar Strategy of the ECB: Ready for a Review

Authors: Daniel GROS, Angela CAPOLONGO (CEPS)

Abstract

Inflation has remained below the ECB's own target of 'below, but close to 2%' for a long time despite massive doses of unconventional policies, suggesting that the present 'two pillar' strategy does not work. A review of the strategy will be useful only if it is entrusted to independent experts. Otherwise, it is likely to result in the finding that only marginal changes to the existing strategy are needed and that larger doses of the present policy will be sufficient to achieve the inflation target.

This document was provided by Policy Department A at the request of the Economic and Monetary Affairs (ECON) Committee.

CONTENTS

LIST OF ABBREVIATIONS

ECB	European Central Bank
FED	Federal Reserve Bank
FOMC	Federal Open Market Committee
GC	Governing Council
GDP	Gross Domestic Product
HICP	Harmonised Index of Consumer Prices
QE	Quantitative Easing
RHS	Right-hand side
US	United States of America
IMF	International Monetary Fund

EXECUTIVE SUMMARY

The persistence of low inflation despite massive doses of unconventional policy by the ECB suggests that a fundamental review of its strategy is warranted. All aspects of monetary policy strategy, including the definition of price stability, the instruments of monetary policy and communications should be up for review. This contribution cannot deal with all these aspects. It concentrates on two sub-issues: the organisation of the review and the presentation of the strategy in ECB communications.

Within this limited scope, our recommendations about the review of monetary policy of the ECB are the following:

- The ECB still follows officially a 'two pillar' strategy. But, *de facto* the pillars have been abandoned since the financial crisis. Over the last decade, the two pillars have been used in a formal way to justify monetary policy decisions. In reality, one finds little trace of the essential elements of the monetary pillar in the speeches of members of the Governing Council.
- We could not find a single instance in which the ECB admitted that the two pillars, i.e. the economic and the monetary analysis gave different signals. This not credible. In reality there have been important instances when taking into account the different signals from the two pillars could have led to different decisions.
- The economic pillar has become an *ad hoc* application of basic relationships between interest rates, demand and prices all of which have become rather tenuous or at least contested over the last years. A fundamental appraisal of the current working of these economic mechanisms is thus overdue. (But, this will take considerable resources and thus cannot be achieved in this limited contribution).
- The review should be conducted as much as possible by outside experts. The 2003 review was conducted by the Governing Council itself and resulted merely in a confirmation of the existing (two pillar) strategy.
- Elements of the 'Fed Listens' framework might be useful for the review of the ECB's strategy. But, one key element, namely events involving the local public organised by the individual District Federal Reserve Banks might be difficult to replicate. Great care should be taken to ensure that events organised by national central banks do not degenerate into platforms for national points of views. There is no need to institutionalise the review.

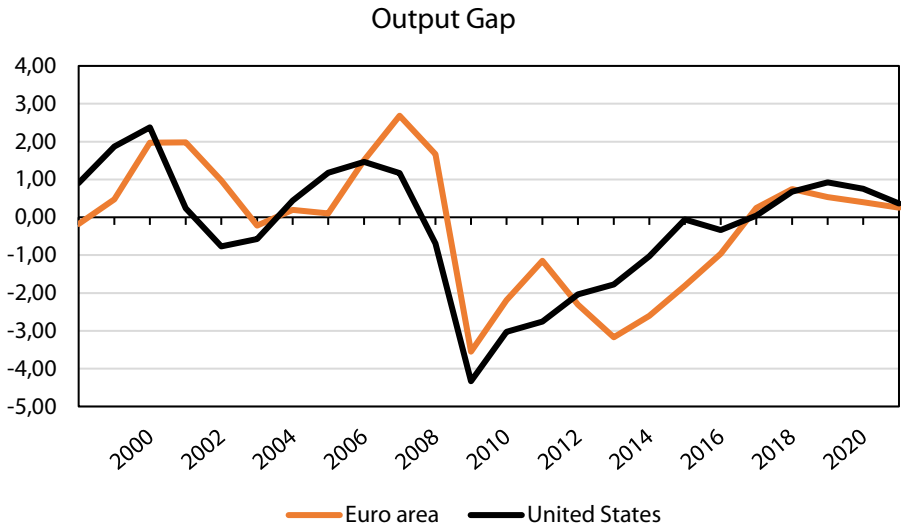
1. BACKGROUND: THE CONUNDRUM FACING THE ECB

The economy of the euro area has by now recovered from the deep double dip recession which followed the financial and euro debt crisis period starting in 2009. Employment is nearing pre-crisis peaks and unemployment has declined continuously over the last 6 years (and is likely to continue its decline according to Commission projections), Figure 1. Another measure of economic slack, namely the output gap, has also returned to its pre-recession average (Figure 2).

Figure 1: Unemployment Rate for Euro Area, percentage, annual, (including forecast for 2019-2021)

Source: AMECO.

Figure 2: Output gaps: deviations of actual GDP from potential GDP as % of potential GDP, for Euro Area and US, percentage, annual (including forecast for 2019-2021)

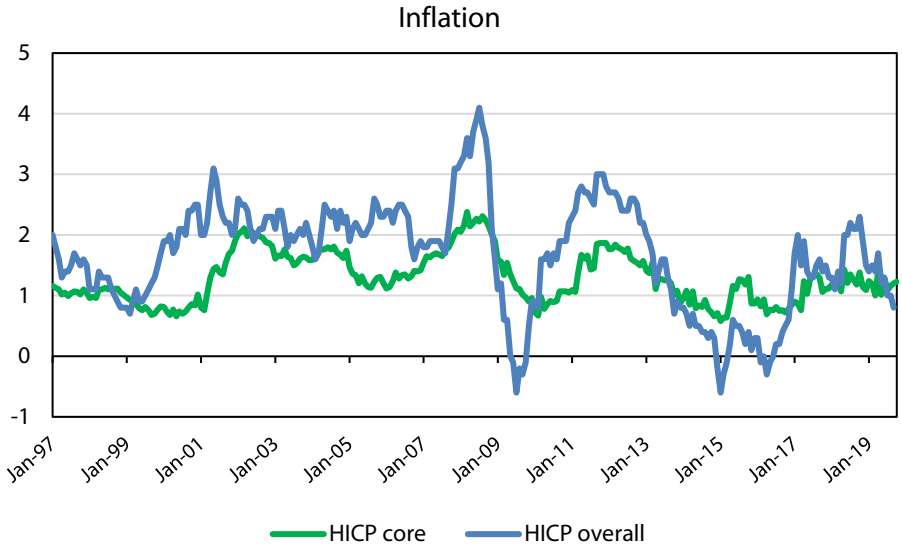


Source: AMECO.

These two activity-based indicators would normally suggest that inflation should now also start to increase. However, this has not happened. As depicted in Figure 3, actual inflation is now declining towards 1 % (and has been rather variable over the last years). More stable core inflation which excludes the volatile components of energy and unprocessed food, has remained close to 1 %, over the last 5-6 years. Moreover, market based indicators of inflation expectations are consistent with an inflation rate close to this level for the foreseeable future (Lane (2019)).

This is the basic conundrum facing the ECB: the real economy is doing reasonably well, at least trend-wise, while inflation remains stubbornly below target. Whether the so-called Phillips curve, which links inflation to unemployment remains a useful relationship is hotly debated in the literature (see Blanchard (2019) and Lane (2019) for two different points of view.

Figure 3: Euro area annual rate of Inflation (HICP): Overall Index and Core Index (Excluding energy and Unprocessed Food), annual rate of change, percentage change, monthly



Source: Eurostat.

Persistently low inflation constituted the key reason why, some years ago, the ECB introduced 'non-standard monetary policies' (negative rates and asset purchases). However, inflation has not increased after massive doses of monetary easing (asset purchases and highly negative policy rates). Whether this is a sign that the policy has not worked, or whether the policy has worked, but inflation would have been even lower in its absence, constitutes another unresolved issue (see Summers and Stanstead (2018), Cochrane (2018) and further references in Gros (2019)).

The ECB is not alone in not being able to reach its own inflation target. Japan and a number of other countries in Europe (e.g. Switzerland) are in a similar situation in that inflation has not increased despite very expansionary policies pursued for a long time. The open issue of the effectiveness of monetary policy at the lower bound is thus not necessarily a problem specific to the euro area.

The US Federal Reserve is in a different situation. Its mandate includes two objectives - price stability and full employment). Secondly, it can claim to have attained both, since the unemployment rate is at a record low and inflation is close to 2 %. The context for the review of monetary policy is thus different for the ECB.

This contribution is organised as follows. Section 2 starts with a description of the ECB's two-pillar strategy and critically analyses how it has been presented in ECB communications. Section 3 presents a brief comparison with the Federal Reserve and other reviews. Section 4 concludes and suggests some preliminary recommendations.

2. THE ECB' TWO-PILLAR STRATEGY: HAS IT BEEN IMPLEMENTED?

The last formal review and presentation of the monetary policy strategy of the ECB dates back to 2003. This section first presents the key elements of this strategy, which is still presented as valid today. We then present a brief analysis of the external communication of the ECB, which suggests that key elements of this strategy have been put aside.

2.1. The official two-pillar strategy

The website of the ECB provides a clear representation of the present (official) strategy. [13]

In essence, the ECB has defined the term 'price stability' (which the Treaties give as the over-riding objective of monetary policy) as an inflation rate 'below, but close to 2 %', with inflation measured by the increase in the HICP. The ECB assesses risk to price stability through its 'two pillars': economic and monetary analysis.

This section will focus on the second element, namely the 'two pillar approach'. This approach, with its monetary pillar was widely perceived as relict from the practice of the Bundesbank to announce reference rates for the growth rate of money. The underlying assumption of this emphasis on the growth of money was that the price level could not increase at a great pace if the money supply was limited. This argument might have had some merit when fighting inflation was the main problem (as it was thought to be when the ECB was created). But the emphasis on monetary aggregates is more difficult to justify when the problem is to get inflation up (slightly).

Another reason for focusing on monetary aggregates could be that money and credit growth are usually linked and credit growth can signal a danger to financial stability. This justification was indeed used in 2003 (see box), but the warning signs coming from relatively high rates of money (and credit growth) were largely overlooked during the boom years up to 2007.

[13] See https://www.ecb.europa.eu/mopo/strategy/html/index.en.html.

Box 1: The 2003 'review'

The 2003 strategy of the ECB was extensively described by the new President of the ECB in a major speech in 2003. The key elements were described by Trichet:

"As you know, this is a topic which the Governing Council of the ECB discussed at great length in the first half of 2003, when we conducted an evaluation of our experience with the strategy. This review resulted in the confirmation of our strategy on 8 May 2003."

This paragraph shows that the 2003 review was conducted internally, with the result that the previous practice was confirmed.

A first key element of the strategy was the quantitative definition of price stability, which is still used today:

The May 2003 clarification: "HICP inflation below but close to 2%"

A second key element of the strategy was the so-called two pillar approach which comprises a first pillar (economic analysis) and a second pillar (monetary analysis). Trichet characterised thus:

"The two pillars

A further element of the strategy relates to the analyses and economic perspectives of the risks to price stability, which are founded on a two-pillar framework. The two-pillar approach permits conveying to the public the notion of a diversified analysis and of ensuring robust decision-making based on different analytical perspectives."

The justification for the monetary analysis was the following:

"As regards the analysis under the monetary pillar, the ECB decided from the outset to single out money from the set of selected key indicators that it would monitor and study closely. "

The main innovation of the 2003 review was that the ECB discontinued its annual review of the reference value for (the rate of growth of) M3. But formally the monetary pillar was maintained.

As an aside, we note that one additional justification for the monetary pillar seemed prescient:

"As an important side effect, the regular examination of monetary trends might help to detect financial imbalances. There is often a strong positive correlation between credit growth and rapid rises in asset prices in the run-up to a speculative bubble. The emergence of such long-run disequilibria in the economy has to be taken into account in setting monetary policy. Such fundamental imbalances may cause problems for the economy well beyond typical inflation forecast horizons. I note that this point of view is increasingly also considered by other central banks. Our framework, with its emphasis on monitoring money and credit developments and the sustainability of macroeconomic developments, is in this respect well equipped to take into account the implications of exceptionally strong dynamics in the financial markets in terms of potential risks to price stability over the long run."

Unfortunately, the warning signs from rapid credit growth, which preceded indeed the financial crises, did not have a decisive impact on monetary policy.

Source: ECB (2003), "The ECB's monetary policy strategy", press release, 8 May 2003.

2.2. Two pillars in external communication

One way to gain an initial idea on whether the 'two-pillar' strategy has actually guided monetary policy is to analyse the external communication of the ECB, in particular how decisions were motivated. For this purpose, we conducted a text analysis of two kind of source:

i) The Press Conferences following monetary policy decisions. These press conferences take place roughly every month, with a total of nearly 250 since the start of EMU.

ii) Speeches by members of the Governing Council. Each year members of the Governing Council give dozens of speeches in which they discuss a variety of topics, typically issues pertaining to the policy of the ECB. The collection of these speeches made by the ECB comprises over 2 400 entries since 1997.

All these documents are publicly available on the ECB website.

Using Python, an open source programming language, we used web scraping to retrieve quantitative useful information to understand how the two pillars were used to discuss and justify monetary policy over the last two decades. This text mining technique is becoming increasingly popular in many fields[14], however, it has not been used much for central banking (Bholat et al., 2015). Our results show the usefulness of this analysis to gain some insights into the key issues, which drove monetary policy in the euro area.

In concrete terms, we looked at the frequency[15] of certain key concepts (e.g. inflation, economic analysis, monetary analysis) over time.

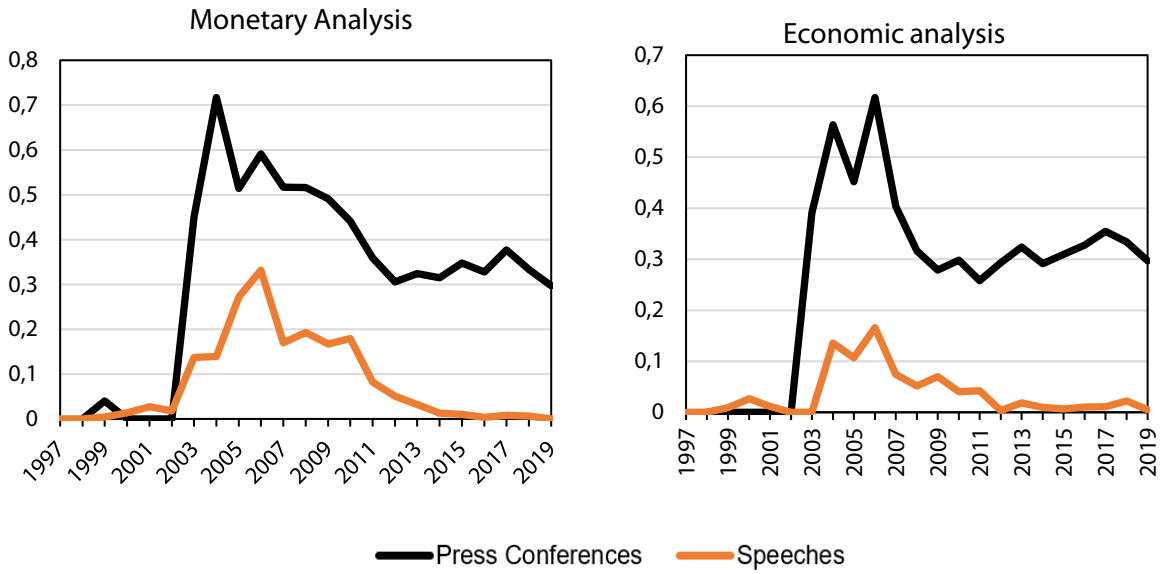
The results of our text analysis is shown in Figure 4 where the black lines refer to the analysis of press conferences and the red line to the speeches by Governing Council members. These results suggest that the 'two pillar' approach is followed in mainly a *pro forma* fashion. The economic and monetary analysis represent the two pillars. The frequency with which these terms ('monetary analysis' and 'economic analysis') are mentioned shoots up after 2003 (from zero to 0.6 per thousand words). But the frequency then declines to about one half of its peak value for the press conferences and to zero for speeches.

The difference between press conferences and speeches is revealing: when Members of the Governing Council (including the President) present their thoughts without being constrained by the form of a press conference, they mention the two 'pillars' much less (and not at all over the last years). This suggests that the two pillar strategy with its separate 'monetary' and 'economic analysis have played little role in their thinking.

[14] See Gentzkow et al. 2018 for an extensive review on the topic.

[15] The number of occurrences of each individual concept was then normalised by the total annual amount of words contained in the documents examined (speeches by Governing Council members or Press Conferences after a monetary policy decision).

Figure 4: Words occurrences normalised by total annual number of words and multiplied by one thousand, annual



Note: The plot represents the occurrence over time of two words for the Speeches (orange line) and the Press Conferences (black line) of the ECB. The left panel concerns the word "Monetary Analysis", and the right one the word "Economic Analysis". The sample period goes from 1997 to 2019. The search is case sensitive.

Source: ECB Press Conferences and Speeches, authors' computations.

We also checked separately for the occurrence of the word 'pillar' in speeches and found that this term was used for a few years after 2003, but then disappeared rather quickly.

Another strong indication that the 'two pillar' approach has been effectively discarded comes from the fact that the 'cross-check' between the two pillars has never uncovered any discrepancy between the economic and monetary analyses. We examined all press conferences since 2009 and did not find any instance in which the economic and the monetary analyses gave very different signals. A separate economic and monetary analysis make sense only if they give, at least from time to time, different signals.

Over the last 5 years, the introductory statement for the press conference following ECB decisions contained a paragraph along these lines:

> "*To sum up, a cross-check of the outcome of the economic analysis with the signals coming from the monetary analysis confirmed/confirms ……* »

With two exceptions (September/October 2015), this statement has been copied and pasted from October 2014 to the present (about 40 times).

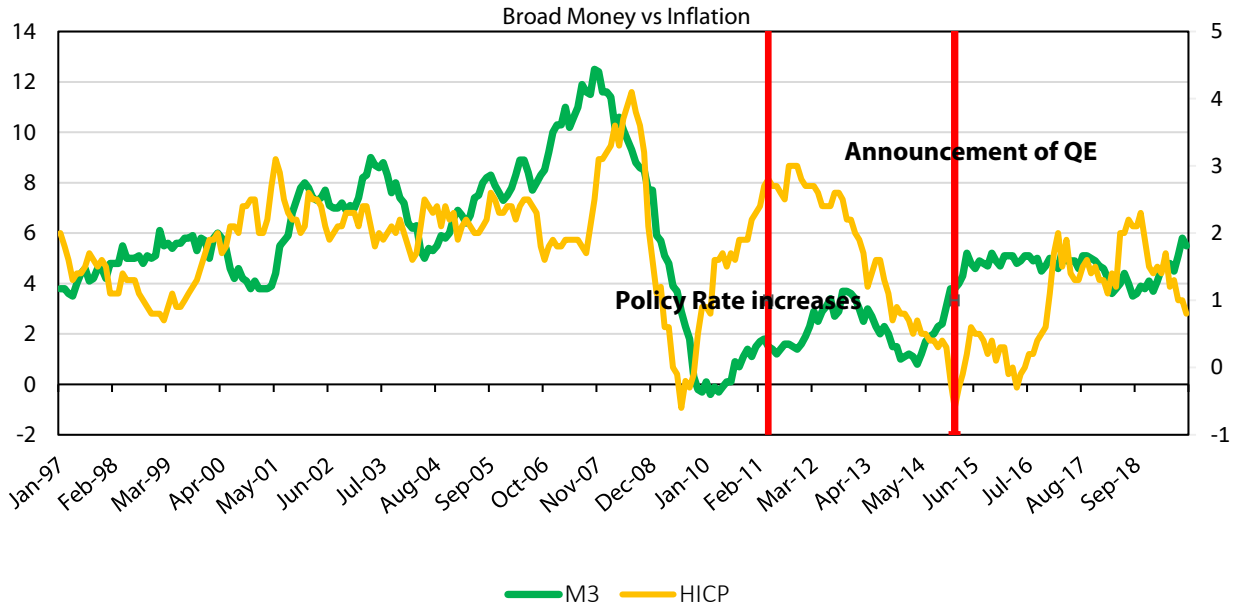
Even before 2014, the paragraph on the cross-check (of the outcome of the economic analysis with the signals coming from the monetary analysis) was always accompanied by the verbs 'confirm', 'support' or similar expressions. According to the ECB there was never any instance of different signals from the economic and the monetary analysis.

In reality, one can of course find a number of episodes when the two pillars gave different signals. To illustrate this Figure 5 shows the (annual) growth rate of M3 (the preferred monetary aggregate of the ECB). Two red vertical lines shows two episodes of different signals: For example, in early 2011, the economic analysis suggested increasing inflationary pressures while money growth (M3) stood at only

2 % (and had been falling until a few months beforehand). However, the press statement justifying an increase in rates (2011 April) stated that the monetary analysis also supported a tightening. This increase had to be reversed soon and is generally considered to have been a mistake.

Another important episode came when inflation was low, but M3 was increasing by close to 5 %. In this case, the ECB was aggressively easing (2015Q1). The same can be said about the last (September 2019) decision by the ECB to start an entire package of easing measures although the money supply continues to increase at about 5 %. In these cases, the ECB still maintained that both the economic and the monetary analysis supported its decision because money growth, while satisfactory, could otherwise fall back.

Figure 5: Broad money aggregate (M3), annual growth rate, in percentage and core inflation



Note: The green line is the euro area Monetary Aggregate M3 in percentage change. The two vertical red lines represent two monetary policy decisions: 1) the first one in 2011Q2 when the ECB increased the policy rate, 2) the second one in 2015Q1 when the ECB announced the Quantitative Easing. The data frequency is monthly and the sample considered goes from 1997/January to 2019/September.

Source: ECB Statistical Data Warehouse.

3. LEARNING FROM OTHERS' EXPERIENCES

3.1. Transatlantic differences in communication

The Federal Reserve announced one year ago a review of its policy strategy. This review has been implemented starting from the second half of this year, and the results will be made public in 2020. As mentioned above, the context is different from that of the ECB in several respects. First, differently from the ECB, the Federal Reserve has a 'dual mandate' of maximum employment and price stability. Secondly, the starting position of the Federal Reserve's review is that both mandates have been achieved. This is also reflected in the announcement of the Review by the Federal Reserve (see FOMC, 2019).

To analyse differences in the communication, we perform a text analysis of the Fed's Statements, calculating the relative occurrence of certain key words and comparing them with the ECB's Press Conferences, following the same procedure explained in the previous section.

Figure 6 shows the results of this analysis in four panels, referring to four words. From this figure we can draw three main conclusions.

First, given that the Federal Reserve has a dual target, one would expect, we find a much higher frequency of the world 'employment' for the Fed, as displayed in the fourth panel of Figure 6.

Second, we find rather similar trends, over the last decades, for both the Fed's statements and the ECB Press Conferences for the frequency of the words 'inflation' and 'price stability'. However, while the former tends to increase over time, the latter decreases on both sides of the Atlantic. It is surprising that both of these terms appear more often in Federal Reserve statements than in those of the ECB (the scale of the RHS is different for the ECB)[16], even if the Fed has achieved its inflation target.

Third, one finds that the Federal Reserve mentions 'financial stability' in its motivations for monetary policy decisions only during two years (2009 and 2010). The ECB, by contrast, seems to have been concerned about financial stability even before the crisis, and continues to mention financial stability even after the crisis abated. This points to another inconsistency: As mentioned above, the monetary analysis had been motivated, at least partially, by concerns about financial stability. However, we also showed that one cannot find a single instance in which the signal from the monetary analysis was seen to deviate from the economic analysis. We also could not find a single instance in which concerns about financial stability were used to justify a monetary policy decision.

Despite these crucial differences among the frameworks in which the ECB and the Fed currently operate, it is very important to look at the Fed's experience in terms of reviewing its monetary policy conduct to learn how to implement a potential future ECB's review. However, since the review is still ongoing we could only highlight the broad procedure that has been announced on their website.

One needs to keep in mind the purpose of the Fed's review. The attainment of Fed's objectives shows, in its own view, that the monetary policy strategy has worked well so far, thus the final aim of their review, would be to analyse if the current framework would still be sufficient to face future challenges or if it could be improved.

[16] For the ECB, the relative frequency is calculated including the questions and answers part of the press conference. The Federal Reserve does not hold such press conference, resulting in a much lower overall length of the material. We performed a robustness test by concentrating for the ECB only on the introductory statement. This gave qualitatively very similar results.

Therefore, the review is announced to have broad-scope, with no prior idea of the possible outcomes. However, there are limits. The review is to look at the best strategies to achieve the existing given inflation target (over the long run). The Federal Reserve is not planning to revise the target itself.

The review should thus focus mainly on how to improve the tools, the communication and the overall strategy of monetary policy. The Fed is seeking external points of views, through the Fed Listens events, where participants have a very broad and varied background (it is not required that they have a deep knowledge of monetary policy). This is crucial for the effectiveness of the review and we believe it would be important to take it as an example for the ECB case.

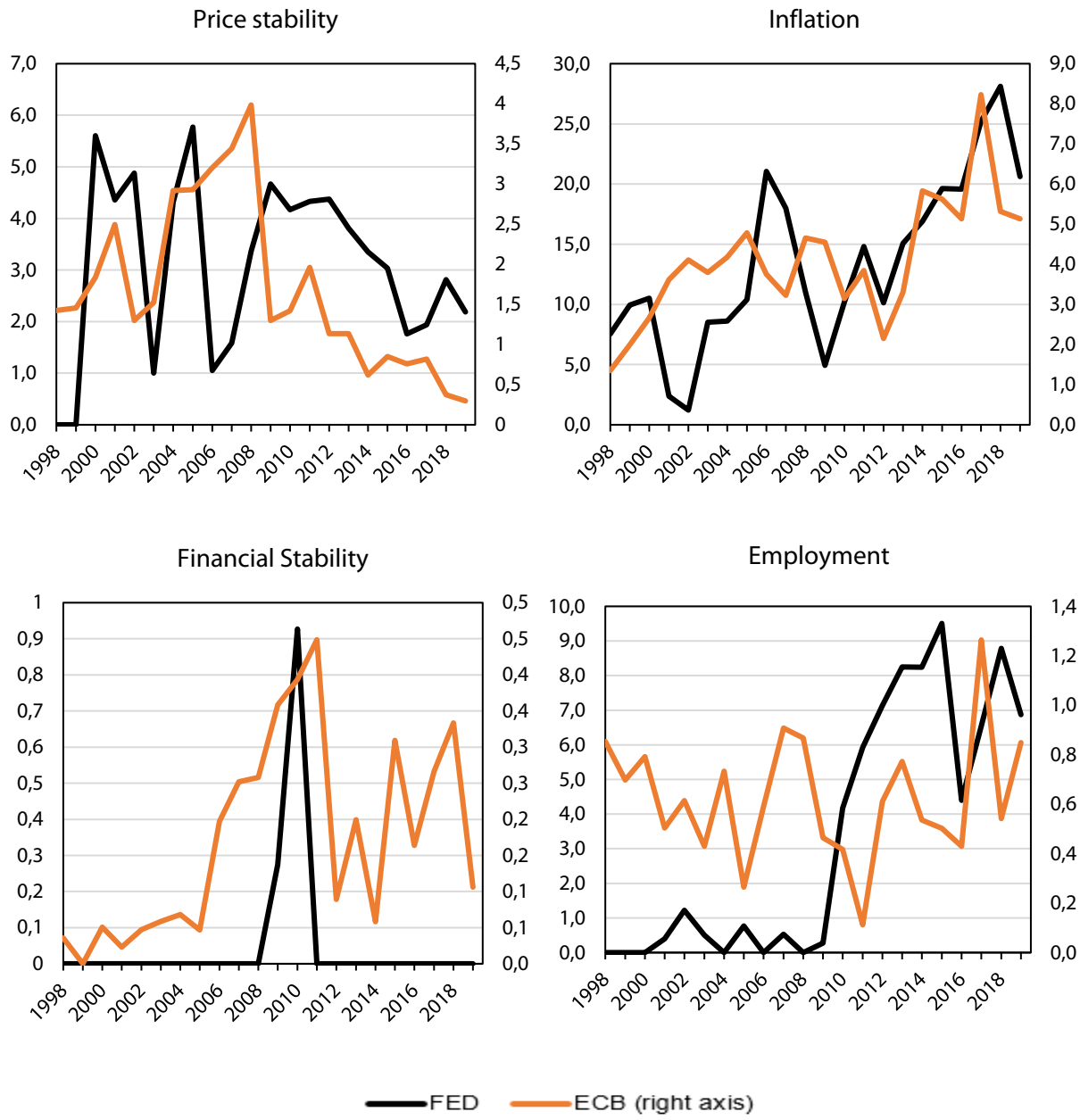
A key element of the review in the US have been events organised by each individual regional Federal Reserve Bank in which a wide variety of participants, not only academic economists or financial market specialists, were asked to air their views. This approach can work well in a 'political union' like the US where views on monetary policy are not so strongly influenced by national perceptions and preferences as in the euro area. In the US, the concerns of various interest groups and the general public are not as regionally concentrated and differentiated as in Europe.

The outcome would be predicable if each national central bank in the euro area were to hold a separate event. The contributions from academic economists might be varied because they could be invited from all over Europe (or even globally). However, the local public and local interest groups (e.g. banks, but also SMEs, etc.) would have sharply different opinions from country to country. Much care would have to be taken that a 'the ECB listens', for example in Germany, does not degenerate in generalised ECB bashing.

A last important element concerns the fact that, differently from the ECB, the Fed enunciated for the first time its strategy only very recently, in 2012, i.e. after the crisis, by publishing the Statement on Longer-Run Goals and Monetary Policy Strategy. So the ECB would have a much longer time frame to review and it would also have more of a reason to adapt its strategy given that the macroeconomic environment has changed so much.

In the next section, we briefly analyse the reviews that have been undertaken by the Reserve Bank of New Zealand and the IMF. Our aim is to focus on the procedure that have been followed by these two institutions, so that we can learn from their experiences.

Figure 6: Words occurrences: Fed and ECB comparison, normalized by total annual number of words and multiplied by one thousand, annual



Note: The plot represents the occurrence over time of four words for the ECB's Press Conferences (orange line, on the right axis) and the Federal Reserve's Press Statements (black line). The upper left panel concerns the word "Price stability", the bottom left the word "Financial Stability", the upper right "Inflation" and the bottom right "Employment". The sample period goes from 1998 to 2019. The search is case sensitive.

Source: ECB Press Conferences and Fed Statements, Authors' computations.

3.2. Experiences of past reviews

There only rather few examples of external reviews of central bank strategies. The Central (Reserve) Bank of New Zealand and the IMF provide two instructive cases.

New Zealand: In 2000 the Minister of Finance invited an external expert, a reputed economist specialising in monetary policy, Prof. Lars Svensson, to review the central bank's monetary policy

operations. The review was thus performed outside the central bank itself, following a simple procedure. First, the external experts was provided with very precise terms of references, concerning the central bank's monetary policy conduct to achieve its inflation target, its instruments, the information set used by the bank to take decisions, its governance and accountability structure, its coordination with other policies, and finally its communication. Second, the expert personally visited the bank for some time (two weeks) to observe monetary policy operations and collect material and held discussions with other monetary policy experts from different countries. Third, the expert published its report.

The Reserve Bank and the Minister of Finance, after consultation with parliamentary parties, publicly released their responses to these recommendations.

The advantages of having one expert conducting the entire review were speed and transparency. The drawback is that different experts have often very different opinions about how monetary policy works and what the best strategy might be to achieve price stability. In the early 2000s this disadvantage was not so pronounced as there was much less disagreement than today. However, today's situation when there is sharp disagreement about many basic elements of monetary policy (is there still a link between unemployment and inflation, does unconventional policy work, where is the effective lower bound?) it would seem that a team of independent experts would be needed to encompass the opinions of the profession.

The International Monetary Fund (IMF) is another institution which has undergone a fundamental review. In July 2001, the Executive Board of the Fund established the Independent Evaluation Office (IEO). The goal of this office is to systematically provide evaluations on relevant issues in light of the IMF's mandate, in an objective and independent fashion. Moreover, starting from 2006 periodical external evaluations of the evaluator have been conducted by the Fund's Executive Board to assess its effectiveness and determine if its work should be improved. One key element of the work of the IEO is that it regularly solicits inputs from outside the official community.

The IEO of the IMF is a permanent institution, headed by outside experts, but with a substantial staff of its own. This is of course different from the once-off review which the ECB has in mind. Another difference to the IMF is that the ECB reports regularly to the European Parliament, to which it is accountable. The European Parliament, in turn, has at its disposal a pool of external experts, which can provide its members with a range of opinions on all aspects of monetary policy. It would thus not seem appropriate to create a permanent review body inside the ECB.

4. CONCLUDING REMARKS

The 'two-pillar' strategy of the ECB might have been useful when fighting inflation was the key task. Today the key concerns are financial stability and low inflation. This means that the strategy should be radically rethought. The monetary pillar has been effectively discarded, as shown above. However, the economic pillar also faces problems since it has become an *ad hoc* analysis of economic developments, in which it is generally assumed that higher demand will lead to price pressures. Nevertheless, this has not been the case. Decisions on monetary policy then rely on an assumed link between instruments and inflation (the desired outcome); a link which involves a number of intermediate steps.

1. Monetary policy instruments, whether conventional or not, aim to affect 'economically relevant' interest rates (and, more in general, financial conditions throughout the economy). E.g. lowering policy rates should lower the refinancing costs of banks, which should then result in lower rates on loans.
2. Lower interest rates, or more generous financial conditions, should then foster increases in expenditure (mainly investment and consumption, but possibly also in exports via a lower exchange rate).
3. This increase in demand should lead to higher employment.
4. Higher employment (or lower unemployment, lower slack in general) should then lead to higher wages and finally higher prices.

All the links in this chain of mechanisms deserve close scrutiny because they do not seem to work as intended.

Any review of the monetary policy strategy of the ECB will thus have to put into doubt many fundamental issues and might thus implicitly criticise present policies. This is unlikely to be allowed in an internal process. Reviews of the last 20 years by high ranking ECB staff tend to conclude that the strategy of the ECB is entirely appropriate (e.g. Hartmann and Smets 2019). It is thus important to have an external review.

REFERENCES

- Bholat, D., Hansen, S., Santos, P., & Schonhardt-Bailey, C. (2015). Text mining for central banks. *Available at SSRN 2624811*.
- Blanchard, O. (2019). What's (not) up with inflation? So what are the implications for policy?, Brookings event, October 3, 2019.
- Cochrane, J. H. (2018) "Michelson- Morley, Fisher, and Occam: The Radical Implications of Stable Quiet Inflation at the Zero Bound", Chapter in NBER book NBER Macroeconomics Annual 2017, volume 32 (2018).
- ECB (2003), "The ECB's monetary policy strategy", press release, 8 May 2003.
- ECB, Press Conferences and Speeches, https://www.ecb.europa.eu/press/html/index.en.html.
- FOMC (2019), "Review of Monetary Policy Strategy, Tools, and Communications", announcement of review, 25 June 2019.
- FOMC, Statements, https://www.federalreserve.gov/monetarypolicy/fomccalendars.htm.
- Gentzkow, M., Kelly, B., & Taddy, M. (2019). Text as data. *Journal of Economic Literature*, *57*(3), 535-74.
- Gros, Daniel (2019) "Global trends in inflation: are central banks barking up the wrong tree?" Contribution to the European Parliament, http://www.europarl.europa.eu/thinktank/en/document.html?reference=IPOL_IDA(2019)638422
- Hartmann, Philipp, and Frank Smets. 2018. "The First 20 Years of the European Central Bank: Monetary Policy" BPEA Conference Draft, Fall, https://www.brookings.edu/bpea-articles/the-first-20-years-of-the-european-central-bank-monetary-policy/ also ECB Working Paper Series, No. 2219, European Central Bank.
- Lane, P. (2019). 50th Anniversary Conference of the Money, Macro & Finance Research Group. London, London School of Economics, 4 September 2019.
- Summers, L. H. and Stansbury, A. (2019) "Whither Central Banking?" Project Syndicate, August 2019.
- Svensson, L. (2001). Independent review of the operation of monetary policy in New Zealand, Reserve Bank of New Zealand Bulletin, Volume 64, No. 1.

Priorities for Review of the ECB's Monetary Policy Strategy

Authors: Jérémie COHEN-SETTON, Christopher G. COLLINS, Joseph E. GAGNON (Peterson Institute for International Economics)

Abstract

Lower neutral rates of interest have eroded the policy space necessary to fight recessions. Against this backdrop, several central banks are re-assessing how their strategy and tools can be refined to best achieve their goals. The ECB should be no exception. Its strategy review should focus on redefining the inflation objective and on developing contingency plans for using its statutory authority creatively to achieve its mandate.

This document was provided by Policy Department A for the European Parliament's Committee on Economic and Monetary Affairs.

CONTENTS

LIST OF ABBREVIATIONS

APP	Asset Purchases Program
BoC	Bank or Canada
CPI	Consumer Price Index
ECB	European Central Bank
ELB	Effective lower bound
Fed	Federal Reserve System
HM	Helicopter money
LFL	Lower for longer
NIT	Nominal Income Targeting
PLT	Price Level Targeting
ZLB	Zero lower bound

EXECUTIVE SUMMARY

- Lower neutral rates of interest have eroded the monetary policy space to fight the next recession for central banks around the world. Against this backdrop, several of them are reviewing their strategy and framework to see if they can be improved.
- In the euro area, the typical process of interest rate normalisation that takes place during a recovery has not even started, so the ECB has even less scope than other central banks to cut policy rates.
- The ECB is, however, well placed to improve its strategy and framework, especially given the high degree of discretion that it enjoys compared to other central banks when it comes to introducing new policy instruments.
- The paper recommends that the ECB start a broad review of its strategy along the lines of those happening in Canada and Sweden. In particular, the ECB should not follow the Federal Reserve in its decision to exclude a redefinition of its inflation objective from the review.
- The paper views (1) the redefinition of the price stability objective and (2) establishing contingency plans for using new instruments as the two most urgent elements on which the review should focus.
- The ECB should redefine price stability as a year-on-year increase in the Harmonised Index of Consumer Prices for the euro area close to 3%. By providing a higher starting point for bond yields across the yield curve, a higher inflation target could provide a total increase in policy scope that is equivalent to a 300 basis points cut in the policy rate.
- The ECB should not only detail how the parameters governing the use of its current instruments could be modified to provide more stimulus but also explore adding new instruments to its toolkit such as equity purchases and outright cash transfers to households.

1. INTRODUCTION

Monetary policy reviews are used to assess whether, and in what possible ways, a central bank's strategy, tools, and communication practices can be refined to achieve and maintain its goals as consistently and robustly as possible (Clarida 2019). The Federal Reserve System (Fed) and the Bank of Canada (BoC) initiated monetary policy reviews in 2018. European Central Bank (ECB) President Christine Lagarde signalled in September that she would be open to doing the same for the euro area.

This paper discusses the motivation for performing a monetary policy review at the ECB and what such a review should look like. It also provides background and policy recommendations for some elements of the ECB's monetary policy strategy. We focus these recommendations on two urgent elements: (1) the redefinition of price stability and (2) the need for additional monetary instruments. Other elements, such as the two-pillar analysis or the communications framework, could be improved at the margin. But they are far less important and should not detract from the requisite focus on these most urgent challenges.

2. MOTIVATION FOR A REVIEW

Performing an ECB monetary policy review would be worthwhile for at least three reasons.

First, because of the decline in the neutral rate of interest, policy rates in the euro area have lingered at the effective lower bound (ELB) for several years. The reduced scope for conventional policy easing associated with a lower neutral rate of interest was an important factor underlying the decision by the Bank of Canada (Wilkins 2018) and the Fed (Clarida 2019) to start reviews of their monetary policy strategies.[17] Figure 1 illustrates that, since the last review of the ECB strategy in 2003, the decline in the neutral real interest rate has been at least as important in the euro area as in other advanced economies. With ECB policy rates at their ELB, the ECB has less conventional ammunition to fight the next economic downturn than other central banks.

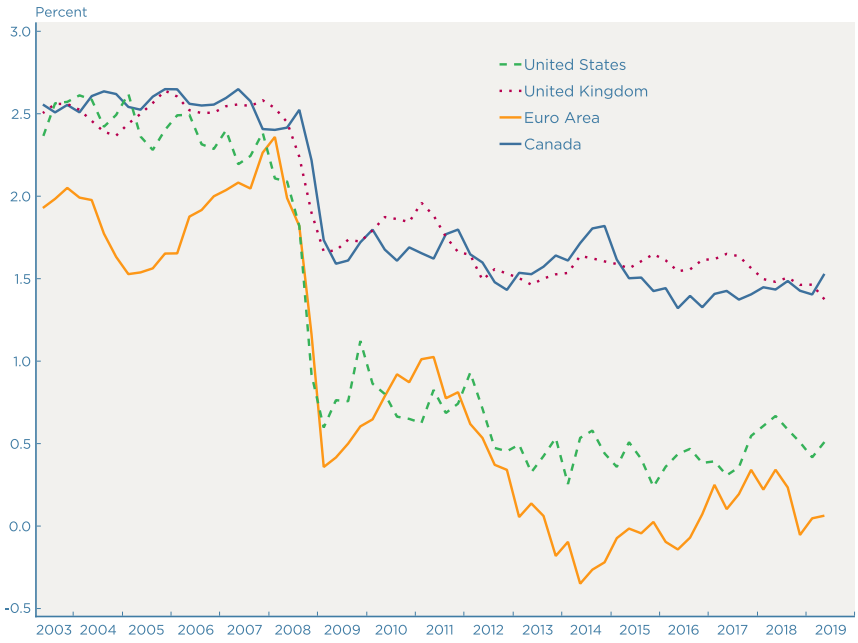
Second, the ECB is particularly well-positioned to improve its toolkit given the flexibility embedded in its mandate. Not only does the ECB possess broad discretion in using all its tools in a necessary and proportionate way to achieve its objective (Draghi 2019) but the set of tools it can use is wider than most other central banks. The Fed's asset purchases are, for example, limited by law to debt issued or guaranteed by a sovereign government or federal agency. It is not authorized to buy equities or corporate debt. More generally, it has limited discretion when it comes to introducing new instruments. In contrast, Article 20 of the protocol on the statute of the European System of Central Banks and of the ECB specifies that "the Governing Council may, by a majority of two thirds of the vote cast, decide the use upon the use of … other operational methods of monetary control as it sees fit." The ECB is forbidden from providing credit facilities to public entities and cannot purchase public debt instruments directly in the primary market (Article 21). But no other restrictions are specified.

Third, some conclusions of the ECB's 2003 review need further improvements. This is especially the case for the inflation target. The "below but close to" formulation of the target remains unclear and open to different interpretations even within the Governing Council.[18] More importantly, the decline in the neutral rate of interest and the binding constraint of the ELB invalidate the assumptions behind the choice of an inflation target near 2 percent, arguing instead for a higher inflation target. In addition, the prominent role for monetary aggregates, which was rightly diminished with the 2003 review, should be eliminated. Other central banks have long since downplayed these indicators in their monetary policy deliberations.

[17] Both the Fed (https://www.federalreserve.gov/newsevents/pressreleases/monetary20181115a.htm) and the BoC (https://www.bankofcanada.ca/2018/11/bank-review-monetary-policy-framework-ahead-2021/) announced their reviews in late 2018.

[18] At the February 2014 press conference, ECB President Mario Draghi insisted that the target was symmetric (https://www.ecb.europa.eu/press/pressconf/2014/html/is140206.en.html). Yet, in 2019 Bundesbank President said that "the current formulation of the target is not symmetric" in his view (https://uk.reuters.com/article/uk-germany-ecb-economy/ecbs-weidmann-sees-no-need-for-economic-stimulus-newspaper-idUKKCN1VE0FF).

Figure 1: Estimates of the Neutral Real Interest Rate



Note: Holston-Laubach-Williams estimates. Source: Macrobond, Federal Reserve Bank of New York

3. SCOPE AND FORMAT OF A REVIEW

The scope of an ECB monetary policy review should be broad. Some components of the framework like the definition of the inflation objective or the articulation of the operating instruments are consequential enough for attaining its goals that they should always be considered as part of a reassessment (Fuhrer et al. 2018). Apart from taking as given its statutory mandate, the review should thus encompass every element of the strategy. This is especially true given the fact that the ECB has not had a review of its policy framework since 2003.

Unfortunately, in its current review, the Fed did not make that choice and took as given that "inflation at a rate of 2 percent is most consistent over the longer run with the congressional mandate" (Clarida 2019). No legal constraints dictated that choice, as the Fed has the authority to define its inflation objective. A better reference point for the ECB are the ongoing reviews by the Bank of Canada and the Swedish Riksbank, which will assess alternative frameworks, the policy toolkit, and the interaction of monetary policy with other public policies.[19] For the BoC, it will be the first time since 1991 that a thorough side-by-side comparison of all the main alternatives, including increasing the inflation target, will be done. According to Deputy-Governor Caroline Wilkins (2018), such a thorough review is necessary because it is possible that the current environment of low neutral rates of interest has changed the calculus of their previous assessments on having a higher inflation target (done in 2016) and on following a price-level target (done in 2011).

How often should the ECB reassess its framework? As illustrated with Canada, the frequency question is related to that of the scope. As part of its founding charter, the BoC reviews its monetary policy framework every five years when it renews its inflation-control agreement with the Government. But clearly, the scope varies depending on the extent of the change in economic structures and the profession's understanding of monetary economics. The Federal Reserve's monetary policy strategy was first articulated in 2012 with the adoption of its Statement on Longer-Run Goals and Monetary Policy Strategy. The Fed does not have a regular review process. Yet, the Fed updates this document each January. In its 2016 update, the Fed clarified that its "inflation goal" was a "symmetric inflation goal" and that it "would be concerned if inflation were running persistently above or below this objective." [20] At his October 2019 press conference, Fed Chair Powell furthermore stated that the Fed likely will conduct future reviews "every few years" so it is reasonable to expect that the Fed will review its strategy periodically every 5 to 10 years. Irrespective of the exact frequency chosen for a regular review, it should allow for an "escape clause" to either re-assess off regular schedule (Fuhrer et al. 2018) or to postpone a regular assessment that appears particularly ill-timed.

Seeking input from stakeholders is also a key part of both the regular five-year reviews of the BoC and the current "Fed Listens" review of the Federal Reserve System, which held 14 events at the Federal Reserve Board and the Reserve Banks in 2019. All citizens are stakeholders, but the best way to gather their views is through various civic organizations such as labour unions, business and trade associations, charitable foundations, state and local government agencies, and community support groups of all types. Views may be solicited both in private meetings and in public conferences that are

[19] See https://www.bankofcanada.ca/toward-2021-renewing-the-monetary-policy-framework/toward-2021-outreach/. The scope of the Swedish Riksbank's review, which was announced in December 2016, is even broader as it will also review the Swedish Riksbank Act (https://www.riksbank.se/en-gb/about-the-riksbank/the-tasks-of-the-riksbank/review-of-the-monetary-policy-framework-and-the-sveriges-riksbank-act/). This is, however, coherent with the fact that the review was not at the initiative of the central bank but of the government and is carried out by the Swedish Riksdag.

[20] See https://www.federalreserve.gov/monetarypolicy/timeline-statement-on-longer-run-goals-and-monetary-policy-strategy.htm.

open to the press. A series of public conferences in all corners of the monetary union can bolster the democratic legitimacy of the review process.

Before seeking broad societal input, it is important to define the scope of the review based on inputs from monetary policy experts. Non-experts are not equipped to diagnose the fundamental issues facing monetary policy today. They can be helpful, however, in providing information on societal preferences that should inform the review. For example, most citizens do not understand the mechanism that links a low inflation target to poor economic outcomes. But they typically do have views on unemployment and inflation that can be useful.

In the "Fed Listens" Chicago conference, the message that came through from civic organizations could be characterized as:

> Inflation is not now a concern and has not been for a long time. Although lower inflation is better, a modestly higher inflation rate would hardly be noticed. On the other hand, despite record-low unemployment rates, unemployment continues to be a major concern. The strong job market is doing a world of good in bringing people back into the labour force and enabling them to be productive citizens and develop useful skills.

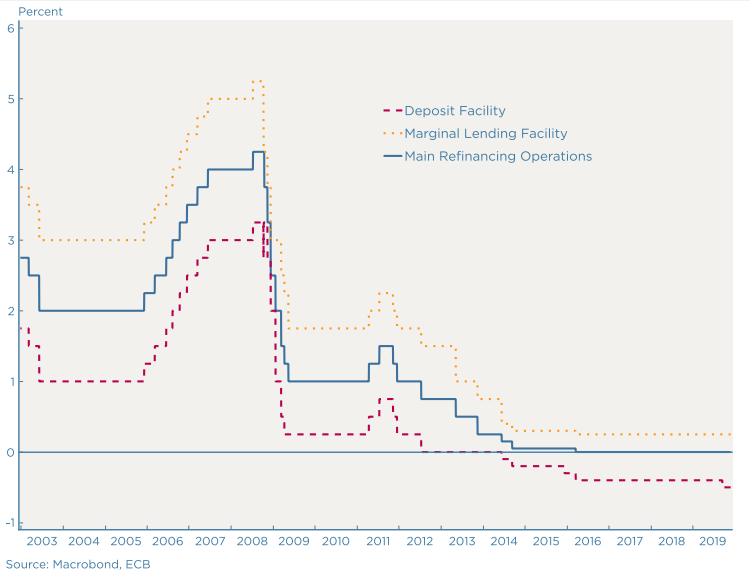
Fed Chair Jerome Powell made similar points about the labour market at his October 2019 press conference. Although boosting employment on a cyclical basis is not a primary goal of the ECB, it is reasonable to argue that a good definition of price stability is one that is consistent with the highest sustainable levels of employment and income.

Box 1: The ZLB, the ELB and the Reversal Rate

As interest rates fall below zero, savers have an incentive to switch from deposits to cash, which has a fixed interest rate of zero. For this reason, the lower bound on nominal interest rates was long held to be zero (ZLB). Yet, it appears that the safety and convenience of digital assets is sufficient to overcome a modest penalty in the form of a negative return.

In fact, policy interest rates have become negative in Sweden, Denmark, Switzerland, Japan and the euro area. Figure 2 shows the three key official ECB rates: the rate on main refinancing operations, which provides the bulk of the liquidity to the financial system; the rate on the deposit facility, for banks that make overnight deposits with the Eurosystem; and the rate on the marginal lending facility, for banks that use overnight credit from the Eurosystem. The deposit rate was brought down to zero in July 2012 and became negative in June 2014. The main refinancing rate was also decreased to zero in March 2016. Today, the marginal lending, the main refinancing, and the deposit rate rates stand respectively at 0.25, 0 and -0.5 percent.

Figure 2: ECB Key Official Rates



Negative rates as low as -0.75 percent (in Switzerland) have not caused a large-scale switch into physical currency. For this reason, the academic literature no longer refers to the lower bound on nominal interest rates as the ZLB but as the effective lower bound (ELB). How much below zero the ELB is remains unclear. The reluctance of central banks to push rates further below current levels may suggest that the ELB is around -100 basis points. Another interpretation is that despite being possible, further decreases in interest rates would not be helpful. In that case, the current rates could be above the technical ELB but would be near what Brunnermeier and Koby (2018) called the "reversal rate," the rate of interest beyond which further declines become contractionary rather than expansionary.

We define the ELB to be the lowest policy rate that is both feasible and useful to deliver monetary stimulus. We believe that the ECB's policy rates are very close to the ELB.

4. REVIEW PRIORITY 1: REDEFINING PRICE STABILITY

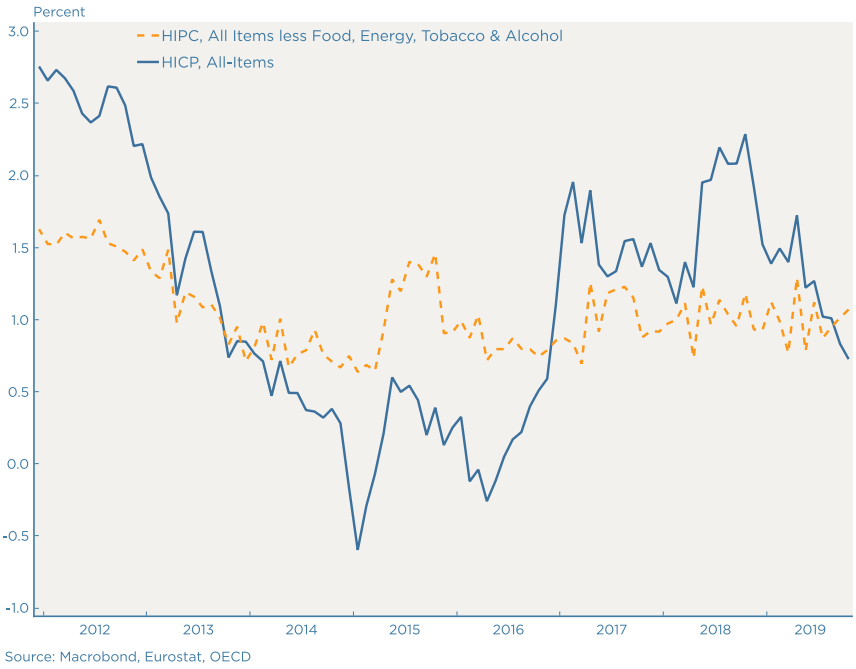
4.1. Background

The ECB has a single primary objective: price stability.[21] However, the ECB statute does not define price stability. Initially, the Governing Council of the ECB adopted the following definition: "Price stability shall be defined as a year-on-year increase in the Harmonized Index of Consumer Prices for the euro area of below 2 percent" (ECB 1998a).

In its 2003 review, the ECB confirmed this definition but clarified that it will aim to maintain inflation rates below but "close to 2 percent over the medium term" (ECB 2003a).[22] With this clarification, the Governing Council in effect reduced the set of inflation rates within the 0-2 percent range that it deemed appropriate.

More recently, the symmetry of the aim was clarified. In the February 2014 press conference, ECB President Draghi remarked that the policy aim was symmetric around the level established in 2003. At the March 2016 press conference, the President explicitly clarified that there was no cap on inflation at 2 percent (Draghi 2019). Despite this, many observers and even some members of the Governing Council continue to regard "the current formulation of the target" as "not symmetric."[23]

Figure 3: Headline and Core CPI Inflation



Source: Macrobond, Eurostat, OECD

[21] See Article 105(1) of the Treaty on European Union https://europa.eu/european-union/sites/europaeu/files/docs/body/treaty_on_european_union_en.pdf.

[22] See also https://www.ecb.europa.eu/mopo/strategy/pricestab/html/index.en.html.

[23] See https://uk.reuters.com/article/uk-germany-ecb-economy/ecbs-weidmann-sees-no-need-for-economic-stimulus-newspaper-idUKKCN1VE0FF.

Figure 3 shows headline and core inflation in the euro area over the past few years. Since the last review, inflation in the euro area has averaged just below 1 percent, resulting in a cumulative undershoot in the price level of over 6 to 8 percentage points, depending on whether 1.75 or 2 percent is used to operationalize the inflation objective of "close but below 2 percent." This undershoot is not driven by volatile components in the price index. As already pointed out by ECB President Draghi in its 2019 Sintra speech and illustrated in the figure, core inflation almost declined by a full percentage point from mid-2012 to early 2014 and still has not recovered to its pre-crisis average of 1.7 percent.

The costs of low inflation, as described in Box 2, have been far more prominent since 2003 than they were before. In particular, the effective lower bound on interest rates has proved far more damaging than economists believed then. In 2003, ECB President Trichet explained that the Governing Council "took into account studies which have tried to assess the likelihood of nominal interest rates hitting the zero lower bound for various levels of inflation objectives." At the time, these studies indicated that "the likelihood decreases to very low levels when the central bank aims at an inflation rate above 1%" and thus concluded that "focusing on inflation of below but close to 2% provides a sufficient safety margin."

In its overview of the background studies for the evolution of the ECB's monetary policy strategy (ECB 2003b), the ECB recognized that, even then, some studies found that the risks of hitting the ZLB remain non-negligible for rates of inflation above 1%. But it concluded that these studies should be "taken with particular caution [because] they are frequently based on the assumption that the equilibrium [real interest] rate stands at 2%, which seems to be at the lower end of plausible figures." With the benefit of hindsight, we now know that this assumption was at the upper end rather than at the lower end of plausible figures.

The experience suggests that the ECB's definition of price stability has not only hampered the achievement of the secondary objectives, such as high employment, but has also prevented the ECB from easing monetary conditions enough to keep inflation close to 2 percent.

4.2. Recommendation

The ECB should redefine price stability as a year-on-year increase in the Harmonised Index of Consumer Prices for the euro area close to 3%. This recommendation is motivated in part by the secular decline in the neutral rate of interest, which changes the calculus of the inflation target. If an inflation rate of close to 2 percent was considered optimal in 2003, it follows that a higher rate must be considered optimal now given the decrease in the neutral real interest rate.

Simulations in Andrade et al. (2019) show that a 100 basis point drop in the neutral rate of interest almost doubles the probability of hitting the ELB if the monetary authority keeps its inflation target unchanged. Using a different model, Wilkins (2018) finds that this probability has increased in Canada to 13 percent instead of about 3 percent when the neutral rate was higher.

The optimal reaction is to increase the inflation target one-for-one with the estimated decrease in the neutral rate of interest (Andrade et al. 2019). The target for inflation should thus be raised from just below 2 percent to around 3 percent. Given the confusion created by the "below but close to" language, the target should be symmetrically around 3 percent, rather than symmetric around a level below but close to 3 percent.

Box 2: The Costs of Very Low Inflation

The conventional view is that stable low inflation reduces uncertainty and improves the price-formation process, thereby maximizing long-run income and employment. However, downward wage and price rigidity tend to raise unemployment permanently as inflation becomes very low because workers resist nominal pay cuts much more than they resist real pay cuts through inflation. Low inflation also increases the time interest rates are constrained by their effective lower bound, preventing central banks from stabilizing the economy in the face of negative shocks.

In the standard linear accelerationist Phillips curve model, any constant inflation rate will allow unemployment to return to its natural rate. There are no gains to be had from permanent shifts in the inflation rate and there is no reason not to choose a very low inflation target. However, with very low target inflation and downward wage and price rigidity, the Phillips curve becomes nonlinear; it is flat at high rates of unemployment (Gagnon and Collins 2019a). This flattening occurs even when average wage increases are positive, because there are always some workers facing below-average wage increases. As overall wage inflation declines, more and more workers face potential wage cuts, and many of them prefer to risk unemployment than to accept a nominal wage cut. Thus, it takes a high rate of unemployment to enable overall wage inflation to be close to zero.

Unemployment can remain far above the natural rate for years at a time with a constant low rate of inflation. Failure to allow for a nonlinear Phillips curve leads many economists (including staff at the European Commission and other international institutions) to overestimate the natural rate of unemployment because their models assume that any unemployment rate with stable inflation must be the natural rate (Cohen-Setton and Valla 2010; Brooks and Basile 2019). In fact, downward wage rigidity makes output gaps negative on average when inflation is very low (Aiyar and Voigts 2019). By generating a policy stance that is too tight compared to what would be optimal, the overestimation of the natural unemployment rate creates a massive loss of economic welfare. Raising the inflation target would remove some of these problems and thus permanently reduce the unemployment rate.

Low target inflation also increases the risk of having interest rates constrained by the ELB, preventing the central bank from steering the economy to full employment. The Governing Council notes the importance of providing "an adequate margin to reduce the risks of deflation … because there are limits to how far interest rates can be cut … this makes it more difficult for monetary policy to fight deflation than to fight inflation." An important factor increasing the frequency of lower bound episodes is the secular decline in the equilibrium real interest rate. Andrade et al. (2019) show that a falling equilibrium real interest rate (r*) increases the risk of hitting the ELB and that the optimal policy response is to raise the inflation target nearly one for one with any fall in r*.

If the current target is taken as 1.75 percent, an increase to 3 percent would eventually cause interest rates to rise 1.25 percent at all maturities. The ECB would have 1.25 percentage points more scope to reduce its policy rate in a recession. However, the total increase in policy space is much larger than that. A higher starting point for bond yields means more scope to use the asset purchase program (APP) to reduce bond yields. The total increase in policy scope from a 1.25 percentage point increase in the

inflation target is equivalent to 3 percentage points of room to cut the policy rate (Gagnon and Collins 2019b).

To elaborate, the scope for a central bank to fight a recession is related to the distance of nominal interest rates of all maturities from the ELB. So, if the central bank were to raise the inflation target, and the market believed in the central bank's desire and ability to achieve this higher rate of inflation, expected inflation and nominal interest rates of all maturities would rise by the amount of the increase in the inflation target.

Raising the inflation target by 1.25 percentage points would raise all interest rates by 1.25 percentage points, giving the ECB 1.25 percentage points more room to cut its policy rate. And it would also increase the scope to cut longer-term rates. According to the Federal Reserve's model for the US economy, each 1.25 percentage point cut in the short-term policy rate reduces the interest rate on the 10-year government bond about 0.5 percentage point. After a 1.25 percentage point policy rate cut, the bond yield would remain 0.75 percentage point higher than it was before the increase in the inflation target. The ECB would be able to use forward guidance and the APP to push bond yields to their ELB. The stimulative impact of these measures is equivalent to an additional 1.75 percentage point cut in the policy rate for a total stimulus equivalent to a 3 percentage point reduction in the policy rate (Gagnon and Collins 2019b).

Finally, the ECB should redefine price stability to mean a higher rate of inflation to better support its stated commitment to "provide a sufficient margin to address the implications of differences in inflation across the euro area countries. In this way the inflation aim helps to prevent some countries or regions having to live with excessively low or even negative inflation rates while other countries experience higher inflation rates." Asymmetric shocks have also proved far more damaging than economists believed in 2003. Given the need for differentiated country inflation rates that these asymmetric shocks create, a higher inflation target would increase the margin for adjustment, making the rebalancing process within the euro area smoother.

Most citizens would hardly notice the difference between 2 percent and 3 percent inflation. In the 30 years before the euro, German inflation averaged 3.5 percent and the Bundesbank was widely admired for delivering price stability. In the present circumstances, an immediate increase in the inflation target is hardly credible and the ECB should not make any claims about achieving it soon. However, the ECB should explain how and why it plans to work toward this goal over the medium term.

Box 3: Inflation Makeup Strategies

Most central banks currently formulate their inflation objective with no reference to how past inflation has behaved (an exception is the Reserve Bank of Australia, whose inflation goal is specified as a range of "2–3 per cent, on average, over time"). Instead, the aim is to achieve a specific rate of inflation by some time horizon. Under this formulation, the central bank lets "bygones be bygones." It does not try to compensate past inflation shortfalls with future inflation overshoots.

Several "makeup strategies", in which past realisation of inflation below the objective gives rise to policy actions designed to deliver inflation above the objective, have received considerable attention in recent years. A detailed and comprehensive review of the different makeup strategies currently debated is beyond the scope of this paper. But they include average inflation targeting, where policymakers seek to keep the average rate of inflation close to the target rate over some specified time period. They also include price-level targeting (PLT) or nominal income targeting (NIT), in which policymakers try to stabilise the price level or nominal income around a constant growth path.

Some other makeup strategies seek to reverse shortfalls in policy accommodation at the ELB by keeping the policy rate lower for longer (LFL) than otherwise would be the case. LFL strategies can be formulated in terms of inflation and employment thresholds, in terms of the cumulative shortfall of conventional policy accommodation associated with the ELB, or as a temporary PLT or temporary NIT. One advantage of some LFL strategies is that they would not amount to a significant change in the ECB's reaction function in normal times. They need not change the targeted level of inflation over the long run and would not require that the effects of supply shocks that temporarily drive up inflation be reversed.

The effectiveness of these approaches, however, relies heavily on the forward-looking behaviour of private agents. Simulations of the Fed's workhorse econometric model of the US economy also suggest that to deliver more than modest gains compared to the current framework, these strategies demand that interest rates be kept low for a very long time, raising credibility questions about future policymakers' commitment to follow through with the strategy (Reifschneider and Wilcox 2019a).

5. REVIEW PRIORITY 2: EXPANDING THE SET OF INSTRUMENTS

5.1. Background

The credibility of the ECB does not rely solely on perceptions of its commitment towards delivering its inflation aim, but also on perceptions of its capability to attain that aim. At the current juncture, both short-term and longer-term safe interest rates are constrained by the ELB. At the time of this writing (19 November 2019), German government bonds have negative yields across the maturity spectrum, including -0.38 percent on 10-year bonds. 10-year yield bonds are also negative in the Netherlands (-0.20 percent) and France (-0.03). In Spain, Italy, and Greece, they respectively stand at 0.42, 1.23 and 1.4 percent.

Gagnon and Collins (2019b) estimate that reducing all members' bond yields to the level of Germany would lower the weighted average bond yield in the euro area by 0.4 percentage points. At most, they estimate that this would provide stimulus equivalent to a policy rate cut of less than 1 percentage point. It is not clear if even this modest degree of policy ease is feasible. First, because the ECB currently purchases government bonds in proportion to its capital key. Second, because it also limits its purchases to 33 percent of any individual bond and 25 percent of any bond with a collective action clause to avoid having the ability to veto a debt restructuring. Failure to block a restructuring could be viewed as monetary financing.

In his 24 October press conference, President Draghi emphasized that these constraints are self-imposed.[24] They could be modified or even entirely lifted.[25] Even under an optimistic view of the ECB's ability to reduce spreads in bond yields in peripheral countries, the effective stimulus available through that route is far less than would be required to combat a new recession (Gagnon and Collins 2019b; Pisani-Ferry 2019). The current framework is not likely to keep inflation near target when the next downturn occurs.

5.2. Recommendation

The review should discuss the extent to which use of its current tools could be extended without facing legal constraints. It should also describe which additional tools could be introduced for the ECB to achieve its objective.

Having a credible contingency plan and describing how the current set of tools could be used to provide further stimulus would correspond to what the BoC did in its 2016 review. Another precedent is the speech given by ECB President Draghi in April 2014 when possible additional tools to counteract downside inflation risks were discussed. As argued in his 2019 Sintra speech, this contingency planning "established unambiguously that [the ECB] had no taboos about resorting to unconventional measures." The minutes of the 29-30 October Federal Open Market Committee meeting reveal that "several participants suggested that communicating to the public clearly and convincingly in advance about how the Committee intended to provide accommodation at the ELB would enhance public confidence and support the effectiveness of whichever tool the Committee selected."[26]

The current set of instruments works by lowering interest rates on government debt. The ECB could also consider purchasing risky assets to decrease the risk premium. Given the small size of the low-rated corporate bond market in Europe, the ECB would have to operate in the corporate equity market, the

---

24 https://www.ecb.europa.eu/press/pressconf/2019/html/ecb.is191024~78a5550bc1.en.html.

25 Whelan (2019) believes that the issuer limit could be raised to just below 50 percent, based on the OMT ruling by the European Court of Justice that the ECB would be treated the same as other creditors in case of a restructuring.

26 https://www.federalreserve.gov/monetarypolicy/fomcminutes20191030.htm.

real estate investment trust market, or establish a program for subsidised mortgage lending. There is no upper bound on equity and real-estate prices and thus no apparent limit to how much stimulus could be applied in that manner.

Other measures that go beyond the interest rate channel like outright transfers to the general public – or what is often referred to as helicopter money (HM) – could also be considered. In March 2016, ECB President Draghi called it "an interesting concept" and ECB Board Member Peter Praet noted that "central banks can do it." According to Praet, "the question is, if and when it is opportune to make recourse to that sort of instrument which is really an extreme sort of instrument."[27] Many observers, including former central bankers like Stanley Fischer, have recommended that direct transfers be explored for future use, for example through a "standing emergency fiscal facility" (Bartsch et al. 2019).

Some observers, like Blanchard and Pisani-Ferry (2019), caution against the use of HM in the euro area because of questions about how the transfers would be distributed across countries and across people. As argued by *The Economist*, one simple option would be a uniform handout in which every legal euro area resident would receive an equal share of newly created money.[28] In light of concerns that the APP has benefited wealthy households disproportionately, HM might be viewed as a distinct improvement over the APP (Muellbauer 2014).

The question of how to do the transfers is, however, more daunting. As agued by both Blanchard and Pisani-Ferry (2019) and Whelan (2019), the ECB does not have a register of everyone living in the euro area. It thus does not have (for now) the capacity to deliver transfers to the public directly.

One option would be for the ECB to use the names and addresses from electoral rolls. This would, however, exclude unregistered voters as recipient. Another option would be to identify all households who pay payroll taxes, income taxes and/or receive transfers. But this would require close cooperation with fiscal authorities. A third option would be to distribute the transfers through banks. Under this mechanism, citizens would apply to banks for their transfers, banks would review the customer documents and pass the information on to ECB, which would credit each approved citizen's account. This would require that banks open account for those citizens without bank accounts who are applying for the transfer, that banks be compensated for the administrative cost associated with the measure, and that they provide the ECB with sufficient information to prevent citizens from claiming their transfer more than once.

To prevent abuse and ensure a commitment to not overdo it, Gagnon (2019) proposes that transfers only be made only when interest rates are constrained by the ELB, when employment and inflation are falling short of their objectives, and according to a formula set in advance by elected representatives. Bartsch et al. (2019) suggests similar safeguards that would limit the use of this policy instrument to unusual situations. In the US context, Gagnon (2019) proposes that transfers be contingent on the approval of the Secretary of the Treasury. In the absence of a central fiscal authority, this last condition would not translate well to the European context. Yet it is that same difficulty of implementing a common fiscal policy response which reinforces the case for strengthening the monetary policy framework as a matter of prudent planning and makes having that power lodged at the ECB attractive.

One should also note that when central banks have already set interest rates below zero across the curve, HM improves the fiscal balance directly (or at worst does not harm it if the additional bank reserves are paid 0 interest, but probably some of the increase should be in reserves at negative interest

---

[27] See https://www.ecb.europa.eu/press/pressconf/2016/html/is160310.en.html and https://www.ecb.europa.eu/press/inter/date/2016/html/sp160318.en.html.

[28] https://www.economist.com/special-report/2019/10/10/how-to-make-economic-policy-fit-for-a-world-of-low-inflation.

rate or even in ECB marketable bills at negative rate). When higher tax revenues from higher GDP are factored in, the improvement in fiscal balances associated with HM is overwhelming.

Altogether, these obstacles most likely make HM today difficult. But improving clarity about the ECB's toolkit in case of a recession in a low neutral rate environment is a necessary step forward. While controversial, HM should be among the tools explored to provide observers with clarity regarding whether and how quickly the difficulties described above can be overcome.

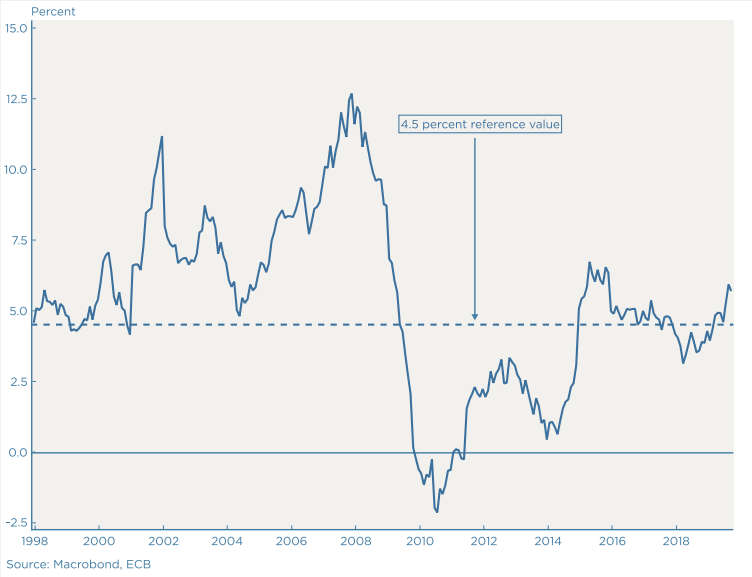
Box 4: The Two-Pillar Strategy and Monetary Aggregates

Already in the initial formulation of its strategy in October 1998, the ECB singled out money from the set of selected key indicators that it monitors (Trichet 2003). A prominent role for money with a reference value for the growth of a monetary aggregate would ensure that "the central bank … does not lose sight of the fact that over a sufficiently extended horizon the rate of growth of money must be consistent with the price stability objective" (ECB 2003a). In the so-called two pillar strategy, the "broadly-based assessment of the outlook for price developments" (first pillar) would be complemented by "the analysis of monetary growth in relation to [a] reference value" (second pillar), with the understanding that deviations from "the reference value would, in normal circumstances, signal risks to price stability" (ECB 1998a).

In December 1998, it was agreed that the monetary aggregate M3 would be used and that the reference value would be set at 4.5 percent. Underlying this choice was the view that the trend growth rate of real GDP was in the range of 2 percent to 2.5 percent per year, that the medium-trend in velocity is a decline between 0.5 percent and 1 percent per year, and the that inflation is in the long run a monetary phenomenon. Accordingly, since $\Delta M + \Delta V = \Delta P + \Delta Y$, a reference value of 4.5 percent would be consistent with the definition of price stability of "below 2 percent."

The May 2003 strategy review downgraded the importance of the monetary pillar (ECB 2003a) by codifying that the analysis under the economic pillar would come first in the introductory statement of the President and that the analysis under the monetary pillar "mainly serves as a means of cross-checking … [the] economic analysis."

Figure 4: M3 Reference Value and Growth Rate



In 2000, the Federal Reserve chose to discontinue setting targets for broad monetary aggregates (Bernanke 2006) in view of the instability of money demand and their poor leading properties with respect to price developments. Figure 4 illustrates that the European experience with monetary aggregates has not been better than in the US. Growth well in excess of the reference value of 4.5 percent in the 2000s was not, for example, associated with large price increases. We recommend that the ECB follows other central banks that have long since downplayed monetary aggregates in their monetary policy deliberations.

REFERENCES

- Andrade, Philippe, Jordi Galí, Hervé Le Bihan and Julien Matheron. 2019. The Optimal Inflation Target and the Natural Rate of Interest. Brookings Papers on Economic Activity. Fall.
- Aiyar, Shekhar S. and Voigts, Simon. 2019. The Negative Mean Output Gap. IMF Working Paper No. 19/183. August.
- Bartsch, Elga, Boivin, Jean, Fischer Stanley and Philipp Hildebrand. 2019. Dealing with the Next Downturn: From Unconventional Monetary Policy to Unprecedented Policy Coordination. BlackRock Investment Institute. August.
- Bernanke, Ben. 2006. Monetary Aggregates and Monetary Policy at the Federal Reserve: A Historical Perspective. Speech given at the Fourth ECB Central Banking Conference, Frankfurt, Germany. November 10, 2006.
- Blanchard, Olivier and Jean Pisani-Ferry. 2019. The Euro Area is Not (Yet) Ready for Helicopter Money. RealTime Economic Issues Watch. November 20.
- Brooks, Robin and Greg Basile. 2019. Campaign Against Nonsense Output Gaps. Global Macro Views. Institute of International Finance. May 23.
- Clarida, Richard H. 2019. The Federal Reserve's Review of Its Monetary Policy Strategy, Tools, and Communication Practices. Speech given at the Fed Listens event "A Hot Economy: Sustainability and Trade-Offs." Federal Reserve Bank of San Francisco. September 26.
- Cohen-Setton, Jérémie and Natacha Valla. 2010. Unnoticed Potential Output Revisions and Their Impact on the "Stimulus/Austerity Debate." VoxEU. 17 August.
- Draghi, Mario. 2019. Twenty Years of the ECB's monetary policy. Speech given at the ECB Forum on Central Banking in Sintra, Portugal. 18 June.
- European Central Bank. 1998a. A Stability-Oriented Monetary Policy Strategy for the ESCB. Press release. 13 October.
- European Central Bank. 1998b. The Quantitative Reference Value for Monetary Growth. Press release. 1 December.
- European Central Bank. 2003a. The ECB's Monetary Policy Strategy. Press release. 8 May.
- European Central Bank. 2003b. Background Studies for the ECB's Evaluation of its Monetary Policy Strategy.
- Fuhrer, Jeff, Giovanni P. Olivei, Eric S. Rosengren, and Geoffrey M.B. Tootell. 2018. Should the Federal Reserve Regularly Evaluate Its Monetary Policy Framework? Brookings Papers on Economic Activity, Economic Studies Program, The Brookings Institution, vol. 49(2 (Fall)), pages 443-517.
- Gagnon, Joseph E. 2019. What Have We Learned about Central Bank Balance Sheets and Monetary Policy. Cato Journal, Vol. 39, No. 2.
- Gagnon, Joseph E. and Christopher G. Collins. 2019a. Low Inflation Bends the Phillips Curve. PIIE Working Paper 19-6. April.
- Gagnon Joseph E. and Christopher G. Collins. 2019b. How Much Ammunition Do Major Central Banks Have? PIIE Policy Brief 19-18. November.

- Holston, Kathryn, Thomas Laubach, and John C. Williams. 2017. Measuring the Natural Rate of Interest: International Trends and Determinants. Journal of International Economics. Vol. 108, Supplement 1.
- Muellbauer, John. 2014. Combatting Eurozone Deflation: QE for the People. VoxEU. 23 December.
- Pisani-Ferry, Jean. 2019. The Euro Area Has Run Out of Pure Monetary Policy Options to Avert a Recession. PIIE RealTime Economic Issues Watch. 7 November.
- Reifschneider, David and David Wilcox. 2019a. Average Inflation Targeting Would Be a Weak Tool for the Fed to Deal with Recession and Chronic Low Inflation. PIIE WP 19-16. November
- Trichet, Jean-Claude. 2003. The ECB's Monetary Policy Strategy After the Evaluation and Clarification of May 2003. Speech delivered at the Center for Financial Studies. Frankfurt am Main. 20 November.
- Whelan, Karl. 2019. Draghi's Term as ECB President and the Challenges Ahead. Briefing paper for European Parliament Committee on Economic and Monetary Affairs. September.
- Wilkins, Caroline A. 2018. Choosing the Best Monetary Framework for Canada. Speech delivered at McGill University Max Bell School of Public Policy.

Recommendations for the ECB's Monetary Policy Strategy Review

Author: Karl WHELAN (University College Dublin)

Abstract

A review into monetary policy strategy, tools, and communications is underway at the Federal Reserve. The ECB's new President has signalled support for a review of this sort for the Eurosystem. This paper considers five areas where a review of ECB monetary policy strategy could focus and makes recommendations in relation to each area. The five areas are price stability, the monetary pillar, liquidity provision, balance sheet risk and communications. Most importantly, it is recommended that the ECB adopt a 2 percent average inflation rate as its definition of price stability and remove the monetary pillar from its official monetary policy strategy.

This document was provided by Policy Department A at the request of the Committee on Economic and Monetary Affairs.

CONTENTS

EXECUTIVE SUMMARY

- A review into monetary policy strategy, tools, and communications is underway at the Federal Reserve. The ECB's new President has signalled support for a review of this sort for the Eurosystem.
- This paper considers five areas where a review of ECB monetary policy strategy could focus and makes recommendations in relation to each area. The five areas are price stability, the monetary pillar, liquidity provision, balance sheet risk and communications.
- The paper recommends that the ECB adopt a 2 percent average inflation rate over a relatively long period as its inflation target.
- The ECB should also consider clarifying its approach to the swings in volatile components of the consumer price indices, such as food and energy.
- The ECB should remove the monetary pillar from its official monetary policy strategy. There is no good statistical evidence that measures of the money supply are useful in forecasting inflation and the focus on monetary analysis and "cross checking" waste valuable time in Governing Council press conferences on unimportant issues.
- The ECB should announce that it will permanently adopt the fixed rate full allotment approach to the provision of liquidity to banks.
- The provision of Emergency Liquidity Assistance (ELA) should also be reformed with assistance being instigated and decided on solely at Governing Council level and profits and losses from these operations being shared across the Eurosystem.
- A review of monetary policy strategy should clarify the ECB's policy on how much risk it is willing to take on its balance sheet. If it is not willing to raise its current self-imposed issuer limits for sovereign bond purchases, the ECB will need to consider whether it wishes to prioritise the Asset Purchase Programme or maintaining sufficient room for an effective Outright Monetary Transactions (OMT) tool.
- ECB should consider adopting the FOMC's approach to forecasting future economic data and policy. Specifically, they should consider having each Governing Council member provide forecasts for inflation, output and the ECB's policy rates for the next few years and also for the longer run.
- The ECB should devote more effort to communicating the broadness of its mandate. The ECB is required by the EU Treaties to support high levels of employment and other policy goals such as a high-quality environment, provided actions it takes in support of these goals do not endanger price stability. In the current environment, with inflation falling short of the ECB's target levels, there is room for new and innovative ECB policies to support the EU's policy goals.

1. INTRODUCTION

The past decade has been an extraordinary one for central banking around the world. Central banks have introduced a wide range of ground-breaking monetary policy tools while also becoming more involved in the oversight of financial stability issues. However, despite these unprecedented efforts to provide monetary stimulus, central banks around the world are struggling to meet their inflation targets, raising questions about the effectiveness of these new tools. This is particularly true for the ECB, which has consistently failed to meet its own inflation target of "close to but below 2 percent."

With the global financial crisis receding but questions remaining about the measures brought in since 2008, it is a good time to review the evidence of the last decade and consider whether the lessons learned can help revise monetary policy strategy. A review into monetary policy strategy, tools, and communications is underway at the Federal Reserve and a similar review is taking place at the Bank of Canada. The new President of the ECB, Christine Lagarde, and the ECB's chief economist, Philip Lane, have both signalled their support for a review of the ECB's monetary policy strategy. It seems likely then that such a review, which would be the first formal review of monetary policy strategy since 2003, will take place at some point over the next year.

This paper considers five areas where a review of ECB monetary policy strategy could focus and makes recommendations in relation to each area. The five areas are as follows.

First, price stability. The ECB should adopt a clear and symmetric definition of its price stability goal. I recommend the ECB define price stability as inflation of around 2 percent "on average" over a specific, relatively long, period. The ECB should also consider formalising its policy in relation to fluctuations in inflation caused by volatile and perhaps temporary movements in food and energy prices. The Federal Reserve focuses closely on the index for personal consumption expenditures excluding food and energy and refers to this measure in its Federal Open Market Committee (FOMC) statements. The ECB's attitude to the volatile components of consumer price indices is less clear.

Second, the ECB should re-examine its "two pillar" analysis of macroeconomic developments. I recommend adapting this element of the strategy to be a simple statement that it will review all available indicators, without giving any special mention to measures of the money supply. The President's statement after Governing Council meetings should also remove references to "monetary analysis" and "cross checking" unless there is something of genuine economic importance to relate about the recent movements in the money supply.

Third, the ECB should clarify some key aspects of its operational strategy in relation to supplying liquidity to the banking sector. It should announce the permanent adoption of its fixed price full allotment approach to the provision of liquidity. It should also "regularise" the provision of Emergency Liquidity Assistance (ELA) by moving to decisions about emergency liquidity being taken by the ECB Governing Council and profits or losses from these operations being shared across the Eurosystem.

Fourth, the ECB should clarify its policies in relation to the extent of financial risk it is willing to take via unconventional monetary policies such as its Asset Purchase Programme (APP) and the influence of this decision on its Outright Monetary Transactions (OMT) programme.

Fifth, the ECB can improve its communications strategy. The ECB Governing Council should give clearer indications of what they view as the "equilibrium real interest rate" for the euro area and consideration should be given to copying the FOMC by having members provide a set of macroeconomic forecasts for inflation and other variables including the ECB's key policy rate (currently the interest rate paid to banks for deposits with the Eurosystem). The ECB should also provide more clarifications that its

primary goal of price stability does not and should not prevent it from providing support for a wide range of European economic policy initiatives.

The paper devotes a section to each of these five areas and concludes with some broader thoughts about the ECB's legal mandate.

2. PRICE STABILITY

In this section, I discuss how the ECB should consider revising its approach to price stability.

2.1. Defining Price Stability

The European Treaties give the ECB and national central banks a primary goal of price stability but do not define what is meant by the phrase "price stability". At the time of the launching of the euro in 1999, the ECB Governing Council defined price stability as inflation within a range of zero to 2 percent over the medium term. A review of the monetary policy strategy in 2003 saw this definition refined to clarify that the ECB would aim for an inflation rate of close to but below 2 percent.

This definition of price stability is likely to be a key item for discussion in any forthcoming review of monetary policy strategy. I recommend two changes be made.

First, the ECB should adopt a clear inflation target, i.e. have an actual number for its inflation target. "Close to but below two" is not a number. Given that price stability is the ECB's key goal, it does not make sense to be imprecise about how exactly it interprets this goal. The key point here is to decide on a specific number, rather than what the number is. One option is to stick with the spirit of the current definition and announce an inflation target of say, 1.85 percent, thus revealing exactly what "close to but below" finally means. However, for the purposes of explaining policy to the public, a figure like this would be unhelpful. A better approach would be for the ECB adopt a 2 percent inflation target.

One caveat to recommending a 2 percent inflation target is that there are arguments in favour of considering a higher rate. There are no results from academic economics suggesting 2 percent is somehow an "optimal" inflation rate – its emergence as a consensus among modern central banks seems to be a form of social convention rather than an evidence-based development. However, we have seen that central banks that pursue a 2 percent target tend to end up with policy rates at zero and pursuing unconventional policies once their economy goes into recession. A predictable price level that grows at an approximately steady 4 percent rate could possibly be considered a form of price stability while allowing the ECB to have more room for manoeuvre during recessions. However, this is perhaps stretching the interpretation of "price stability" a bit far for most members of the Governing Council and the debate is likely to focus mainly on whether or not to adopt a clear 2 percent target.

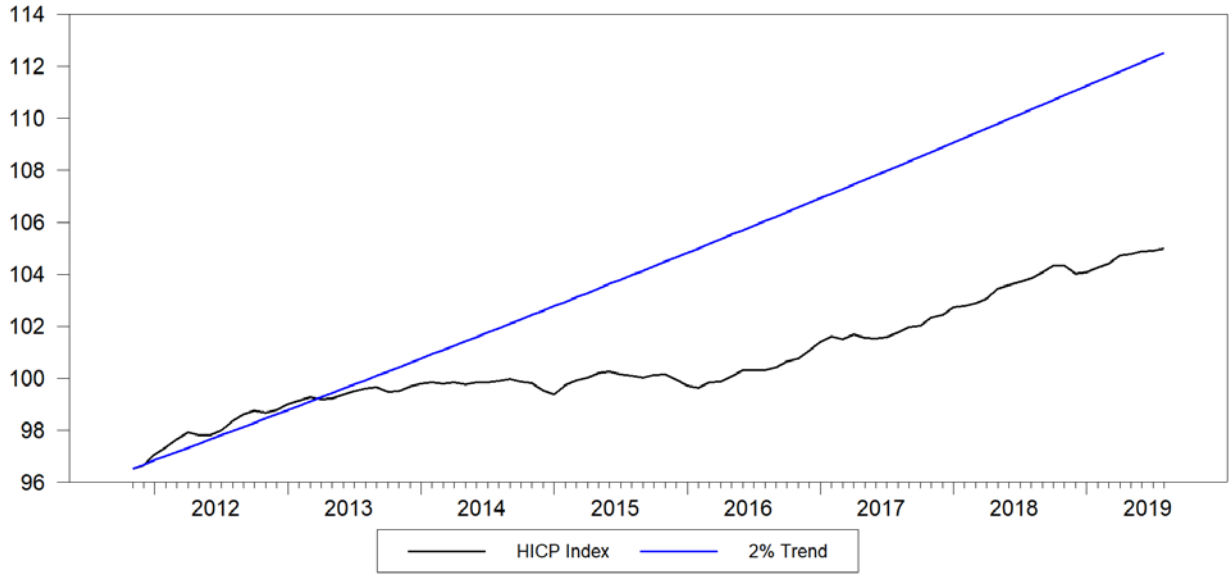
Second, the ECB should end the debates about the question of its "symmetry" relative to an inflation target by providing a definitive position. Mario Draghi's Sintra speech earlier this year argued that the ECB has "clarified" that it treats its inflation goal in a symmetric manner, commenting that "*our medium-term orientation implies that inflation can deviate from our aim in both directions, so long as the path of inflation converges back towards that focal point over the medium-term policy horizon*." Unfortunately, the credibility of this position has been undermined by the fact that other members of the Governing Council disagree with him. Bundesbank President, Jens Weidmann, has recently said "*Regarding our definition of price stability, the current formulation of the target is not symmetric in my view*".[29] It has also been undermined by the ECB's consistent inability in recent years to get inflation close to 2 percent.

The reason there is room for disagreement and confusion here is that the ECB's own definition of price stability is insufficiently clear on this question. I recommend the Governing Council adopt the proposal of Grégory Claeys, Maria Demertzis and Jan Mazza (2018) to define its price stability goal as being an inflation rate of 2 percent "on average" over a long period, perhaps corresponding to a full business cycle. With such a definition in place, it would be clear (for instance from the calculations shown below

[29] See https://uk.reuters.com/article/uk-germany-ecb-economy/ecbs-weidmann-sees-no-need-for-economic-stimulus-newspaper-idUKKCN1VE0FF.

in Figure 1) that inflation could be above 2 percent for a number of years in the future without the ECB failing to meet its price stability goal. As Figure 1 shows, dating back to November 2011 (the beginning of Mario Draghi's term as President) the HICP is a cumulative 7 percent short of the value it would have taken if it had grown at a steady two percent rate.

Figure 1: The HICP Index Relative to a 2% Trend Since November 2011



Source: Author's calculations based on data from ECB Statistical Data Warehouse.

2.2. Approach to Volatile Prices

A lower priority issue that may still be worth addressing in a review of monetary policy strategy is the ECB's attitude to temporary fluctuations in volatile prices. To give an example of practice elsewhere, while the Federal Reserve is clear that its 2 percent inflation target refers to the prices for all consumer expenditure items, its communications regularly refer to inflation for items other than food and energy, i.e. core inflation. As can be seen from Figure 2, a significant amount of the short-term volatility of euro area price inflation stems from fluctuations in food and energy prices. These tend to be driven by short-term price level movements, so periods in which food and energy prices trigger inflation above 2 percent tend to be followed by periods when the cause inflation to be below 2 percent.

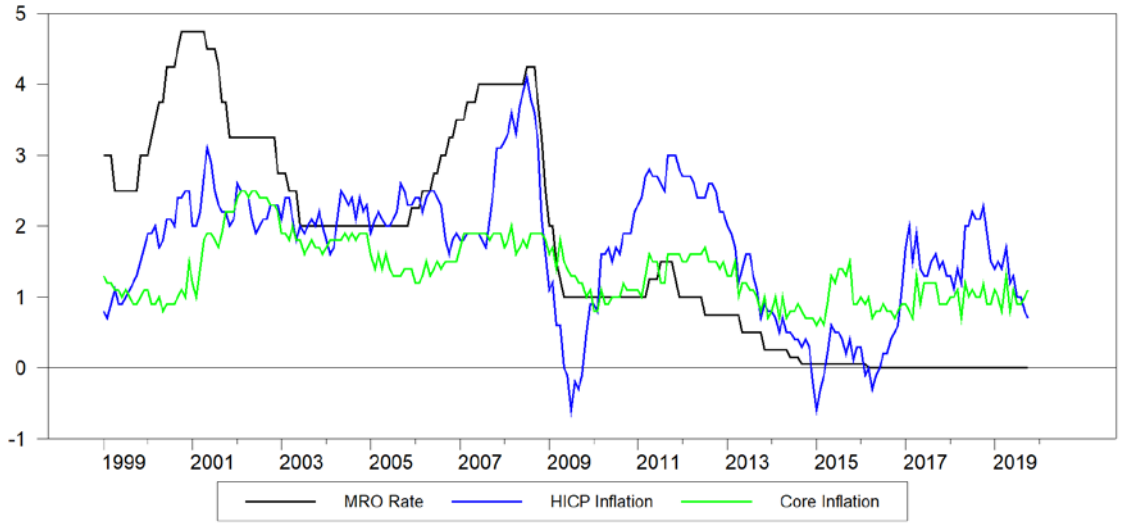
The ECB does not use the phrase "core inflation" but its communications regularly refer to "underlying inflation" and ECB staff have done a lot of work in trying to identify useful measures corresponding to this concept.[30] One idea to consider is for the ECB to adopt an explicit shorter-term target such as HICP excluding food and energy or HICP excluding unprocessed food and energy and announce a 2 percent medium-term goal for this measure as part of its overall strategy of keeping overall inflation near its target over the longer term.

One advantage of a medium-term focus on core inflation would be to avoid having the ECB over-react to short-term fluctuations in volatile prices. There have been decisions made by ECB in the past that now look like over-reactions to temporary movements in food and energy prices. To give a specific example, in July 2008, right on the eve of the explosion of the global financial crisis, the ECB raised its

[30] See, for example, Ehrmann, Ferrucci, Lenza and O'Brien (2018).

Main Refinancing Operation (MRO) policy rate by 25 basis points to 4.25 percent explicitly because of higher food and energy prices. President Trichet acknowledged that these price increases had not translated into higher core inflation but that the Governing Council decision "*was taken to prevent broadly based second-round effects and to counteract the increasing upside risks to price stability over the medium term*." Even without the benefit of hindsight, this seems to have been a questionable decision and a more explicit shorter-term focus on core inflation trends could help avoid such mistakes in the future.

Figure 2: The ECB Main Refinancing Operation (MRO) Rate (Black), HICP Inflation (Blue) and HICP Inflation Excluding Food and Energy (Green).



Source: Author's calculations based on data from ECB Statistical Data Warehouse.

3. THE MONETARY PILLAR

The next aspect of the ECB's monetary policy that should be considered for review is its "monetary pillar."

The original monetary policy strategy adopted by the ECB was announced in the ECB's monthly bulletin as follows:

> "*The strategy consists of three main elements: (i) a quantitative definition of the primary objective of the single monetary policy, namely price stability; and the "two pillars" of the strategy used to achieve this objective: (ii) a prominent role for money, as signaled by the announcement of a reference value for the growth of a broad monetary aggregate; and (iii) a broadly based assessment of the outlook for future price developments and the risks to price stability in the euro area as a whole …. To signal the prominent role it has assigned to money, the Governing Council has announced a quantitative reference value for monetary growth as one pillar of the overall stability oriented strategy*."

The reference value for M3 was set at a 4.5% annual rate and this figure was used to calculate a "monetary overhang". This measured the cumulative difference between actual M3 growth and the reference value, with higher numbers supposedly representing risks for medium term inflation. The reference value figure was to be reviewed an annual basis.

This "prominent role for money" appeared to reflect the strong influence of the Deutsche Bundesbank in the original design of the ECB's strategy. The pre-EMU Bundesbank had placed a strong emphasis on the role of the money supply in its communications about monetary policy, though opinions differ about how important money supply statistics really were when it came to setting policy. A fair assessment appears to be that the Bundesbank was not a strict monetary targeter but did consider money supply growth when setting policy as well as other variables like inflation and conditions in the real economy.[31]

However, by 1999, the Bundesbank's focus on money growth as a useful indicator of inflation already ran counter to the practice elsewhere. Other central banks such as the Federal Reserve had tried monetary targeting in the late 1970s and early 1980s, inspired by Milton Friedman's monetarist policy recommendations, but had given up on monetary targeting during the 1980s and measures of the money supply barely featured in their formulation of monetary policy by 1999.

The early years of the ECB did nothing to suggest that the prominent role for money was a useful part of the monetary policy strategy. Money growth steadily exceeded price inflation and a surge in money growth during 2001 was not matched by any contemporaneous or subsequent increase in inflation. (See Figure 3). The "monetary overhang" indicator was growing by the month and yet the inflation stubbornly refused to conform to the ECB's model's predictions. As former ECB vice-president Vitor Constâncio said in a 2018 speech: "*The continuous need to try to explain away the growing monetary overhang without corresponding inflation in the horizon, was turning into an embarrassing exercise*."

The failure of the prominent role for money appears to have been a principal motivation for the 2003 monetary policy review. This review provided a new format for the analysis underlying Governing Council monetary policy decisions. The annual review of the reference value was dropped and this value has not been mentioned or used in monetary policy making since 2003. Monetary analysis was clearly relegated in the presentation of monetary policy decisions, with the review indicating that it

[31] See Geberding, Seitz and Worms (2005).

would "*mainly serve as a means of cross-checking, from a medium- to long-term perspective, the indications coming from the economic analysis*."

Formally, the ECB still has a "monetary pillar" but the evidence in the years since 2003 has not improved the case for its existence. As Figure 3 shows, money growth has outstripped inflation in almost every year of the ECB's existence, often by a large amount, and there is no statistical evidence that it works as a useful leading indicator of inflation. The figure does show some co-movement, particularly with the decline in money growth during the global financial crisis happening at the same time as a decline in inflation. However, this likely reflects a common third cause rather than any causation from money to inflation. Money growth is generated by the expansion of credit by the banking sector and this declined during the recession just as a weaker economy also reduces price inflation.

The attitude of leading researchers on central banking to the use of money growth as a key indicator has also hardened in the time since the ECB's last review. Paul de Grauwe (2007) advised "*It is time for the ECB to stop worrying about a variable that has played no useful role in the past and is unlikely to do so in the future*." Michael Woodford (2008) conducted a wide-ranging analysis of the potential role for monetary aggregates when setting policy. His conclusions began as follows:

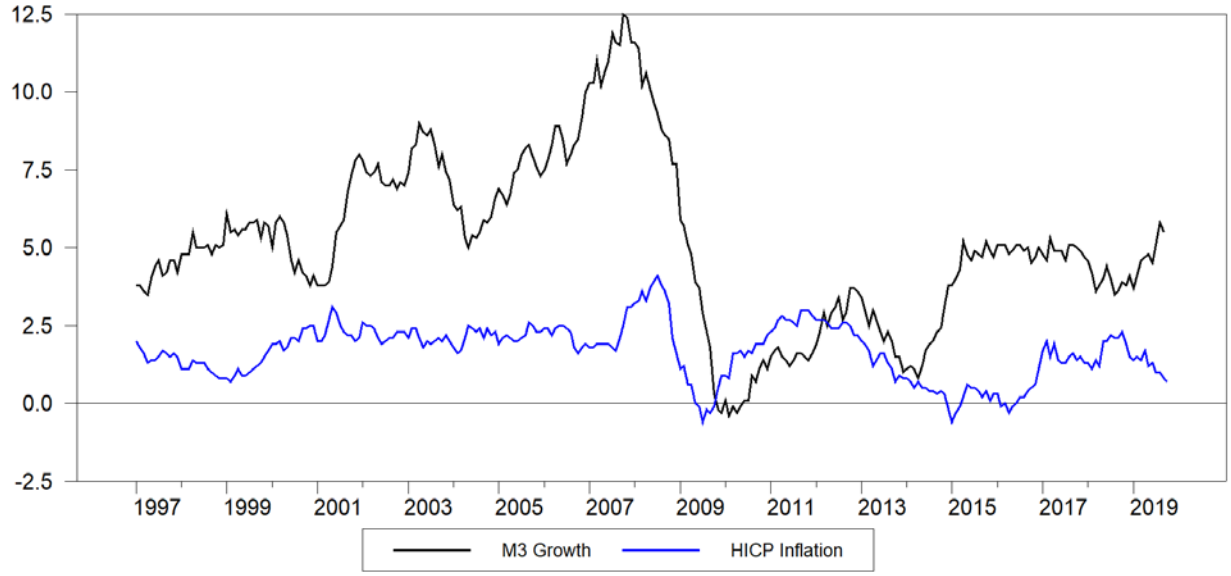
> *"I have examined a number of leading arguments for assigning an important role to tracking the growth of monetary aggregates when making decisions about monetary policy. I find that none of them provides a convincing argument for adopting a money growth target, or even for assigning money the "prominent role" that the ECB does, at least in its official rhetoric."*

Consistent with these beliefs, the Federal Reserve decided in 2006 to stop measuring M3, the ECB's preferred measure of the money stock.

In light of the evidence, the time has come for the ECB to officially drop the reference value for money growth and also to reduce the prominence given to monetary analysis in its post-meeting press conferences. It is clear that monetary analysis has played relatively little role in decision making in recent years and the ritualistic invocation of the "monetary analysis" and then "the cross-checking" doesn't add anything and reduces the effectiveness of the ECB Presidents communication of policy decisions.

In making this recommendation, I am not arguing that the ECB should give up measuring or analysing money supply statistics. And there is no doubt that central banks need to pay close attention to developments relating to the supply of credit. But money supply indicators should be given no special place of prominence than other potential indicators of inflation. If the behaviour of these indicators is of note and plays a role in the thinking of the Governing Council in taking its decisions, then they should certainly discuss this. But pretending an indicator plays a key role in your analysis when in fact it is relatively unimportant represents a poor communication strategy and undermines the ECB's credibility.

Figure 3: M3 Growth (Black) and HICP Inflation (Blue).



Source: Author's calculations based on data from ECB Statistical Data Warehouse.

4. CHANGES TO LIQUIDITY PROVISION

Here, I discuss how a review of the ECB's monetary policy strategy can address two aspects of its provision of liquidity to the financial system.

4.1. Provision of Liquidity to the Banking Sector

The global financial crisis of 2008 saw an important change to the way the ECB provided liquidity to the banking sector. Prior to Autumn 2008, the ECB's procedures had focused on the provision of fixed amounts of liquidity each week in its Main Refinancing Operation. This liquidity was auctioned off via a process in which the ECB would announce a minimum acceptable interest rate and the funds were provided to those banks that tendered the highest bids for the interest rate to be paid.

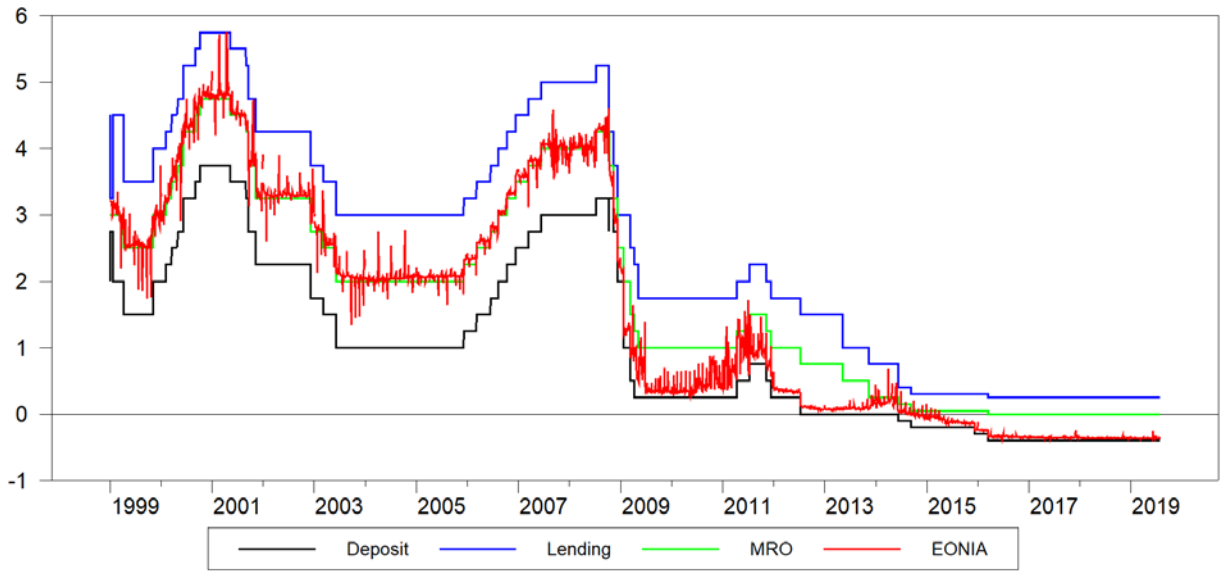
This approach may have been motivated by the belief that the ECB should maintain control of the monetary base and that perhaps this could see it have some control over broader monetary aggregates such as M3. However, international experience has shown the relationship between the monetary base and the broader money supply to be an unpredictable one and this is one of many reasons central banks across the world have abandoned monetary targeting.

An alternative motivation for auctioning off fixed amounts of liquidity was the concern that the provision of too much liquidity to the banking sector would lead to money-market rates falling below the ECB's target levels. This could only ever have been a minor concern, however, given that the ECB has always been able to use its deposit rate to place a floor on market interest rates. As can be seen from Figure 4, while the ECB succeeded during the period prior to 2009 in keeping money market rates (as measured here by EONIA) close to the MRO's minimum bid rate most of the time, its lending and deposit rates functioned effectively to keep market interest rates within the "corridor" defined by these rates.

The crisis that emerged in late 2008 saw a breakdown in the functioning of global money markets and placed many banks under severe liquidity pressures. The ECB changed its policies at this time to a "fixed rate full allotment" basis, meaning banks could borrow as much as they wanted from the Eurosystem, provided they had enough eligible collateral to secure these loans. The list of collateral that can be used in Eurosystem refinancing operations has been expended considerably in the years since the crisis.

This change in procedures meant the ECB now allows the actions of the banking system to play a key role in determining the size of the monetary base. However, since the link between the monetary base and broader monetary aggregates is unpredictable and the ECB should in any case remove targeting of broad monetary aggregates from its monetary policy framework, this should not be a source of concern. The change in operational procedures has not affected the ECB's ability to control market interest rates. While the large supply of liquidity – at first through refinancing operations and later through Eurosystem asset purchases – has meant that market interest rates have fallen below the MRO rate, these rates have instead closely tracked the deposit rate, showing that ECB maintains tight control of short-term market rates.

Figure 4: EONIA and the ECB's Policy Interest Rates



Source: Author's calculations based on data from ECB Statistical Data Warehouse.

The Federal Reserve has also been debating its approach to liquidity provision over the past year, with the FOMC announcing in January that "*The Committee intends to continue to implement monetary policy in a regime in which an ample supply of reserves ensures that control over the level of the federal funds rate and other short-term interest rates is exercised primarily through the setting of the Federal Reserve's administered rates, and in which active management of the supply of reserves is not required.*"[32] Despite this announcement, US financial markets still went through a short period in September where there was a shortage of liquidity and the Fed is now reassessing the underlying demand for the liquidity in the banking system.

The ECB should announce that its future operational policy will involve continuing to provide liquidity via fixed rate full allotment procedures. Its fixed-rate full allotment procedures and broad collateral framework are well designed to avoid the kind of financial market disruptions that occurred in US markets in September and it should announce, no later than the end of a monetary policy strategy review that it intends to permanently retain its current operational framework.

4.2. Emergency Liquidity Assistance

While the ECB's move towards a more expansive approach to liquidity provision in its refinancing operations has been positive, its approach to providing liquidity to banks that have run out of eligible collateral, i.e. emergency liquidity assistance (ELA), has been fraught with problems. As I have written about on several occasions (Whelan, 2014, 2015, 2016) there have been a number of controversies associated with how ELA programmes have been operated. There have been examples of lending to severely insolvent banks, a lack of clarity surrounding the terms under which the Eurosystem caps or withdraws ELA and a series of decisions made where the granting or curbing of ELA appeared to be directly related to political developments in various countries. I will not repeat these examples here but will note merely that the uncertainty surrounding the ECB's performance of its role as lender of last

[32] https://www.federalreserve.gov/newsevents/pressreleases/monetary20190130c.htm

resort to the banking system has tended to worsen banking crises and that the politicisation of this role has damaged the reputation of the ECB as an institution in a number of Member States.

A small amount of progress has been made in recent years in clarifying the procedures surrounding ELA. The ECB first published a short document describing these procedures in 2013 and updated it in 2017.[33] These documents are clear that ELA should not be provided to insolvent banks and with the Single Resolution Board in place, there is no reason why the ECB should provide liquidity in this situation. So hopefully, some of the more serious errors in this area – such as the credit provided to Laiki Bank and Anglo Irish Bank – will not be repeated.

That said, the guidelines for providing ELA to banks remain *ad hoc* and rely on a complex set of arrangements in which ELA is granted by the national country central banks but ELA programmes then need to be continually renewed by the ECB Governing Council with a two-thirds majority required to stop a programme. Given the importance of a well-functioning lender of last resort function to any banking system, I recommend the ECB adopt a new policy structure in this area. Since ECB is now the supervisor for all of euro area banks and the importance of "legacy issues" has begun to recede, there is also a stronger moral argument than in the past that decisions about emergency liquidity should be taken at a central level and profits or losses from these operations should be shared. The ECB should also announce procedures for providing a dedicated lending facility for financial institutions undergoing (or recovering from) a resolution process.

4.3. Helicopter Money?

A broad ranging review of the ECB's monetary policy strategy should be willing to address some of the more "left field" options that are being discussed in public debates. In relation to the provision of liquidity, a more radical option than the current approach is to move beyond providing loans to the banking sector and to direct provision of money to the private sector. This idea is known sometimes as "helicopter drops" or "QE for the people". A number of academics and commentators have called for this as a more effective approach to monetary stimulus than asset purchase programmes and Mario Draghi commented in March 2016 that it was "an interesting concept".

While I have no objection to such an approach in theory, it seems unlikely to be practical and may well be inconsistent with the European Treaty. The practical problems become obvious as soon as you start trying to turn this idea into a plan. Who does the central bank give this "free money" to? The ECB does not have a register of everyone living in the euro area or a list of bank accounts that could be credited. It seems most likely such a programme would have to work through national governments identifying people to receive the free money but this would look a lot like a tax cut and thus could be considered pure monetary financing.

Eurosystem operating procedures would also mean that if successful, an operation of this sort could have long-run costs for the taxpayer. Like QE programmes, a programme of this sort would result in an expansion of the amount of money that commercial banks have on deposit with the Eurosystem and, under normal ECB operational policies, these deposits are compensated with interest income (as opposed to at the present situation in which banks pay money to the ECB for holding these deposits). Under these conditions, the Eurosystem would incur additional longer-term costs from this programme without obtaining additional assets to cover these costs.

These considerations mean that, at least under current Eurosystem operational procedures, the proposed "free money" programmes wouldn't turn out to be completely free and would reduce the

[33] The current ELA agreement is available at https://www.ecb.europa.eu/mopo/ela/html/index.en.html.

remittances of central bank profits to national treasuries. For this reason alone, this suggestion seems likely to contradict the monetary financing clause. It seems likely that this is also the position of the ECB Governing Council. Given the relatively widespread popular discussion of this kind of option, it would be useful for the ECB to articulate exactly why it objects to this idea.

5. BALANCE SHEET RISKS

An important issue that has arisen for the ECB Governing Council that required little consideration in its 2003 review is the extent to which it can take risks with its balance sheet. The Eurosystem's loans to banks are, as required by European law, secured by collateral and thus relatively low in risk. However, the Eurosystem is now exposed to more risk via the large quantity of assets that it has acquired via the Asset Purchase Programme (APP) in recent years. There is also the potential for further credit risk should the ECB activate its Outright Monetary Transactions (OMT) programme.

Limiting the level of credit risk associated with bond purchases is clearly a concern of the current ECB Governing Council. The Council set limits on how the amount of sovereign bonds it would buy from national governments and these limits – 33 percent for each issuer as well a 33 percent limit for each specific bond issued – are in some cases being reached. These limits are designed to prevent the Eurosystem from becoming a "blocking minority" if a country proposes a debt restructuring which its bondholders then vote on via a Collective Action Clause (CAC). There are concerns that failure to use a blocking minority to prevent debt restructuring could be viewed as illegal monetary financing.

In reality, the legal issues here complex. Questions about whether the ECB would accept losses on sovereign bonds have been an issue ever since the ECB purchased Greek sovereign bonds as part of its ill-fated and poorly-thought-out Securities Market Programme (SMP). When Greek bonds were being restructured, the ECB used its considerable influence to ensure that it received new "clone" bonds with the same terms as the ones it had purchased, rather than the newly issued restructured bonds.

However, when introducing the OMT programme, the ECB assured markets that "*it accepts the same (pari passu) treatment as private or other creditors with respect to bonds issued by euro area countries and purchased by the Eurosystem through Outright Monetary Transactions, in accordance with the terms of such bonds*."[34]

There were good reasons for this decision. If the ECB were to insist on a *de facto* senior creditor position, then losses for private sector bondholders would increase in any restructuring since the debt reduction would have to be spread across a smaller amount of bond holdings. In this case, the triggering of an OMT programme could make investors more concerned about holding a country's debt rather than less concerned. Mario Draghi acknowledged this in December 2014 when answering a question about future asset purchases by saying "*we don't want to cause unintended monetary policy tightening in choosing forms of seniority which would be counter-productive*."

In its OMT ruling, the European Court of Justice (ECJ) acknowledged the ECB was taking on risk in purchasing sovereign bonds but that such risks were not illegal. The judgement included the following[35]

> *"It should also be borne in mind that a central bank, such as the ECB, is obliged to take decisions which, like open market operations, inevitably expose it to a risk of losses and that Article 33 of the Protocol on the ESCB and the ECB duly provides for the way in which the losses of the ECB must be allocated, without specifically delimiting the risks which the Bank may take in order to achieve the objectives of monetary policy. Furthermore, although the lack of privileged creditor status may mean that the ECB is exposed to the risk of a debt cut decided upon by the other creditors of the Member State concerned, it must be stated that such a risk is inherent in a purchase of bonds on the secondary*

[34] https://www.ecb.europa.eu/press/pr/date/2012/html/pr120906_1.en.html.

[35] http://curia.europa.eu/juris/document/document.jsf;jsessionid=60A4861245325B97FFF1DF45DFC3F00F?text=&docid=165057&pageIndex=0&doclang=EN&mode=req&dir=&occ=first&part=1&cid=2814192.

markets, an operation which was authorised by the authors of the Treaties, without being conditional upon the ECB having privileged creditor status."

The key phrase here that suggests CACs may raise a legal issue is "*a debt cut decided upon by the other creditors."* By focusing solely on a "debt cut" imposed on the Eurosystem by other creditors, it could be interpreted that the ECJ has implicitly assumed that, once given the opportunity to vote on a potential restructuring, the ECB would be under an obligation to use a blocking minority position to prevent a debt restructuring.

I suspect there is less here than meets the eye in terms of legal restrictions on future Eurosystem purchases. For starters, the ECB could decide to focus its purchases on bonds issued prior to 2013, when CACs became standard in euro area sovereign debt contracts. It is also unclear whether CACs would actually be the mechanism employed by future governments to restructure debt.[36] For example, the Greek government restructured its debt via a unilateral act of the Greek parliament, and this may be the approach taken by future European governments when defaulting on debt. Finally, should a CAC-driven restructuring ever become a likelihood, the Eurosystem could sell enough bonds prior to the restructuring to get below the blocking minority limit. It would be likely that losses would made on these sales, so this would affect the legalities of the situation rather than the underlying economics.

One issue this debate raises is whether or not one of the ECB's programmes – the APP – is undermining another one – OMT. Mario Draghi's "whatever it takes" speech and the subsequent announcement of the OMT programme had a profound effect in convincing financial markets that euro-denominated sovereign debt in countries such as Italy were again relatively safe instruments. At present, there is no sign that the sovereign bond purchases under APP have undermined what was seen by many to be two key features of OMT: the ECB's ability to make very large purchases and its willingness to be treated equally as a creditor when making these purchases. But a decision to stick to the one-third issuer limit could signal an unwinding of the positive effects that OMT had on sovereign bond yields.

My preference would be for the ECB to adopt a more aggressive approach to asset purchases, perhaps raising the self-imposed issuer limit to a threshold of just below 50 percent, including for bonds with CACs, while signalling the ECB had no plan to agree to facilitate restructurings via CAC negotiations. Mario Draghi's comment in Sintra in June that "*the limits we establish on our tools are specific to the contingencies we face*" clearly suggests he supports raising these issuer limits. However, this is another issue that could be addressed as part of the monetary policy strategy review. If the ECB believes it needs to stick to its current policy on issuer limits, then it needs to debate the relative importance to its monetary policy strategy of the APP versus OMT. Given the important impact the OMT announcement had on sovereign bond markets, it should probably be considered the more important programme.

[36] See Gelpern and Gulati (2013) for a sceptical discussion of euro area CACs from two of the leading academic experts on sovereign debt law.

6. COMMUNICATIONS

A final set of issues relate to how the ECB communicates about monetary policy and about its broader mandate beyond price stability issues.

6.1. Monetary Policy

For most of the past decade, financial markets and central bankers assumed that low policy rates and unconventional monetary policies were a temporary phenomenon and debate focused on when there would be a return to "normal" monetary policies and how that would be communicated to the public. Increasingly, however, it seems as though we are settling into a "new normal" in which extremely low interest rates will be commonplace.

There are various explanations for this apparent change but the principal one is likely to be a reduction in the potential growth rate of modern economies and a consequent reduction in the equilibrium real interest rate.[37] This idea has been put forward most notably by Larry Summers (2014) in his various contributions related to so-called "secular stagnation" but can also be seen in technical econometric work by Federal Reserve staff such as Holston, Laubach and Williams (2017).

This phenomenon is likely to play an important role should the ECB reach a point where it wishes to raise its policy rates above zero. The ECB has had two previous "tightening cycles" and its main refinancing rate peaked during those cycles at 4.75 percent in October 2000 and at 4.25 percent in July 2008. If financial markets start to believe that a similar amount of tightening was going to happen in the next cycle, this could be reflected in a sharp rise in long-term interest rates once policy rates began to rise, perhaps sharper than the ECB would like. It will become increasingly important for the ECB to signal to the public where it thinks rates will settle down in a "normal" economic environment.

In this area, the ECB should consider following the Fed's example. There has been an intensive discussion within the Fed system of the likely future "neutral" or "equilibrium" real rate and a considerable amount of signalling to the public that this rate is lower than it was in the past. In addition to speeches, the Fed provides another useful guide to the public of where interest rates are likely to go via a set of macroeconomic forecasts that are provided by members of the FOMC.

These forecasts include the committee members' estimates of the "longer run" levels of both inflation and the federal funds rates, this providing an implicit estimate of what the members believe to be the equilibrium real rate. The longer-run forecasts of inflation of committee members have not changed much in recent years, remaining at about 2 percent. However, there has been a large decline in the implicit equilibrium real rate. In January 2012, the median estimate of the long-run federal funds rate was 4.25 percent, implying an equilibrium real rate of 2.25 percent.[38] By September 2019, however, the median estimate of the long-run federal funds rate had fallen to 2.5 percent, implying an equilibrium real rate of just 0.5 percent.[39]

The ECB does not provide forecasts from Governing Council members but does provide a set of official staff forecasts. However, the time horizon for these forecasts is one year shorter than the FOMC projections and they do not contain any "longer run" forecasts. It is unclear to what extent these forecasts are endorsed across the Governing Council and they omit any direct reference to the future path of policy rates, instead providing forecasts of three-month Euribor rates as a proxy.

---

37 See Whelan (2018) for a discussion of these issues.

38 https://www.federalreserve.gov/monetarypolicy/files/FOMC20120125SEPcompilation.pdf.

39 https://www.federalreserve.gov/monetarypolicy/fomcprojtabl20190918.htm.

A monetary policy strategy review should consider the advantages (and possible disadvantages) that would come with adopting the Fed's more transparent strategy to signalling future expectations about monetary policy. In a world where much of the power of monetary policy comes via its ability to influence longer-term rates, the gains seem to me to be higher than any potential losses.

6.2. The ECB's Broad Mandate

A final area for consideration is whether the ECB should devote more of its communications to explaining its legal mandate to the public. It is common to see commentary insisting that "the ECB is straying beyond its strict price stability mandate" or that certain actions of the ECB are "not monetary policy and thus stray beyond its mandate". However, these comments generally reflect a misunderstanding of the mandate of the ECB as outlined in the EU Treaties.

They key item setting out the ECB's mandate is Article 127 of the current Treaty on the Functioning of European Union, which is repeated in full below:

> *The primary objective of the European System of Central Banks (hereinafter referred to as 'the ESCB') shall be to maintain price stability. Without prejudice to the objective of price stability, the ESCB shall support the general economic policies in the Union with a view to contributing to the achievement of the objectives of the Union as laid down in Article 3 of the Treaty on European Union. The ESCB shall act in accordance with the principle of an open market economy with free competition, favouring an efficient allocation of resources, and in compliance with the principles set out in Article 119.*

Article 3 in turn states:

> *"The Union shall establish an internal market. It shall work for the sustainable development of Europe based on balanced economic growth and price stability, a highly competitive social market economy, aiming at full employment and social progress, and a high level of protection and improvement of the quality of the environment. It shall promote scientific and technological advance"*

This means there is a legal obligation on the ECB to act to promote full employment and other social goals such as improvements in the quality of the environment – provided the actions taken to support those goals do not endanger price stability. At a time like the present, when the ECB has repeatedly failed over the a number of years to achieve its own definition of price stability, this means not only that the current set of unconventional monetary policies are legal but that a wide range of not-yet-considered possible interventions could be consistent with the ECB's mandate.

I will give one hypothetical example. The ECB could consider loaning a large amount of funds to the European Investment Bank at the same (potentially negative) rates that it currently provides to banks under its Targeted Long-Term Refinancing Operation scheme in return for delivery of an agreed large programme of public infrastructure and green energy investments across the euro area.[40] These investments could stimulate the economy, thus helping to push inflation back towards its target rate and would also represent the ECB obeying its mandate to support the general economic policies of the Union. A review of monetary policy strategy should review the ways in it can meet its obligations to support the goals laid out in Article 3.

[40] This is feasible because the EIB is an eligible counterparty of the ECB. See https://www.ecb.europa.eu/press/pr/date/2009/html/pr090507_1.en.html.

7. CONCLUSIONS

Like most central banks, the ECB is a conservative institution and it has generally faced the challenges of the past decade in a relatively slow and reluctant fashion. A full review of its monetary policy strategy provides a good opportunity for the ECB to clarify its message to the public about its monetary policy and the breadth of its mandate, to retain and build upon the new policy tools that it has introduced and to streamline its operational procedures.

There are limits, however, to how far an ECB review of its monetary policy can go. The ECB cannot consider any changes that are incompatible with current EU law. Despite the many difficulties associated with changing the EU treaties, there is still an argument for using the experience of the past decade to debate whether the ECB's legal mandate should be adjusted.

For example, would an ECB that had a Fed-style dual mandate to minimise both inflation and unemployment have reacted faster and more efficiently to the severe slump that affected the euro area from 2008 to 2012? Now that the ECB is the supervisor of the euro area's banks, would a revised mandate that placed financial stability on an equal footing with price stability – as recommended by Eichengreen et al (2011) – be worth considering? With the expansion of the ECB's powers and policy tools, is there a need for a greater role for the European Parliament in holding the ECB to account?

The ECB monetary policy strategy review will not debate these questions but academics, policy makers, politicians and the wider public should.

REFERENCES

- Claeys, Grégory, Maria Demertzis and Jan Mazza (2018). A Monetary Policy Framework for the European Central Bank to Deal with Uncertainty , briefing paper for European Parliament Committee on Economic and Monetary Affairs, available at http://www.europarl.europa.eu/RegData/etudes/IDAN/2018/626100/IPOL_IDA(2018)626100_EN.pdf.
- Constancio, Vitor (2018). Past and future of the ECB monetary policy. Speech available at https://www.ecb.europa.eu/press/key/date/2018/html/ecb.sp180504.en.html.
- De Grauwe, Paul (2007). The eurozone is missing the point, Financial Times. Available at https://www.ft.com/content/b02005aa-2efa-11dc-b9b7-0000779fd2ac.
- Draghi, Mario (2019). Twenty Years of the ECB's monetary policy. Speech available at https://www.ecb.europa.eu/press/key/date/2019/html/ecb.sp190618~ec4cd2443b.en.html.
- Ehrmann, Michael, Gianluigi Ferrucci, Michele Lenza and Derry O'Brien (2018). Measures of underlying inflation for the euro area. *ECB Economic Bulletin*. Available at https://www.ecb.europa.eu/pub/economic-bulletin/articles/2018/html/ecb.ebart201804_03.en.html.
- Eichengreen, Barry et al. *Rethinking Central Banking.* Committee on International Economic Policy and Reform. Available at https://faculty.chicagobooth.edu/raghuram.rajan/research/papers/Rethinking%20Central%20Banking.pdf.
- Gelpern, Anna and Mitu Gulati (2013). "The Wonder-Clause," *Journal of Comparative Economics*, Vol. 41, pp. 367-385, 2013.
- Gerberding, Christina, Franz Seitz and Andreas Worms (2005). "How the Bundesbank *really* conducted monetary policy," *North American Journal of Economics and Finance*, Volume 16, 277–292.
- Kathyrn Holston, Thomas Laubach and John C. Williams (2017). "Measuring the Natural Rate of Interest: International Trends and Determinants," *Journal of International Economics,* Volume 108, supplement 1 (May): page S39–S75.
- Summers, Lawrence (2014). "U.S. Economic Prospects: Secular Stagnation, Hysteresis, and the Zero Lower Bound", *Business Economics*, Volume 49, pages 65-73. Available at http://larrysummers.com/wp-content/uploads/2014/06/NABE-speech-Lawrence-H.-Summers1.pdf.
- Whelan, Karl (2014). The ECB's Collateral Policy and Its Future as Lender of Last Resort, briefing paper for European Parliament Committee on Economic and Monetary Affairs, available at http://www.europarl.europa.eu/cmsdata/106744/COMPILATION_587.299%20-%20Online.pdf.
- Whelan, Karl (2015). The ECB and Financial Assistance Programmes: Has ECB Acted Beyond its Mandate?, briefing paper for European Parliament Committee on Economic and Monetary Affairs, available at http://www.europarl.europa.eu/cmsdata/105467/IPOL_IDA(2015)569963_EN.pdf.
- Whelan, Karl (2016). "Banking Union and the ECB as Lender of Last Resort" *in Filling the Gaps in Governance: The Case of Europe* edited by Franklin Allen, Elena Carletti, Joanna Gray and Mitu Gulati, Robert Schuman Centre for Advanced Studies, EUI Florence.

- Whelan, Karl (2018). Monetary Policy in an Era of Low Average Growth Rates, briefing paper for European Parliament Committee on Economic and Monetary Affairs, available at http://www.europarl.europa.eu/cmsdata/157018/Whelan%20final%20publication.pdf.
- Woodford, Michael (2008). "How Important is Money in the Conduct of Monetary Policy?" *Journal of Money, Credit and Banking*, Volume 40, pages 1561-1598.

The Urgent Need for a Review of the ECB's Monetary Policy Strategy: Towards an Institutional Review

Author: Christopher A. HARTWELL (CASE)

Abstract

It has been sixteen years since the European Central Bank has undertaken a review of its monetary policy. In the intervening time, the world – and the economic challenges facing the ECB – have changed immensely. This paper argues that a review is overdue but that it should not be limited to policies; instead, an *institutional* review is needed. This would consist of a backward-looking assessment of outcomes versus mandates, coupled with a forward-looking scenario planning exercise.

This document was provided by Policy Department A for the European Parliament's Committee on Economic and Monetary Affairs.

CONTENTS

LIST OF ABBREVIATIONS

ECB	European Central Bank
ECJ	European Court of Justice
ESCB	European System of Central Banks
GARCH	Generalised Autoregressive Conditionally Heteroscedastic
HICP	Harmonised Index of Consumer Prices
MIDAS	Mixed Data Sampling
QE	Quantitative Easing
SCM	Synthetic Control Method

EXECUTIVE SUMMARY

- Sixteen years is a long time. In the period since the European Central Bank (ECB) underwent its last monetary policy review, Europe has been through a global financial crisis, a sovereign debt crisis, a decade of unconventional monetary policy, the rise of populism, and continued anaemic growth.
- A review of the ECB's monetary policy is thus long overdue.
- However, this briefing paper proposes a slightly different review than was undertaken in 2003, namely an *institutional review*.
- The purpose of an institutional review would be to combine a process management approach with a political economy analysis, starting from first principles to examine what the ECB wants to do, how it relates to other EU organs, how it should do it, and how it has performed in undertaking these interventions in the past.
- The review would be structured into two main components. The first is a backward-looking (ex post) assessment of the ECB's mandate, its tools, its placement within the European economic system, and a rigorous analysis of how the ECB performed as measured against economic metrics of success.
- The institutional review should not shy away from hard questions about the desirability of the ECB's independence, alternate mechanisms for achieving the goals elucidated in the Treaty on European Union, or on the reality of the ECB as a political (as well as monetary) institution. But the review should remain focused on the question of mandate.
- The second portion of the review will be forward-looking (*ex-ante*), attempting to grapple with the future challenges that the euro area economy will face. These challenges are legion, and include continued demographic decline, over-regulation, the possible (spatially differentiated) effects of climate change, and continued innovation in the financial sector.
- However, the possible future issues that the ECB will face are uniformly structural and not monetary, and thus the ECB should retain flexibility to deal with them while remaining focused on its core mandates (as decided in the earlier part of the review).
- The modalities of the review are less pressing than asking the right questions, which is the reason why this paper focuses more on these questions and their sequencing. I recommend that the review is institutionalized, but on a not-too-frequent basis. More important is to make recourse to first principles so that the review can be a useful exercise for the entirety of the euro area going forward.

1. INTRODUCTION

Over sixteen years has passed since the last official review of the European Central Bank's (ECB) monetary policy strategy, and by any stretch of the imagination, the world that the ECB now faces is a much different one than the one it confronted in 2003. Indeed, since the last official stock-taking of the ECB's work – done a mere four years after the introduction of the euro – the world has gone through an asset price bubble, a global financial crisis, a sovereign debt crisis localized on the euro area, enormous injections of liquidity by nearly all central banks, the rise of populism, additional members joining the euro, the advent of blockchain and crypto-currencies, and continuing and persistent anaemic growth in much of the euro area. Just the massive response to the global financial crisis alone, comprising all manner of unconventional monetary policies and asset buying programs (Hartwell 2019), represented an enormous expansion of the ECB's mandate and its powers unlike anything contemplated at the turn of the century.

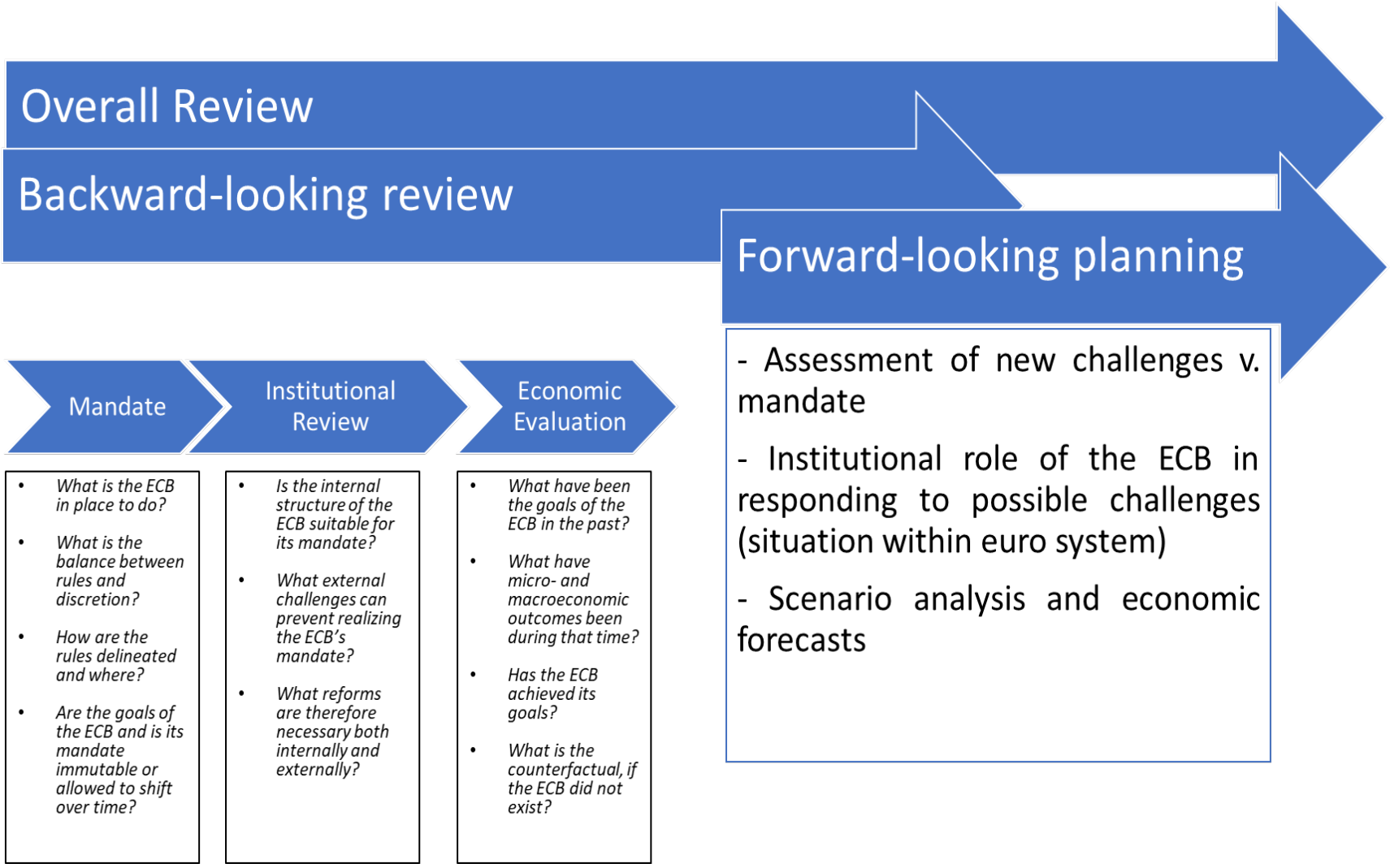
Given the long time, both temporally and spatially, since this last review, it is urgent that the ECB performs a stock-taking exercise of its policies, in order to inform policymaking going forward in the post-global financial crisis world. A review such as this should not be taken lightly and is a rare opportunity to rethink the entire monetary structure within which the ECB resides. Put another way, the ECB should welcome not just a *policy* review, but an *institutional* one. In this sense, the review will go beyond the mere tools of policy (inflation targeting, financial stability, asset buybacks, etc.) and examine the situation of the ECB as an institution amongst many and its performance as an institution in the past and into the future.

Before describing the constituent parts of the review, it is also important to lay out the sequence of the assessment, for it will have a definite flow and preceding aspects of the review will flow into subsequent evaluations. As shown in Figure 1, there should be two separate yet interlocking facets which feed into each other (Figure 1). In the first instance, a *backward-looking assessment* is absolutely crucial to quantify the (in)effectiveness of past policies. The *ad hoc* nature of ECB policy over the past decade, especially with relation to the global financial crisis and the use of unconventional monetary policy, has been matched by *ad hoc* assessments of various ECB programs (see *inter alia* Altavilla *et al.* [2016] or Fratzscher *et al.* [2016]), considering programs or success metrics in isolation. This piecemeal approach has not been integrated in any way with the governance of the ECB, meaning that a comprehensive assessment must be undertaken to create a holistic picture of where the ECB is fulfilling its mandate and where it has gone off script. Such an assessment would have to ask hard questions, including looking at the ECB's own internal structure, tools, relations with Member States, and ultimate objectives. Importantly, given the (now) long track record of the ECB (especially as compared to its record in 2003), there should be a rigorous and quantitative assessment of the ECB's performance *vis a vis* key economic metrics. Has the ECB achieved what it set out to do? What tools worked best and which were not effective?

In addition to a review of the past 20 years of ECB operations, any review would also necessarily have a forward-looking component also focused on the ECB's tools and mandates: what are the pros and cons of the current inflation targeting regime for the future (in light of the past)? Should the ECB's mandate be expanded to include additional issues (e.g. climate change)? What are the new challenges for monetary policy? And does the ECB's dual mandate of financial stability and price stability make sense for future financial challenges? Do we need a fundamental rethink of the model of central banking which the ECB has relied on, given that it is a central bank like no other? This forward-looking review would necessarily be less precise, but this forecast uncertainty should be built into the methodology; that is, the uncertainty of any challenges occurring, judged by their probability ex-ante, should inform the design of policy going forward (in recognising the complexity of economic systems in general).

This briefing paper is designed to help policymakers going forward with their design and, hopefully, implementation of a review of the ECB's monetary policy. The rest of the paper goes into deeper details on the two facets of the review just mentioned, fleshing out how an ex post and an *ex-ante* assessment should be conducted and what their scope should be. Additionally, we also touch upon the modalities of such a review, albeit this is a far lesser question than ensuring that the right questions are being asked – and in the right sequence – during the review itself. Finally, we conclude with some policy recommendations which follow from the design of the review, touching on the institutional imperatives for the European Parliament and the institutional arrangement of the ECB and how these may play into the review itself.

Figure 1: The Path of the Review



2. CREATING A BACKWARD-LOOKING ASSESSMENT

Given the substantial change of circumstances, both internal to the ECB and external in the form of the euro area and global economies, over the past sixteen years, a review of ECB monetary policies is long overdue. As mentioned in Section 1, such a review needs to be comprised of two parts, with the most important portion being the backward-looking assessment. The purpose of this section is to describe what such an assessment would look like and, crucially, what topics need to be covered. In line with the flow shown in Figure 1, the ascending order of the review should be from mandate to institutional placement to policy, with the capping portion of the review an economic evaluation of how well the ECB has performed its existing mandate thus far. We deal with each sub-component in turn below.

2.1. What is the ECB Supposed to Do?

2.1.1. Mandate

The first, and perhaps most important sub-component of the backward-looking assessment is to carefully scrutinise why the ECB exists in the first place. All other questions, including the institutional placement of the ECB in the Eurosystem and the European Union (as well as the global economy), the effectiveness of its policies, and an assessment of its tools, should flow from this first principle.

Of course, one could submit that there are easy answers to this question, related to the legal framework which governs the ECB: in particular, the Treaty on the Functioning of the European Union (and especially Article 127[1]) notes that "the primary objective of the European System of Central Banks (hereinafter referred to as "the ESCB") shall be to maintain price stability." However, there is massive latitude within the Treaty for other objectives as well, as the same Article goes on to state that "*Without prejudice to the objective of price stability* [emphasis mine], the ESCB shall support the general economic policies in the Union with a view to contributing to the achievement of the objectives of the Union as laid down in Article 3 of the Treaty on European Union." The objectives listed in the aforementioned Article of this Treaty are a laundry list of good outcomes, including peace, freedom, security, full employment and social progress, and protection of the environment; all of these issues stray very far from a single-minded focus on price stability, notwithstanding the caveat that price stability is supposed to be *primus inter pares*. Breezily moving on from this point, the rest of the terms of reference of the ECB and the ESCB are laid out in a strictly technical fashion, including reference to foreign exchange operations and foreign reserves (Article 127), issuing banknotes (Article 128), the independence of the institution (Article 130), and the its right to make regulations and issue fines (Article 132).

Given the malleability of the legal framework under which the ECB operates, it is not surprising that nearly all manner of economic intervention can be interpreted as a) not being incompatible with price stability and b) under the mandate of the ECB. Indeed, as Borger (2016) notes, the global financial crisis allowed precisely this mission creep at the ECB, as price stability was actually redefined to include financial stability, a change which worked its way to (and was affirmed by) the European Court of Justice (ECJ) after being found in contravention by the German Federal Constitutional Court (Murswiek 2014). Indeed, the leeway given to the ECB in its legal mandate has been interpreted by the ECB to mean that, "given that monetary policy can affect real activity in the shorter term, the ECB typically should avoid generating excessive fluctuations in output and employment if this is in line with the pursuit of its primary objective."[1] As a consequence, disruptions which may necessarily cause

[1] Wording quoted from the ECB website, https://www.ecb.europa.eu/mopo/intro/objective/html/index.en.html, accessed November 6, 2019.

fluctuations in the short term (e.g. unwinding of malinvestments after a monetary boom) are meant to be prevented at all costs; this is a prescription for policy inertia, especially if the consequences of withdrawing a policy such as quantitative easing might cause "excessive fluctuations."

It can be seen that, even by making recourse to the legal documentation governing the ECB, the ECB's mandate is quite expansive in reality. Thus, the mandate should be the first point of scrutiny in any review of the ECB and especially as part of an institutional review. Questions that need to be asked and areas that need to be examined under a review should include, but are not limited to:

- *What truly is the central bank of the Eurosystem in place to do?*

That is, what is the ultimate objective of the ECB within the European Union? Is price stability really the be-all, end-all of the ECB, and should it be? And is the ECB serving the euro, the euro area, or the European Union? There is some ambiguity on this last question, given that the ECB is simultaneously promoting price stability within the euro area but is charged with fostering the ideals of the EU (full employment and "social progress"), as well as global goals ("improvement of the quality of the environment"). Where should the ECB's focus be?

- *What is the balance between rules and discretion, to return to the debate initiated by Fischer (1990), envisioned for the ECB?*

The current mandate sets price stability at the heart of the ECB's mandate but also allows for discretion in pursuing these additional goals, a reality which has been eagerly seized on by the ECB during the previous two crises. Should the ECB's legal mandate have the open-ended caveat that it can take on additional responsibilities in addition to price stability, in order to maintain said discretion? Or should there be a clear elucidation of what the ECB should and, more importantly, should not do? Are any of the EU's goals more important for – and should be circumscribed to – the ECB, while others (social justice, environmental progress) clearly far out of bounds of what a central bank should be doing?

- *If additional responsibilities are desired, why are these not written into the statutes governing the Bank?*

An extension of the rules versus discretion debate, should there be a codification of discretion in the governing treaties? Or, going the other way, if the focus remains on rules (just more of them), why are these specific rules not put into law? Why is there so much leeway given to the ECB?

- *If additional responsibilities are envisioned and are not deemed appropriate at the Treaty level (due to a perceived need for some discretion), is there a need to codify Bank goals within the ECB itself?*

Perhaps there is a need to retain flexibility at the Treaty level (as in the Treaty on the European Union and its myriad of desired outcomes), with the operational level of the ECB being the more appropriate layer in which to set strategic goals and objectives. But if the ECB is allowed to set its own policy goals, and there are indeed multiple objectives, can a ranking of priorities which can be codified if these objectives happen to be contradictory or have claims on the same resources? For example, is financial stability a more important goal than price stability? Is rescuing the sovereign or corporate bond market more important than the deleterious consequences of unconventional monetary policy? And how strict will this ordering of priorities be?

- *Are the goals of the ECB and is its mandate immutable or are they allowed to shift over time?*

In a similar vein, and applicable at either the Treaty or ECB level, is there a chance that price stability could fall by the wayside in favour of financial stability during a crisis, only to have price stability re-emerge as key point afterwards? How would one decide in which situations specific goals would predominate, and are there quantifiable metrics to describe these states?

Answering these questions will help to provide a guideline for the rest of the review, and should be based on the perceived needs of the Member States, the European economy, and the bountiful scholarship on the effectiveness of various mandates and instruments. The ECB and, especially, the European Parliament should not shy away from thinking big (and possibly even outside the box) to challenge the current orthodoxy on the ECB's mandate, if such an exercise can improve the ECB's functioning and/or economic outcomes in the EU. This in and of itself would be a major gain for policymaking, as the wake of the global financial crisis (and especially the sovereign debt crisis in the euro area) resulted in a uniform doubling down on economic integration. What if the solution is more integration at the operational level (i.e. capital markets or banking) and less at the national level (i.e. the euro)?

2.1.2. Institutional placement

Along these lines, once the decision has been made (or reaffirmed) on the necessity of the ECB and its specific mandate, this portion of the review should answer the question if the ECB as it exists now is appropriate to fulfilling its mandate(s)? It is here that the institutional review really begins to take shape as, once the purpose of the ECB has been agreed upon for the future, an analysis of its internal structure and its relation with external stakeholders is crucial to translate the mandate to reality.

In the first instance, the ECB (and/or external auditors such as the European Parliament) should focus on the internal structure and organisation of the institution. If the internal organisation of the ECB is not conducive to fulfilling its mandate, then reforms must be undertaken to ensure some harmonisation of internal resources and outcomes. As Kalthenhalter *et al.* (2010:1261) noted at the height of the global financial crisis, "distrust of the ECB is a function of individuals believing the bank cannot be counted on to fulfil the duties that Europeans have assigned it." Thus, the first portion of the institutional review will need to take a historical view, assessing the evolution of the ECB from its inception until today. Based on the original mandate of the ECB, has the organisational structure of the Bank kept pace? Questions which should form part of the Terms of Reference for this portion of the review could then include:

- Have resources been deployed effectively according to the priorities elucidated in the previous portion of the review?
- Has the staffing budget been realistically apportioned and has its evolution following an appropriate trend?
- Are there under/over-staffed departments?
- Is the organisational chart appropriate for both monitoring and policy implementation?
- What is the role of research within the ECB and is it necessary?
- Are internal decision-making procedures appropriate?
- Is the tension between financial stability and monetary policy artificial and the units should be joined, or is there a need for the two units to be kept even more separate?
- Along these lines, is the "two-pillar" approach appropriately funded and staffed?
- What proportion of the ECB's budget is taken up with administration, and is there any rationalisation that can be carried out there?
- Are there other efficiencies that can be garnered via organisational change?

In this sense, the institutional review will follow a standard management consulting or public administration review approach, in that the goals/objectives of the organisation must be arrayed against its procedures, processes, and resources (why it is crucial to have a handle on the mandate before exploring the internal operations of the Bank). Seen as a business process improvement exercise, the institutional review could then help to better organise the ECB in a coherent manner, especially in light of the ad hoc addition of responsibilities which has occurred over the past decade. In management jargon, the review would thus provide a "refocusing" of the organisation on its core mission, allowing for a unification of planning and management (Jensen 1982).

However, as a modern organisation undergoing constant scrutiny, it is unlikely that very many inefficiencies can be uncovered which will help to fulfil the ECB's mandate in an easier way. Therefore, the institutional review should also consider the ECB's relations with external entities, especially if such relations can impede its monetary and economic goals or create conflict with agencies and make it more difficult for the ECB to operate (Tokic 2018). Unfortunately, undertaking such a review of the ECB's external environment – and its placement within the Eurosystem - will immediately run into a legal and policy question, related namely to the issue of central bank independence.

As noted above, the independence of the ECB is enshrined in the Treaty on the Functioning of the European Union, and has been treated as sacrosanct, at least with regard to what Member State governments could do *vis a vis* the ECB (the issue of the ECB offering policy advice to Member States has been a further prerogative of the ECB since the crisis, see especially Beukers [2013]). Such a devotion to independence has derailed similar attempts at institutional reviews of the Federal Reserve in the United States (see the Federal Reserve Transparency Act of 2015), with central bank employees arguing that any attempt to examine the functioning of the monetary institution (especially in relation to external actors) represents undue political pressure (a point made repeatedly by former Chair of the Federal Reserve Janet Yellen). However, there are two specific points that need to be mentioned which directly refute this obsession with independence: one, if independence is untouchable as a tenet of monetary governance, literally any attempt to reform monetary governance can be seen as an "assault on independence." This reality puts the public administration reformer in a catch-22; independence might be problematic, but it cannot be challenged because that is an assault on independence, even if independence is the problem. Rather than elevating independence to a holy position above all else, independence must be seen as a point on a continuum of governance, with different central banks positioned differently based on their agreed-upon mandates and objectives.

The second point is a direct challenge to the idea of what independence actually means, especially given the reality that the Eurosystem is a web of interlocking governments, banks and other financial institutions, individuals, and supra-national agencies, renders this question necessary; as Giovanni (1993:191) said over a quarter of a century ago, "the presence of a variety of financial systems and institutions in the EC member countries is not compatible with the establishment of a single currency managed by a single central bank." As Hartwell (2018) noted, the ECB is not really independent as no governance institution birthed from politics can ever be independent; it will always be subjected to political whims even if not under direct oversight of other political institutions. Thus, if the ECB is not actually independent in reality, the focus on central bank independence is a bit of a red herring for understanding monetary policy outcomes. That is, instead of central bank independence being a corner solution, it may be an intermediate step towards a better institutional arrangement which can help the euro system to achieve its mandate *and* satisfy the desire for independence.

Along these lines, the biggest issue facing the ECB's execution of its mandate is one which has been repeated innumerable times, namely the lack of a fiscal union (or at least a coordinated fiscal policy, see Le Cacheux [2010]). While the ECB is lauded as one of the most independent central banks in the

world (Arnone *et al*. 2009), it is fighting a rear-guard action with monetary policy against 19 separate fiscal policies, meaning that its tools are necessarily limited (Hartwell 2019). But, as Hallett (2017:188) notes, "there are many ways to reach fiscal integration without one size fits all policies, a single finance ministry and finance minister, or even euro-bonds," meaning that the institutional environment which could help to facilitate monetary rectitude (or other goals under the ECB mandate) should be part of the review. Of course, this also turns independence on its head, as the ECB would be suggesting what Member States, or the organs of the EU, could be doing to better make its mandate a reality. But if there is a serious will to understand the complexity of monetary policy – and that monetary consequences do not solely just issue forth from a technocratic central bank – the fiscal dimension must be part of this review.

Beyond the merely fiscal constraints should also be a careful assessment of the political *consequences* of monetary policy; as noted earlier and in Hartwell (2019), monetary policy is highly complex and has institutional as well as economic effects. Much of the criticism levelled at the ECB during and after the twin crises was not about its inefficacy but that it has become too powerful, aggrandising powers to itself that were rightly reserved for national governments or the market (again, a point illustrated by Beukers [2013] but comprehensively formulated as a critique in Tucker [2018]). Additionally, some researchers have noted that the actions of central banks have overstepped their bounds not in terms of the instruments they have used, but merely because of the knock-on effects such policies (as in the fight against "deflation") would have on other policy goals and governance institutions (Tokic 2018). Finally, a case has been made (Hartwell 2019) that monetary policy can have a direct effect on the evolution of other institutions in an economy, including property rights, rule of law, and styles of democratic governance, with unconventional monetary policies having the largest effects.

Given the institutional effects which monetary policy can cause, an important part of the institutional review will be to trace the influence and impact of ECB policies elsewhere in the EU. While these effects may be difficult to trace due to their chaotic and interlocking nature, it must be undertaken so that a holistic picture can be created of how the ECB fits into the Eurosystem – and the myriad of goals set under the Treaty on European Union. Put another way, it would be ironic if some of the mechanisms employed by the ECB actually undercut some of the broader goals enshrined in Article 3 of the Treaty on European Union, including economic cohesion, justice, and solidarity between generations. The end goal of this portion of the institutional review would be to see if the ECB's position in the political mechanisms of the EU is appropriate and to explore the feasibility of alternatives. Are mechanisms such as those suggested by Goodhart and Lastra (2018) – i.e. a judicial review process to oversee central bank decisions and actions – feasible or desirable? Is there a way to either minimise or maximise the influence of national policies in ECB policy-setting, depending upon which is deemed more appropriate (as shown in Badinger and Nitsch [2014])? Are financial stability and monetary policy two sides of the same coin (Beck and Gros 2013) or are they a symptom of a bank already being used politically (Masciandaro and Volpicella 2016)? And what hand does the ECB have in supporting political stability or in fostering instability - and can this be changed?

While these areas under examination are unconventional to say the least, the institutional review will need to examine all of these questions in order to ensure that the ECB, as operating, is in line with both narrow monetary policy goals and broader EU-wide objectives. It is only by asking the difficult questions, set in proper context, can policymakers and the citizens of the European Union understand the goals and effects of ECB monetary policy.

2.2. How is the ECB Supposed to Do It?

Moving from the novelty of the institutional review, the starting point for any review of the ECB, the next component of the overall review is more in line with what was probably envisioned by incoming President Lagarde (and will be similar to the review undertaken in 2003): a pure policy review. In order to undertake such a review, I believe it should be further broken up into two separate sub-components, one where the tools of ECB policy are reviewed and one where the actual effectiveness of the ECB in the past is examined. This Section will review the tools, while Section 2.3 will go further in-depth on the effectiveness review.

2.2.1. Tools

As a much more conventional part of the review, the ECB should already have a set of questions formulated about what a monetary policy assessment should look like. In keeping in the spirit of the rest of the review, however, all questions and alternatives should be on the table regarding the tools and levers through which the ECB operates. In particular, the following areas should be explored:

- Is inflation targeting still the desired and/or most effective tool for the ECB to utilise?
- Should there be more of an emphasis on fighting upside inflation (i.e. above the 2% target) then worrying about deflation or "low" inflation (i.e. under the 2% target)?
- How effective has the interest rate mechanism been, especially in the era of zero/negative interest rates?
- Is monetary stock targeting a more effective way in which to conduct policy?
- What should be retained from the ECB's unconventional monetary policies of the past decade and what should be discarded (in large part, this question will be answered by the next part of the review)?
- What is the latest academic consensus on central bank communication, and have any of these tenets been absorbed/institutionalised at the ECB?
- Are there additional/unconventional transmission mechanisms which may be effective in the future (I am not advocating for something such as "helicopter money," but it should be on the table to be explored)?
- Can the tools for financial stability be expanded into the monetary policy realm?
- Is macroprudential regulation an effective tool? In what way, and what needs to be incorporated?
- What space is there for decentralised or targeted tools throughout the euro area?
- Finally, is a lighter touch much more appropriate for the disparate countries of the euro area than a heavy-handed approach? That is, can a minimalist approach (either via automatic adjustments or a monetary rule) be more helpful for achieving stability goals?

Again, these questions run the gamut of philosophical approaches to monetary policy, and many are contradictory (one cannot run a post-Keynesian central bank focused on nominal growth and employment by following Austrian or monetarist tenets). However, by asking these difficult questions across the spectrum, the organization will have a better sense of marrying its tools with its actual economic objectives and outcomes.

2.3. How has the ECB Performed in the Past?

Perhaps the most rigorous part of the backward-looking portion of the review, taking into account the mandate, placement of the ECB in the European economic and political system, and the tools it uses, is to measure the ECB's past performance. Have the tools that it was already granted been effective against a host of success metrics? And what is "success" for the ECB?

It is a well-known tenet of public administration that measuring government programs or bureaus is difficult because they operate on outputs rather than outcomes (Hatry 1978): however, for an organisation such as a central bank, there are quantifiable outcomes which occur as a direct result of bank actions, and thus it is easier to plot central bank actions against these outcomes than, for example, a Ministry of Health's programs versus disease incidence. Given that central banks such as the ECB are explicitly crunching numbers and observing the economy via a series of macroeconomic and financial analyses to inform monetary policy, it should be far easier to contrast policy versus actual conditions.

As hinted at above, the first part of this examination is defining what "success" is for the ECB: is it exclusively price stability as in the inflation target? Is it a stable value of the euro? Is it financial stability? If one were to ask, "has the ECB been a success?" what metric could be argued to give definitively a "yes" or a "no" answer? Of course, the answer to the metric which should be used can be traced again back to the current mandate of the ECB: a year-on-year increase in the Harmonised Index of Consumer Prices (HICP) for the euro area as a whole of below 2%. But as Section 2.1 showed, the ambiguity surrounding this mandate means that there is also leeway to set the success metric. In any event, there needs to be rigorous and quantitative analysis of the ECB's performance and how it affected both first order and second- and third-order metrics. These could include:

- Various measures of inflation, including:
    - HICP, as currently defined;
    - Growth in asset prices, as defined by benchmark euro area stock markets or composite indices such as the Euro Stoxx 50;
    - Growth in real estate prices, measured at the euro area level and at the individual country level;
    - Growth of the money stock;
    - Volatility of the above metrics; and/or
    - Depreciation/fluctuations of the euro
- Growth of nominal GDP
- Growth of investment (nominal)
- Financial stability, as measured by
    - Incidence of crises
    - Non-performing loans as % of all loans
    - Value at Risk (VaR) calculations for financial institutions
    - Results of euro area-wide stress testing
    - Compliance with Basel II/III capital adequacy requirements
    - Short-term lending as proportion of all lending (as noted in Moe [2013])

    - Other metrics as deemed appropriate
- Employment, as defined by a harmonised definition across Member States
- Interest rates and their short-term deviations from long-term trends
- Cost/benefit analysis of ECB expenditures versus gains in each of these metrics

As noted, this list is by no means exhaustive, and defining which success metrics are used is likely to be a political and contentious exercise in and of itself. But as with the rest of the review, the net should be cast as wide as possible in order to understand all of the areas in which the ECB has had an impact.

Using these success metrics, the ECB and/or independent auditors should match what the various policy moves made by the ECB with subsequent movements in these aggregates. This will entail a series of econometric analyses including but not limited to event studies, volatility modelling (i.e. GARCH, GARCH-MIDAS, and realized volatility), panel regressions, and other (and sometimes state-of-the-art) econometric tools designed to isolate causation with some modicum of precision. Also included in this portion of the review should be an extensive meta-analysis of the existing fragmented literature regarding the effects of the ECB on these various metrics over various timeframes; as the academic literature is voluminous on these points, such a review could take some time but will be useful to see where the consensus is on the effects of the ECB. And given that much of the most recent work that the ECB has undertaken is still being researched, the analyses produced within the ECB will add to an important literature.

The point of both this meta-analysis and the research undertaken as part of the review is not merely to add to the sum of scientific knowledge on the ECB's effects, nor is it to generate a series of publishable papers. Rather, by isolating where the ECB had an effect, using a particular instrument, and the magnitude of that effect on a particular metric, will inform ECB operations going forward. For example, if the interest rate mechanism was found to be persistently ineffective for controlling volatility in financial systems, other channels or tools could be contemplated. Only by matching up how the ECB has actually performed in the past can a proper accounting for desired mandates, tools, and placement of the institution be performed.

Finally, although it may be difficult, it is imperative that modellers and policymakers also envision a world in which the ECB did not exist. That is, what could have happened with regard to economic aggregates or success metrics in the absence of the ECB as it stands now? What would have the economic recovery looked like without unconventional monetary policy? The impossibility of establishing counterfactuals is well-known, but statistical tools developed over the past decade have made such analyses within the realm of the possible; in particular, the synthetic control method (SCM) of Abadie *et al.* (2010) allows for the modelling of counterfactuals based on a synthetic stitching together of actually-existing countries with similar characteristics.

SCM has already been utilised in the euro area in a number of studies, including Koehler and König (2015) on the stability and growth pact, Gomis-Porqueras and Puzzello (2015) on incomes with and without the euro, Zúdel and Melioris (2016) on Slovakia's economy after the euro, Hope (2016) on current account balances in the euro area, and Verstegen *et al.* (2017) on overall benefits to countries of being in the euro area. I believe that SCM can be utilised in a much more systematic manner as part of the review for the entire euro area (or for individual countries) against the broad panoply of economic success metrics noted above as well, showing what could have occurred if certain ECB policies had not been followed. In this manner, the SCM analysis will form a mirror image of the event studies, providing a rough sketch of the road not taken. Such an empirical exercise will also help to inform where the ECB should array its resources in the future.

3. PLANNING FOR THE FUTURE

The results of the backward-looking (ex post) assessment, as described in the previous section, are crucial for understanding what the ECB should be doing, where it should be doing it, how it should be doing it, and, based on past experience, what it should avoid. This first portion of the review should directly inform the next portion of the review, which should be forward-looking and based on not only what was, but what will be. Indeed, while the ECB and other European organs already attempt to forecast economic conditions well into the future, the purpose of an institutional review such as this one would be to analyse potential issues and scenarios that the ECB will potentially tackle in the future and see if the institutional and policy tools at hand, and discussed in the first portion of the review, are appropriate.

3.1. Sixteen Years is a Long Time

Since the last review in 2003, the global landscape is almost unrecognisable. In the first instance, the euro area itself is not just a grouping of original members of the European Union (save a few exceptions), it is a conglomeration of old and new, including Member States who had not yet acceded to the EU in 2003. Indeed, five of the euro area's new members since 2003 (26 percent of the current total members) are new accession countries from Central Europe, while another two current EU Member States were also added in this timeframe (Cyprus and Malta). The sheer diversity of the new euro area, especially as compared to the original eleven members, will no doubt provide a challenge for the ECB going forward, especially if laggard (and Eurosceptic) countries such as Czechia, Poland, or Hungary ever join the common currency.

In addition to the internal makeup of the euro area, the economic and financial world that the ECB operates in is vastly different. In 2003, the world was in the midst of a recovery coming after the rolling emerging market crises of the late 1990s and the dot-com bust and aftermath of the 9/11 terrorist attacks in the United States. At the same time, the euro appeared to be on an inexorable climb, breaking through parity with the US dollar in 2003, while the innovation economy was starting to integrate the benefits of the internet (and minimise the exuberance which characterised the dot-com boom) and reshape both services and productivity. While political uncertainty related to terrorism and conflict continued to drag on financial markets, a boom was just around the corner. In short, the world was very different.

Fast forwarding to 2019, and the world has been through an earth-shattering financial crisis, the euro area went through a follow-on sovereign debt crisis shortly thereafter, and the financial sector in Europe appears brittle (especially compared to its US counterparts) but simultaneously dominated by too-big-to-fail firms. The EU itself has been rocked by internal disagreements on migration policy and rule of law, while populism has made nationalism *en vogue* once again. The innovation economy has proven to be more disruptive than forecasted, creating a backlash from policymakers and "old economy" stalwarts who want to have their quasi-monopolistic positions (see: taxicabs versus Uber) preserved. And, despite a decade of unconventional monetary policy (or likely because of it), growth in the euro area remains anaemic. In short, the world *is* very different.

3.2. The Complexity of the Future

This recap of reality is not detailed to cast aspersions on the ECB or the economic governance of the EU, but rather to note how difficult it would have been to forecast the challenges facing the ECB in 2019 from the vantage point of 2003. Even capturing the main economic event of the past two decades, the global financial crisis, was difficult for the vast majority of economists even on the cusp of the crisis, so longer-term trends and technological innovation is even more difficult to predict.

This does not mean that the institutional review should shy away from such forecasts, but it does mean that the complexity of economic and structural change should force policymakers away from certainties and more towards generalities. This also means that the necessity of narrowing down and codifying the ECB's mandate is paramount, to ensure that the Bank does not undergo "mission creep" in response to every additional challenge. As a monetary policy institution, it should help to create the conditions necessary for successful outcomes, but not necessarily be interventionist in every opportunity. This reality should be an underlying tenet of the examination of the future challenges for the ECB.

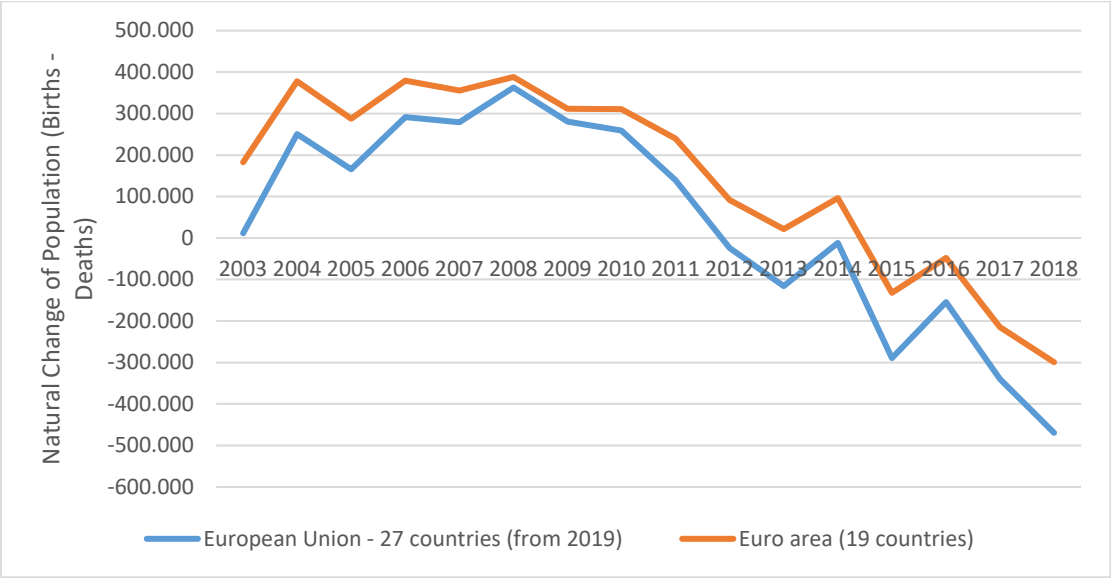
Having set out the philosophy which should underpin the forward-looking examination, it perhaps is instructive to briefly summarise three of the challenges which the European economy (and, by extension, the ECB) is likely to face over the next sixteen years:

1. Continuing Demographic Decline

The demographic trends in most EU Member States continue to appear bleak, especially when lined up against the public expenditures and entitlements promised as part of the various degrees of the welfare state in Europe. As Figure 2 shows, the natural change of population in both the EU and the euro area (live births minus deaths) has been negative since mid-2014 and shows no sign of abating.

This state of affairs means that governments will be hard pressed to maintain high levels of public expenditure while simultaneously seeing a reduction in revenue (and increased outlays on both health and pensions). This longer-term trend has the ability to alter financial innovation and investing strategies (creating "longevity risk," see Kim and Choi [2011]), as well as shift risk appetites for investors (with a concomitant effect on interest rates). However, despite attempts by Member States to avoid demographic disaster using fiscal policy (see Poland's "500+" program), there is little that the ECB can or should do in this instance, besides monitoring how the disjoint between revenue and expenditures can affect price stability.

Figure 2: Demographic Decline in the EU and the euro area



Source: Based on data from Eurostat.

2. Climate Change

The uncertainty surrounding a) the exact causes of climate change at a global level, b) the exact costs to be borne as a result of various scenarios of climate change, and, most importantly, c) the spatial distribution of costs and benefits makes any attempts to use monetary policy to combat climate change a risky proposition. As with demographic decline, the issues surrounding climate change are ones of incentives, and these are properly mediated either through fiscal policy (if a polity decides this is the correct approach) or through the market (allowing for more accurate aligning of prices and incentives). Given that the effects of climate change also may have longer-term consequences such as demographics, the proper place to mitigate them are at the Member State level, with the ECB merely responding to the world that is thus created in order to focus on price stability. Again, the structural issue of climate change does not necessitate ECB intervention but will shape the landscape that the ECB will face in the future.

3. Technological Innovation

Perhaps the most important issue that the ECB will face is that of technological innovation; arguably, this has the most disruptive effect on national economies, causing dislocations in employment, increases in productivity, and spurring change in the financial sector. Technological change is also the wildest card in the deck, in the sense that it is the most difficult to forecast based on current trends: as an example, if one were to forecast the size of mobile telephones in 2010 from the vantage point of 2003, it was plausible to assume that the trend towards compactness was to continue, with phones becoming smaller and streamlined. However, advances in technology allowed for a proliferation of activities to be done via smartphone, necessitating larger and larger screens (according to proprietary data from Alex Barredo, the average screen size went from 3 inches to 5 inches from 2007 to 2014).[2] Thus, a forecast done in 2003 based on then-current trends would have gotten the reality entirely wrong and called for an entirely backwards set of recommendations.

This is exactly the issue that the ECB faces while attempting to forecast out technological changes for the future, an exercise that is best perhaps handled in the aggregate, assuming positive technological shocks of unknown form. In this manner, and as part of the review, the ECB can attempt to see what effects such shocks would have, either in a business-cycle framework (where cycles come about from technology shocks) or as part of more standard growth modelling. In either instance, the likelihood that a technology shock will suggest a shift in the tools or mandate of the ECB is highly unlikely; it is more probable that a technology shock will suggest a regime shift in price formations or expectations which the ECB will then have to handle accordingly. But, as with the previous two trends, this is a structural change and not something that can be handled pre-emptively with monetary policy.

Given these potential challenges to the ECB, the forward-looking portion of the review should concentrate on how the ECB can measure up to the potential consequences using its mandate and its role in the euro system. A much more scenario-based analysis (but backed up with quantitative work), this portion of the review would help the ECB to be more prepared for different eventualities in the future.

[2] See the analysis at https://medium.com/@somospostpc/a-comprehensive-look-at-smartphone-screen-size-statistics-and-trends-e61d77001ebe.

4. CONCLUSIONS AND POLICY RECOMMENDATIONS

This briefing paper has taken an expansive look at a possible review of the ECB's monetary policy strategies, focusing on the need to measure the ECB's actual outcomes versus its mandate and its tools. The key takeaway from this examination is that it needs to be decided what the ECB is actually supposed to do within the euro area. Once this first principle is decided upon, the placement of the ECB as a political and monetary institution needs to be reviewed, with an eye on quantifying, in a holistic manner, just what effect the ECB's previous monetary policy strategy has had for the euro area economy. Only by placing the results of the past twenty years against what the ECB was actually trying to achieve – and placing these results in a much larger framework of financial and economic stability – can the possible challenges to the future be tackled.

As was suggested in Section 2, one of the outcomes of this review might be a reappraisal of the ECB's role at the centre of the euro area economy. Some of the questions noted in Section 2 – especially regarding the political effects of the ECB and its role as a political creature - are far beyond what is considered conventional wisdom in Brussels, Frankfurt, or Strasbourg, and some directly challenge the orthodoxy regarding the set-up of the ECB and its place in the euro system. However, this is precisely the point of a review, especially one which takes place sixteen years after the last one and where the world has changed demonstrably. The hard questions *need* to be brought to bear on the functioning and position of the ECB, if only just to affirm that the original mandate is still desired. In this sense, the ECB needs to undertake a Nietzschean approach by "philosophizing with a hammer," smashing the idols before it to see which are sound and which are hollow.

And it is only by building this foundation of the ECB's mandate that we are able to then proceed on to the challenges facing the ECB for the next sixteen years. As Shown in Section 3, these problems are legion but, for the most part, are structural and not monetary in nature. Thus, the ECB should retain flexibility in order to deal with the consequences of demographic or climate change as they relate to price fluctuations, but they should definitely not attempt to interject themselves directly into solutions. Incentives are best left to the market and not to policymakers.

A final note for this briefing paper should touch on the modalities of the review, which I have deliberately avoided until this point. That is because the modalities of the review are far less important than the actual content of the review, the questions it should ask, and the sequencing of these phases (as shown in Figure 1). However, if one would ask specifically if the review should be regularised, the answer is emphatically "yes," as another sixteen years should not pass before the ECB undergoes its own audit. An important caveat to this qualification is that it should not be undertaken on too frequent a basis, mainly because monetary policy also should take the long view regarding drivers of inflation, technological changes, and the structure of an economy; monetary policy should precisely be about fostering conditions for the long-term rather than lurching from crisis to crisis. But more frequent reviews will help to also fine-tune the forward-looking portions and provide more real-time information on the backward-looking assessments. This alone will be of great use in improving the operations of the ECB, whatever the goals are deemed to be and whatever operations are decided on as necessary.

REFERENCES

- Abadie, A., Diamond, A., & Hainmueller, J. (2010). Synthetic control methods for comparative case studies: Estimating the effect of California's tobacco control program. *Journal of the American Statistical Association*, *105*(490), 493-505.
- Altavilla, C., Giannone, D., & Lenza, M. (2016). The Financial and Macroeconomic Effects of the OMT Announcements. *International Journal of Central Banking*, *12*(3), pp. 29-57.
- Arnone, M., Laurens, B. J., Segalotto, J. F., & Sommer, M. (2009). Central bank autonomy: lessons from global trends. *IMF Staff Papers*, *56*(2), 263-296.
- Badinger, H., & Nitsch, V. (2014). National representation in supranational institutions: The case of the European Central Bank. *Journal of Comparative Economics*, *42*(1), 19-33.
- Beck, T., & Gros, D. (2013). Monetary policy and banking supervision: Coordination instead of separation. *CEPS Policy Brief*, (286).
- Beukers, T. (2013). The new ECB and its relationship with the Eurozone Member States: between central bank independence and central bank intervention. *Common Market Law Review*, *50*(6), 1579-1620.
- Borger, V. (2016). Outright Monetary Transactions and the stability mandate of the ECB: Gauweiler. *Common Market Law Review*, *53*(1), 139-196.
- Fischer, S. (1990). Rules versus discretion in monetary policy. *Handbook of Monetary Economics*, *2*, 1155-1184.
- Fratzscher, M. (2016). Rules versus Human Beings, and the Mandate of the ECB. *CESifo Economic Studies*, *62*(1), pp. 68-87.
- Giovanni, A. (1993). Central banking in a monetary union: reflections on the proposed statute of the European Central Bank. *Carnegie-Rochester Conference Series on Public Policy,* 38, pp. 191-230.
- Gomis-Porqueras, P., & Puzzello, L. (2015). Winners and Losers from the euro. *Economic Series 2015_2, Deakin University, Faculty of Business and Law, School of Accounting, Economics and Finance*.
- Goodhart, C., & Lastra, R. (2018). Populism and central bank independence. *Open Economies Review*, *29*(1), 49-68.
- Hallett, A. H. (2017). Fiscal autonomy vs. fiscal federalism in the euro zone. *Economia Politica*, *34*(2), 179-188.
- Hartwell, C. A. (2018). On the impossibility of central bank independence: four decades of time-(and intellectual) inconsistency. *Cambridge Journal of Economics*, *43*(1), 61-84.
- Hartwell, C.A. (2019). Complexity, Uncertainty, and Monetary Policy: Can the ECB Avoid the Unconventional Becoming the 'New Normal'? *The Economists' Voice*, forthcoming.
- Hatry, H. P. (1978). The status of productivity measurement in the public sector. *Public Administration Review*, *38*(1), 28-33.
- Hope, D. (2016). Estimating the effect of the EMU on current account balances: A synthetic control approach. *European Journal of Political Economy*, *44*, 20-40.
- Jensen, D. R. (1982). Unifying planning and management in public organizations. *Public Administration review*, *42*(2), 157-162.

- Kaltenthaler, K., Anderson, C. J., & Miller, W. J. (2010). Accountability and independent central banks: Europeans and distrust of the European Central Bank. *JCMS: Journal of Common Market Studies*, *48*(5), 1261-1281.
- Kim, C., & Choi, Y. (2011). Securitization of longevity risk using percentile tranching. *Journal of Risk and Insurance*, *78*(4), 885-906.
- Koehler, S., & König, T. (2015). Fiscal governance in the Eurozone: How effectively does the stability and growth pact limit governmental debt in the Euro countries? *Political Science Research and Methods*, *3*(2), 329-351.
- Le Cacheux, J. (2010). How to herd cats: Economic policy coordination in the Euro zone in tough times. *Journal of European Integration*, *32*(1), 41-58.
- Masciandaro, D., & Volpicella, A. (2016). Macro prudential governance and central banks: Facts and drivers. *Journal of International Money and Finance*, *61*, 101-119.
- Moe, T. G. (2013). Control of Finance as a Prerequisite for Successful Monetary Policy: A Reinterpretation of Henry Simons' "Rules versus Authorities in Monetary Policy". *Accounting, Economics and Law*, *3*(3), 261-276.
- Tokic, D. (2018). Central bank independence and deflation. *Public Administration Review*, *78*(5), 803-808.
- Tucker, P. (2018). *Unelected Power: The Quest for Legitimacy in Central Banking and the Regulatory State*. Princeton, NJ: Princeton University Press.
- Verstegen, L., van Groezen, B., & Meijdam, L. (2017). *Benefits of EMU Participation: Estimates using the Synthetic Control Method* (No. 2017-032). Tilburg University, Center for Economic Research.
- Zúdel, B., & Melioris, L. (2016). Five years in a balloon: Estimating the Effects of Euro Adoption in Slovakia Using the Synthetic Control Method. *OECD Economic Department Working Papers*, (1317).

PE 642.363
IP/A/ECON/2019-52

Print ISBN 978-92-846-6055-1 | doi:10.2861/282797 | QA-03-19-904-EN-C
PDF ISBN 978-92-846-6054-4 | doi:10.2861/50301 | QA-03-19-904-EN-N