

# Aligning Monetary Policy with the EU's Climate Targets

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## EXECUTIVE SUMMARY

Detailed analysis of the Corporate Sector Purchase Programme (CSPP) of the European Central Bank (ECB) reveals a deep misalignment between ECBs policy interventions and European Union's climate policy objectives. **Whereas EU climate policies try actively to transform the European economy to make it more sustainable, the CSPP merely reproduces the current state of the corporate bond market.** The ECB therefore mirrors investment choices made by financial markets, even though financial markets seem misaligned with a mitigation path limiting the global warming to 1,5°. The weight of the most carbon intensive sectors within the CSPP portfolio is in line with the market neutrality principle claimed by the ECB, yet is profoundly troubling from the point of view of the ecological transition, as it maintains low capital costs and easy debt issuance conditions for the most polluting companies, without any assurance that these financial conditions serve the purpose of adjusting the underlying business and industrial models.

This policy note suggests a way to integrate carbon emissions as a criterion in its own right, shaping central banks' investment decisions and the collateral framework used for refinancing purposes. As the ECB intends to maintain its balance sheet volume at its current level even after the Quantitative Easing officially ends, **the most urgent decisions concern the reinvestment of revenues from programs such as the CSPP.** We consider that the technical difficulties related to estimating carbon emissions for different financial assets are real but surmountable and should not justify inaction.

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### *Note on methodology*

*This policy note draws upon results from a study conducted by two researchers specialized in climate-related financial risk exposure, Stefano Battiston (FINEXUS Center for Financial Networks and Sustainability at University of Zurich) and Irene Monasterolo (Vienna University of Economics and Business). The study estimated the CSPP portfolio exposition to economic sectors which are highly climate-relevant and seem most impacted by the EU climate policy. For the first time, the study produced an estimate of the exposure for national central banks members of the Eurosystem.*

*The study applies a methodology developed for estimating individual investor's portfolios (Battiston et al. (2017) and Monasterolo et al. (2018), measuring the extent to which the portfolio is compatible with the climate mitigation path limiting the global warming to 2°. The methodology is discussed in a [technical note](#) available at the FINEXIS website.*

#### **"Aligning Monetary Policy with EU's Climate Targets"**

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Veblen Institute for Economic Reforms is a Paris-based think tank promoting policies and social innovations for the ecological transition.

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Positive Money Europe is a not-for-profit research and campaigning organisation aiming to make the money system support a fair, democratic and sustainable economy.

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## Results in brief:

- The CSPP appears to be a **lost opportunity for launching investments in line with the ecological transition**: 63% of assets bought through the CSPP were issued by businesses operating within the most carbon emitting sectors: extraction and distribution of fossil energy sources, car manufacturing and equipment, most energy-consuming sectors, utilities. These results are consistent with previous studies carried out while the CSPP was still running.
- On the other end, **sectors and activities most in line with climate objectives represent a tiny fraction of the CSPP**; for instance, green bonds across all sectors and the railway sector represent together some 7% of the portfolio.
- Analysing debt maturities **does not reveal any “green trend”**: carbon-intensive sectors are just as present on long-term assets, while green bond maturities are below average.
- Estimations of individual portfolios for the six central banks who took part in the CSPP reveal important differences explained by the structure of the underlying corporate bond market:
  - Assets linked to **fossil energy extraction and distribution** are much more present in the portfolios of Banca d’Italia and Banco de España than for the other central banks;
  - **Car manufacturing** assets are particularly present in the Bundesbank portfolio;
  - The **Banque de France portfolio** is more evenly distributed between different sectors, and the four climate-policy relevant sectors combined weigh at around the European average. However, a detailed estimation of the carbon emissions-exposure should adjust for the fact that the utilities sector is most about nuclear energy (which emits less carbon than fossil energy sources).

## Recommendations in brief:

- Given the ECB intends to maintain its balance sheet at the current levels for years to come, we suggest following measures to integrate carbon impact analysis into investment and refinancing criteria immediately:
  - A public announcement making clear that from January 1<sup>st</sup> 2020, **carbon footprint disclosure will become an eligibility criterion for all reinvestment of proceeds from the CSPP. Any future asset purchase will be contingent upon carbon footprint disclosure for the debt-issuing firm**. For the companies from the most polluting sectors, this non-financial disclosure should include indicators of business restructuring such as parts of revenues stemming from different business activities.
  - A public announcement making clear that from January 1<sup>st</sup> 2020, **the ECB will no longer use any rating agency which has not integrated carbon footprint assessment** systematically into its credit ratings, using a transparent methodology.
  - Clarify the responsibilities for evaluating these methodologies used to estimate carbon footprints (and eventually for all non-financial/ESG disclosure) within the European system for financial supervision: on January 1<sup>st</sup> 2020 at the very

latest, the ECB itself and/or relevant supervisory agencies (ESMA, EBA, EIOPA) should have in place **technical expertise necessary for assessing the methodologies used by rating agencies for non-financial disclosure**.

- Alternatively, we recommend putting in place a **public rating agency collecting and assessing non-financial information**; the data collected as well as the methodologies applies should be made public and be accessible to the research community.
- Steering reinvestments in a way to start immediately to reduce the carbon footprint of the CSPP portfolio, despite imperfections in the existing sector-level analysis and without waiting for results from the “green taxonomy” or other legislative proposals prepared by the European Commission.
  - From 2019 and on, steering reinvestments to **reduce the fraction of the most carbon emitting sectors within the CSPP portfolio**. The shift should be incremental and form a trajectory from 2019-2030 for exiting these sectors.
  - In parallel, increasing the fraction of green bonds and railway transport securities within the portfolio, as well as other sectors contributing to an overall decrease of the economy’s carbon footprint. **This should apply particularly to long maturity holdings**. If the current supply of such assets proves insufficient to fully compensate for reducing the carbon-intensive sectors, other programmes could easily compensate for the overall reduction of the CSPP portfolio.
- A medium-term objective should be to **integrate the carbon footprint (and later on a full ESG assessment) as a new criterion within the collateral eligibility framework** and apply it to the single list of assets used for refinancing purposes. This requires following:
  - A transparent **methodology** based upon independent scientific research to provide carbon footprint ratings (and later on, ESG) for all asset classes accepted as collateral.
  - Clear **objectives** for steering the portfolio decisions based on assets’ carbon footprint impact as revealed by the methodology, and shaping a trajectory of increasing refinancing costs for the most polluting sectors.
- Over the longer term, the carbon footprint analysis should be completed by a full-fledged ESG analysis. This implies a much **stronger coordination with Member States’ fiscal policies and investment programs prepared** at different levels: local/regional, national and European (notably, the Investment Plan for Europe and European Investments Banks activities). This would have three elements:
  - Public and private investment plans conceived at local/regional and national levels, including those financed by European funds. The local and regional level are particularly important in order to integrate plans for protecting biodiversity.
  - **Public certificates** for transition-relevant projects and **public labels** for associated debt issuance.
  - Full integration of this debt assets into the **ECB collateral framework**.

## Introduction: shifting the focus from green finance to monetary policy

There's a growing debate among experts, policy makers and central banks about the role monetary policies could and should play to promote the transition towards a low-carbon or carbon-neutral economy. Most often the debate is focused on various proposals put forward for financing necessary projects such as renewable energy production, sustainable infrastructures or energy efficiency measures. The volumes of funds needed are substantial; in the case of the European Union for instance, the European Commission estimates the funds to €180Bn a year in order to attain the climate goals for 2030.<sup>1</sup> Given the structurally weak public finance, a key issue of the debate is how to attract private finance into transition-relevant projects.

Investing in green projects is crucial but insufficient, however: at the same time, the financial system as such needs strong incentives to dissuade from financing activities with high negative impact on climate targets, such as distribution of fossil fuels or other carbon-intensive activities. The two objectives are equally necessary and complementary: if we simply add a layer of additional funds upon a "business as usual" financial system, the overall result might very well be nil or even negative, given the numerous potential rebound effects and displacements of emissions and pollution within the financial and economic system.

In light of numerous potential contradictions within the financial system, with positive effects of green investments being annulled by negative impacts elsewhere, proposals such as a new "climate bank" within the EU, interesting as they are, are clearly insufficient. Simply adding a new financial institution will not reduce the negative impacts which are a part of the problem.

The same criticism applies to green finance as it is currently proposed by the financial markets and current or upcoming legislation. This notion of green finance is useful as far as it signals the ambition to assign environmental or ESG objectives to the financial system as a whole. Most often however, it is defined as a new market segment with its own products, labels and figures of growth; much too often, the growth of this market segment is then interpreted as a sign of ongoing global transformation of the financial system. The growth of the green finance in that sense is undeniable. Until now at least, however, there has been little empirical evidence that growing volumes of, let say, SRI funds, ESG-labels or the green bonds actually align financial flows with the sustainability agenda. Most importantly, this global transformation is thought to come principally from increased market transparency: a standardised approach to carbon footprint/ESG evaluation, integration of financial and non-financial analysis, and generalized disclosure obligations for market participants (investors, asset managers, retail advisors, etc.). As explained by the impact assessment of the European Commission, the current ESG tools and transparency measures have not produced much effect.<sup>2</sup> The article 173 of the French law on

<sup>1</sup> A 40% reduction of GHG emissions compared to the base year 1990, an energy mix with 32% of renewable energies and a 32,5% of efficiency gains in energy use.

<sup>2</sup> European Commission, Impact assessment of proposals for a regulation on a framework to facilitate sustainable investment, disclosures relating to sustainable investments and sustainability risks, and low carbon benchmarks and positive carbon impact benchmarks. SWD(2018) 264 final:

<https://ec.europa.eu/transparency/regdoc/rep/10102/2018/EN/SWD-2018-264-F1-EN-MAIN-PART-1.PDF>

energy transition from 2015, which introduces disclosure obligations for some 840 institutional investors, seems a case in point.

Pursuing its efforts to enhance the market transparency and guarantee robust evaluation methodologies, the European Commission recently introduced several amendments of existing regulations, most importantly:

- A harmonisation at the EU-level of ESG disclosure duties for asset managers and financial counsellors;
- A harmonisation the EU level of methodologies used for building low-carbon and positive carbon-impact indexes
- The launch of preparations for a harmonized classification system called “green taxonomy” in order to enhance benchmarks and labels used by market participants.

These measures are complementary and aim at organising the middle and the bottom-end of the financial intermediation chain. Two major difficulties are not addressed, however:

- firstly, these measures **do not give the regulators any real enforcement powers to transform finance: they are designed to promote “green” products but do little to actively dissuade from investing into “brown” ones.** Their primary purpose is to allow small and big investors to make more informed choices on the market by providing more reliable information. For instance, the green taxonomy, thought to be operational by 2022, is mostly about standardizing the methodologies used to produce eco-labels by the financial market. The only real enforcement introduced in the future EU legislation so far concerns the Member States, which will be obliged to use to taxonomy when preparing their national climate mitigation plans.
- Secondly, the proposed **integration of environment/ESG criteria into the financial intermediation chain omits the very top of the financial system**, i.e. the central bank interventions of the markets: asset purchase programs and, more importantly still, the refinance conditions offered to commercial banks. And yet it’s on that level the most powerful tools exist for transforming the whole financial system, from businesses and investors to credit rating agencies and all the way to investment banks and universal “mega banks”.

#### *Current research on « greening » of monetary policies*

The role of central banks in the low-carbon transition has been studied and discussed in a series of recent academic papers, policy notes and articles, particularly by Monnin (2018a, 2018b), Volz (2017), Battiston et al. (2017), Monasterolo et al. (2018), Battiston & Monasterolo (2019), Matikainen, Campiglio & Zenghelis (2017), De Grauwe (2019), Solana (2018) and Schoenmaker (2019), who all call for central banks to do more to take the climate change into account in their monetary interventions. As for the actual strategy to integrate climate-related objectives into monetary policy, different way have been proposed. The most commonly suggested method, especially among central bankers themselves<sup>3</sup>, is to treat climate impact as “climate risk”, i.e.

<sup>3</sup> See for instance Cœuré (2018).

to measure asset holders' exposure to financial risks linked specifically to how climate change might affect the value of the asset in question. More precisely, the climate risk can be decomposed into physical risks, transition risks and accountability risks; once these different kinds of risk are properly measured and evaluated, goes the argument, they will appear in ratings provided by agencies ratings<sup>4</sup>, in climate stress-tests etc., and central banks will have no difficulty to take them into account as they do already with credit risk or valuation risk. The first preliminary report from NGFS (2018) observes in that respect that "Climate- or environmental-related criteria are not yet sufficiently accounted for in internal credit assessments or in the models of credit agencies [...] which many Central Banks rely on for their operations'. ». A recent study by Monnin (2018b) claims for instance that 4,8% of assets bought through the Corporate Sector Purchase Programme would not have been accepted if the climate-related financial risks had been properly taken into account. In sum, climate change appears as a new financial risk and it is addressed as such by central banks.

While we're not denying this approach might be useful in some cases, we recommend a different, technically less complicated but more radical approach. This approach focuses on measuring carbon footprint – or ESG impacts more generally – without necessarily evaluating associated financial risks: rather, we suggest to recognize sustainability as a criterion in its own right and to integrate it in parallel to prudential rules already used. The reason for this is mainly technical: it is far from clear to what extent negative environmental impacts are readily "translatable" into financial risks valuations, given the short-termism of financial markets and especially if these risks are to be measured on the level of individual financial firms. The risk-based approach might work for some assets and some investors, but if central banks act only once negative environmental impacts are proven to carry specific and properly measured financial risk, they might very well never act all.

Among previous studies of central bank interventions where the focus lies on carbon footprint rather than on financial risks, we share the findings and conclusions of Matikainen, Campiglio & Zenghelis (2017). Analysing the first year of the CSP program, that study concluded that 62% of assets bought by the ECB came from the most carbon emitting sectors; within the euro zone, these sectors represent 58,5% of greenhouse gases (GHG) but only 12% of the gross value added. We also share more or less Matikainen et alli proposals: modifying the assets purchase criteria and rendering these criteria more transparent, changing the portfolio composition according to carbon-impact, coordinating monetary and fiscal policies.

### *An emerging public debate*

These first studies inspired **political debates on the European level**, especially in the European Parliament where several MEPs questioned several times the President of the European Central Bank, Mario Draghi, on his vision of ECBs responsibility to address climate change-related issues. In January 2019, the European Parliament adopted a resolution inviting the ECB to

<sup>4</sup> The ECB uses four rating agencies to evaluate risks for assets accepted in its balance sheet: Fitch, DBRS, Moody's, Standard & Poor's.

« integrate the commitment to the Paris agreement and economic, social and governance principles (ESG principles) into its policies »<sup>5</sup>.

As for central banks and supervisory bodies themselves, the main impetus came from the Governor of Bank of England Mark Carney's famous speech on the "Tragedy of Horizon" from 2015. In 2017, a group of central banks decided to launch the Network for Greening the Financial System (NGFS), with over thirty central banks and supervision authorities from all over the world and a secretariat hosted by Banque de France. The NGFSs mandate is to promote best practices among central banks and « contribute to the development of environment and climate risk management in the financial sector ». In its first preliminary report from 2018 the NGFS admits central banks can "lead by example" in the struggle to align financial system to climate targets, however no concrete recommendations have been published yet.

The rest of this note is divided into three sections:

The first section presents results from the study conducted by two researchers specialized in climate-related financial risk exposure, Stefano Battiston (FINEXUS Center for Financial Networks and Sustainability at University of Zurich) and Irene Monasterolo (Vienna University of Economics and Business).

The **second section** explains how the ECB could actively promote the low-carbon transition within the limits of its current mandate. Our propositions concern both asset purchase programs and general refinance conditions. The latter aspect is crucial: the collateral framework – eligibility criteria and haircuts – should assimilate environmental evaluation in parallel to traditional prudential rules.

In the **third section** we briefly answer to most frequent objections to the suggested approach.

<sup>5</sup> European Parliament resolution of 16 January 2019 on the ECB Annual Report 2017 (2018/2101(INI)):  
<http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//P//TEXT+TA+P8-TA-2019-0029+0+DOC+XML+V0//FR>



## I. Presentation of the study and of results

### A) ECB's monetary interventions and the CSPP

In the case of the Eurozone, the emerging debate about central banks and climate policies coincides with ECB's numerous monetary interventions in the aftermath of the global financial crisis of 2007/2009. Arguably, "unconventional" monetary policy enabled central banks to rescue the financial system from collapse and prevented a much deeper recession. However, the Eurozone macroeconomic performances remain gloom: the inflation rate is too low, the unemployment figures remain very high, and the economic imbalances between different regions of the Eurozone remain as deep as before.

In 2015, the ECB's monetary interventions entered a new phase with the launch of Quantitative Easing, a vast asset purchase programme designed to help the recovery. In three years, the ECB bought assets for over €2600Bn across four sub-programmes: Corporate Sector Purchase Programme (CSPP), Public Sector Purchase Programme (PSPP), Asset-backed Securities Purchase Programme (ABSPP) and Covered Bond Purchase Programme (CBPP3). The empirical analysis provided below concerns only the CSPP, launched in June 2016 and officially halted in December 2018 together with the entire QE programme.

The asset purchases made during the CSPP have been delegated to six central banks which are member of the Eurosystem: Banque de France, Banco de España, Banca d'Italia, Deutsche Bundesbank, Banque nationale de Belgique et Suomen Pankki/Bank of Finland. 30% of the assets were bought on the preliminary market, 70% on the secondary market. Eligible assets comprise euro-denominated corporate bonds ranked as investment grade<sup>6</sup> by at least one of the four rating agencies used by the ECB; and excluding bonds issued by credit institutions.<sup>7</sup> In total, 1141 assets were bought for a total value of €178Bn.

Though it represents only a small fraction of the QE, the CSPP has been severely criticized by environmental NGOs, academics, MEPs and even within the Council of Governors of the ECB itself.<sup>8</sup> Most of the criticism – in particular the Grantham Institute study quoted above (Matikainen et alli 2017) – pointed out that the CSPP favours only the largest companies operating in the most carbon-intensive sectors.

<sup>6</sup> Investment grade corresponds to bonds whose issuers are rated between AAA and BBB- by rating agencies (as opposed to *non-investment grade* for lower rates).

<sup>7</sup> A fraction of CSPP eligible bonds were emitted by financial branches of non-financial parent-companies. These bonds were assigned to the economic sector of parent-companies.

<sup>8</sup> As read in the minutes from the ECB Council of Governors meeting from October 26, 2017: "A remark was made that the CSPP was perceived as favouring large companies over SMEs." Available online: <https://www.ecb.europa.eu/press/accounts/2017/html/ecb.mg171123.en.html>

When asked by MEPs about the validity of these findings, the President of the ECB Mario Draghi declared, on July 9 2018: “To my knowledge, we don’t have an analysis of the impact [of QE on climate change] or of climate change considerations in [the ECB’s] programme but I can certainly say that we will look into this and see what’s the effect.”<sup>9</sup> As far as we know, no such study has been released by the ECB since.

End of December 2008, the ECB announced the CSPP was coming to an end just as the rest of the QE, but adding that the revenues of the maturing bonds would be reinvested in the same types of assets. During the year 2019, the ECB should thus reinvest some €201 Bn, including €6 Bn in corporate bonds.

## B) The Methodology

In the absence of an official evaluation produced by the ECB itself, and while the NGFS is set to publish its second report, we decided to update the research about the CSPP and look at the lessons to draw from it. For this purpose, we asked two researchers specialized in climate-related financial risk exposure, Stefano Battiston (FINEXUS Center for Financial Networks and Sustainability at University of Zurich) and Irene Monasterolo (Vienna University of Economics and Business), to estimate the CSPP portfolio exposition to economic sectors which are highly climate-relevant and seem most impacted by the EU climate policy. For the first time, the study produced an estimate of the exposure for national central banks members of the Eurosystem.

The presentation below is deliberately brief; for a longer discussion of the methodology and the data analysed, see the technical note provided by the researchers (Battiston & Monasterolo 2019) at the FINEXUS website.<sup>10</sup>

The study analysed the totality of the bonds bought by the ECB through the CSP Programme in the years 2016-2018. The CSPP portfolio was divided into economic sectors and subsectors according to issuing companies, using the European classification system NACE Rev2. The NACE codes were grouped in order to clearly distinguish climate policy-relevant sectors (the most and the least carbon-intensive) and other sectors. See the technical note (Battiston & Monasterolo 2019) for a detail presentation of the classification.

The study confirms and completes previous results, and adds several new findings:

- it covers all the assets acquired through the CSP Programme, presenting a complete picture of the portfolio and its impact in terms of climate-policy
- it allows for comparisons between portfolio of the six central banks who run the CSPP on behalf of the ECB

<sup>9</sup> Transcript from the “Monetary Dialogue” with Mario Draghi, July 9, 2018. Available online: [http://www.europarl.europa.eu/cmsdata/151961/Monetary%20Dialogue%2009072018\\_FR.pdf](http://www.europarl.europa.eu/cmsdata/151961/Monetary%20Dialogue%2009072018_FR.pdf)

<sup>10</sup> [https://www.finexus.uzh.ch/en/news/cspp\\_sustainable\\_finance.html](https://www.finexus.uzh.ch/en/news/cspp_sustainable_finance.html)

- it compares the eligibility list presented by the ECB with a benchmark developed independently by the researchers, relying on the same eligibility criteria as the CSPP
- it analyses the maturities of CSPP assets, allowing for comparisons of short-term and long-term assets
- it completes the sector-analysis with an analysis of green bonds present in the portfolio

The NACE taxonomy classifies economic sectors; it is imprecise as a tool for estimating carbon impact of economic activities on the level of individual companies: different firms with the same NACE code can have widely different carbon footprint reflecting different technological choices and different diversification strategies. Utilities is a case in point: in the French case, the dominant role played by nuclear energy (75% of electricity production, as compared to 26% on average for the EU in 2016) reduces automatically the fossil fuel reliance (fossil fuels still represent 46% of electricity produced on the EU but only 10% in France. Thus, while it does make sense for the EU as a whole to consider utilities as a key climate-policy relevant sector – together with extraction and distribution of fossil fuels, car manufacturing and energy-intensive industries –, it seems less so in the French case (where other questions arise as for the sustainability of the nuclear industry).

Rather than relying on NACE codes, it would thus be preferable to conduct a **granular carbon footprint analysis of debt issuers or even of individual debt instruments issued** – the latter option would provide a better picture of a companies operating in sectors with radically different carbon footprints. However, this is currently not possible given the lack of full and reliable carbon footprint/ESG data on the level of companies and assets (green bonds are an exception but their volume remains low and concentrated to a few sectors). As for private ESG data and index providers, the available evaluation is fragmentary and relies on not-standardised, opaque methodologies, making ratings difficult to compare and globally unreliable. The **need for reliable data and evaluation methods**, validated by independent scientific research rather than private service providers, and followed-up by enforcement policies so that market participants really use them, is a key issue for central banks, supervisory agencies and legislators. The methodology developed by the researchers solves the problem in part by focusing on the most climate-policy relevant sectors and including direct and indirect emissions as well as carbon leakage risks as estimated by the European Commission (Battiston et al. 2017, Monasterolo et al. 2018).

In any case, doing nothing while waiting for granular environmental analysis of companies and assets is clearly not an option, not least because the current regulation proposals discussed above will not get us there without further and much more ambitious legislation.<sup>11</sup> Most importantly, the sector approach seems to us not merely the only one available for a comprehensive analysis of financial assets, but also globally relevant in spite of its imprecisions. The reason for this is that *relative* carbon footprint contributions of different sectors seem very stable over time: a recent OECD study shows for instance that the ranking of most polluting

<sup>11</sup> This point is made clear by a recent position paper published by a group of NGOs “NGO recommendations on sustainable finance policies for the next Commission’s 2020 workplan and beyond”, SOMO et al., April 2019.

sectors in 2060 will be the same as today, both in terms of material consumption or in terms of GHS emissions.<sup>12</sup> This means that sector-level analysis still matters for climate policies.

#### *Estimation of the CSPP portfolio and the benchmark*

Given the fact that ECB does not provide any details of its asset purchase programmes – for reasons which might be legitimate, for instance to avoid further speculative movements on the assets concerned – the actual composition of the CSPP portfolio as presented in the next section is an estimate. This estimate relies on the proportionality or “market neutrality” hypothesis: since the ECB committed publicly to calibrate the programme as to reflect the current bond market’s composition (avoiding any “market distortions”), we can assume that the portfolio will contain different sectors in the same proportion as they are available on the corporate bonds market (limited by the eligibility criteria already mentioned: investment grade bonds denominated in euro issued by companies other than credit institutions).

To test the neutrality hypothesis, Battiston et Monasterolo (2019) produced a benchmark, *i.e.* a list of eligible assets produced independently, with data obtained from financial information providers, but applying the same eligibility criteria as those claimed by the ECB. This “double check” exercise serves primarily to enhance our understanding of the underlying bond markets within every national jurisdiction: if the case our understanding of the underlying market is distorted in one way or another, the bias will impact the asset purchases and thus the final objectives.

The list of eligible assets in the Battiston & Monasterolo benchmark turns out to be slightly different: 1538 assets issued by 282 individual companies, as compared to 1109 assets issued by 237 companies of the CSPP programme. Nevertheless, **both lists produced very similar results** (see the next section), which seems to confirm that the proportionality rule has been respected. The problem raised by this policy note lies elsewhere: in the very definition of market neutrality and its effects in terms of portfolio exposure to the most carbon-intensive markets.

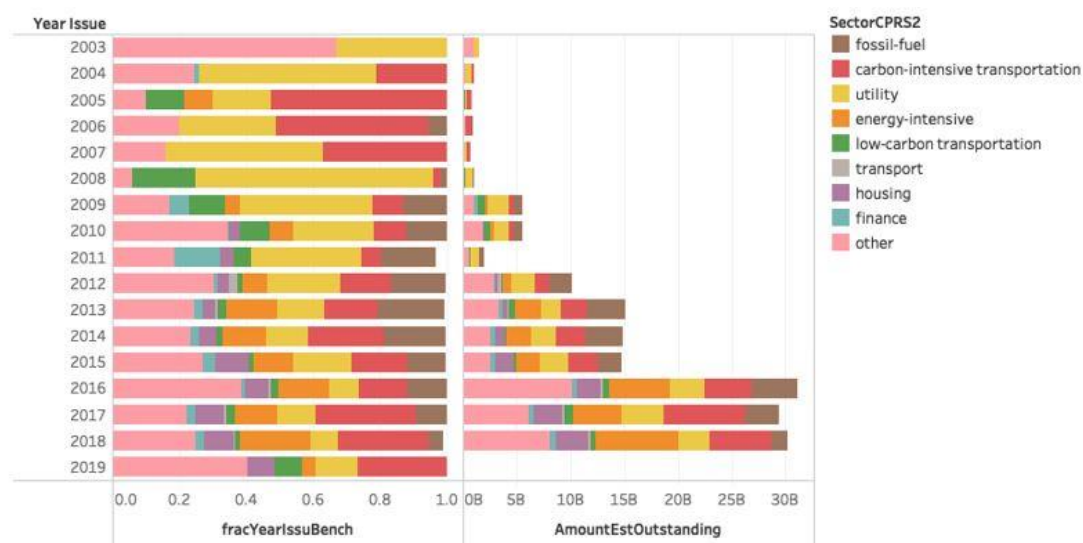
<sup>12</sup> *Global Material Resources Outlook to 2060. Economic drivers and environmental consequences*. OCDE, février 2019.

## C) Presentation of results

### Rapid growth of the corporate bond market

As shown in the chart 1 below, the period of “non-conventional policies” in the aftermath of the global financial crisis corresponds to a rapid growth of debt emission in the corporate segment. Most importantly, corporate debt issuance bounced significantly after the launch of the CSPP in June 2016. This step-wise growth profited most to **companies operating in fossil fuels and car manufacturing sectors**. On the other end of the spectrum, European rail-bound collective transports did not profit from this growth: they represent a significant fraction in the very first years of crisis management (2009-2010), when the global outstanding amount was still very limited, but they become insignificant in the following years. All in all, the CSPP appears to be a **lost occasion to invest in sustainable transports within the eurozone countries**.

**Chart 1. Year of issuance of investment grade corporate bonds present on the euro market as of January 2019. To the left the share of each climate-relevant sector, to the right the amount outstanding (€Bn).**

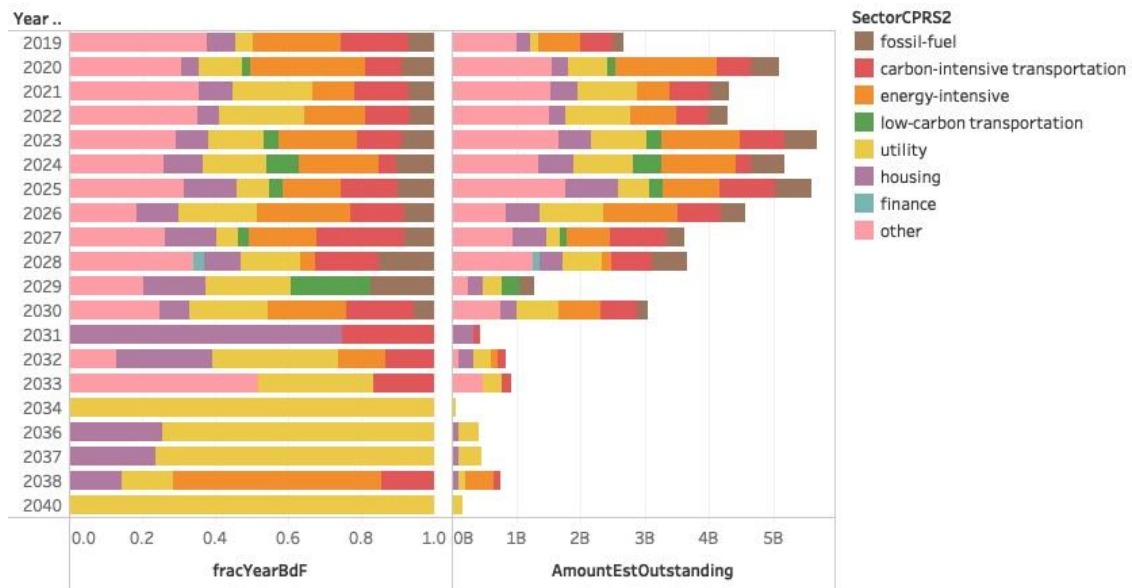


Source : Battiston & Monasterolo (2019)

### Fossil fuels present in the portfolio throughout the 2020s

We arrive at the same conclusion when dividing the outstanding corporate bond stock in maturity years (chart 2): **assets linked to fossil fuels keep an important place for the next ten years (2019-2020)**, as do car manufacturing and energy-intensive sectors. The low-carbon transportation remains insignificant.

**Chart 2. Year of maturity of investment grade corporate bonds present on the euro market (2019-2040): to the left the share of each climate-relevant sector, to the right the amount outstanding (€Bn)**



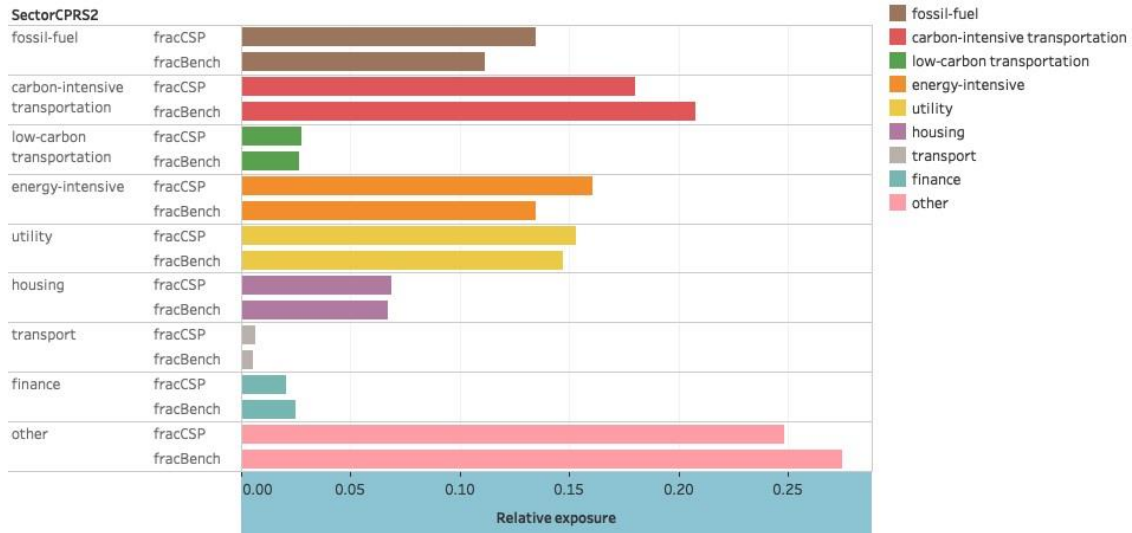
Source : Battiston & Monasterolo (2019)

### The CSPP reproduces the market

The chart 3 below presents two estimates of how the actual CSPP portfolio looks like if the purchase policy complies to the market neutrality objective claimed by the ECB. Upper bars show the portfolio composition according to the ECB eligibility list, the lower ones show the composition according to the benchmark produced independently by the researchers (see previous section). As we see the differences between the two estimated are limited, which suggests that the market neutrality objective has been attained. Most importantly, **both estimates confirm the heavy weight of most carbon-intensive sectors** within the portfolio (fossil energy extraction and distribution, car manufacturing, most energy-consuming sectors and utilities<sup>13</sup>), and of assets issued by a small group of the largest European companies operating in these sectors.

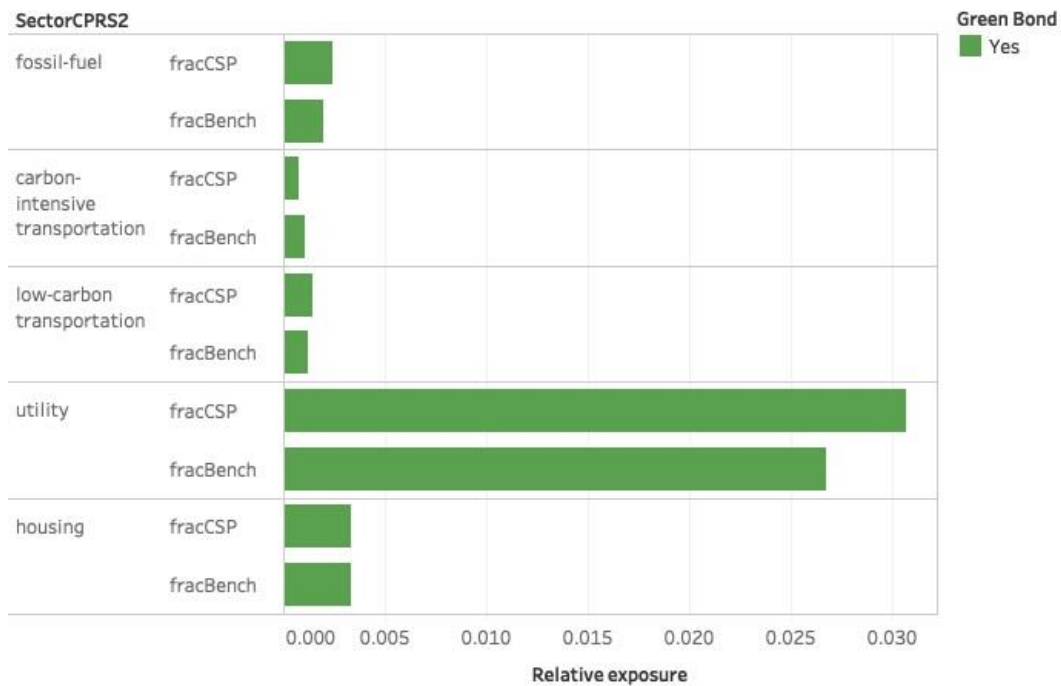
<sup>13</sup>In 2016, 46% electricity production within the EU still came from fossil energy sources.

**Chart 3. Two estimates of business sector composition of the CSPP portfolio: according to the ECB eligibility list (upper bars) and to the Battiston & Monasterolo (2019) benchmark (lower bars): relative shares of each sector.**



Source : Battiston & Monasterolo (2019)

**Chart 4. Two estimates green bonds present in the CSPP portfolio: according to the ECB eligibility list (upper bars) and to the Battiston & Monasterolo (2019) benchmark (lower bars): relative share of green bonds for each sector.**



Source : Battiston & Monasterolo (2019)

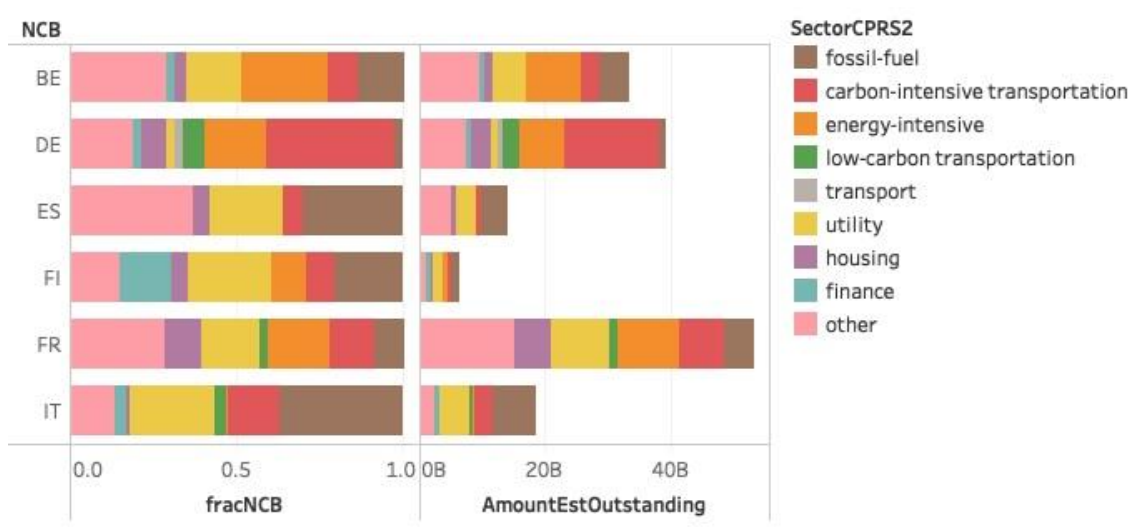
### Green Bonds holdings remain insignificant

The global picture remains unchanged when we take into account green bond issuance (chart 4): **the amount outstanding remains very limited** and it's heavily concentrated in the utilities sector. Also, green bonds are issued with **shorter maturities than average**, which means that this niche market does not – not yet – represent the long-term drive of the financial markets.

### Banque de France, the largest buyer within the CSPP

Chart 5 below provides an estimate for assets purchased by each of the six national central banks which took part in the CSP programme. As for the global ECB portfolio, the individual estimates rely on the underlying bond markets for each jurisdiction concerned and on the proportionality hypothesis where central banks asset purchases do not “distort” the markets. Given the size of the French bond market, we estimate **Banque de France is the largest asset buyer within the CSPP, followed by Bundesbank and National Bank of Belgium**.

**Chart 5. CSPP portfolio estimates for six national central banks. To the left the share of each climate-relevant sector, to the right the amount outstanding (€Bn).**



Source : Battiston & Monasterolo (2019)

Banque de France is also the only central bank within the CSPPP buying only from within its “home market” (bonds denominated in euros issued by French companies); the other five central banks had to cover other countries of the eurozone in addition to their national jurisdiction. This means that the Banque de France portfolio reflects exclusively the conditions of the national bond market.

When compared to the global CSPP portfolio, the Banque de France portfolio contains less fossil energy and car manufacturing and more energy-intensive sectors. In comparison Banca d’Italia

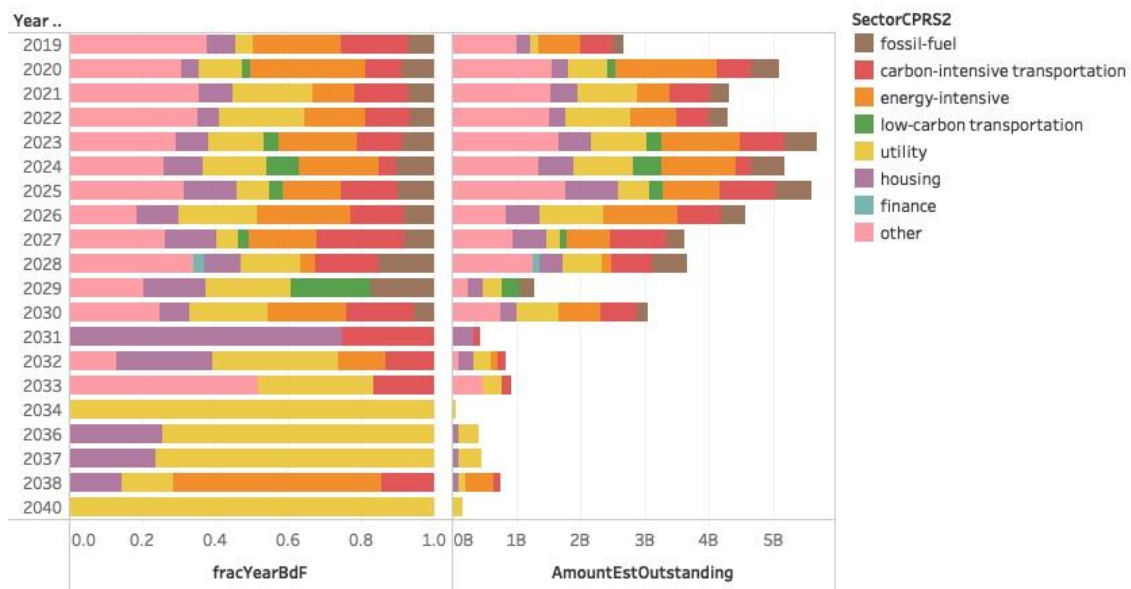


and Banco de España contains most fossil fuels (40% and 30%, respectively), whereas German Bundesbank invests heavily in car manufacturing (35% of the portfolio).

Carbon-intensive sectors keep their rank for ten years to come

Finally, a look at the maturities within the Banque de France portfolio confirms the results from the CSPP as whole: the most carbon-emitting sectors keep their dominant place throughout the years 2019-2029. The only difference is the relative share of fossil fuel and car manufacturing on the one side, highly energy-consuming sectors on the other. As in the case of the global CSPP portfolio, we see no trace of increased share of low carbon transports.

**Chart 6: Year of maturity of bonds held in Banque de France CSPP portfolio (2019-2040): to the left the share of each climate-relevant sector, to the right the amount outstanding (€Bn)**



Source : Battiston & Monasterolo (2019)

## II. Recommendations

The analysis presented above shows a misalignment between the objectives of the EU and the monetary interventions of the ECB in the context of the CSPP: while the current policies of the EU aim to transform the economy towards greater sustainability, the asset purchases of the ECB settle for reproducing the current state of the market ('market neutrality'). This misalignment is not restricted to the CSPP but is also visible in the refinancing channels which central banks use for conducting monetary policy and financial stability supervision.

In the case of CSPP as in other domains, the objective of "market neutrality" does deserve at least a debate and at best to be redefined. By introducing objectives regarding the ecological transition into monetary policy interventions, central banks could achieve several objectives at the same time:

1. Transforming real financial flows, by modifying the allocation of its portfolios and by applying environmental discounts in refinancing operations.
2. Accelerating the implementation of the work being steered by the European Commission on low-carbon indexes, climate reporting and the green taxonomy, by introducing ESG criteria upstream in the financial chain.

The proposals we advance do not require renegotiating European Treaties; the ECB remains independent and focuses on price stability, but when doing so, the ECB would also take in to account the objectives of the EU, as it is currently invited to by the current Treaty provisions (Art. 127 TFEU). Nowadays, the fight against climate change and the implementation of the Paris agreement do carry a central position in the EU's objectives, and the ECB itself has recognised that it is bound by the Paris agreement. This is already a strong legal basis on which to move forward in the debate on the ECB's competence in this domain (see section 4).

### A) Recommendations for the reinvestment of CSPP proceeds

At this stage and for data availability reasons, our recommendations focus mainly on taking into account the carbon footprint, though we are aware of the fact that a broader ESG-assessment of companies and debt instruments is necessary in order to make finance truly sustainable. Later down the road, monetary authorities should rely upon a comprehensive environmental assessment of companies, when transparent and science-based methodologies become available. This is why our first proposal aims at accelerating the implementation of mandatory non-financial reporting, in order to allow the use of robust methodologies for assessing the environmental impact of financial assets in the longer run.

#### 1) Mandatory disclosure of carbon footprint as a new eligibility criterion for CSPP reinvestment

- As soon as possible, the ECB should prepare for **the full integration of carbon footprints into its investment strategy**. For this, the availability of a carbon footprint evaluation at the level of each company is crucial in order to avoid the pitfalls of the

use of the sectoral NACE taxonomy. The carbon footprint-analysis could be carried by private actors under supervision from public agencies. The absence of mandatory carbon reporting is not only a problem for aligning monetary policy with climate objectives; it is a challenge for all market participants, from credit ratings agencies to investors and regulators.

- The ECB should announce that as from January 1st 2020, the availability of a carbon footprint evaluation will become an additional criterion for the purchase of corporate bonds under CSPP. All purchases will become subject to the existence of a carbon emissions report published by the firm in question. Such an announcement would accelerate ongoing efforts made following the EU's high-level expert group and the current action plan by the European Commission, which aim to make disclosure mandatory. This measure would be best applied at the Eurozone level. Alternately, voluntary national central banks could show the way by applying such a measure within their jurisdiction. The Banque de France, as founder of the NGFS, and thanks to the early adoption of Article 173 of the law on energy transition, is ideally positioned to champion such an initiative within the Eurosystem.
- Starting from January 1 2020, the ECB should announce that **it will stop relying on ratings agencies that do not integrate GHG analysis into the rating of companies issuing bonds in a transparent manner**. Such an announcement would once again accelerate work on introducing ESG criteria by ratings agencies, and as such, it would ultimately benefit the entire financial sector, not just the ECB.
- Clarification of responsibilities within the European Supervisory Authorities (ESAs) in the field of assessing GHG emission footprints is needed. From January 2020, **ESMA, EBA and EIPO should have the necessary technical know-how to check and guarantee the robustness of the assessment models used by ratings agencies**. In so far as the ECB relies on private actors for the GHG analysis, an internal check of those methodologies is absolutely necessary in order to ensure the quality of the process.
- In the longer run, we recommend the establishment of a public agency tasked to collect and validate the data at the level of each issuing company. This data shall be made public and available for the research community. The European Union could thus **create a public ratings agency** specialised in environmental and ESG criteria assessments.

## 2) Re-profiling the CSPP portfolio in the reinvestment phase

The review of the CSPP rules would be a lever with which to accelerate the transformation of the European corporate bond market.

- **The Eurosystem should phase out its holdings of bonds linked with the production and distribution of fossil fuels entirely, with the exception of assets labelled as green**

**bonds and taking into account industrial conversion indicators (such as the share of income coming from different activities).** The Eurosystem should start reducing the fossil fuel composition as soon as 2019, with a view to signalling a clear exit path from carbon intensive sectors:

- **Stop purchasing fossil fuel bonds** with maturities longer than three years
  - Future reinvestments should aim to **gradually reduce the overall share of the fossil fuel sector** in the overall CSPP portfolio. In this manner, the “recycling” of CSPP proceeds would send a strong signal to the bond market.
- **Similarly, the Eurosystem should gradually reduce the share of other carbon - intensive sectors, with the exception of bonds labelled as green, and taking into account industrial conversion indicators.** This reduction should be more gradual than the previous one but should still signal a clear exit path.
- **Increase the share of green bonds with longer maturities, while developing the internal capacity to check the methodologies used to assess their carbon footprint** (see proposals above). If the supply of green assets were to be insufficient, the ECB could easily switch its purchases from CSPP to PSPP, in particular by purchasing green sovereign bonds issued by member states or by supranational institutions such as the European Investment Bank.
- **Increase the share of sectors explicitly aligned with transition objectives, such as rail transportation.** Again, if the supply of green assets is insufficient, the ECB could easily switch its purchases from CSPP to PSPP, in particular by purchasing green sovereign bonds issued by member states or by supranational institutions such as the European Investment Bank.

## **B) Revising the Collateral Eligibility Framework**

Beyond the CSPP, a more general revision of the ECB’s approach to its collateral policy is necessary, involving changes in eligibility and haircut rules for all refinancing operations managed by the Eurosystem (from open-market operations to reserve requirements). All those operations rely upon the ECB’s Collateral Eligibility Framework, through which the ECB defines the criteria and price at which an asset can be pledged as collateral to the ECB. Article 18.1 from the ECB’s statutes requires the ECB to “conduct credit operations with credit institutions and other market participants, with lending being based on adequate collateral.”. The “adequacy” of collateral has been interpreted by the ECB as a prudential requirement: by choosing which categories of assets it accepts and under which terms, the ECB needs to protect itself from possible financial losses due to counterparty risk.

The ECB’s collateral eligibility rules have changed a lot since the creation of the ECB. A study has identified no less than 48 amendments to the collateral framework over the 2001-2014 period leading to further easing of the eligibility requirements, compared to 27 modifications

aimed at tightening the rules.<sup>14</sup> Most of those modifications were adopted after the eruption of the great financial crisis of 2007-08. All asset classes were affected: sovereign bonds, covered bank bonds, asset-backed securities, over-the-counter assets etc. One can easily understand why this issue was at the core of crisis management: easing eligibility requirements was a key measure by which the ECB was able to save the financial system – not without creating deep contentions within the ECB’s Governing Council and Executive Board.

The ECB went on to distinguish between the “permanent” collateral framework and the “temporary” one. However, this distinction was rather an illusory one, as a number of temporary modifications were extended repeatedly, until they became permanent. The ECB’s capacity to adapt was criticized by proponents of an orthodox view of money, who consider that such monetary policy easing leads to weakening self-discipline in the banking sector, while adding unjustified risk onto the ECB’s balance sheet. However, we believe this adaptation was necessary to preserve the integrity of the Eurozone.

Today, this capacity to act through the collateral eligibility rules should be put to the use of the green transition. A point of reference for starting a discussion on the ECB’s climate goals could be to define a reduction path for GHG emissions in its portfolio that would be compatible with the EU climate targets for 2030. Other benchmarks are also possible, for example the share of its budget that the EU commits to allocation to climate change mitigation.

Principles for how to review the collateral rules of the ECB have been proposed by Schoenmaker (2019). Once all eligible assets can be attributed a score according to their GHG emissions, the ECB could calibrate its collateral rules to achieve a certain portfolio composition that is aligned with the main EU objective.

<sup>14</sup> Christopher Weber, *The Collateral Policy of Central Banks – An Analysis Focusing on the Eurosystem*; Ifo Institut, Munich 2016, p. 98 pp.

### III. Frequently asked questions

#### A. Do climate change falls within the ECB's mandate?

Our proposals do not require to amend the European Treaties nor the statute of the ECB. The ECB shall remain independent and its focus remains on price stability. However, it shall account for the EU's objectives, just like it is invited to do under the current legal mandate.

Article 127 of the TFEU stipulates that the ECB shall support the general objectives of the EU as defined in Article 3.<sup>15</sup> Although the list of objectives falling in this category is potentially long, it is now clear that the fight against climate change and the implementation of the Paris agreement are central in the EU's objectives. The ECB itself has declared that it is bound by the Paris agreement, and a recent speech by ECB Executive Board member Benoit Cœuré also signalled the ECB's willingness to move in this direction.<sup>16</sup> This alone should be enough to advance the debate on the role of the ECB on climate change.

Besides, another legal basis for integrating climate change into the ECB's strategy can be found in article 11 of the TFEU (Solana 2018). EU jurisprudence on article 11 reveals a procedural obligation for all EU institutions to take other policy objectives of the EU into account when designing their own policies. In the case of CSPP, it appears the ECB has not fulfilled this obligation, since Mario Draghi himself has declared that the ECB does not have studies on the climate impact of the CSPP.

#### B. Are there enough green bonds?

Improving the composition of the ECB's portfolio without reducing the size of the balance sheet logically requires an additional supply of eligible assets by the market. This is even harder to achieve if one wants to make certain assets completely ineligible as we propose.

Fundamentally, the right answer would be found at the macroeconomic level: by issuing sovereign debt aimed at financing important public investments which in turn would involve many smaller companies and private investments.

Even though the ECB cannot increase issuance directly, it could send a strong signal to public and private investors if it were to integrate climate change within its monetary policy.

Such macroeconomic coordination remains to be seen in practice. In the meantime, another approach can be designed to better identify the green bond universe in the existing market, by a fine-tuned analysis of the sectors and sub-sectors that are explicitly aligned with the green transition. However, as things stand the sectorial approach does have several pitfalls which we discussed in section 1.

<sup>15</sup> « 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. »

<sup>16</sup> « There is scope for central banks themselves to play a supporting role in mitigating the risks associated with climate change while staying within our mandate. », speech by Benoît Cœuré at the conference "Scaling up Green Finance: The Role of Central Banks" in Berlin, 8 November 2018

Thus, a frequent objection is that there are not enough green bonds on the Eurozone market which the ECB could purchase, let alone concentrate its CSPP programme on. **In reality, aligning monetary policy with climate priorities implies first and foremost starting to divest from the most carbon-intensive assets; and only at a later stage to increase the purchase of assets which clearly contribute to the low-carbon transition.** In the case of CSPP, if the supply of such assets remains insufficient, the ECB should rebalance its portfolio towards other sections of its expanded asset purchase programmes (by compensating with an increasing the size of PSPP, ABSPP, or CBPP3).

### C. What about market neutrality?

Last but certainly not least, the most frequent objection expressed by central bankers would be that such proposals violate the principle of market neutrality, arguably one of the main tenets of monetary policy. However, we argue that the concept of market neutrality is problematic, in so far as it does not prevent asset purchase programmes from distorting markets. At the very least, the definition and implementation of the market neutrality principle deserve an in-depth debate.

- First, as shown by Monnin (2018b), the market neutrality approach neglects climate-related financial risks; meaning that the CSPP portfolio could be much more exposed to risks than the ECB's own risk framework allows.
- Second, we saw that CSPP primarily benefits the 280 largest corporations in Europe because of the eligibility rule (investment grade). By concentrating its monetary injections towards this small market segment, the ECB increases its capitalisation even further, reinforcing the dominance of a small number of companies over this market. This outcome is not neutral in terms of the sectorial allocation of capital; neither is it optimal from the viewpoint of the overall economy.
- Finally, the ECB's own risk management approach demonstrates that perfect market neutrality is neither possible nor desirable. Because of its risk framework rules, the ECB reduces the range of assets it purchases, resulting in a less market-neutral approach. This shows that in practice the ECB is constantly forced to balance out different constraints and objectives, resulting in trade-offs between risk and neutrality. This logic should be extended to climate change and the environment: not only should the Eurosystem ponder its portfolio composition according to the assets' risk profile, but also according to their contribution and exposure to risks linked with climate change.

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