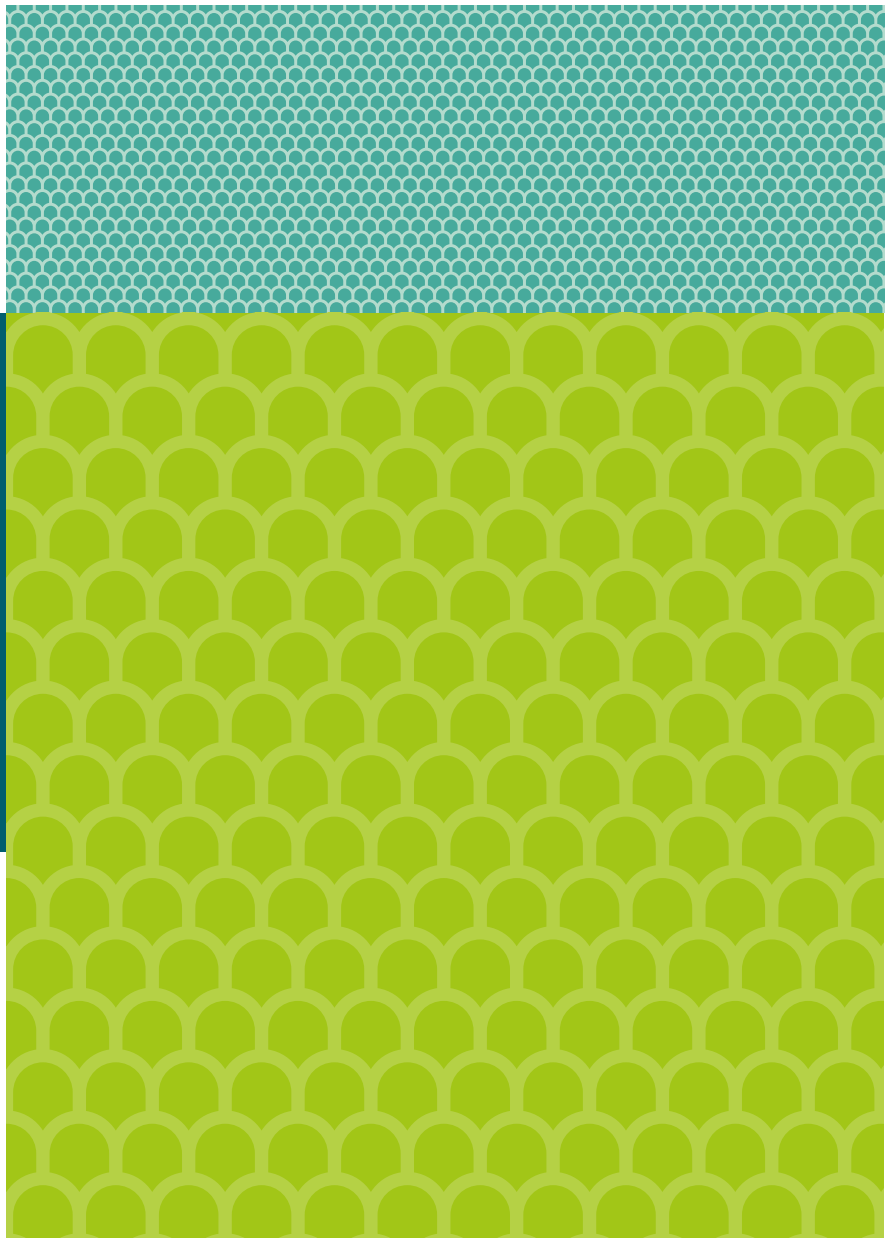
BANK OF ENGLAND

Greening Monetary Policy

# Options for greening the Bank of England's Corporate Bond Purchase Scheme

May 2021



BANK OF ENGLAND

Discussion Paper

# Options for greening the Bank of England's Corporate Bond Purchase Scheme

May 2021

# Contents

# Executive summary

The United Kingdom has committed to a legally binding target of net zero greenhouse gas emissions by 2050, and a reduction of 78% in emissions by 2035 (relative to 1990). Other countries are making similar commitments, and will come together at the UN Climate Change Conference 'COP 26' later this year to review, challenge and strengthen the actions needed to achieve a timely and orderly transition.

Achieving that transition is vital if we are to maintain monetary and financial stability – central banks' core mission. But it will only happen if there is significant investment and structural change across every part of the global economy. Government policy, and companies' actions in response, will be the primary drivers of that change. But lenders and financial market investors have a crucial supporting role to play. By allocating finance in ways that sharpen companies' incentives to reduce emissions, they can help to 'pull forward' orderly transition relative to the path set by government policy. To do so, investors and asset managers must navigate substantial uncertainties over the nature and timing of transition, and the efficacy and timeliness of companies' actions to reduce emissions. They must also reconcile climate considerations with their other investment objectives.

The Bank of England is itself an investor in corporate assets through its Corporate Bond Purchase Scheme (CBPS). The CBPS was introduced in August 2016 as part of a broader package of unconventional policy measures designed to ease monetary conditions following the referendum on leaving the European Union. It purchases investment grade sterling corporate bonds issued by companies judged to make a material contribution to UK economic activity.

Given its monetary policy purpose the size of the CBPS – currently some £20bn, or 6.5% of the sterling corporate bond market – is set by the Monetary Policy Committee (MPC) in light of the Committee's assessment of the economic outlook. While it is therefore possible that the target stock could rise further if the MPC judged further easing was needed, in due course, the CBPS will unwind. As such, the Bank does not expect to be a permanent investor in corporate bonds.

While the Scheme exists, however, the Bank does have discretion to adjust the composition of CBPS holdings. Currently, these holdings are allocated across sectors of the economy according to the amount of eligible debt outstanding in each sector. This approach aims to minimise the impact of the CBPS on relative borrowing costs across sectors: so-called 'market neutrality'. But there is increasingly persuasive evidence that market prices materially under-estimate the risks and the opportunities associated with the transition to net zero. That creates a divergence between today's view of market neutrality and how a portfolio might look if prices did properly reflect those factors. Until recently, the Bank did not have the mandate to reflect such mispricing. In March this year, however, the Chancellor updated the MPC's remit to confirm that the economic strategy of the Government – which the MPC is expected to support as a 'secondary objective' – includes supporting the transition to a net zero emissions economy. This change requires the Bank to review the makeup of the CBPS.

In judging how the CBPS might best support an orderly economy-wide transition to net zero we propose to follow three broad principles. Those principles are shaped by the Scheme's overarching purpose as a monetary policy tool, and the Bank's broader obligations as a public body. That means that steps taken to green the CBPS cannot impede the ability of the MPC to achieve its inflation target; must have due regard to protecting public money; and must be capable of clear and transparent explanation using robust and proven metrics.

Against that backdrop, our principles will be to:

1. **Incentivise companies to take decisive action to achieve net zero**: we want firms whose debt we might hold to change their behaviours in meaningful and lasting ways that support orderly transition to net zero by 2050 – not simply to minimise the current climate footprint of our portfolio. Exclusions or divestments will be part of the toolkit, but only where they incentivise that transition;
2. **Lead by example, learn from others**: given the relatively small scale of the CBPS, we will work closely with others in designing our approach: drawing on the work of relevant market-wide initiatives; seeking to influence that thinking where appropriate; and illustrating how comparable investors might approach similar challenges; and
3. **Ratchet up our requirements over time**: as data and metrics on transition pathways and firm-level emissions improve, and issuers have the opportunity to develop credible net zero strategies, our approach will become progressively more demanding, setting higher expectations and sharper incentives.

To operationalise these principles, and drawing on engagement with those leading the development of the most advanced investor frameworks, we propose to explore four key tools:

a. **Portfolio targets**: we see clear benefits to setting and disclosing interim targets for certain climate properties of the CBPS portfolio. Available options (eg target paths for portfolio emissions, or forward-looking temperature rise measures) present different combinations of conceptual merits and challenges. Over time, the Bank will also look to purchase eligible green corporate bonds as the new sterling green gilt programme catalyses issuance;

b. **Asset eligibility**: we see a role for making eligibility for the CBPS conditional on climate-related actions by issuers. Early priorities will include reinforcing the Government's timeline towards mandatory climate disclosures and examining the case for selectively excluding issuers involved in certain activities judged incompatible with transition to net zero;

c. **Tilting purchases**: we will rebalance – or 'tilt' – our purchases of bonds towards eligible issuers with stronger relative performance in terms of the goal of achieving net zero, aiming to take account of past and credible prospective improvements; and

d. **Escalation**: we will design and implement a strategy for the CBPS which features progressively more stringent requirements, and repercussions for issuers who do not meet them. Steeper tilts, removal of eligibility, or future sales of bonds could all be possible responses for issuers whose climate performance does not follow a credible net zero path.

**Figure A** summarises these principles and tools, together with the actions we will take in the near term.

**Figure A:** Overview of the Bank's proposed approach to factoring climate into the CBPS

The remainder of this Discussion Paper sets out the background to these proposals in more detail. Our task over the coming months is to evaluate the benefits and risks associated with our proposed approach in more depth, identifying and remedying any gaps. We will then construct a calibrated package consistent with the principles set out above, robust to current uncertainties over the nature and timing of transition, and using reliable data and metrics. To help shape and guide this process we are seeking feedback on the themes and questions posed in this paper from the widest possible range of stakeholders.

# Introduction

1 Under the Bank of England Act 1998, the Bank of England's Monetary Policy Committee (MPC) has an objective to maintain price stability; and, subject to that, to support the economic policy of Her Majesty's Government, including its objectives for growth and employment. The definition of price stability and the Government's economic policy objectives are set out at least once a year in a remit letter from the Chancellor. The latest letter, sent on 3 March 2021, clarified that the economic strategy of the Government includes supporting the transition to a net zero emissions economy.

2 In response, the Bank announced that it would look to adjust its Corporate Bond Purchase Scheme (CBPS) to account for the climate impact of the issuers of the bonds held, with a view to implementing that approach in 2021 Q4.[1] That undertaking builds on the Bank's annual climate-related financial disclosure, which in June 2020 became the first such report to describe the carbon intensity of a central bank's entire balance sheet, including assets which are held for monetary policy purposes.[2] The next report, due in June, will update this assessment and incorporate new data and methodologies.

3 This paper sets out the Bank's current thinking as to how adjustments to the CBPS might be made. It is framed as a discussion paper because, with thinking in this area developing rapidly, we want both to learn from the many groups already working in this space and to contribute to that debate. Input from this dialogue will inform our final approach.

4 The paper is organised as follows:

- **Section 1** motivates the role that investors, in general, can play in helping to achieve an orderly and timely transition to a net zero economy, alongside governments and firms;
- **Section 2** describes the Bank's specific role as an investor in sterling corporate bonds (via the CBPS), its monetary policy mandate, and the carbon footprint of its holdings;
- **Section 3** sets out the high-level principles that the Bank proposes to use to guide our approach to incorporating climate considerations into to the CBPS;
- **Section 4** describes specific tools that the Bank might use to operationalise these principles, and the trade-offs involved in their use; and
- **Section 5** concludes and summarises the questions on which we are seeking input.

5 We are keen to hear from a wide range of respondents on the proposals and questions posed in this paper: from firms that issue debt; from investors; from academics; from advocacy groups; from international organisations; and the public. Comments should be submitted by 2 July 2021 using the response template available on the Bank's website.[3]

[1] MPC Remit statement and letter, March 2021

[2] The Bank of England's climate-related financial disclosure 2020. This initiative was recognised in the 2021 Central Banking awards.

[3] Response template can be found at: https://app.keysurvey.co.uk/f/41569283/6caa/

# 1 The role of investors in achieving net zero

## a) The economy-wide challenge of transition to net zero

1.1 As one of 191 parties to the 2016 Paris Agreement, the UK has committed to pursue efforts to limit the increase in the global average temperature to 1.5°C above pre-industrial levels. In 2019, the UK became the first G7 country to translate that into a law requiring the government to achieve net zero by 2050[4] – the target recommended by the UN Intergovernmental Panel on Climate Change (IPCC).[5]

1.2 These targets – and similar ones adopted by other countries – are essential if people's health, security and livelihoods are to be protected. But the scale of economic adjustment required to achieve them is vast:

- Global greenhouse gas emissions will need to fall by 7.6% every year of the current decade, according to the UN Environment Programme. [6] That is broadly equivalent to the fall seen in 2020, when much of the world was in lockdown. To play its part, the UK has set out its intention to reduce emissions by at least 68% by 2030, and by 78% by 2035 (both compared to 1990 levels). [7] These goals follow the recommendations of the UK's Climate Change Committee (CCC).[8]
- That need for huge emissions reductions touches every sector of the economy, but to very different degrees. **Chart 1.1** plots the sectoral reductions in UK emissions required by the CCC's orderly or 'balanced' pathway to net zero.
- Achieving these reductions will require timely and very substantial capital investment. OECD estimates suggest that even limiting global warming to 2°C over pre-industrial levels will require $6.9 trillion of global investment a year until 2030. [9] That represents around 8% of global GDP, and compares with recent annual global infrastructure spending of some $3-4 trillion. In the UK, the CCC estimates that investment will need to rise to some £50billion a year (from around £10billion currently) to achieve net zero by 2050 – equivalent to 2.4% of GDP, or 13% of total investment. Offsetting those large upfront costs, the new technologies, infrastructure and business processes from that investment are projected to reduce operating costs materially over time, reducing the average net resource cost to 0.8% of UK GDP.

[4] UK becomes first major economy to pass net zero emissions law - GOV.UK (www.gov.uk).

[5] 'Net zero' means that emissions should be balanced by removing an equivalent amount from the atmosphere. The IPCC recommendations are available at: Summary for Policymakers of IPCC Special Report on Global Warming of 1.5°C approved by governments

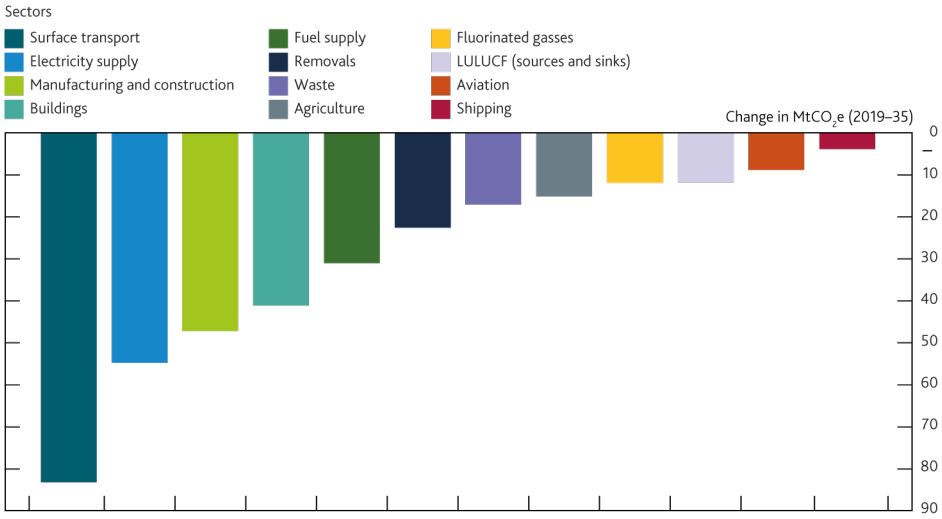
[6] United Nations Environment Programme Emissions Gap Report, 2019

[7] UK enshrines new target in law to slash emissions by 78% by 2035 - GOV.UK (www.gov.uk)

[8] See Sixth Carbon Budget - Climate Change Committee (theccc.org.uk). The (CCC) is an independent body established in 2008 to recommend UK emissions targets (or 'carbon budgets'), and evaluate progress towards meeting them.

[9] Investment required across transport, water and sanitation, telecommunications and energy sectors in a scenario of the International Energy Agency in which there is a 66% probability that temperature increases remain below 2°C. (OECD (2017), Investing in Climate, Investing in Growth).

**Chart 1.1:** UK emissions reductions by sector in the CCC's balanced path to net zero[10]




Source: Climate Change Committee analysis.

Notes: GHG = Greenhouse gases. This includes all the greenhouse gases listed in the Kyoto Protocol (ie carbon dioxide, methane, nitrous oxide and fluorinated gases). GHGs other than CO2 are expressed in CO2 equivalents. MtCO2e = Mega-tonnes of carbon dioxide equivalent. LULUCF = Land-use, land-use change and forestry.

## b) Alternative pathways to net zero

1.3 Change on such a scale will not happen on its own, and there are many potential alternative routes to achieving the ultimate goals. Public policy therefore has a crucial role: in defining national climate objectives; choosing between alternative pathways towards them; and – most crucially of all – implementing the policies needed to deliver those pathways.

1.4 These choices will have a critical bearing on the outcomes and risks faced by the global economic and financial system. **Figures 1.1** and **1.2** show three scenarios developed by the Network for Greening the Financial System (NGFS), an international group of central banks and supervisors of which the Bank was one of eight co-founders:[11]

a) The '**orderly' scenario** (blue lines) involves an early and progressive introduction of climate policies. This is the most desirable outcome since carbon prices rise gradually, and emissions fall to levels that should limit global warming to <2°C above pre-industrial levels. This is far from a 'no change' scenario: the economy undergoes a substantial structural adjustment. But that process happens at a pace which avoids the worst risks associated with higher temperatures, and without forcing sudden adjustments.

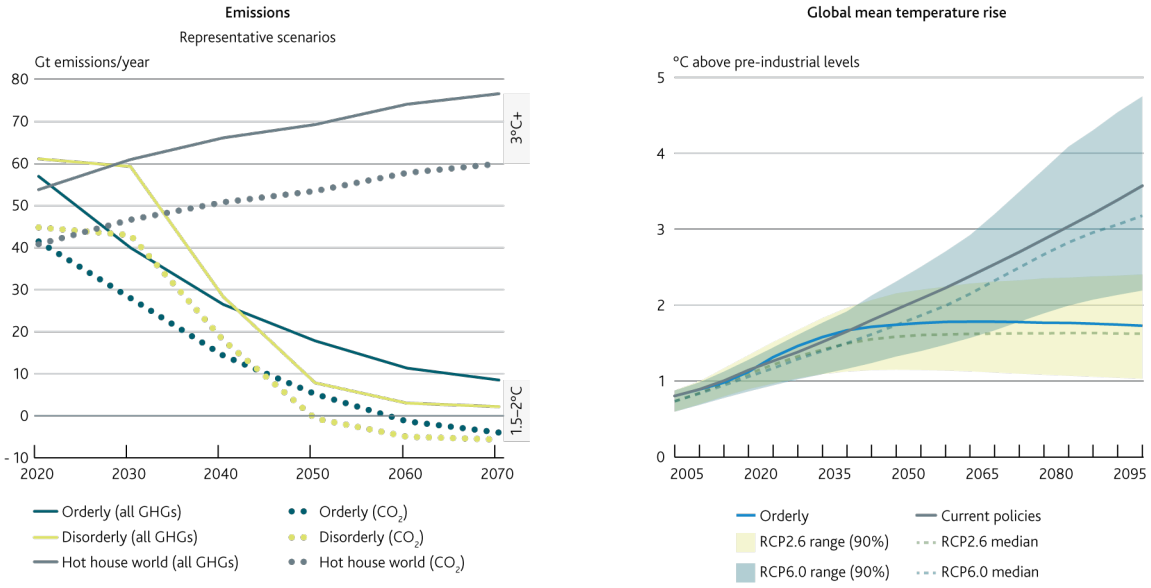
[10] CCC Copyright, terms and conditions

[11] NGFS Climate Scenarios for central banks and supervisors

b) In the '**disorderly' scenario** (yellow lines) policy actions to reduce emissions are taken, but do not start until 2030. At that point a shift in policy causes carbon prices to rise sharply, leading to macro-economic disruption similar to, or greater than, the Global Financial Crisis of 2008-9. Exposed industries go into sudden decline leaving many people to find new work. The greatest threat to financial stability in this scenario stems from **transition risk** – the impact on asset valuations of an abrupt change in carbon price. This leaves 'stranded' assets, of greatly reduced (or, in extremis, zero) value.

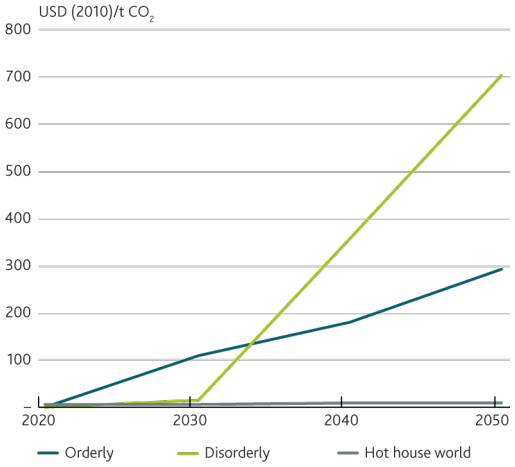
c) In the '**hot house world' scenario** (grey lines) there is no change in policy to address climate change. The private costs of carbon production (the 'emission price' in **Figure 1.2**) remain below the level required for companies to internalise the broader impact on the economy, and emissions and temperatures rise materially. This leads to severe manifestations of climate change, including irreversible rises in sea level. From an economic perspective, the greatest threats come from this **physical risk** to the value of property and assets.

**Figure 1.1:** Global emissions and temperature rises in representative NGFS scenarios

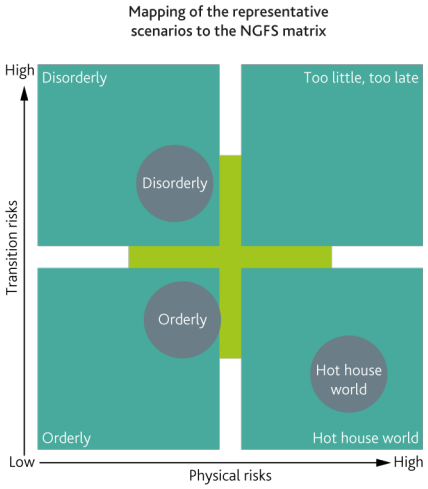



Source: IIASA NGFS Climate Scenarios Database, using marker models.

**Figure 1.2:** Emission pricing and risk mapping in representative NGFS scenarios




Source: IIASA NGFS Climate Scenarios Database, using marker models.



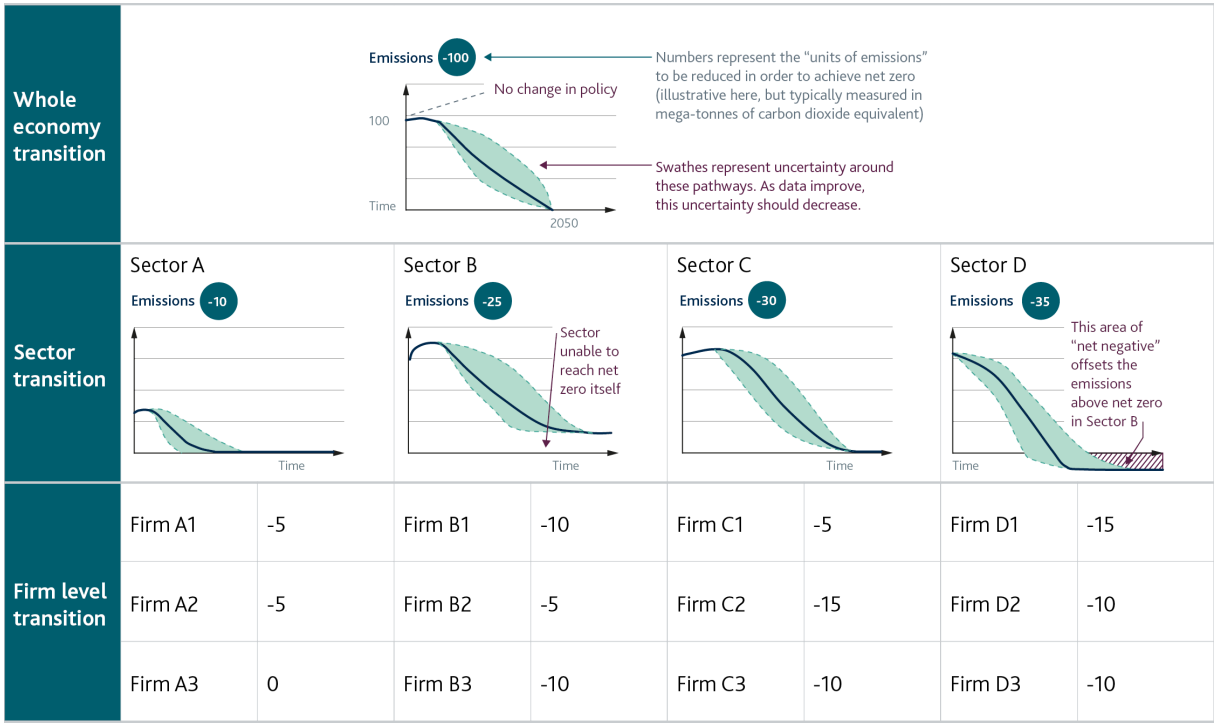

Source: IIASA NGFS Climate Scenarios Database, 90% uncertainty range based on the MAICC6 model for each Representative Concentration Pathway (RCP).

## c) The role of investors

1.5 Pursuing an orderly transition path requires that every part of the economy follows a credible plan to lower emissions in a timely and effective way. **Figure 1.3** provides a stylised illustration. A hypothetical economy must reduce its net emissions by 100 units to reach net zero. This overall reduction (shown in the top panel) is achieved via contributions from different sectors (middle panel) and individual firms (bottom panel). These contributions to overall transition will not be uniform. Sector A, for example, starts with relatively low emissions and so has little adjustment to do. By contrast, emissions in Sector B start from an initially high level; and, although they are reduced substantially, are not able to reach net zero by 2050. Net zero in the economy as a whole is nonetheless achieved because Sector D attains *negative* net emissions: ie it extracts more greenhouse gases than it emits. For example, although agricultural production in isolation is likely to resemble Sector B, the planting of trees and the sequestering of carbon in soils and biomass crops mean that 'agricultural, forestry and land use', overall, has the potential to become net negative

1.6 For the aggregate target to be met, firms' incentives must be aligned with the national goal. Governments have the most powerful tools to affect these incentives through laws, regulations, taxes and subsidies. But they do not hold a monopoly on the incentives felt by companies. In particular, lenders and financial market investors play critical roles in providing the massive funding required by companies' net zero investment plans. By allocating this finance in ways which recognise and incentivise credible emissions reductions plans, investors can sharpen companies' incentives to be aligned with the transition to net zero.

**Figure 1.3:** A stylised 'waterfall' of net zero pathways




1.7 While the concept may be simple, investors face at least three practical challenges in putting it into practice:

## Challenge 1: Uncertainty over the nature and timing of transition.

1.8 Investors do not yet know which pathways to net zero countries will follow – in some cases at an aggregate level (where, unlike the UK, governments are yet to specify a target); and in many more cases at an individual sector level. Government policies are evolving, and emissions-related technological change is hard to predict. Scenario exercises, such as those from the NGFS discussed above, provide aggregate transition paths against which lenders and investors can stress test their portfolios.[12] And indicative sectoral pathways are emerging for some of the more carbon-intensive sectors.[13] But further work on those pathways is critical to building a solid platform for action.[14]

1.9 In the meantime, investors cannot simply wait for this uncertainty to dissipate. Inaction risks crystallising the 'tragedy of the horizon' highlighted by the previous Governor of the Bank of England.[15] To avoid that whilst recognising the reality of uncertainty, investors must devise investment strategies which are robust to different transition paths. That means taking account of opportunities in sectors that are clearly 'ahead of the curve', and risks from those which are clearly acting too slowly.

[12] The Bank of England's own 2021 Biennial Exploratory Scenario for banks will use qualitatively similar profiles as a starting point (www.bankofengland.co.uk/climate-change).

[13] For example UN Environment Programme Finance Initiative Sectoral Pathways to Net Zero Emissions, or the CCC's latest Carbon Budget.

[14] The Paris Aligned Investment Initiative (PAII) for example describes the lack of robust granular sectoral and regional pathways for investment and net zero emissions as 'the most significant gap' in ensuring credible and science-based portfolio alignment: Net Zero Investment Framework

[15] Breaking the tragedy of the horizon – climate change and financial stability. Speech by Mark Carney.

## Challenge 2: Data gaps caused by incomplete company disclosures.

1.10 As well as a sense of the adjustment path that must be followed, investors also require reliable ways to assess the credibility of companies' climate investment plans, and measure their emissions. This is hampered by the limited share of UK firms which publish comprehensive, consistent and comparable reports on their targets, actions and investment plans as advocated by the Task Force on Climate-related Financial Disclosures (TCFD).[16]

1.11 These data gaps complicate the construction of portfolios which are fully aligned with transition to net zero. However, coverage of TCFD-aligned disclosures is increasing as companies respond to investor demands for better information, and anticipate the move to mandatory TCFD-aligned disclosures in the UK for a significant portion of UK firms by 2023, and for all firms by 2025.[17]

## Challenge 3: Integrating climate factors into investment strategies

1.12 The demand for investment strategies which take better account of climate factors is high and rising rapidly. For example, on some measures, nearly 50% of flows into European investment funds towards the end of last year went into products that claim to have a primary sustainability objective and/or use binding environmental social and governance (ESG) criteria for their investment selections (though these are defined more broadly than supporting the transition to net zero).[18] And there has been strong demand for 'green bonds' linking funds raised to emissions-reducing spending (see Section 4, Box E).

1.13 However, data gaps and uncertainty over when climate risks might crystallise mean it is challenging for investors to incorporate climate considerations into broader investment strategies that must also consider financial risk and return. A number of increasingly sophisticated frameworks are being developed to guide climate-conscious portfolio allocation in the face of these uncertainties (See Section 4, Box D). Such frameworks can provide valuable guidance about how investors can account for climate alongside their overall investment objectives. Asset owners and managers representing several trillions of dollars have so far signed up to adhere to these approaches.

[16] See for example: UK PLC fails to report adequately on climate risks – Financial Times
[17] UK joint regulator and government TCFD Taskforce: Interim Report and Roadmap.
[18] Sustainable Funds' Record-Breaking Year – Morningstar, 8 February 2021

# 2 The Bank of England as an investor in sterling corporate bonds via the CBPS

2.1 The Bank's engagement in climate change stems from the fact that achieving an **orderly** transition to net zero is vital if we are to maintain monetary and financial stability – the Bank's core mission. In pursuit of that goal the Bank has already led a series of domestic and international initiatives across its policy and operational functions, which are summarised in Box A.

2.2 This Discussion Paper examines ways in which the Bank might further deepen its support for orderly transition through its role as an investor in financial assets via the Corporate Bond Purchase Scheme (CBPS). While the CBPS is, and must remain, a monetary policy tool aimed at achieving price stability, the recent change to the MPC's remit specifically requires the Bank to factor climate risks and opportunities into how that stability is achieved.[19] This Section describes some key facts about the CBPS: its purpose and scale; its composition; its climate footprint; and its risk management framework.[20]

### Box A: The Bank's broader approach to supporting orderly climate transition

As Section 1 discusses, climate change creates financial risks through its physical effects (e.g. sea-level rises or more frequent severe weather events) and the transition to net zero emissions (e.g. changes in government policy or consumer preferences). The Bank's goal – motivated by its statutory objectives – is to play a leading role in ensuring the financial system, the macro-economy, and the Bank itself are resilient to the risks from climate change, and supportive of an orderly transition to a net zero economy. We do this by targeting pro-active management of climate-related financial risks through our policy actions, and in our own operations:

- At the **micro-prudential level**, in 2019 the Bank became the first central bank and supervisor to set supervisory expectations[21] for banks and insurers on the management of climate-related financial risks, covering governance, risk

[19] Corporate bonds make up only a small proportion of the assets held by the Bank to implement monetary policy: the vast majority (98%) consists of gilts issued by the UK government. These holdings are beyond the scope of this paper: it would be neither feasible nor appropriate to purchase non-UK government debt for monetary policy purposes. And the favourable climate scores of UK sovereign debt relative to other major countries means that any diversification away from the UK would be likely to increase, rather than decrease, the Bank's carbon footprint (see Bank of England TCFD disclosure, 2020).

[20] A more comprehensive summary of the CBPS is available on our website here.

[21] Enhancing banks' and insurers' approaches to managing the financial risks from climate change.

management, scenario analysis and disclosure. A 'Dear CEO' letter[22] to firms in 2020 set out more detailed guidance on how firms should meet those expectations, by end-2021. We have worked closely with industry to advance capabilities and share best practice through the Climate Financial Risk Forum (CFRF). In 2020, the CFRF published a practical guide[23] for financial firms on climate-related risk management.

- At the **macro-prudential level**, the Bank will launch its first Climate Biennial Exploratory Scenario (CBES) in June 2021. This is an exercise to assess the resilience of the UK's largest banks, insurers and the financial system to different climate scenarios. The approach is set out in a Discussion paper,[24] and draws on the scenarios developed by the NGFS described in Section 1.

The Bank has also sought to lead by example through its **own operations**. In June 2020 we were one of the first central banks to publish a climate-related financial disclosure[25] aligned with the framework developed by the TCFD. The disclosure set out how the Bank manages climate-related risks across its policy functions and operations, including those in financial asset portfolios held for monetary policy purposes, a first for a central bank. We have also committed to running our physical operations sustainably, reducing our carbon footprint in line with meeting 1.5˚C.

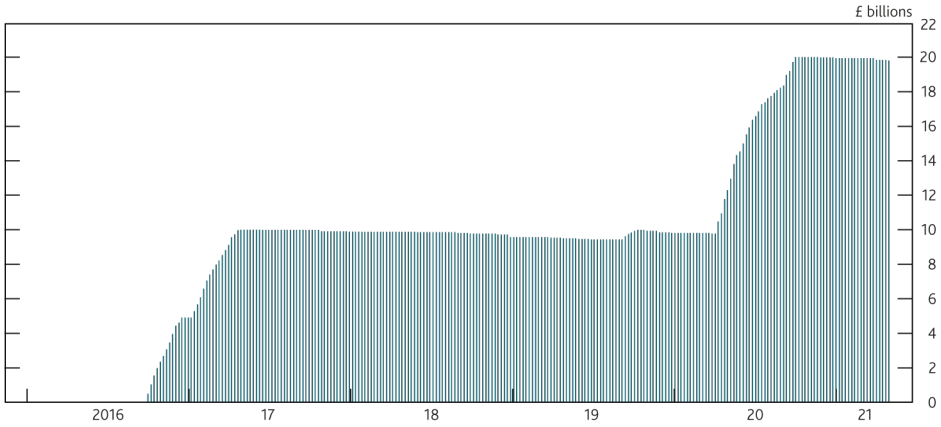
## a) The purpose and scale of the CBPS

2.3 The CBPS was introduced in August 2016 as part of a package of monetary policy measures agreed by the Bank's MPC following the UK's referendum on leaving the EU. Its purpose is to impart monetary stimulus and support spending in the economy. It does so by lowering the yields on sterling investment grade corporate bonds issued by companies that make a material contribution to economic activity in the UK, reducing their cost of borrowing, triggering portfolio rebalancing and stimulating additional new issuance.

2.4 Decisions on the size of the CBPS' holdings of corporate bonds are taken by the MPC in light of the Committee's assessment of the outlook for UK inflation and the economy. The MPC's initial target of £10bn was reached in May 2017, and remained at that level until March 2020 when it was increased to £20bn as part of the response to the Covid-19 pandemic. Purchases to reach that target were completed in October 2020 (**Chart 2.1**).

[22] Managing climate-related financial risk – thematic feedback from the PRA's review of firms' SS3/19 plans and clarifications of expectations.
[23] Climate Financial Risk Forum – FCA Website.
[24] Discussion Paper: The 2021 biennial exploratory scenario on the financial risks from climate change.
[25] The Bank of England's climate-related financial disclosure 2020.

**Chart 2.1:** Stock of holdings in the CBPS




Source: Bank of England.

2.5 The future size of the CBPS will also be determined by the MPC as part of its monetary policy decisions. For as long as the MPC maintains its target stock for corporate bond holdings, the Bank will undertake periodic reinvestment operations to replenish the CBPS as bonds mature. One such operation took place in late 2019, and another is expected in Q4 2021. It is possible the target stock of corporate bonds could again be raised, were the MPC to judge further credit easing to be appropriate. But ultimately, as economic conditions permit, the MPC would be expected to allow the CBPS to wind down. The Bank therefore does not expect to be a permanent investor in corporate bonds.

2.6 The £20billion CBPS is obviously extremely large relative to the assets of a typical company. But, compared to the wider financial system, it is relatively small. It accounts for only 2% of the MPC's overall asset purchase programme, 6.5% of the total stock of sterling corporate bonds, and a vanishingly small share of global asset holdings (**Table 2.1**).

**Table 2.1:** Current size of CBPS relative to other asset holdings

| **Asset types** | **Size (£bn)** | **CBPS as a share of…** |
|---|---|---|
| CBPS | 19.8 | |
| Gilt Asset Purchase Facility | 795 | 2.5% |
| Total sterling corporate bonds | 306 | 6.5% |
| All sterling traded assets | 4,189 | 0.47% |
| Total assets of global financial institutions | 288,643 | 0.01% |

Sources: Bloomberg, Statista and Bank calculations.

## b) CBPS asset composition and 'market neutrality'

2.7 To implement the CBPS, the Bank must choose how to allocate the MPC's £20bn target across a range of eligible bonds. Historically, we have done this with the aim of minimising the impact of the CBPS on relative borrowing costs across sectors. This approach, sometimes called 'market neutrality', has been implemented via a sector key. The sector key allows us to allocate purchases in proportion to the nominal stock of debt issued by firms in each sector.[26]

2.8 **Table 2.2** shows the sectoral allocation of the CBPS, alongside the sector key, following the recent expansion of the target stock from £10billion to £20billion during 2020[27] Sectoral holdings are largest in those sectors with most eligible debt outstanding. That includes the "consumer, non-cyclical" sector (which includes pharmaceutical companies, food and beverage producers, and universities) and the "electricity" sector (which includes companies that generate and distribute power). And they are smallest in sectors with only limited debt issuance like "energy" (which includes companies involved in oil exploration and production).[28] Modest deviations from the sector key reflect the fact that purchases are conducted through market-based reverse auctions to ensure the Bank buys the most competitively priced bonds available in each sector, and hence achieves value for the public money used. The precise allocations therefore reflect the bonds offered to the Bank in these operations.

**Table 2.2:** CBPS holdings (October 2020)(a)

| Sector | Sector key | CBPS holdings |
|---|---|---|
| Communications | 12% | 13% |
| Consumer, cyclical | 13% | 13% |
| Consumer, non-cyclical | 16% | 17% |
| Electricity | 18% | 19% |
| Energy | 3% | 3% |
| Gas | 6% | 6% |
| Industrial and transport | 11% | 11% |
| Property and finance | 9% | 6% |
| Water | 12% | 12% |

Source: Bank calculations. Note that the table reflects the latest holdings and sector key at the point the purchase of an additional £10bn of corporate bonds was completed in October 2020. The Bank typically publishes this data during investment rounds or annually.

(a) Sector key is from the last time this was updated – in September 2020.

[26] "The MPC would look to purchase a portfolio of sterling non-financial investment-grade bonds representative of issuance by firms making a material contribution to the UK economy, in order to impart broad economic stimulus." – Monetary policy summary and minutes, August 2016.

[27] These data are periodically updated on our website here.

[28] Communications" includes telecommunications and media; "consumer cyclical" includes, automotive companies, retail and tourism; "gas" includes companies which supply and distribute gas; "Industrial & Transport" includes chemical, construction and transportation companies; "property & finance" includes housing associations and property development companies; "water" includes water management companies. These descriptions are non-exhaustive.

The concept of market neutrality lies at the heart of the challenge of adjusting the CBPS to support net zero. The objective of structuring the portfolio according to debt outstanding is to attempt to avoid having a material effect on relative asset prices, and hence financing costs, across sectors and firms. But that logic assumes that markets are efficient, and hence that prices reflect all major risks and opportunities presented by individual assets. And there is increasingly persuasive evidence that market prices systematically fail to capture the inevitably significant increase in the cost of emissions that will have to be borne by companies on all transition paths to net zero (**Figure 1.3**). There are several possible reasons why this might be. Investors' horizons may be too short. There is uncertainty about the precise timing and sectoral incidence of emissions costs. And the information on which market pricing are based – companies' disclosures on emissions reduction plans and carbon footprints – are somewhat incomplete and inconsistent, as discussed elsewhere in Section 2 – though that is improving steadily. [29] But, whatever the cause, this systematic underpricing of climate risks poses a challenge to the appropriate definition of 'market neutrality'.[30]

2.9 A number of studies have confirmed the existence of this market failure in equity markets. For instance, the IMF's Global Financial Stability Report (April 2020) examined equity pricing across sixty-eight countries over 50 years.[31] This analysis is consistent with climate risks not being adequately factored into equity prices, finding that global equity valuations were generally not associated with indicators of physical climate risks.[32] Indeed, the equity risk premia analysed by the IMF were only consistent with a world in which no further climate change was expected. And the fact that stocks issued by firms with relatively high exposure to temperature change were found to underperform others further suggests that information on climate change is either not available or is ignored – further supporting the idea of a breakdown in market efficiency.

2.10 In addition, and of more direct relevance to our consideration of the CBPS, a number of studies have explored the links between climate risks and the prices of sovereign or (US) municipal bonds. [33] Because the revenue streams backing such assets are tied relatively tightly to a given geographical place (i.e. a municipal bond is issued by a state, city or county-level local government body) locations that are more exposed to physical climate change risks should – if the market is working efficiently – expect to pay higher spreads on at least longer-term borrowing. However, a review of such studies by the Basel Committee on Banking Supervision (BCBS) concludes that where climate effects have been found they "are generally small, and specific to longer-maturity bonds".[34] For corporate bonds, as for equities, income streams would typically be more diffuse suggesting even weaker effects.

2.11 Finally, there is mixed evidence as to whether financial markets yet take some account of transition risks facing companies. The BCBS report notes some evidence that they are

[29] See also Giuzio et al 'Climate change and financial stability', European Central Bank, Financial Stability Review, May, (2019)).

[30] These points have been made by a number of leading central bankers. See, for instance, a recent ECB podcast featuring executive board members Isabel Schnabel and Frank Elderson

[31] IMF Global Financial Stability Report.

[32] The approach taken is a cross-country econometric analysis of whether aggregate equity valuations as of 2019—captured by the price-to-earnings ratio of the stock market index—are sensitive to current proxies for future changes in physical risk under various climate change scenarios, for which projections of hazard occurrence from the World Bank Climate Change Knowledge Portal were used.

[33] See for example: Painter (2020), or Goldsmith-Pinkham et al (2021).

[34] Climate-related risk drivers and their transmission channels

now beginning to do so, but that this pertains predominantly to certain high-emission sectors.[35] In any case, impacts being observable only in certain sectors falls a long way short of vast global transition risks being adequately priced in.

2.12 In this context, a portfolio that is neutral relative to today's markets could look very different to one in a world where prices did properly reflect the opportunities and risks associated with the transition to net zero. In principle, that approach would likely change the assets held in the CBPS: placing higher weight on those firms expected to contribute more to reaching net zero, and a lower weight on others. There are of course significant practical challenges in translating this concept into a specific set of portfolio adjustments. These are made all the harder by uncertainties over the path for transition to net zero, the constraints faced by a central bank, and widespread data gaps. Section 4 reviews a number of tools which might be used to move in this direction.

## c) The climate footprint of the CBPS

2.13 As described in the Introduction and Box A, the Bank first disclosed the climate footprint of the CBPS, alongside its other asset holdings, in June 2020.[36] This was the first time a central bank had assessed the climate footprint of its entire balance sheet, including assets held for monetary policy purposes. As we found in 2020, any attempt to quantify a portfolio's climate footprint must work through a number of issues and questions, most notably the coverage of data and which metrics are adopted. Some of these alternatives and their relative advantages and disadvantages are described in more detail below.

### i) 'WACI' as a way to compare portfolios

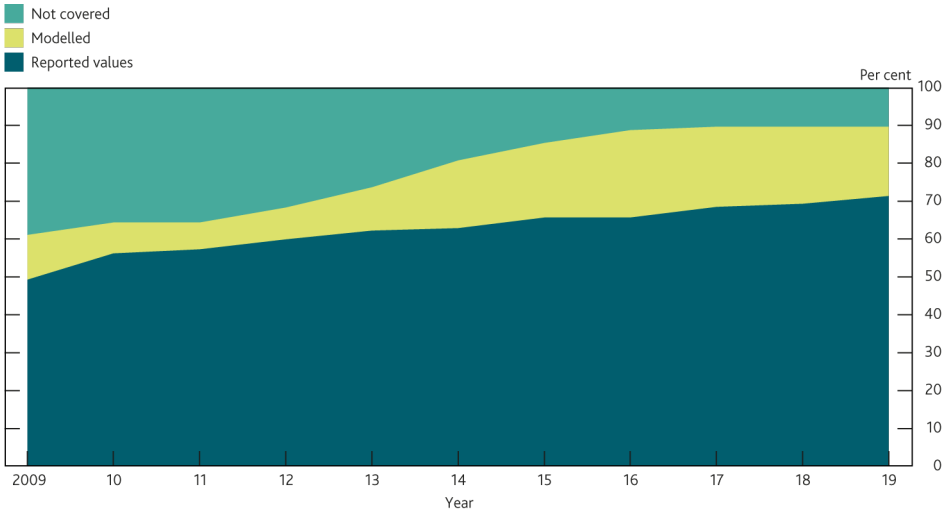
2.14 The climate footprint of the portfolio is mainly described in our 2020 report using a measure called the "Weighted Average Carbon Intensity" (WACI). WACI is backward looking as it uses data on previous emissions. It has two important components that make it a relatively simple but useful metric. First, emissions are expressed in terms of the number of tonnes of $CO_2$ equivalents ('$tCO_2e$') which is a standard unit for counting greenhouse gases regardless of whether they are in the form of carbon dioxide or some other gas (e.g. methane). Second, the measure is normalised according to a firm's £mn of revenue, so that measures for different companies and sectors can be compared.

2.15 The coverage of the emissions data required to calculate a WACI has been steadily improving. **Chart 2.2** illustrates that we now have hard data for 71% of CBPS eligible issuers. Modelling techniques enable estimates to be derived for a further 19% of firms, meaning we are able to measure in some way the emissions intensity of 90% of eligible companies.

[35] For instance, Ilhan et al (2020) find that the cost of option protection against downside tail risks is larger for firms with more carbon-intense business models. Bolton and Kacperczyk (2020) find that equities of higher-emitting corporates earn higher returns, after controlling for several return-predictive factors.

[36] The Bank of England's climate-related financial disclosure 2020

**Chart 2.2:** Evolution in coverage of emissions data over time for CBPS eligible firms




Source: Certain information ©2020 MSCI ESG Research LLC. Reproduced by permission.[37]

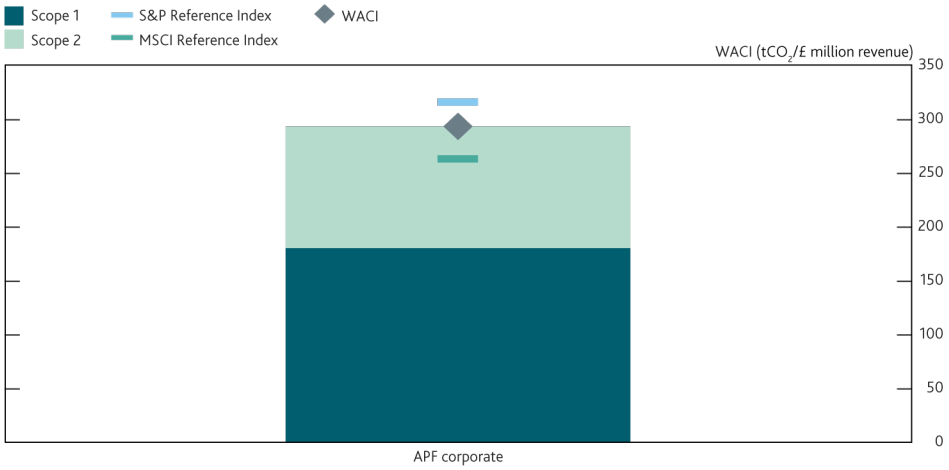
2.16 In last year's report, the WACI climate footprint of the CBPS was estimated to be 294 $tCO_2e$/£m revenue. In line with TCFD guidance this measure includes companies' 'Scope 1' and 'Scope 2' emissions[38] - i.e. direct emissions from owned or controlled sources, and indirect emissions from purchased and consumed energy. It does not include estimates of 'Scope 3' emissions, which account for all other indirect emissions that occur through the generation and consumption of a company's goods and services. That is excluded due to the more limited availability of reliable data on these emissions, and the potential for double counting in portfolio level statistics. But the sensitivity of these numbers to this assumption is discussed further later in Section 2.

2.17 **Chart 2.3** shows that the WACI of the CBPS lies in the middle of the range of equivalent measures for reference portfolios of sterling investment grade debt. That is unsurprising, since – as described above – the CBPS portfolio is structured to correspond with the sectoral composition of the sterling investment grade non-financial bond market.

[37] Although Bank of England's information providers, including without limitation, MSCI ESG Research LLC and its affiliates (the "ESG Parties"), obtain information (the "Information") from sources they consider reliable, none of the ESG Parties warrants or guarantees the originality, accuracy and/or completeness, of any data herein and expressly disclaim all express or implied warranties, including those of merchantability and fitness for a particular purpose. The Information may only be used for your internal use, may not be reproduced or redisseminated in any form and may not be used as a basis for, or a component of, any financial instruments or products or indices. Further, none of the Information can in and of itself be used to determine which securities to buy or sell or when to buy or sell them. None of the Information is intended to constitute investment advice or a recommendation to make (or refrain from making) any kind of investment decision and may not be relied on as such. None of the ESG Parties shall have any liability for any errors or omissions in connection with any data herein, or any liability for any direct, indirect, special, punitive, consequential or any other damages (including lost profits) even if notified of the possibility of such damages.

[38] See Greenhouse Gas Protocol

**Chart 2.3:** WACI of CBPS portfolio as of the Banks' 2020 TCFD disclosure, split by emissions type




Sources: Certain information ©2020 MSCI ESG Research LLC reproduced by permission, © S&P Trucost Limited 2020 (all rights reserved) and Bank calculations.

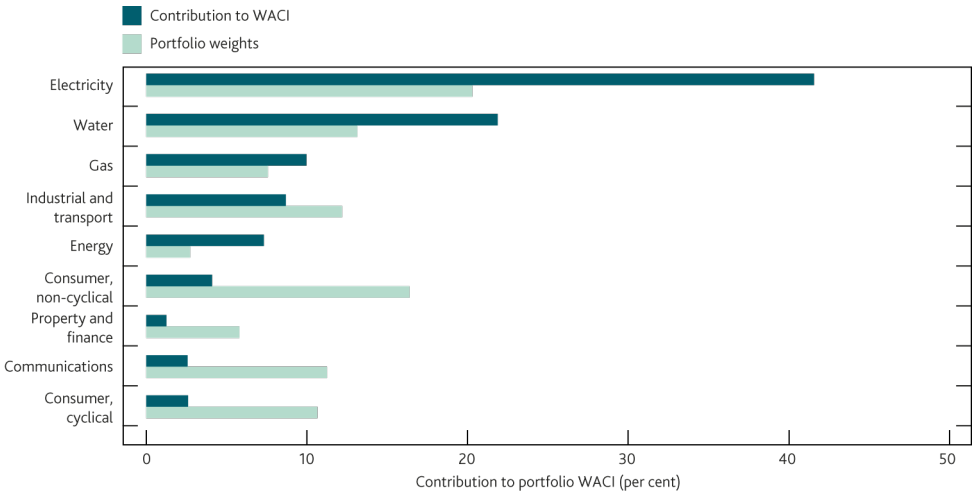
Notes: (a) S&P Reference Portfolio is the S&P U.K. Investment Grade Corporate Bond Index, which seeks to track the performance of debt issued by any investment-grade corporation denominated in GBP, regardless of domicile and market of issuance. (b) MSCI Reference Portfolio WACI numbers provided by MSCI ESG Research LLC, based on a hypothetical market-value weighted portfolio of sterling denominated non-financial sector investment grade bonds. See ww.MSCI.com/disclaimer.

## ii) WACI as a tool for monitoring emissions by sector and over time

2.18 Looking below the whole portfolio level sheds additional light on the CBPS from a climate perspective. Some sectors contribute a much greater share of the portfolio's emissions than their weight in the sector key. For example, when we published our climate disclosure last year, bonds issued by utilities companies (i.e. the firms that supply electricity, water and gas to homes and businesses) accounted for just over 80% of the total emissions intensity of the CBPS portfolio, despite bonds issued by these sectors accounting for only 40% of assets held (**Chart 2.4**). On the other hand bonds issued in sectors like communications or property and finance (which includes housing associations and real estate developers) accounted for a disproportionately low share of overall carbon intensity.

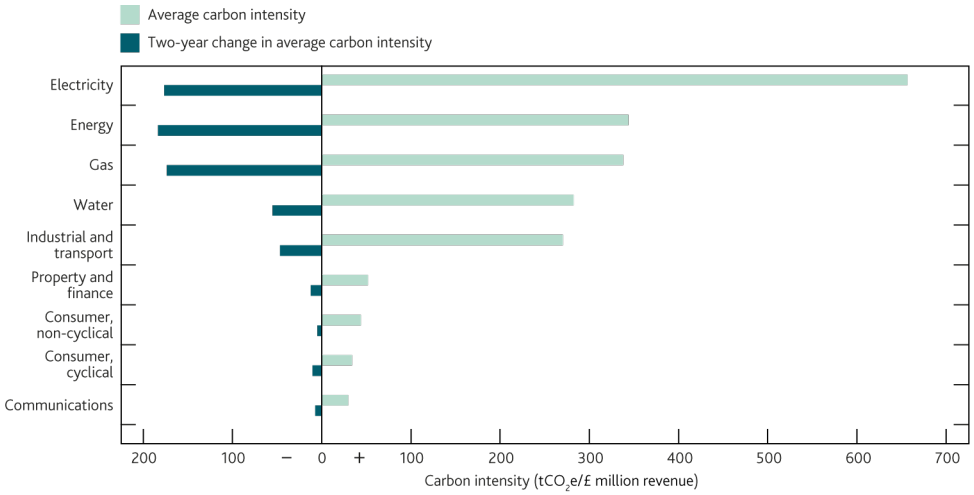
2.19 As well as facilitating cross-portfolio comparisons, the use of a WACI metric also helps track changes in emissions intensity over time. A comparison of sectoral WACIs across 2016 to 2018 highlights a generalised fall, but also the fact that firms in the highest emitting CBPS sectors often exhibit the largest year-on-year improvements (**Charts 2.4** and **2.5**).

**Chart 2.4**: Sectoral contributions to CBPS WACI and portfolio weights shown in the Bank's 2020 TCFD report




Source: Certain information ©2021 MSCI ESG Research LLC. Reproduced by permission, and Bank calculations.

**Chart 2.5:** Average carbon intensities by sector and changes over time shown in the Bank's 2020 TCFD report




Source: Certain information ©2021 MSCI ESG Research LLC. Reproduced by permission, and Bank calculations.

## iii) Forward looking portfolio metrics

2.20 Forward-looking metrics of a portfolio's climate performance are also available, which offer a way to look not just at the emissions that were produced in the past, but at how performance might evolve into the future. These promise to be highly valuable, though at present they remain in their infancy and are heavily reliant on assumptions, model-based projections, and partial data. A prominent example of the current generation of forward-looking measures is the 'implied temperature rise' (ITR) metric. Such measures attempt to estimate the temperature increase (above pre-industrial levels, typically by the year 2100) with which a portfolio is currently aligned.

2.21 The Bank's 2020 climate risk disclosure discussed an illustrative metric of this kind that estimated that the CBPS portfolio, like the sterling corporate bond market as a whole, was aligned with 3.5°C of warming by the end of the century. This is in excess of the Paris Agreement goal of limiting warming to below 2°C (ideally 1.5°C), though that is perhaps to be expected given the substantial progress the UK economy as a whole still has to make towards net zero. However, these types of metric are highly sensitive to their underlying assumptions. Relatively minor methodological variations using the same portfolio produced alternative estimates ranging from <1.75°C to 4°C.[39]

2.22 Given the critical role that such assessments will play in evaluating alignment with net zero, the Bank strongly supports the continued development of a range of robust forward-looking metrics, as set out in Box B.

### iv) Forward looking sector- and firm-level metrics

2.23 Since our focus is on how firms are adapting to meet the challenges of climate change, it stands to reason that backward-looking measures like WACI can provide only limited insight into the alignment of future emissions plans with an economy-wide pathway to net zero. For that we really need robust forward-looking metrics that take into account things like intended reductions in climate footprints, compared to the paths necessary for an orderly transition.

2.24 An immediate challenge with this is that, at the issuer level, coverage of these metrics is less developed than for simple backward looking metrics, with considerable variation across sectors. **Table 2.3** illustrates this. For the universe of eligible firms (shown in the bottom row of the table), it shows that:

- Only a little more than half (54%) of firms eligible for the CBPS currently produce climate-related disclosures which are equivalent to the standards set out by the TCFD framework (as explained in Box B). These disclosures are a vital source of information for investors, both about a firm's current emissions, and its prospects for reducing these in the future.

- More encouragingly, 71% of eligible firms have published some kind of emissions reduction target. However, if one requires targets based on a methodology endorsed by either the Science-based Targets initiative (SBTi) or the Transition Pathway Initiative (TPI) then coverage on this basis falls to 40%.

2.25 **Table 2.3** also shows the variation in coverage of metrics across sectors. Coverage in some sectors is good – for instance in the energy sector (ie oil production & exploration companies) coverage against all four types of metric exceeds 75%. That is no surprise since energy is currently a high emitting sector, and so one where issuers have been under greatest pressure to disclose their emissions data and reduction plans. Likewise, those producing metrics and verification schema have chosen to prioritise high emitters.

[39] Source: S&P Trucost and MSCI UK ESG Ltd. For further information on the current methodological issues with such measures, see The Alignment Cookbook : A Technical Review of Methodologies Assessing a Portfolio's Alignment with Low-Carbon Trajectories or Temperature Goal - Green and Sustainable Finance : Green and Sustainable Finance and Measuring Portfolio Alignment: Assessing the position of companies and portfolios on the path to Net Zero

**Table 2.3:** Coverage of climate metrics for firms eligible for the CBPS

24% and below
Between 25% and 49%
Between 50% and 74%
75% and above

| Sector | TCFD (or equivalent) disclosure | Emissions reduction target | Validated science-based target | Rated by Climate Action 100 |
|---|---|---|---|---|
| Energy | | | | |
| Gas | | | | |
| Electricity | | | | |
| Water | | | | |
| Consumer, cyclical | | | | |
| Consumer, non-cyclical | | | | |
| Property and finance | | | | |
| Industrial and transport | | | | |
| Communications | | | | |
| **Aggregate** | **54%** | **71%** | **40%** | **16%** |

TCFD disclosure: A firm has completed a recent Carbon Disclosure Product survey or has produced disclosures, which are provisionally considered by Bank staff, to be aligned with the TCFD recommendations, based on available data over the period July 2020-May 2021.
Decarbonisation target: A firm has publicly verifiable quantitative decarbonisation plan, as at April 2021
Science-based target: A firm has produced a target using methodologies proposed by either the Science-based Targets Initiative(SBTi) or Transition Pathway Initiative (TPI), as at December 2020
CA 100+: A firm appears on the Climate Action 100+ list of individual company assessments, published on 22 March 2021. CA100+ is an investor led initiative focussed on relatively large, high emitters of greenhouse gasses. [40]

## Box B: The development of forward looking climate metrics

'Metrics and targets' are one of four core elements of the TCFD framework.[41] The Bank's approach to our own disclosures is to present climate-related metrics using the latest data and techniques available. As well as providing clarity on our own portfolios, our intention is also to demonstrate how innovative metrics and methodologies can be used, and to advance discussions of issues associated with doing so. We provide metrics on carbon footprint, transition risks and physical risks facing our asset portfolios, including the CBPS.

As outlined in the main text, as well as point-in time estimates of carbon emissions, we have also sought to use forward-looking metrics, which in principle provide stronger support for incentive-based investment strategies of the kind proposed in this Discussion Paper.

Implied temperature rise (ITR) metrics have a particularly appealing intuition. But the current generation of measures remains very sensitive to assumptions, complicating their use in operational decision making. Methodologies for these types of measures are, however, improving. Some metrics now incorporate companies' disclosed emissions reduction targets when estimating forward-looking climate performance. And some now also include Scope 3 emissions. We plan to include refined ITR metrics

[40] https://www.climateaction100.org/
[41] TCFD recommendations report

in our TCFD disclosure this year, though further work is still needed to address data quality.

Nonetheless, some issues are inherent to ITR metrics, and may not be eliminated entirely by methodological improvements. For example, they require a large number of assumptions about the nature and credibility of constituent firms' future emissions paths, and can be sensitive to small changes in these assumptions.

Therefore, in parallel to this ongoing support, the Bank and others are exploring simpler and more transparent approaches to forward-looking metrics. This includes looking directly at corporate decarbonisation plans, rather than incorporating them into ITR metrics, to avoid the range of assumptions needed. Our upcoming report will also explore for the first time the use of scenario analysis to estimate the financial risks from transition and physical risks facing our corporate holdings. The TCFD views the evolution of this type of analysis as central to improving the quality of climate disclosures and as ultimately supporting a more appropriate pricing of risks and allocation of capital in the global economy.[42]

## V) The question of 'scope'

2.26 **Table 2.4** provides a more comprehensive picture of the carbon intensity of the CBPS portfolio by sector, showing the level and change in WACI over time, data coverage, and the influence of different Scope measures.[43] Amongst other things, this presentation allows us to explore the impact of adding Scope 3 emissions to our analysis. Data for Scope 3 are far from complete across many sectors (as shown by comparing the coverage bars in the right-hand side of **Table 2.4** to those on the left). But those measures that are available suggest that indirect emissions account for a significant share of many sectors' total carbon footprints. The energy sector (which includes oil exploration and production firms) is a particular case in point. Energy sector emissions measured using Scopes 1 and 2 alone appear somewhat **lower** than in the electricity sector, which covers firms involved in power generation and distribution. Yet when estimated Scope 3 emissions are factored in, the emissions intensity of the energy sector appears to be almost three times **larger** than that of electricity.

[42] TCFD recommendations report

[43] We have based Table 2.4 closely on the format of Figure 7 originally suggested in 'Wind of Change: Greening the BoE's corporate bond holdings' (6 March 2021) by HSBC Global Research (Fixed Income and ESG Credit).

**Table 2.4:** Average carbon intensity of the CBPS portfolio over time, on different measures [44]

| | | Scope 1+2 | | | Scope 1+2+3 | | |
|---|---|---|---|---|---|---|---|
| Sector | Portfolio weight | Portfolio data coverage | $tCO_2e/£m$ | 1y change | 3y change | Portfolio data coverage | $tCO_2e/£m$ | 1y change | 3y change |
| Electricity | 20% | 94% | 657 | 64 | -198 | 52% | 2,376 | 358 | -64 |
| Energy | 3% | 100% | 344 | -41 | -118 | 90% | 6,575 | -332 | -2,287 |
| Gas | 8% | 63% | 338 | -4 | -21 | 59% | 1,972 | -7 | -88 |
| Water | 13% | 83% | 282 | 10 | -9 | 42% | 771 | -31 | -119 |
| Industrial and transport | 12% | 95% | 271 | -19 | -17 | 43% | 507 | -12 | -34 |
| Property and finance | 6% | 51% | 52 | 2 | 0 | 23% | 837 | -384 | -432 |
| Consumer, non-cyclical | 16% | 98% | 44 | -2 | -3 | 53% | 757 | 1 | -8 |
| Consumer, cyclical | 11% | 100% | 34 | -1 | -9 | 94% | 583 | -26 | -36 |
| Communications | 11% | 95% | 30 | -4 | -10 | 90% | 134 | -31 | 26 |

Source: Certain information ©2020 MSCI ESG Research LLC reproduced by permission and Bank calculations.

2.27 The Scope of emissions included in metrics can also be a helpful dimension when considering how sectors' climate performance has evolved over time. Looking only at Scope 1 and 2 data suggests that the largest absolute reductions in emissions over three years were seen in the electricity sector. That reflects a progressive shift towards lower emissions electricity generation methods, including from renewable sources. However, if we also include available estimates of Scope 3 emissions, the largest reduction in emissions intensity then appears to come from the energy sector, for example reflecting efforts to reduce methane emissions from upstream production processes. A similar picture is also seen in the property and finance sector, where the reduction appears much larger if one includes estimates of Scope 3 emissions, reflecting the impact of more energy-efficient housing on residents' energy usage.

2.28 Careful consideration of the metric being reviewed also matters at a firm level. For example, consider a hypothetical manufacturer of petrol powered cars whose debt is held in the 'consumer cyclical' sector of the CBPS. Its measured carbon intensity on a Scope 1 and 2 basis makes it one of the **least** emissions intensive issuers eligible for the Scheme. However, adding in estimates of its Scope 3 emissions flips it into being one of the **highest**. That is because the majority of emissions associated with making a car occur once it has sold and is driven. To form the most complete understanding of how well the company is aligned with transition to net zero therefore requires consideration of the firm's plans for lowering emissions created over the entire life cycle of its cars. That means, for example, moving towards producing electric powered cars – as indeed many manufacturers are now doing.

2.29 But now consider a firm that generates and distributes the electricity used to power electric cars. That firm's debt could be held in the 'electricity' sector of the CBPS. Consistent with the sector as a whole this hypothetical firm currently has one of the highest emissions intensities in the CBPS. However, it has also been closing coal-fired power plants and making significant investments in renewable energy such as wind and solar farms. As a result, it has reduced its carbon intensity by more than 50% in recent years. A key reason for care in how emissions are measures here is that de-carbonising electricity generation is

[44] The red and green formatting ranks the cells in each column from largest to smallest. All of the data is aligned with the Bank's 2020 climate-related financial disclosure.

vital to transition efforts like those discussed for our hypothetical car manufacturer. Recognising these interdependencies – and capturing performance in the right place – matters acutely.

2.30 The examples discussed in this section serve to reinforce an important point: that it is vital we make informed choices about which emissions metrics are to be used to inform any portfolio adjustments. Several approaches exist and each brings trade-offs: the current level of emissions is likely to the best measured, most up to date statistic – but says nothing about the intensity of efforts to reduce emissions over time. Changes in emissions respond to that challenge, but involve using more historic (and possibly less well measured) readings. Including Scope 3 emissions in principle provides the most complete picture of the up- and down-stream climate implications of a sector's activities. But Scope 3 emissions are intrinsically very hard to measure accurately, and there are many data gaps in current Scope 3 measures, compared with those for Scopes 1 and 2. Scope 3 measures are also often not directly comparable across firms, given inconsistencies in the ways reporting firms choose to categorise their Scope 3 emissions across a wide range of available categories (associated with everything from transportation and distribution to waste generation, for example). Combining Scope 3 metrics in sectoral or portfolio measures can pose material risks of double counting. And using Scope 3 data to calibrate incentives is complicated by the fact that it will not always be clear who is, or should be, responsible for reducing these emissions. For all these reasons, it is challenging to identify ways to incorporate the current generation of Scope 3 data in investment frameworks in a systematic way

## d) Risk management of the CBPS

2.31 The financial position of the CBPS is indemnified by HM Treasury, like all of the MPC's asset purchases. Ultimately that means the public purse gains from any profit made on the portfolio. But it also stands to bear losses if, for example, bond issuers go into default

2.32 We protect public money from exposure to undue risk by:

a) Limiting purchases to bonds with an investment grade credit rating;
b) Conducting purchases via competitive auctions, subject to a maximum reserve price that the Bank will pay for any individual bond; and
c) Setting size and concentration risk limits on exposures to any bond, issuer or sector.

2.33 These protections will remain in our new approach; and, in certain cases, may shape or limit the options open to us. For example, the need to avoid using public money to pay up excessively for bonds may in some cases limit our ability to purchase issues that are viewed as particularly attractive from a climate perspective, and hence are in high demand by ESG-focused investors. At the same time, our approach will also be conscious of the reverse risk: that a failure to move rapidly enough towards holding assets better aligned with transition to net zero will increase exposure to the very transition risks that our new approach is designed to avoid.

# 3 Principles for greening the CBPS

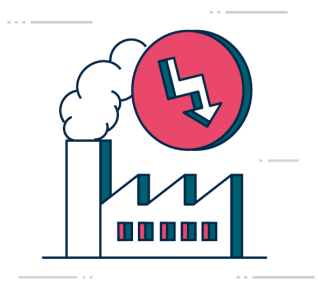
3.1 Section 1 described some of the challenges and uncertainties facing investors in general as they seek to adjust their strategies to help support transition to net zero. Section 2 described the specific characteristics of the CBPS. This section sets out the principles we propose to follow in greening the Scheme.

3.2 Every investor's approach to supporting net zero will be shaped by their specific investment objectives. In the Bank's case that means:

- **The purpose of the CBPS is to implement monetary policy**: Under the Bank of England Act 1998, monetary policy is set by the MPC with the goal of maintaining price stability and, subject to that, supporting the economic policy of the Government. The Bank welcomes the updated remit, published in March 2021, which allows us to act in support of a transition to net zero. But that remit also makes clear that we must ensure that the steps we take do not impede the continued ability of the CBPS to help the MPC achieve its inflation target. To that end, we will need to ensure that greening does not reduce the effective 'policy space' available to the MPC (i.e. its scope to lower corporate borrowing costs and boost overall demand via the CBPS), for example by unduly limiting the universe of eligible assets or the pace at which they can be purchased.
- **The CBPS invests public money**: As set out in Section 2, the Bank uses public money to purchase the bonds that make up the CBPS, and HM Treasury provides an indemnity to the Bank in the event of losses due events such as issuer default. The ability to use public funds in this way comes with an obligation to pursue value for money and to ensure the taxpayer is protected from losses wherever possible. That is why the Bank operates the CBPS within a robust risk framework; and it is why risk management will remain core to our new approach, and will shape the choices open to us
- **As a public body, the Bank must conduct its operations in a clear, transparent and evidence-based way**: That means adopting an explicit framework of the type set out in Section 4, and explaining both this general approach and, when finalised, further information about our chosen calibrations. We will endeavour to communicate changes as our approach evolves over time in a clear and timely way. It is also imperative that the Bank bases investment decisions using public money on data and metrics (e.g. for climate pathways, strategies and emissions) which are sufficiently robust and verifiable.

3.3 Against that backdrop, the principles we propose to guide our approach are summarised in **Figure 3.1**, and described in further detail below.

**Figure 3.1:** Principles for greening CBPS



**1. Incentivise companies to take decisive action to achieve net zero:** we want firms whose debt we might hold to change their behaviours in meaningful and lasting ways that support orderly transition to net zero by 2050 – not simply to minimise the current climate footprint of our portfolio. Exclusions or divestments will be part of the toolkit, but only where they incentivise that transition;

**2. Lead by example, learn from others:** given the relatively small scale of the CBPS, we will work closely with others in designing our approach: drawing on the work of relevant market-wide initiatives; seeking to influence that thinking where appropriate; and illustrating how comparable investors might approach similar challenges; and

**3. Ratchet up our requirements over time:** as data and metrics on transition pathways and firm-level emissions improve, and issuers have the opportunity to develop credible net zero strategies, our approach will become progressively more demanding, setting higher expectations and sharper incentives.

## Principle 1: Incentivise companies to take decisive action to achieve net zero

We want firms whose debt we might hold to change their behaviours in meaningful and lasting ways that support an orderly transition of the UK economy to net zero emissions by 2050 – not simply minimise the current climate footprint of our portfolio, regardless of the wider impact. Exclusions and divestments will be part of the toolkit, but only where they incentivise that transition.

3.4 As discussed in Section 1, investors' main role in helping to deliver a timely and orderly transition to net zero comes via allocating finance, and doing so in a way that sharpens firms' financial incentives to take necessary actions. Our approach to the CBPS will embrace this role.[45] We will look to incentivise firms to develop, disclose and commit to credible

[45] This is consistent with guidance in a recent NGFS report that, where it falls within their remit, central banks should consider looking beyond greening their operations for risk management reasons, and explore ways in which they can actively support climate transition. As well as its broader societal benefits, and inclusion in the MPC's Remit, supporting the transition to net zero will also serve to mitigate the adverse impacts that climate-related shocks might have on macroeconomic and price stability (NGFS (2021)).

transition plans. And we will recognise improvements in climate impact over time rather than responding only to current emissions.

3.5 Underpinning this approach is a recognition that, in order to reach net zero, many of the greatest reductions in emissions will need to come from companies which produce the most today. A range of high-emissions activities will remain important to the economy, at least until technological developments increase the availability of lower-emission alternatives. The use of fossil fuels in power generation is one such example. Other services – like water - will remain essential even though they have relatively high emissions intensities today.

3.6 Such a concerted reduction in emissions will require very significant investment in new technologies and innovations in these sectors. Investors' role is to finance that spending in ways that help incentivise firms to devise and disclose credible plans and to adhere to them. One apparent way to provide such incentives would be for large and influential investors to engage in rapid and large-scale sales of assets issued by companies in high-emissions sectors. That could certainly deliver a rapid reduction in the carbon footprint of portfolios. And, if done on a sufficient scale, it might increase the financing costs of high-emission firms, at least for a period. However, such strategies cannot deliver a viable collective route to economy-wide net zero, for three main reasons:

a) First, a systematic sell-off of assets by climate-conscious investors would greatly reduce the influence they might exert as asset holders on issuing firms;

b) Second, investors can only sell their holdings if others will buy them. Where those buyers are smaller, less transparent, or less committed to net zero, asset sales will **weaken**, not strengthen, incentives for companies to cut emissions; and

c) Third, simply selling all high-emissions assets punishes high-emissions firms that are investing to reduce those emissions every bit as harshly as those who are not – further disincentivising the very investment that is essential in order to reach net zero.

3.7 None of this means that divestment by large and influential investors can never be an effective tool. But it does suggest that its greatest effect is likely to be when integrated into an approach whereby investors seek first to maximise their influence through (challenging) engagement with issuers, and carefully differentiate their portfolio allocation decisions according to the calibre of issuers' emissions reduction plans and actions.

Box C illustrates these points using a worked example.

## Box C: Why not just hold low-emission issuers? A worked example

To illustrate the trade-offs reflected in Principle 1, consider a company that owns power stations (and so sits within the "electricity" sector in CBPS terms). The electricity generation industry has historically been a high emission one. However, technological developments mean that emissions intensity can now be progressively reduced provided companies undertake the requisite (costly) investments.

Now consider three hypothetical electricity generating companies:

- **Firm A** has upgraded its equipment, and hence has low current emissions;
- **Firm B** has not yet upgraded, so has high current emissions; but has credible investment plans to do so soon; and
- **Firm C** has not upgraded and no credible plans to so.

From this starting point, climate transition is best supported by Firm B disclosing its emissions reduction plans and receiving the necessary debt finance at reasonable terms to pay for investment. Firm C, by contrast, should not expect to find it as easy (or cheap) to raise finance until it has put in place a credible transition plan of its own.

### Outcome 1: If investors seek to minimise their current carbon footprint

Suppose large and influential investors decide to minimise measures of the current emissions intensity of their own portfolios. Those investors would allocate all of their funds to Firm A, and dispose of assets issued by Firms B or C. But, in disposing holdings of Firm B, they would not be financing investment in emissions-reducing technology. Nor would they be incentivising Firm B to enhance its climate disclosures, in order to differentiate itself from Firm C. Furthermore, Firm C has little incentive to improve its conduct, because doing so would not increase its access to finance. Following divestments, debt of firms B and C might be held by investors who care less about their climate impact. This reduces oversight and influence by climate conscious investors.

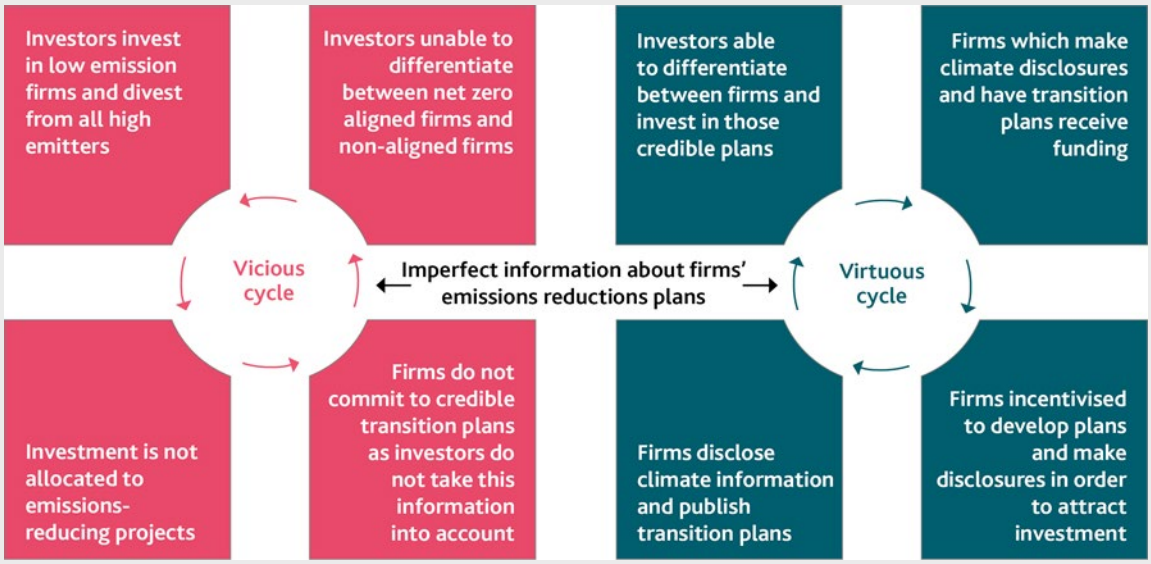
### Outcome 2: If investors adopt a more engaged strategy

Now suppose large and influential investors adopt a more sophisticated approach, telling Firm B that finance is available should it demonstrate that its investment plans are credible. This would directly finance transition critical investment by Firm B. And it would give Firm C the incentive to improve its climate governance, risk management and investment plans. The current emissions intensity of investors' portfolios would be higher than if they just held Firm A. But the contribution to economy wide climate transition is greater.

Such investors are likely to retain divestment as a tool. But instead of using it to deliver immediate reductions in carbon footprint, they are more likely to use it to provide a credible threat of selective potential future sales for issuers which do not align their actions with net zero over a reasonable time period.

**Figure A** Illustrates the self-reinforcing dynamics associated with these approaches.

**Figure A:** Contrasting dynamics according to the approach investors take




This more discerning approach is also likely to deliver higher risk-adjusted returns, making it attractive to investors. Perhaps for this reason, such strategies feature in some of the private sector net zero investment frameworks summarised in Box D in Section 4. All else equal, assets issued by firms with credible net zero plans will increase in value as investors recognise that such firms are less exposed to transition risk. This premium should increase over time, as the mis-pricing of climate risks described in Section 2 corrects. Investors who consistently beat the market in identifying firms with credible transition plans should benefit the most from the appreciation of these assets.

## Principle 2: Lead by example, learn from others

Given the relatively small scale of the CBPS, we will work closely with others in designing our approach: drawing on the work of relevant market-wide initiatives; seeking to influence that thinking where appropriate; and illustrating how comparable investors might approach similar challenges.

3.8 One of our key goals in setting out our framework is to influence other investors in the public and private sectors. That influence is unlikely to work through financial channels alone. While the £20bn CBPS may seem large, it accounts for only a small share of sterling or global assets (see **Table 2.1**). But the Bank of England's influence extends beyond that – as a monetary and macro-prudential policy maker, as a prudential regulator of firms in an international financial centre, and as a participant in markets in our own right.

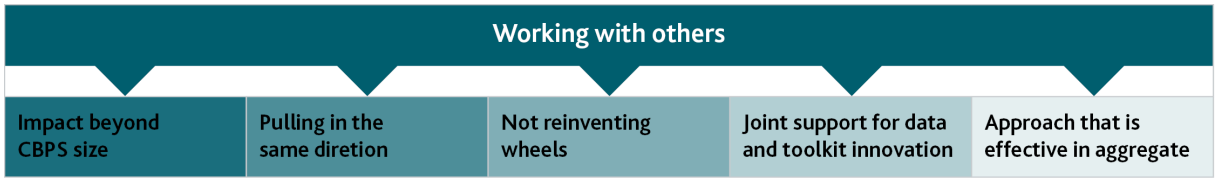
3.9 At the same time, we have sought to learn from, and build on, the approaches being developed by the many other groups active in this field. Doing so reduces the risk of unnecessary duplication, increases the relevance of our approach to other investors, and

adds our weight and experience to driving forward best practice. Our work has also be helpfully informed by our discussions with other central banks, via the NGFS.

3.10 Our intention is therefore that the framework set out in this paper, and the dialogue that follows, can help to frame the approach to climate-conscious investment adopted by ourselves and others. That has the potential to achieve a longer-lasting impact on firms' incentives than is possible through our portfolio alone.

3.11 **Figure 3.2** illustrates some advantages of this interaction with other investors.

**Figure 3.2:** Increasing impact through working with other investors




3.12 Principle 2 has two other important practical implications.

- First, in conjunction with Principle 1 it suggests we seek approaches which, if adopted sufficiently broadly, would support economy-wide transition. It is vital that investors increasingly discriminate between firms which have credible prospects of aligning with a pathway to net zero and those which do not. Our approach must therefore aspire to do precisely that, to the extent that it is feasible. This reinforces the message of Box C that simply pursuing the fastest possible reduction in the carbon footprint of the CBPS is not in the best interests of economy-wide transition. A recent NGFS report gives an example of how central banks could lead investors in the reverse direction if they are not careful. It cautions that the use of widespread 'negative screening' (i.e. excluding substantial parts of the market, usually on the basis of current climate footprints) by central banks could risk being taken as a signal of best practice.[46]
- Second, Principle 2 places a premium on engaging with investors and those developing frameworks for green investing. We are keen to participate in discussions of evolving best practices, metrics and methodologies, whether in a listening or convening role.

### Principle 3: Ratchet up our requirements over time

As data and metrics on transition pathways and firm-level emissions improve, and issuers have the opportunity to develop credible net zero strategies, our approach will become progressively more demanding, setting higher expectations and sharper incentives.

[46] Adapting central bank operations to a hotter world: Reviewing some options

3.13 As discussed in Section 1, the changes required to bring about an orderly transition to net zero are huge. With the direction of travel clear, and the urgency of mitigating climate change high, decisive action is needed. We therefore intend to implement our new approach this year. However, when it comes to the specifics of this journey, there remains elevated uncertainty over a number of important factors. All climate conscious investment strategies, including ours, must find a way to navigate these:

- **Transition pathways to net zero**: The nature and timing of the UK path to net zero by 2050 could take many different forms, particularly at a sectoral level;
- **Credibility of firms' strategies to reduce emissions**: Over and above the existence (or otherwise) of robust sectoral reference pathways, a second source of uncertainty is the extent to which individual firms are putting in place credible strategies to reduce emissions. As discussed in Section 2, coverage of forward-looking metrics is patchy. For instance, only 40% of issuers currently eligible for the CBPS have released a science-based emissions reduction target applying an SBTi or TPI methodology.[47]
- **Assessment of firms' performance against plans**: There is then potential for further uncertainty over whether firms are sticking to their emissions reduction strategies. As also discussed in Section 2, high-quality climate-related disclosures remain a long way from being universal. To date, approximately 54% of issuers currently eligible for the CBPS have produced a disclosure equivalent to TCFD-equivalent standards. For metrics such as carbon emissions, coverage is higher, and improving over time (**Chart 2.2**).

3.14 On all of these dimensions, rapid progress is anticipated over coming years, as discussed in Section 1. Investors will learn more about the policies intended to drive transition. Promising initiatives are underway to produce more robust sectoral transition pathways. The coverage and sophistication of metrics of firms' emissions reductions strategies is increasing, a process that will be further boosted by initiatives to require more structured reporting by firms, such as the UK Government's timeline for making TCFD-equivalent disclosures mandatory, described in Section 1. And the availability of structured data sets drawing together consistent measures of firms' emissions in a way that makes it easy to do investment analysis is improving rapidly.[48]

3.15 As stressed at the start of this section it is particularly important that, as bodies investing public money, central banks should base their approaches on robust and replicable data. At the same time, waiting for concrete sectoral transition paths, fully credible company-level emissions strategies, and perfect data risks doing too little too late.[49] To manage these countervailing factors, we propose to:

i. **Start with a clear and robust baseline approach**: In order to start influencing the expectations and incentives of issuers, we will introduce an initial framework for a

[47] A firm has produced a target using either Science Based Targets Initiative (SBTi) SBTi or (Transition Pathway Initiative (TPI) methodologies, as at December 2020.

[48] For instance: the SBTi validates companies' targets for consistency with keeping temperatures increases to 1.5-2°C; the Climate Action 100+ Net-Zero Company Benchmark assesses firms' targets, strategies, capital allocation alignments and disclosures to give an overall picture of climate performance; and aggregate climate scores and temperature rise metrics are available from data providers (eg MSCI, CDP, TPI).

[49] This point is echoed in NGFS (2021, p7) note: 'When balancing the need for robust and comprehensive data against the opportunity cost of inaction, central banks should be cognisant of the risk that acting early with imperfect information could be less costly than acting only once stronger data standards have emerged'.

greener CBPS that is grounded in the principles set out in this Section. The aim is that core features of this framework will remain relatively stable over time. This will help issuers to understand and respond to the incentives we set, and increase our influence on others.

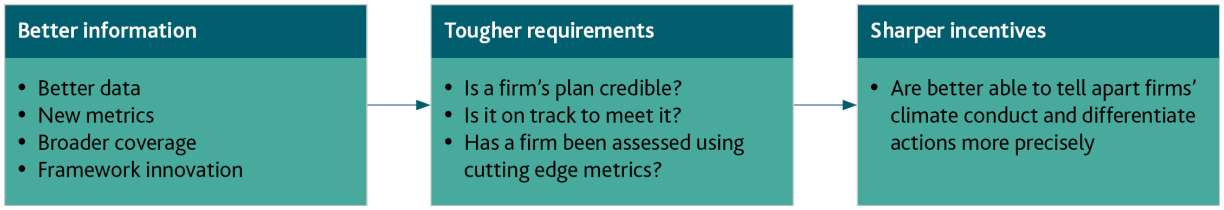
To achieve this stability when uncertainty is currently so high requires that our high-level approach should be robust. That is, it should perform effectively however transition occurs, and regardless of the tools and information we have at our disposal.

ii. **Evolve aspects of our approach over time, ratcheting up expectations as data improve and companies make progress.** Flexing our approach in response to developments in data, tools and techniques available to investors is not simply a matter of staying up to date with best practice. These advances will also enable us to differentiate our requirement more effectively in relation to issuers' climate conduct. In turn, this will sharpen the incentives we are able to set and strengthen our capacity to lean against mispricing of climate risks.

Climate disclosures neatly illustrate this process: requiring companies to have comprehensive disclosures for access to a scheme 5-10 years ago would have been impossible. To do so in 5 years' time should be an irrelevance, as disclosures become mandatory.

This approach is aimed at balancing (a) the need to be reasonable in the requirements firms are set and the time they are given to adjust to them, with (b) the value of taking timely actions where performance is inadequate. Stronger measures, such as making a bond ineligible for the CBPS or selling an issuer's debt, will be powerful parts of our toolkit. But these would not, in general, be applied immediately, and in all but the most serious cases issuers would first be given incentives, and an opportunity, to modify their behaviour.[50] **Figure 3.3** illustrates how this evolution may take place over time.

**Figure 3.3**: The role of data and toolkit innovation in sharpening incentives




## Discussion question 1: Principles for greening the CBPS

**Do respondents agree the Principles set out in Section 3 are appropriate, in light of the role of the CBPS and the trade-offs the Bank faces as a public institution focused on the maintenance of monetary and financial stability? Should any considerations be dialled up or down; and have any been overlooked?**

[50] A recent NGFS report observes that when greening monetary policy operations "central banks need to assess whether to adopt a 'learning by doing' approach or to design a comprehensive climate-adjusted framework" (NGFS (2019), p21). We believe this two-pronged approach brings these options together, allowing for incremental improvements within a stable, comprehensive framework.

# 4 Potential tools for greening the CBPS

4.1 Having set out the principles for greening the CBPS in Section 3, this section considers how to implement them. That means confronting a number of challenges, not least the fact that comprehensively adjusting a monetary policy portfolio to take account of climate considerations is new territory for a central bank.[51]

4.2 Fortunately, there is much to learn from the range of investment frameworks being developed by not-for-profit organisations and private investors, supplemented by insights from academic and other analysis. None of the current portfolio-wide frameworks can simply be applied 'off the shelf' to the CBPS, given the constraints imposed by being a central bank that were described in Section 3. But they do provide a wealth of options, and have helped us to identify four particularly promising tools, outlined in Box D.

4.3 We have also reflected on the wide range of analysis of factoring climate considerations into monetary policy operations, framed either in general terms or more specifically aimed at either the CBPS or other central bank facilities.[52]

4.4 The remainder of this Section discusses how we envisage each tool fitting into our overall approach (summarised in **Figure 4.1**). It draws out some of the opportunities and practical challenges posed by each in a central banking context. And it poses a series of questions for stakeholders. We have not yet reached the stage of proposing specific calibrations for each tool. Work on that is under way, and will be informed by responses to these questions, and our associated discussions with stakeholders.

[51] Other central banks have recently taken steps to green their operations. For instance, in September 2020 the ECB announced that bonds with coupons linked to sustainability performance targets ('sustainability linked bonds') to become eligible as central bank collateral, and would potentially be eligible for asset purchases under the APP and the PEPP subject to compliance with programme-specific eligibility criteria. These decisions came into effect at the start of 2021. More conventional green bonds (see Box E) were already eligible for purchase in the ECB's PSPP and CSPP programmes. Further examples of actions by other central banks can be found in Section 7 of a recent report by the NGFS (A sustainable and responsible investment guide for central banks' portfolio management).

[52] See for example: Alexander, P and Fisher, P (2020) Central Banking and Climate Change; Barclays Credit Research – ESG Constrained CBPS (11 December 2020); Greening the financial system: Tilting the playing field, the role of central banks; HSBC Global Research – Green Bond Insights (23 March 2021); Decarbonising the Bank of England's pandemic QE, Matikainen, S, Campiglio, E and Zenghelis, D (2017) The climate impact of quantitative easing; Schnabel, I (2020) When markets fail – the need for collective action in tackling climate change; Schoenmaker, D (2019); UBS Global Research – Does a lower carbon intensity sacrifice portfolio return? (3 May 2021).

**Figure 4.1**: Overview of the Bank's proposed approach to greening the CBPS

## Greening the Bank of England's Corporate Bond Purchase Scheme (CBPS)

**The Bank will adjust the CBPS to support an orderly economy-wide transition to net zero, subject to maintaining its primary monetary policy purpose, protecting public money, and basing any adjustments on robust and proven metrics.**

Three broad principles will shape our approach


**We will employ four main tools**

| | |
|---|---|
| **Targets** | • Set target paths for emissions properties of the CBPS.<br>• Explore scope for targeting instruments that directly finance 'green' activities (eg. green bonds) as they become available. |
| **Eligibility** | • Link eligibility to criteria which reinforce Government timeline towards mandatory climate disclosures.<br>• Place tight restrictions on involvement in activities which robust, broad-based scientific evidence or UK government policy suggest are inconsistent with transition to net zero.<br>• Explore scope to link eligibility to credible transition plans. |
| **Tilting** | • Rebalance bond purchases towards issuers with stronger climate performance.<br>• Explore ways to combine forward and backward looking indicators (eg. via a 'scorecard' approach). |
| **Escalation** | • Tighten requirements over time right across our approach.<br>• Introduce a specific escalation strategy, setting out a path to making bonds ineligible and/or selective sales of bonds, for issuers that fail to keep pace with rising standards. |

## Box D: Not-for-profit and investor frameworks for guiding green investing

**Table 1** summarises some of the more recent comprehensive approaches to reorienting investment activities towards supporting the achievement of net zero.

**Table 1:** Overview of frameworks offering guidance for net zero investing

| *Framework* | *Membership* | Key features |
|---|---|---|
| *Net Zero Investment Framework of the Institutional Investors Group on Climate Change (IIGCC)* [53] | *Over 300 European asset owners and asset managers with €37tn Assets Under Management (AUM)* | • Commitment to an investment strategy and portfolio-level targets consistent with net zero portfolio emissions by 2050;<br>• Rebalancing of portfolios by weighting according to climate performance;<br>• Active engagement with issuers, including escalation strategies |
| *2025 Target Setting Protocol of the Net Zero Asset Owner Alliance (NZAOA)* [54] | *A UN-convened group of 35 asset owners representing over $5.6tn AUM* | • Commitment to transitioning portfolios to net zero GHG emissions by 2050, with interim targets for 2025;<br>• Use of science-based measures to assess issuers' behaviour;<br>• Sectoral emissions targets aligned to sector-specific decarbonisation pathways |
| *Framework for financial institution asset portfolios from the Science Based Targets initiative (SBTi)*[55] | *Carbon Disclosure Project, UN, World Resources Institute and World Wide Fund for Nature* | • Portfolio wide science-based targets incorporate sectoral decarbonisation pathways approach and temperature ratings;<br>• Framework for communication of financial institutions' targets;<br>• Actions for achieving targets and tracking progress |
| *Glasgow Financial Alliance for Net Zero (GFANZ).* | *Over 160 financial firms together responsible for assets in excess of $70 trillion.* | • Commitment that all members will set science-based interim and long-term targets to reach net zero no later than 2050;<br>• Catalyse strategic and technical coordination to align with net zero |

The first three of these initiatives all aim specifically to support the construction of climate-conscious investment portfolios. They typically specify targets with which investors should align (eg rates of portfolio emissions reduction) and outline tools to build climate considerations into investment strategies. The fourth - the Glasgow Financial Alliance for Net Zero (GFANZ) - is somewhat broader. It was launched in spring 2021 to serve as a sector-wide forum, aiming to bring together and coordinate leading net zero initiatives and frameworks from across the financial system.[56]

**Table 2** summarises four core elements of these frameworks set out in **Table 1** that we consider most relevant to our thinking on the CBPS.

[53] Net Zero Investment Framework.
[54] 2025 Target Setting Protocol.
[55] Framework for financial institution asset portfolios.
[56] COP26 and the Glasgow Financial Alliance for Net Zero (GFANZ)

**Table 2:** Components and themes from the frameworks in Table 1

| Components | Key themes | Examples |
|---|---|---|
| Setting portfolio-level **targets** | • Headline targets ideally defined in terms of a portfolio's climate impact;<br>• Targets should specify a time frame and, where possible, align with pathways to net zero;<br>• Support for targets to be made public, to encourage others also to set targets, and to be accountable for progress against these targets;<br>• Some support for supplementary targets for funding 'climate solutions' (eg green bonds) | • **Net Zero Investment Framework** requires sub-10 year portfolio level targets, reviewed and updated every 5 years;<br>• **SBTi** specifies that targets must cover a minimum of 5 years and a maximum of 15 years. Longer-term targets (up to 2050) are also encouraged, but must be consistent with keeping warming below 2°C |
| Defining climate criteria for portfolio **eligibility** | • Recommend selective use of exclusions, rather than broad use of 'negative screening';<br>• Consideration of whether/when to exclude activities incompatible with transition to net zero at any horizon | • **Net Zero Investment Framework** advocates exclusions based on inconsistency of company activity with credible net zero pathways;<br>• **SBTi** state that thermal coal should be fully phased out by 2030 |
| '**Tilting**' holdings towards stronger climate performers | • Support for shifting portfolio weights towards stronger climate performers;<br>• Preference for tilting on forward-looking basis, not just on issuers' current emissions;<br>• Coverage and quality of transition pathways a practical challenge | • **Net Zero Investment Framewor**k proposes tilting portfolios towards higher-performing issuers, but assessing assets on an issuer's decarbonisation strategy as well as current emissions intensity; ;<br>• **PAII** emphasises the need for the development of granular transition pathways to provide decision-useful information for investors;<br>• **SBTi** offers specific tilting weighting tools |
| **Escalation** in approach over time | • Transition-aligned proportion of portfolios should rise over time<br>• Investors should seek first to engage with issuers to improve their climate performance;<br>• Where firms do not respond to that engagement over time, and metrics show a clear gap between behaviour and targets, investors should consider first ineligibility for further investment, followed by active divestment. | • **Net Zero Investment Framework** proposes direct or collective engagement and stewardship actions, followed by a clear escalation process where that engagement is unsuccessful, feeding back to investment, weighting and divestment decisions; Investors should set 5 year targets for increasing AUM invested in 'aligned' or 'aligning' assets which should increase towards 100% of assets being net zero or aligned by 2040.<br>• **NZAOA Target Setting Protocol** notes the importance and effectiveness of structured engagement with issuers; immediate divestment can be critiqued as an "abdication of stewardship responsibilities", but case for selective divestments as part of engagement strategies |

## Tool A: Portfolio targets

We see clear benefits to setting and disclosing interim targets for certain climate properties of the CBPS portfolio. Available options (eg target paths for portfolio emissions, or forward-looking temperature rise measures) present different combinations of conceptual merits and challenges. Over time, the Bank will also look to purchase eligible green corporate bonds as the new sterling green gilt programme catalyses issuance.

4.5 Our objective in greening the CBPS is to support the UK's transition to net zero, in line with the MPC's revised remit. In the longer run, as policies, firms and markets adjust, the risks and opportunities associated with that transition should be fully reflected in the prices of financial assets. Once that happens, simply reflecting the composition of the market – the current approach of the CBPS – should by definition be aligned with net zero. But that is currently some way off. What should investors do in the meantime to ensure they are on the right track?

4.6 The first action advocated by existing investment frameworks is to set a clear climate-based target for the portfolio as a whole. To be operational, such targets need not merely to reference the ultimate goal (net zero by 2050), but a measurable nearer-term outcome judged consistent with that goal. Such 'interim' targets can help inform investment strategies and portfolio rebalancing, and allow tighter monitoring against progress.

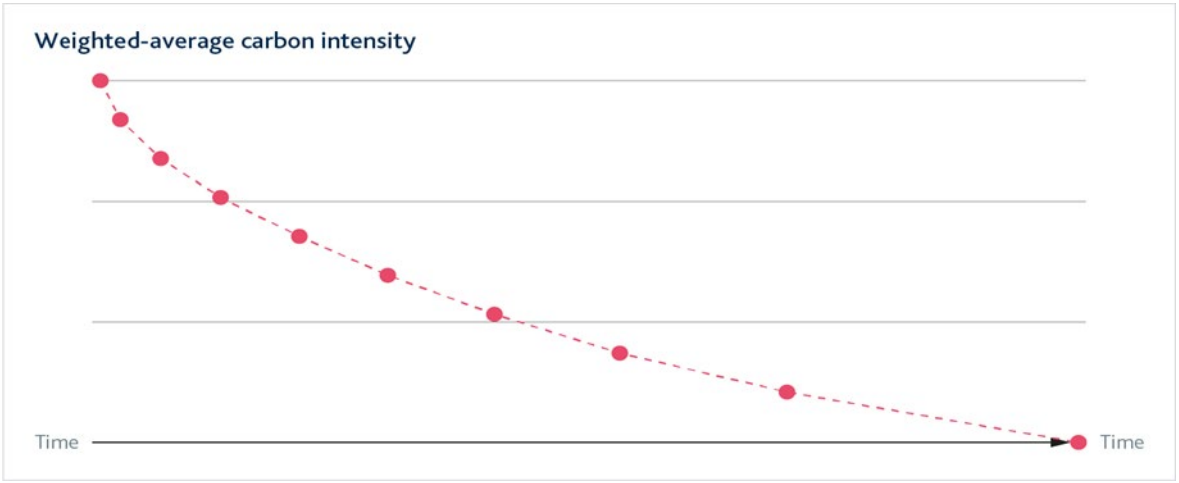
4.7 Such targets inevitably require investors to make judgments about a wide variety of unknowns, including future government policy, technological change and companies' emissions plans. Some of those judgements may prove to be wrong, causing targets to be missed. But that does not negate their value as devices for promoting transparency and accountability – particularly important for a fund like the CBPS, investing public money. We therefore see a strong case to set and communicate portfolio-level interim climate targets for the CBPS.

### a) Long-run aspiration

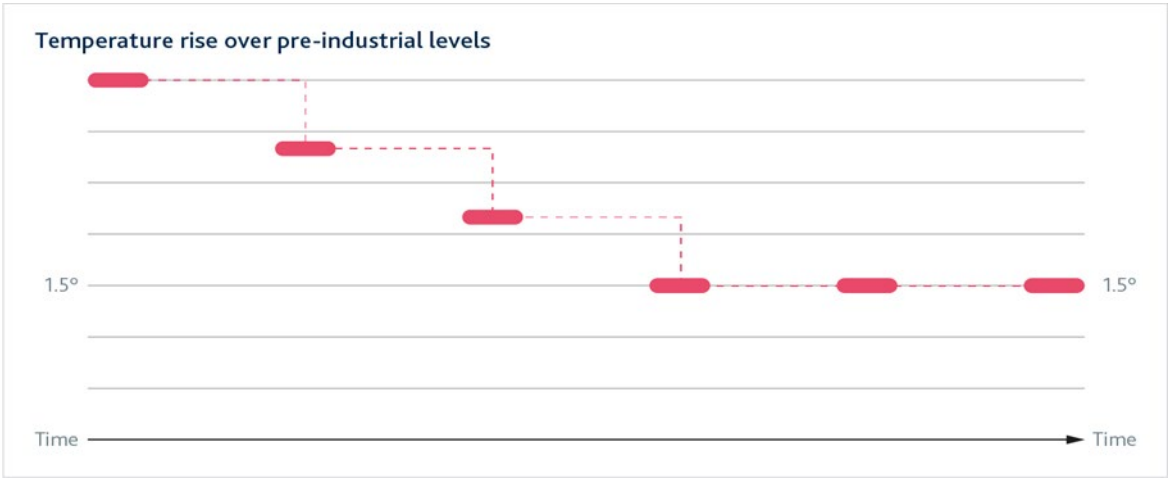
4.8 Interim targets can be specified in a number of ways, some of which are illustrated in **Figure 4.2**. One is to set a declining pathway over time for the point in time emissions associated with assets in a portfolio (Panel a). A second is to specify a deadline by when a forward-looking 'implied temperature rise' (ITR metric) of the portfolio, as discussed in Section 2, should fall to a progressively tighter level judged consistent with net zero (Panel b). And a third is to set a path for the proportion of assets issued by firms whose future emissions plans are judged to be credibly aligned with transition to net zero (Panel c).

**Figure 4.2:** Different bases for interim portfolio targets

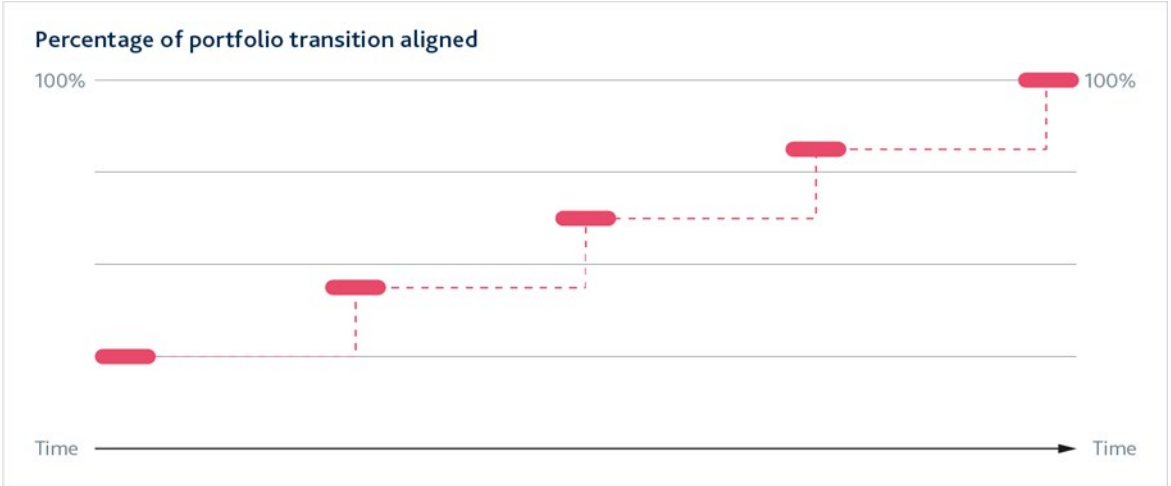
**a:** Point-in-time emissions




**b:** Implied temperature rise metric




**c:** Share of assets aligned with transition



## b) Near-term action: calibrating interim targets

4.9 In the long run – when all issuers are credibly aligned with net zero – these targets should all amount to the same thing. But we are still a long way from that. Choosing a useful target currently requires investors to make two key practical judgements.

4.10 The first reflects the fact that pathways for emissions towards net zero in 2050 are still emerging. In the UK, the government has announced clear interim targets at an aggregate level: a reduction of at least 68% by 2030 (relative to 1990 levels), and a 78% reduction by 2035. But similar targets are still emerging elsewhere – and details on how to translate economy-wide targets into sectoral pathways and credible firm-level actions are still developing. In response, most of the investment frameworks summarised in Box D suggest tracking investment strategies over 5 or 10 year horizons, for a defined and climate-aligned share of the portfolio.

4.11 Calibration of possible targets for the CBPS involves weighing together a number of factors. The goal is to set targets which imply stretching incentives for firms. But it would be a mistake to pursue alignment at a pace which ran too far ahead of the proportion of companies in the overall economy that are aligned with net zero, or with the coverage of metrics to verify this. That would simply fall foul of the pitfalls described in Section 3.

4.12 The second judgment is to decide the metrics to use to frame interim targets and against which to monitor progress over time.

4.13 Point in time emissions metrics are relatively easy to monitor for a sizeable share of the investment universe. Emissions data are currently directly available for around 71% of CBPS eligible firms; with modelled proxies available for a further 19%. As described in Section 2, using these data we monitor and disclose the Weighted Average Carbon Intensity (WACI) of the CBPS in our annual climate-related financial disclosures. The usefulness of this metric is improving year on year, as data availability and quality improves (**Chart 2.2**). But these static measures do not speak to issuers' future carbon reduction plans, which are critical for driving a credible path to net zero, as discussed in Section 3.

4.14 As discussed in Section 2 and Box B, forward-looking metrics are potentially a much better fit with this goal. However, the current generation of measures pose their own practical challenges. ITR metrics, for example, rely on complex methodologies and assumptions about future transition paths and emissions plans. The relative opacity of these assumptions, and the sensitivity of ITR measures to variations in these, can complicate their practical use for setting reliable targets at present.

4.15 As of today, we therefore face a trade-off. Defining interim targets in terms of future paths for point-in-time emissions has practical advantages, but cannot take explicit account of issuers' future plans. Seeking to achieve given temperature levels on forward-looking portfolio ITR metrics has conceptual appeal, but the current generation of metrics are opaque and sensitive to underlying assumptions. A key task in the next stage of our work is to reconcile this trade off.

### c) The opportunities presented by green bonds

4.16 As well as focussing on measurement of emissions, some investor frameworks also recommend setting targets for the share of funds allocated to assets which aim to play a proactive role in addressing climate change. The most common example of this type of target is for green bonds.[57] Green bond issuance in sterling markets has so far been relatively modest. But it is growing fast, and that is expected to accelerate further following the Government's planned inaugural green gilt (i.e. sovereign bond) issuance programme this year (Box E).

4.17 We will continue to monitor developments in the market for green corporate bonds closely, and will consider how those developments might best be reflected in the targets we set for the CBPS.

#### Box E: Developments in green bond markets

Recent years have seen rapid innovation in financial assets designated as 'green'. Such assets should not be needed in the long term, once risks and opportunities associated with climate change have been fully integrated into prices. But in the meantime, they are a way to link funding directly to transition-linked investment, providing a credible commitment from issuers, and meeting the needs of climate-conscious investors.

The variety of such instruments is already wide and includes products like voluntary carbon offsets or derivative products designed to help manage the risks in renewable energy projects. But the most common type of asset, and the one most pertinent to this Discussion Paper, is green bonds.

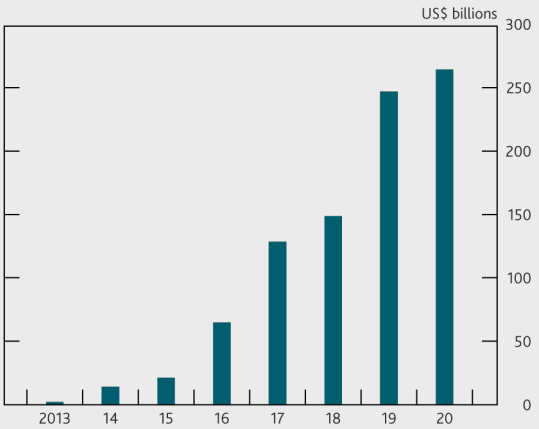
In the simplest form of green bond, issuers commit to hypothecate the money raised by bond sales to new or existing activities designated as supportive of climate transition. It is important that such hypothecation is done in a credible and robust way, and various frameworks exist to help with this.[58]

Global green bond new issuance has increased rapidly in recent years (**Chart A**) and the outstanding global stock now stands in excess of $1trillion. Issuance is split across financials, non-financial firms and sovereigns. Private sector issuers account for roughly two thirds of the total outstanding green bond market (**Chart B**).

[57] An alternative approach would be to set a target for assets underpinned by revenues designated as 'green'. Work to develop potential classification schemes to support such an approach is underway in the UK and the EU.

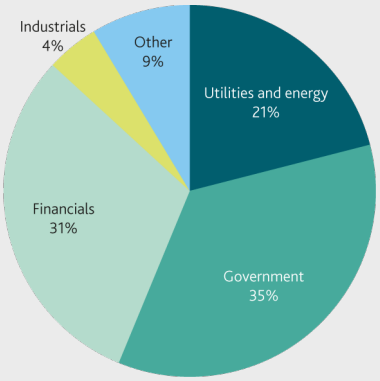
[58] ICMA's Green Bond Principles provide one framework for doing this. Though their principles and associated taxonomy are voluntary, a number of third parties offer independent assessment and audit services.

**Chart A:** Global green bond new issuance




Source: Bloomberg Finance L.P.
Note: 2021 Q1 data currently stands at $111bn.

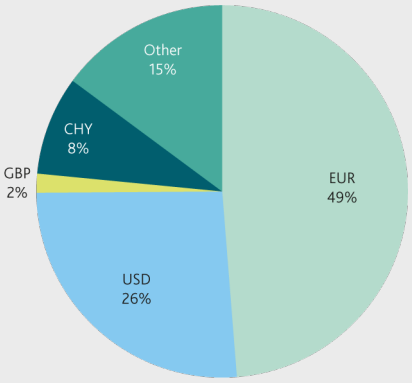
**Chart B:** Outstanding global green bonds by issuer




Source: Bloomberg Finance L.P.

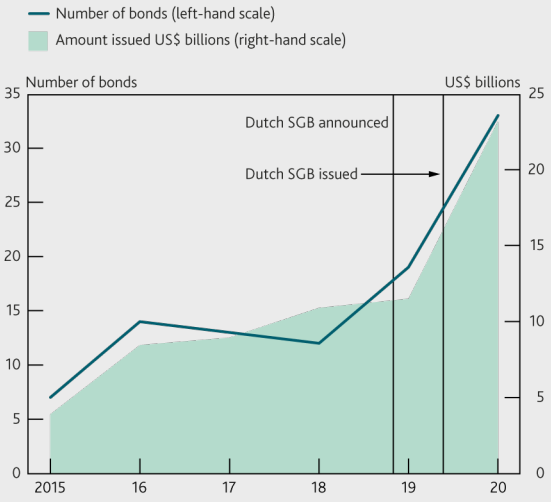
At present only a small share of global issuance is denominated in sterling (**Chart C**). But the market is also expanding. Sterling green bond issuance so far this year stands at $9.6billion, more than double the figure for the whole of 2019. Utilities and energy firms account for roughly 40% of corporate sterling green bond issuance, followed by financials with 22% and real estate with 19%.

**Chart C:** Outstanding corporate green bonds by currency




Source: Bloomberg Finance L.P.

**Chart D:** Dutch issuance of corporate bonds




Source: Bloomberg Finance L.P.

A number of governments have also issued sovereign green bonds (SGBs), including Germany, France and Italy (which issued the biggest ever debut sovereign green bond of €8.5billion in March this year). Such bonds offer a number of direct benefits to governments, including locking in commitments to undertake climate-improving investment, reducing issuance costs and reaching a larger investor base. But they also help to catalyse the development of private sector markets, by establishing benchmark

green bond prices, setting conventions for issuance and admissible green spending, and developing local market expertise. In the Netherlands, for example, the announcement and subsequent issuance of the first sovereign green bond was followed by a rapid increase in corporate green bond issuance (**Chart D**).

Last year, the UK Government announced that, subject to market conditions, it would issue its first SGB in 2021.[59] Planned issuance will be a minimum of £15bn, and the Government will publish a framework detailing the types of expenditures to be financed via green gilts. The Bank has been supporting the UK authorities in this work.

## Discussion question 2: Tool 1: Portfolio Targets

**What approach to setting portfolio-level targets for the CBPS is likely to provide the best support to economy wide transition to net zero by 2050, taking into account the current maturity of climate metrics, transition pathways and models, as well as the Bank's wider responsibilities to preserve the ability of the MPC to achieve its inflation target, to protect public money and to rely only on sufficiently robust data and metrics? What challenges would need to be overcome in order to operationalise such an approach, and how might that best be achieved?**

a. How should investors, including the Bank, approach target setting in light of the considerable uncertainty around the timing and nature of transition?
b. What are the advantages and disadvantages of framing targets in terms of point-in-time emissions vs forward-looking metrics (e.g. portfolio temperature rise measures or emissions reduction targets of issuers in a portfolio), and how might this balance evolve over time?
c. What role might there be, now or in the future, for targets defined in terms of designated green activities (e.g. green bond holdings, share of classified green revenues)?

[59] For more information see Green Gilt Issuance

### Tool B: Asset eligibility

We see a role for making eligibility for the CBPS conditional on climate-related actions by issuers. Early priorities will include reinforcing the Government's timeline towards mandatory climate disclosures and examining the case for selectively excluding issuers involved in certain activities judged incompatible with transition to net zero.

4.18 Another important tool for shaping the climate profile of a portfolio lies in the criteria used to choose the universe of eligible assets. As discussed in Section 2, the CBPS already imposes a number of such tests, to ensure the desired policy effect (targeting purchases on issuers that make a material contribution to the UK economy), and to manage risk (eg by requiring that eligible assets should have an investment grade credit rating).

## a) Long-run aspiration

4.19 In the long run, the 'gold standard' eligibility criterion for portfolios targeting net zero by 2050 should straightforwardly be that issuers have climate investment plans that are credibly aligned with economy-wide transition, and verified by an appropriate third party. However, it not possible to jump to this end state immediately. Many firms are still developing their plans, and third-party verification is not yet widespread. For the reasons discussed in Section 3, going too far too soon, for example by excluding all firms without credible verified plans, would reduce the Bank's ability to use its influence in an ongoing way to support change in industries where such plans need to be introduced. Ironically it may also shift the balance of eligible issuers towards higher-emitting industries (where initiatives to assess and verify transition plans have rightly initially focused). Instead, what is required are concrete, substantive steps towards this long-run aim.

## b) Near-term action

4.20 We therefore intend to take a phased approach to eligibility, ramping up over time. This will aim to trade off setting requirements which provide stretching incentives to firms to improve their climate behaviours, without excluding such large swathes of the market that the Bank's influence is diminished. The latter would contradict Principle 1 in Section 3.[60]

4.21 A good starting point is to use our CBPS eligibility criteria to sharpen incentives for firms to formulate and communicate their net zero plans, complementing and reinforcing the Government's pathway to mandatory disclosures.[61] A recent NGFS report notes that such steps can help foster harmonised, transparent, reliable and comparable data, catalysing action by others.[62]

[60] This approach is consistent with the 2021 NGFS Report on greening monetary policy operations, which notes that 'several options may run the risk of curtailing, more or less significantly, the scope for central bank operations and the policy space. This risk may be more significant in options that aim to .. screen out assets potentially representing a significant share of the purchasable universe'.

[61] A Roadmap towards mandatory climate-related disclosures

[62] Adapting central bank operations to a hotter world: Reviewing some options.

4.22 The second area where action can be taken is to filter out certain activities that scientific evidence suggests are incompatible with reaching net zero by 2050, or from when Government policy is for very tight restrictions on these activities.

4.23 A strong body of analysis suggests that the use of thermal coal needs to fall very rapidly indeed in order for advanced economies to be aligned with net zero. For example, Climate Analytics argue that in order to align with a 1.5°C world OECD nations should end coal use entirely by 2030.[63] This broadly accords with the 11% a year reduction in global coal production necessary to meet commitments under the Paris Agreement – as implied by analysis from bodies such as the Intergovernmental Panel on Climate Change and the UN.[64] For these reasons, thermal coal is specifically addressed in several existing investment approaches (Box F).

4.24 In the UK case, where coal usage is already very low, the Government has committed to eliminating unabated coal-fired power generation by 2025, and now proposed to do so by October 2024.[65] This reflects, in part, guidance from the CCC that 'there can be no role for conventional coal generation in the UK beyond the early 2020s.'[66] We will ensure that the new CBPS framework is calibrated in ways that reinforce incentives to achieve these deadlines. This will include looking at whether and how we limit or exclude bonds that are linked to thermal coal. Beyond coal, we will also consider whether and how such an approach – appropriately calibrated - might also be applied to other fossil fuel related activities, where scientific evidence suggests a fast transition is also likely to be needed.

[63] Global and regional coal phase-out requirements of the Paris Agreement: Insights from the IPCC Special Report on 1.5°C

[64] UN production gap report; Global Warming of 1.5 °C: An IPCC Special Report on the Impacts of Global Warming of 1.5 °C above Pre-Industrial Levels and Related Global Greenhouse Gas Emission Pathways.

[65] Consultation on the early phase out of unabated coal generation in Great Britain

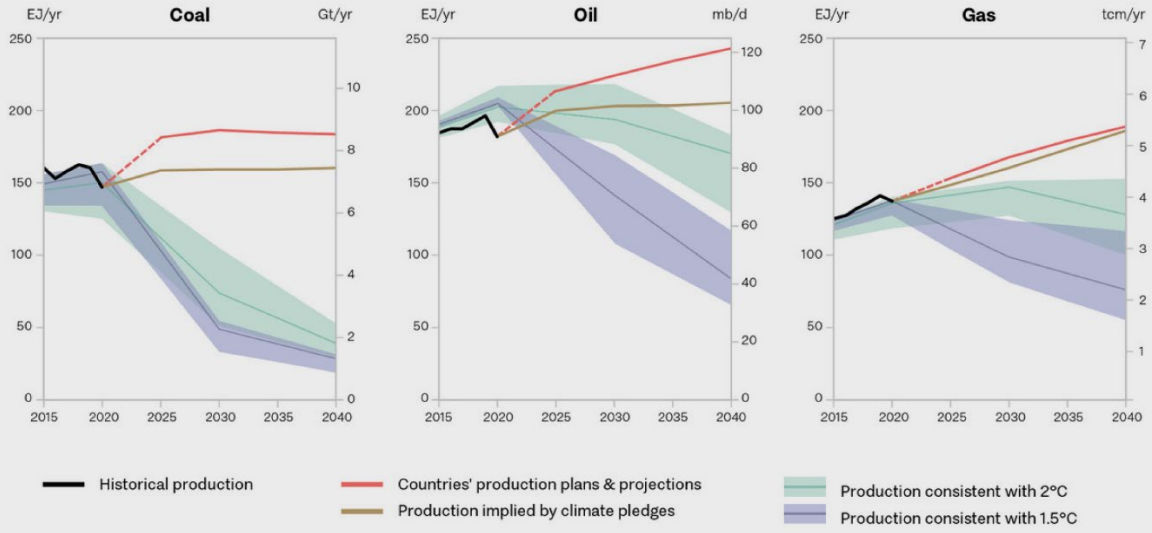
[66] No role for conventional coal beyond 2020s - CCC

## Box F: Treatment of activities judged incompatible with climate transition

In response to growing scientific evidence, a number of 'Paris aligned' investor frameworks of the kind illustrated in Box D recommend selective exclusion and divestments of companies that engage, to a specified degree, in particular activities. For example, the IIGCC recommends divesting companies whose "primary activity is no longer considered permissible within a credible pathway towards global net zero emissions".

The question of whether, and when, to restrict eligibility of assets linked to such activities is driven primarily by differences in the scale of emissions profiles. For instance, coal produces twice the amount of carbon dioxide per unit of electricity as natural gas, and over a third more than oil (the next most intensive source of emissions), on some measures. The UN therefore estimates that global coal production will need to decline at an annual rate of 11% (compared to 3-4% for oil and gas) between 2020 and 2030 to hit Paris targets.[67] **Figure A** plots these paths, showing that: more rapid reductions in coal usage are required than for oil or gas (the swathes); and that these required reductions are greater than embodied in existing plans and pledges.

**Figure A:** Transition-consistent production pathways for fossil fuels[68]




Source: SEI, IISD, ODI, E3G, and UNEP. (2020). The Production Gap Report: 2020 Special Report.

Other considerations also influence the judgment as to whether an activity has become incompatible with transition to net zero: Do technologies exist to allow for rapid emissions reduction? How quickly can an activity be reduced? How does the activity interact with the ability of other sectors to reach net zero? An overall judgment about transition compatibility therefore involves assessing a complex combination of uncertain future developments.

[67] UN production gap report

[68] Charts show exajoules per year on the vertical axes.

Moreover the point at which incompatibility is judged to have been reached may vary within industries. For instance, activities using oil may not become transition inconsistent at the same time. There may be variation in both emissions and the feasibility of scaling up replacement energies across types of oil. And, more generally, the complexity of these judgments means that a clear balance of expert opinion that an activity has become incompatible may sometimes emerge over time, rather than being declared at a single point. For this reason, the calibration of restrictions aimed at incentivising especially sharp reductions in certain kinds of activity, and the set of activities to which these should apply, need to be considered carefully. Restrictions of this nature are likely to tighten over time, providing a good example of how our approach to eligibility will, more generally, ratchet up over time.

### c) The opportunities presented by green bonds

4.25 As described in Box E, recent years have seen rapid innovation in financial assets designated as 'green'. These are an important tool in directing funding to climate-linked investment, and can play a powerful role in encouraging and supporting transition. While relatively modest at present, the size of the sterling market for assets like green bonds is growing quickly. The UK Government is also poised to begin issuing 'green gilts' later in 2021 which is likely to catalyse activity further. Market developments mean it makes sense that the Bank should be open to making relevant green assets eligible for purchase in the CBPS, subject to the requirements of our wider risk framework.

### Discussion question 3: Tool 2: Eligibility

**Which climate related criteria for CBPS eligibility could most effectively support economy wide transition to net zero, now and in the future, taking into account the availability and coverage of metrics, as well as the Bank's wider responsibilities to preserve the ability of the MPC to achieve its inflation target, to protect public money and to rely only on sufficiently robust data and metrics?**

a. How could eligibility criteria best be used to incentivise companies to take meaningful actions towards transition?
b. How can investors including the Bank best judge the pace of tightening eligibility criteria, to sharpen incentives, while giving firms time to respond to these and relying only on robust data?
c. How should the Bank approach changes over time in expert opinion as to which activities are incompatible with transition to net zero, given the Bank's broader responsibilities, and the need to rely on robust evidence and metrics?

### Tool C: Tilting purchases

We will rebalance – or 'tilt' – our purchases of bonds towards eligible issuers with stronger relative performance in terms of the goal of achieving net zero, aiming to take account of past and credible prospective improvements.

4.26 As well as altering which bonds are eligible for purchase, a portfolio's contribution towards net zero can be adjusted by skewing the flow of investments. As Section 2 describes, CBPS purchases are currently allocated across sectors according to the sectoral share of issuance. A climate-based skew would mean investing more in issuers which are performing relatively strongly in support of net zero, and less in those which are not. This is known as 'tilting' and would feed through into the stock of assets over time.

## a) Long-term aspiration

4.27 In the long run – when all climate risks and opportunities are efficiently captured in market prices – all eligible issuers should be on paths compatible with achieving an economy-wide target of net zero by 2050. At that point, there would be no need to tilt across eligible issuers in order for a portfolio to be consistent with this goal: net zero would by definition be achieved simply by holding a portfolio that represented a slice of market issuance. We are, however, some considerable way from this end-state.

## b) Near-term action

4.28 In the near-term, we therefore intend to 'tilt' CBPS purchases towards issuers who are performing more strongly on climate grounds, and away from weaker performers, sharpening financial incentives. Tilting has a number of advantages over the alternative of using broad exclusions. It retains influence over a broader range of firms, including those with the biggest responsibility for contributing to the necessary economy wide reduction in emissions (as discussed in Section 3 and Box C). It avoids building up excessive concentrations in holdings on certain sectors or industries, which could pose material risks to public money.[69]

4.29 This approach is consistent with the advice given by the NGFS, which states: 'Central banks should approach tilting in the knowledge that their action will likely be standard-setting. This action can positively influence markets through signalling. In designing tilting methodologies, central banks should leverage, to the largest extent possible, robust and commonly agreed metrics. This would prevent abrupt shifts in the risk perception of those issuers most likely to be affected.'

4.30 The efficacy of the tilting mechanism depends heavily on the weights and data used to design the tilt (i.e. the price we are willing pay for a bond at auction or how much of it we will hold). One approach is to build a range of different metrics into a 'scorecard'. In judging which metrics to include, similar trade-offs exist to those discussed in Section 2 and earlier in Section 4. The best and most complete data relate to firms' current emissions, and some

[69] The 2021 NGFS report on greening monetary policy operations also suggests that tilting provides a good balance between impact in terms of supporting climate transition and also providing risk protection to central bank balance sheets.

approaches – notably that proposed by Schoenmaker[70] – therefore use them heavily. But such data cannot form the entire basis of the tilt we envisage for the CBPS, because they give no credit for high-emissions firms with ambitious and credible emissions reduction plans. And they do not incentivise improvements in transparency about emissions.

4.31 With that in mind, we also hope to place weight on an issuer's climate performance over time: looking at who is making progress in reducing emissions, and the existence and quality of future emissions reduction plans. Implementing this in practice is not straightforward, for reasons already discussed earlier in this paper. One issue is that robust transition pathways to net zero at a sectoral level would ideally serve as yardsticks against which to assess reductions in firms' emissions. But such pathways remain in their infancy. There are several promising initiatives in this space, from the CCC, IEA and NGFS for example. But more work needs to be done to translate these scenarios into indicators capable of guiding investment decisions.[71]

4.32 We will also face a trade-off between the desire to incentivise firms to produce more ambitious and credible plans for emissions reductions, and the need to ensure we have sufficient coverage and robustness of metrics. As discussed in Section 2 - and illustrated in **Table 2.3** - coverage of different metrics of the kind that may prove valuable inputs into a tilting scorecard remain, in some cases, far from universal, and also uneven across sectors.[72] This applies especially to rigorous, science-based emissions reductions targets. But only 54% of CBPS eligible firms even produce a TCFD-equivalent disclosure. The need to produce such disclosures could, in principle, be factored into a tilting mechanism, as well as being considered for eligibility criteria.

4.33 Limited and varied coverage of these forward-looking metrics is both a challenge and an opportunity. It may mean that we initially need to base the 'dynamic' component of our tilt on improvements in actual emissions over the recent past. But the prospect of more favourable treatment for those with disclosures and credible plans should also help to deliver the type of incentives we wish to impose. Although we would not want our approach to vary across sectors in the longer run, some temporary differences in the scorecards applied in the near term might allow us to make greater use of metrics which are only widespread in certain sectors.

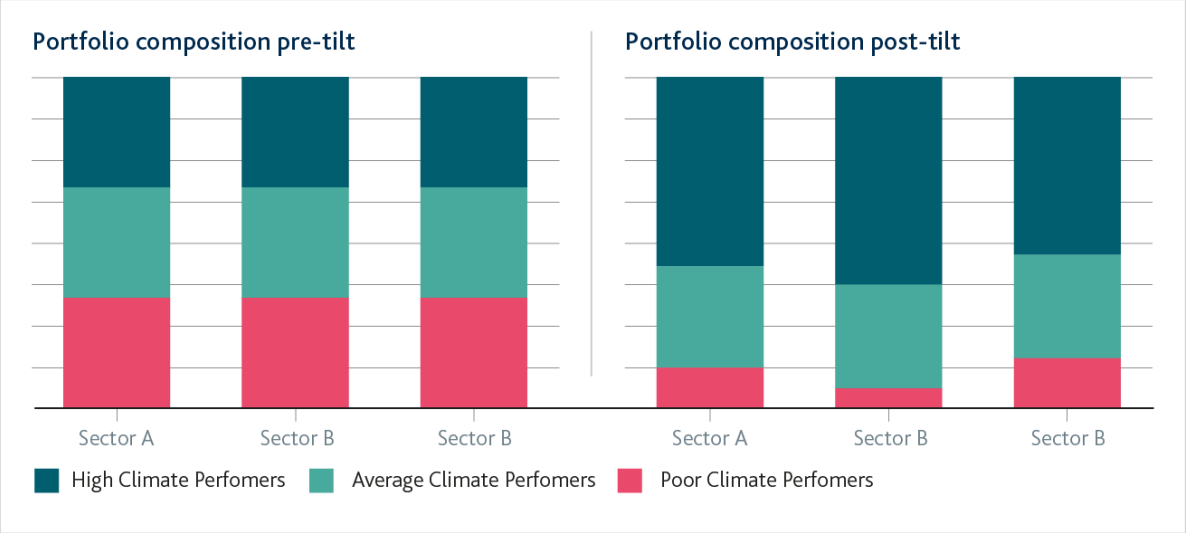
4.34 **Figure 4.3** shows a stylised example of how a tilting mechanism might work. The figure abstracts from potential rebalancing across sectors, and just illustrates how allocation within sectors gravitates away from 'poorer' performers (as judged using a hypothetical scorecard, in red) and towards 'better' performers (in green).

[70] Greening Monetary Policy

[71] To give one example, most current scenarios are derived from detailed energy and land-use models, with emissions pathways provided according to types of emitting activity, rather than the national industry classification frameworks needed to translate the paths into investment decisions. To give a specific example, the scenarios may set out a path of reductions for emissions produced by heating buildings, without distinguishing between heating factories in one sector and heating office blocks in another.

[72] The metrics illustrated in Table 2.2 should be taken as simply indicative of the sorts of metrics that might be factored into a tilting scorecard, not a steer as to the specific metrics that might actually be chosen.

**Figure 4.3:** Stylised representation of a tilt in action




4.35 The figure illustrates other operational benefits of tilting. It enables investors to combine different measures of climate performance, varying the weights over time. It allows firms to receive credit for being early movers in terms of actions in support of transition. And it also allows investors to increase weights on firms that have metrics for which coverage or quality is improving in a progressive rather than a binary way (compared to the use of exclusions).

4.36 Tilting is a central feature of the investment frameworks outlined in Box D. It is also the method used to produce some climate and ESG indices. For example, the third party provider MSCI produces a 'Universal' index combining selective exclusions with a tilting mechanism, which places weight on both the level and change of selected ESG metrics. [73] A tilting mechanism also underlies the Climate Transition Index produced by FTSE Russell and the Transition Pathway Initiative (TPI).[74] This places weight not just on current emissions, but also on firms' fossil fuel reserves, their 'green' revenues, their climate governance, and (TPI's assessment of) their alignment with certain Paris objectives. A third approach is to focus on more specific investment themes, for instance catering to those looking to hold only the strongest climate performers in sectors or, more tightly still, only those already aligned with net zero.

[73] Keep it broad: An approach to ESG strategic thinking.
[74] FTSE TPI Climate Transition Index

### Discussion question 4: Tool 3: Tilting

**What might provide the most effective basis for tilting CBPS purchases to provide effective incentives to firms to take actions towards net zero emissions, taking into account the availability of metrics and transition pathways, as well as the Bank's wider responsibilities to preserve the ability of the MPC to achieve its inflation target, to protect public money and to rely only on sufficiently robust data and metrics?**

a. How might one design an approach to tilting which is consistent over time, while incorporating sufficient flexibility to adapt as data, metrics and toolkits improve? Do respondents agree there is merit in a 'scorecard' approach, which weights together different climate metrics?
b. Are sectoral transition pathways yet robust enough to define required reductions in emissions and, if not, what rate of improvement should sectoral or aggregate tilts be set in reference to?
c. Which forward-looking metrics capturing (credible) plans for emissions might be the most useful inputs to a tilting approach at present, and which have the greatest potential over coming years?
d. What affects whether a metric is better suited to use as a portfolio eligibility criterion (producing a binary outcome in/out for an asset) versus as a basis for 'tilting' purchases between eligible companies (allowing it to be counted, without leading to exclusions)?

### Tool D: Escalation

We will design and implement a strategy for the CBPS which features progressively more stringent requirements, and repercussions for issuers who do not meet them. Steeper tilts, removal of eligibility, or future sales of bonds could all be possible responses for issuers whose climate performance does not follow a credible net zero path.

4.37 Our approach to the CBPS is designed to drive not just short term changes in behaviours, but persistent improvements over time. Factoring climate into things like bond eligibility criteria and the balance of asset allocations should incentivise firms to take meaningful actions. However, for as long as the CBPS remains in place, it is crucial that our requirements and actions retain their force as transition progresses.

#### a) Long-term aspiration

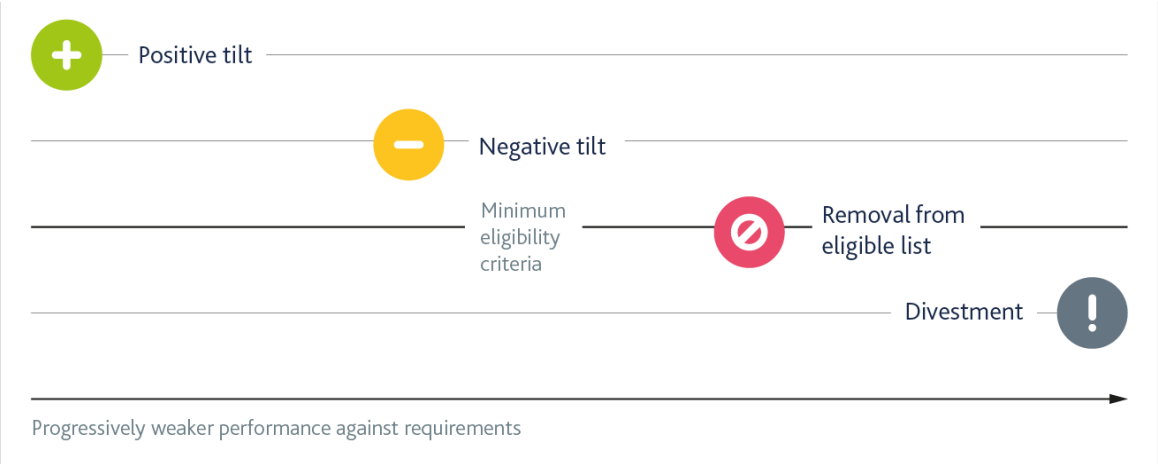
4.38 To maximise their contribution to transition to net zero, investors will ultimately have to demand the highest available standards of transition plans from bond issuers, including robust verification of credibility, and take the most decisive action where those standards are not met. Inevitably an approach of this comprehensiveness will require a clear and complete set of sectoral pathways to net zero, against which expectations and responses can be calibrated. And it will require detailed and sophisticated metrics to support target setting and discern between issuers on the basis of climate performance, fairly and transparently.

4.39 In the long term we expect those tools to be available. Until that point is reached, the challenge is to ensure that the actions investors require of issuers, and the actions investors take themselves, keep pace with the evolution of best practice and available information. This process of 'escalation' can keep investors at the cutting edge in terms of what they ask

of issuers, whilst ensuring that those expectations are reasonable and achievable. Issuers that fall short of the standards required may either simply not be trying to change, or may be trying and failing. In such cases, an escalation strategy should provide credible mechanisms to dial up incentives for weaker climate performers to make improvements. Failing that, selective divestment may be needed where performance falls sufficiently short of requirements or is too slow.

4.40 Such escalation tools are commonplace in climate-conscious investment strategies, and typically form part of a 'ladder' of increasingly more severe actions over time. **Figure 4.4** illustrates how this kind of approach can work, abstracting for now from the fact that our requirements will increase over time. New purchases will be tilted towards bonds issued by firms which are making good progress relative to these requirements. Where progress is less good, other actions may be taken: first tilting away from the issuer's assets, then – ultimately – removing bonds from the eligible list or divestment of holdings.

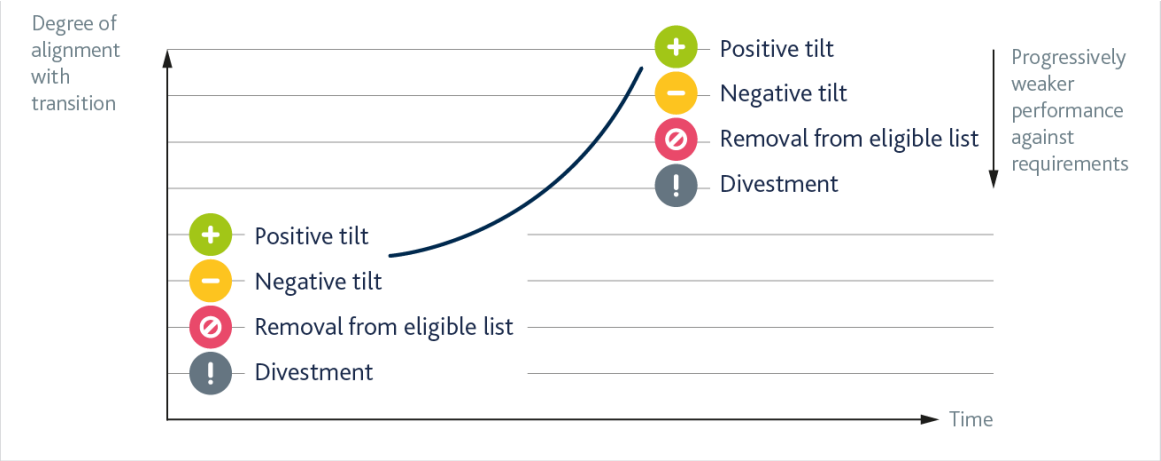
**Figure 4.4:** Escalation of actions according to an issuer's climate performance




4.41 When applying such an approach to the CBPS, our requirements will become more stringent over time. As our requirements increase, firms will have to do progressively more in order to avoid adverse action being taken. **Figure 4.5** uses a stylised illustration to show how, as requirements increase, firms will need to do more in order for their bonds to benefit from a positive tilt. Indeed, progress that would warrant a positive tilt today might lead to removal of eligibility, or even divestment, at some stage several years further down the line.

4.42 This approach will need to be carefully calibrated, with flexibility to adapt as information becomes available. It will also need to accommodate situations where gradually working through a ladder of actions is not appropriate. This could be if, for instance, an issuer's performance was very far below expectations or if it was clear that no actions by the CBPS would gain traction. In these cases it may be more suitable to move to a more stringent action, sooner.

**Figure 4.5:** Escalation of expectations and actions over time




## b) Near-term action

4.43 In calibrating our near-term escalation strategy, we will therefore take account of:

- The need to define reasonable benchmarks for improvements over time, while sectoral transition pathways develop;
- The need to avoid over-reacting to moves in metrics reflecting temporary factors or those beyond a firm's control;
- The need to account sensibly for changes which may not represent a deterioration in climate behaviour, such as the impact of purchasing a less climate friendly competitor with a view to improving their climate performance; and
- The desirability of incorporating credible forward-looking metrics as soon as is possible.
- Whether – and if so how - we communicate the actions we take with regard to specific sectors or firms.

4.44 The escalation strategy we will put in place this year will start to embed a 'ladder' of escalation that strikes a balance between sufficiently sharp incentives for firms to change their behaviour, and a reasonable time to act upon them (illustrated in Box G). Our requirements of firms will need to start at a level commensurate with the state of UK transition. Likewise, to be fair to issuers and ensure we take appropriate care with public money, we will need to ensure that our approach relies on metrics that are reliably robust and transparent.

4.45 What will not differ from the longer-term aspiration is the mechanisms or tools we are willing to use. At all points in time we will maintain a full toolkit that will involve the possibility that eligibility might be removed, or existing holdings might be divested. But removal of eligibility and the decision to divest will be two tools among several.

## Box G: An illustrative scenario of escalation

For a stylised illustration of how an escalation strategy might work, take a hypothetical issuer - Illustrative Group ('IG') – whose debt is held in the CBPS and by other climate-conscious investors. IG is a somewhat weak climate performer. As such it ends up stepping on three rungs of our stylised escalation 'ladder'.

**Step 1**: IG is assumed to satisfy the climate-related eligibility criteria introduced alongside our new approach in Q4 2021. However thereafter it is penalised by the tilting mechanism, based on a combination of current emissions intensity, and past and prospective improvements over time. That results in falling new purchases by the CBPS over time. This tilting mechanism should exert some discipline on IG while it lags comparable issuers, especially if the approach reinforces, and is reinforced by, the actions of other investors.

**Step 2**: However, IG is assumed to fail to respond sufficiently to these incentives. That might reflect weak governance towards climate risks, or because bond holdings by climate-conscious investors are not large enough to affect IG's strategy. Further actions will then be required to dial up incentives and get traction over IG's climate behaviour. Removal from published eligibility lists, including that for the CBPS,[75] could send a powerful signal to other investors and consumers.

**Step 3**: Should that not prove sufficient, divestment of IG's bonds on climate grounds would be a next step. Publicly visible divestment could send a particularly strong signal. But even absent that, divestment by a number of investors with comparable approaches would send a very clear message.

Throughout the process above, the aim would be to ensure that IG always has a good idea of the behaviours expected of it, and the consequences of its actions (or inactions) in terms of escalation, in order that its management might respond to incentives

## Discussion question 5: Tool 4: Escalation

**How best can we build an escalation strategy into our approach, and what properties should this exhibit?**

a. Enhancements in data and metrics should allow us to discern more accurately between firms on the basis of climate performance over time. Which developments in the coverage and / or type of available metrics will be most important in this regard? Over what timeframe are these changes likely to take place, and are there obstacles?
b. How can investors in corporate bonds, including the Bank, best deal with firms with relatively poor climate performance? What factors affect how long incentives should be given to take effect before further actions are taken, and what 'ladder' of actions is most effective?

[75] Bank of England Market Operations Guide: Information for participants

## Discussion question 6: Overall approach

**Are the four main tools identified in Section 4 the right building blocks for the Bank's approach? Are any unnecessary, or are there tools that should be considered that are missing?**
**How might the four tools best be combined into a coherent and effective overall approach to greening the CBPS? What are the most important trade-offs affecting which combination to choose?**
**Have any potential valuable components been omitted?**

# 5 Questions for discussion

5.1 Sections 1-4 of this paper outline the high-level approach that the Bank plans to take to greening the CBPS. Our next goal is to translate this framework into specific modifications to the CBPS. To inform that, we are seeking views from experts and interested stakeholders. This section explains how to contribute.

5.2 **Box H** draws together the questions posed in the body of this paper. Written comments are sought by Friday 2 July 2021 and should be submitted using the response template available on the Bank's website. In coming weeks we will hold a range of (virtual) events to facilitate further discussion with a subset of respondents and existing contacts.

### Box H: Full list of questions for discussion with stakeholders

#### Q1: Principles for greening the CBPS

Do respondents agree the Principles set out in Section 3 are appropriate, in light of the role of the CBPS and the trade-offs the Bank faces as a public institution focused on the maintenance of monetary and financial stability? Should any considerations be dialled up or down; and have any been overlooked?

#### Q2: Tool 1: Portfolio Targets

What approach to setting portfolio-level targets for the CBPS is likely to provide the best support to economy wide transition to net zero by 2050, taking into account the current maturity of climate metrics, transition pathways and models, as well as the Bank's wider responsibilities to preserve the ability of the MPC to achieve its inflation target, to protect public money and to rely only on sufficiently robust data and metrics? What challenges would need to be overcome in order to operationalise such an approach, and how might that best be achieved?

a) How should investors, including the Bank, approach target setting in light of the considerable uncertainty around the timing and nature of transition?

b) What are the advantages and disadvantages of framing targets in terms of point-in-time emissions vs forward-looking metrics (e.g. portfolio temperature rise measures or emissions reduction targets of issuers in a portfolio), and how might this balance evolve over time?

c) What role might there be, now or in the future, for targets defined in terms of designated green activities (e.g. green bond holdings, share of classified green revenues)?

### Q3: Tool 2: Eligibility

Which climate related criteria for CBPS eligibility could most effectively support economy wide transition to net zero, now and in the future, taking into account the availability and coverage of metrics, as well as the Bank's wider responsibilities to preserve the ability of the MPC to achieve its inflation target, to protect public money and to rely only on sufficiently robust data and metrics?

a) How could eligibility criteria best be used to incentivise companies to take meaningful actions towards transition?

b) How can investors including the Bank best judge the pace of tightening eligibility criteria, to sharpen incentives, while giving firms time to respond to these and relying only on robust data?

c) How should the Bank approach changes over time in expert opinion as to which activities are incompatible with transition to net zero, given the Bank's broader responsibilities, and the need to rely on robust evidence and metrics?

### Q4: Tool 3: tilting

What might provide the most effective basis for tilting CBPS purchases to provide effective incentives to firms to take actions towards net zero emissions, taking into account the availability of metrics and transition pathways, as well as the Bank's wider responsibilities to preserve the ability of the MPC to achieve its inflation target, to protect public money and to rely only on sufficiently robust data and metrics?.

a) How might one design an approach to tilting which is consistent over time, while incorporating sufficient flexibility to adapt as data, metrics and toolkits improve? Do respondents agree there is merit in a 'scorecard' approach, which weights together different climate metrics?

b) Are sectoral transition pathways yet robust enough to define required reductions in emissions and, if not, what rate of improvement should sectoral or aggregate tilts be set in reference to?

c) Which forward-looking metrics capturing (credible) plans for emissions might be the most useful inputs to a tilting approach at present, and which have the greatest potential over coming years?

d) What affects whether a metric is better suited to use as a portfolio eligibility criterion (producing a binary outcome in/out for an asset) versus as a basis for 'tilting' purchases between eligible companies (allowing it to be counted, without leading to exclusions)?

### Q5: Tool 4: Escalation

How best can we build an escalation strategy into our approach, and what properties should this exhibit?

a) Enhancements in data and metrics should allow us to discern more accurately between firms on the basis of climate performance over time. Which developments in the coverage and / or type of available metrics will be most important in this

regard? Over what timeframe are these changes likely to take place, and are there obstacles?

b) How can investors in corporate bonds, including the Bank, best deal with firms with relatively poor climate performance? What factors affect how long incentives should be given to take effect before further actions are taken, and what 'ladder' of actions is most effective?

### Q6: Overall approach

Are the four main tools identified in Section 4 the right building blocks for the Bank's approach? Are any unnecessary, or are there tools that should be considered that are missing?

How might the four tools best be combined into a coherent and effective overall approach to greening the CBPS? What are the most important trade-offs affecting which combination to choose? Have any potential valuable components been omitted?

## References

**Alexander, P and Fisher, P (2020),** 'Central Banking and Climate Change', in P. Fisher (Ed.), *Making the Financial System Sustainable,* pages 49-74. Cambridge: Cambridge University Press.

**Bank for International Settlements (2021)**, 'Climate-related risk drivers and their transmission channels', BCBS.

**Bank of England (2016)**, 'Monetary Policy Summary and minutes of the Monetary Policy Committee meeting ending on 3 August 2016'.

**Bank of England (2017)**, 'Corporate Bond Purchase Scheme: design, operation and impact', *Quarterly Bulletin*.

**Bank of England (2019)**, Enhancing banks' and insurers' approaches to managing the financial risks from climate change, *Supervisory Statement 3/19*.

**Bank of England (2019)**, 'Discussion Paper: The 2021 biennial exploratory scenario on the financial risks from climate change'.

**Bank of England (2020)**, 'The Bank of England's climate-related financial disclosure 2020'.

**Bank of England (2020)**, Letter from Sam Woods 'Managing climate-related financial risk – thematic feedback from the PRA's review of firms' SS3/19 plans and clarifications of expectations'.

**Bank of England (2021)**, 'MPC Remit statement and letter and FPC Remit letter'.

**Bank of England (2021)**, 'Results and usage data', Bank of England Market Operations Guide.

**Bank of England (2021)**, 'Information for participants'.

**Bank De France (2021)**, Responsible investment policy: reinforcing exclusions with regard to fossil fuels.

**Barclays Credit Research (2020)**, ESG Constrained CBPS

**Barnett, M, Brock, W and Hansen, L (2020)**, Pricing Uncertainty Induced by Climate Change, *The Review of Financial Studies*, Vol. 33, Issue 3, March, pages 1,024–66.

**Blackrock (2015)**, 'The price of climate change, global warming's impact on portfolios'

**Bolton, P and Kacperczyk, M,** 'Do Investors Care about Carbon Risk?' *Columbia Business School Research Paper* Forthcoming, *Journal of Financial Economics* (JFE), Forthcoming, *European Corporate Governance Institute – Finance Working Paper 711/2020*.

**Carney, M (2015)**, 'Breaking the tragedy of the horizon - climate change and financial stability', speech given by Mark Carney at Lloyd's of London on 29 September.

**CentralBanking.com (2021)**, 'Central Banking Awards 2021'.

**Climate Analytics (2019),** 'Global and regional coal phase-out requirements of the Paris Agreement: Insights from the IPCC Special Report on 1.5°C'.

**Climate Bonds Initiative (2019)**, 'Greening the financial system: Tilting the playing field, the role of central banks'

**Climate Change Act (2008)**, Order Amendment 2019.

**Climate Change Committee (2020)**, 'Sixth Carbon Budget'.

**Department for Business, Energy and Industrial Strategy and The Rt Hon Chris Skidmore MP (2019)**, 'UK enshrines new target in law to slash emissions by 78% by 2035'.

**Department for Business, Energy and Industrial Strategy, Prime Minister's Office, 10 Downing Street, The Rt Hon Kwasi Kwarteng MP, The Rt Hon Alok Sharma MP, and The Rt Hon Boris Johnson MP (2021)**, 'UK becomes first major economy to pass net zero emissions law'.

**Department for Business, Energy and Industrial Strategy (2018)**, 'Implementing the end of unabated coal by 2025: Government response to unabated coal closure consultation'.

**European Central Bank (2019)**, 'Climate change and financial stability', Prepared by Margherita Giuzio, Dejan Krusec, Anouk Levels, Ana Sofia Melo, Katri Mikkonen and Petya Radulova, *Financial Stability Review*, May.

**European Commission (2020),** 'EU Taxonomy for sustainable activities: What the EU is doing to create an EU-wide classification system for sustainable activities'

**Financial Times (2021),** 'UK plc fails to report adequately on climate risks'.

**FTSE Russell (2020)**, 'FTSE TPI Climate Transition index: The next generation of climate indexes'.

**Ghgprotocol (2021)**, 'Standards'.

**Giuzio, M, Krušec, D, Levels, A, Melo, A, Mikkonen, K and Radulova, P (2019)**, 'Climate change and financial stability', *Financial Stability Review*, European Central Bank, Vol. 1.

**Goldsmith-Pinkham, P, Gustafson, M, Lewis, R and Schwert, M (2021)**, 'Sea Level Rise Exposure and Municipal Bond Yields', *Jacobs Levy Equity Management Center for Quantitative Financial Research Paper*.

**Hauser, A (2020)**, 'From hot air to cold hard facts: how financial markets are finally getting a grip on how to price climate risk and return- and what needs to happen next', speech given by Andrew Hauser at the Investment Association on 16 October.

**HM Treasury (2020)**, 'Net Zero Review: Interim Report'.

**HM Treasury (2020)**, 'UK joint regulator and government TCFD Taskforce: Interim Report and Roadmap.

**HM Treasury (2020)**, 'Chancellor sets out ambition for future of UK financial services'.

**HM Treasury (2020)**, 'A Roadmap towards mandatory climate-related disclosures'.

**Hong, Harrison, Li and Zu (2018)**, 'Climate risks and market efficiency', *Journal of Econometrics*.

**HSBC Global Research (2021)**, Green Bond Insights

**ICMA (2018)**, Green Bond Principles

**IEA (2019)**, 'World Energy Outlook 2019'.

**IIGC (2020)**, 'Paris Aligned Investment Initiative: Net Zero Investment Framework for Consultation'.

**IIGCC (2021)**, 'Net Zero Investment Framework'.

**Ilhan, E, Sautner, Z and Vilkov, G (2020)**, 'Carbon Tail Risk', *The Review of Financial Studies*, forthcoming.

**Institute for Sustainable Futures (2020)**, 'Sectoral pathways to net zero emissions', *United Nations Principles for Responsible Investment*.

**International Monetary Fund (2020)**, 'Global Financial Stability Report, April 2020: Markets in the Time of COVID-19'.

**Institutional Investors Group on Climate Change (IIGCC) (2021)**, 'Net Zero Investment Framework: implementation Framework', *Paris Aligned Investment Initiative*.

**IPCC (2018)**, Summary for Policymakers. In: *Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty*, Masson-Delmotte, et al (eds.). World Meteorological Organization, Geneva, Switzerland.

**Kumar, A, Xin, W and Zhang, C (2019)**, 'Climate sensitivity and predictable returns', 10 February.

**Matikainen, S, Campiglio, E, and Zenghelis, D (2017)**, 'The climate impact of quantitative easing' (Policy Paper), Grantham Research Institute on Climate Change and the Environment.

**Morningstar (2021),** Sustainable Funds' Record-Breaking Year.

**MSCI (2017),** Keep it Broad: An Approach to ESG Strategic Tilting.

**Network for Greening the Financial System (2019), '**A sustainable and responsible investment guide for central banks' portfolio management'.

**Network for Greening the Financial System (2020)**, 'NGFS Climate Scenarios for central banks and supervisors'.

**Network for Greening the Financial System (2021)**, 'Adapting central bank operations to a hotter world: Reviewing some options'.

**Net Zero Asset Owner Alliance (2021)**, 'Inaugural 2025 Target Setting Protocol'.

**New Economics Foundation (2020), 'Decarbonising the Bank of England's pandemic QE'**

**Nyborg, K (2015)**, 'Central Bank Collateral Frameworks', *Swiss Finance Institute Research Paper No. 15-10*.

**OECD (2017),** Investing in Climate, Investing in Growth

**OECD, UN Environment, World Bank Group (2018)**, 'Financing Climate Futures'.

**Painter, M (2020)**, 'An inconvenient cost: The effects of climate change on municipal bonds', *Journal of Financial Economics*, Elsevier, Vol. 135(2), pages 468-82.

**Paris Aligned Investment Initiative (2021)**, 'Net Zero Investment Implementation Guide'.

**Raynaud, J, Voisin, S, Tankov, P, Hilke, A, and Pauthier, A (2020)**, 'THE ALIGNMENT COOKBOOK A Technical Review of Methodologies Assessing a Portfolio's Alignment with Low-Carbon Trajectories or Temperature Goal', Institut Louis Bachelier.

**Regjeringen (2019)**, 'Guidelines for observation and exclusion from the Government Pension Fund Global'.

**Science Based Targets (2021)**, 'Financial Institutions Sector'.

**Rogelj, J, et al (2018)**, Mitigation Pathways Compatible with 1.5°C in the Context of Sustainable Development. In: *Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty*, Masson-Delmotte et al (eds.). In Press.

**Schoenmaker, D (2019)**, 'Greening Monetary Policy', The Bruegel.

**Schnabel (2020)**, 'When markets fail – the need for collective action in tackling climate change', Speech by Isabel Schnabel, Member of the Executive Board of the ECB, at the European Sustainable Finance Summit, Frankfurt am Main, 28 September.

**SEI, IISD, ODI, E3G, and UNEP (2020)**, 'The Production Gap Report: 2020 Special Report'.

**Task force on Climate-related Financial Disclosures (2017)**, 'Implementing the Recommendations of the Task Force on Climate related Financial Disclosures'.

**Task force on Climate-related Financial Disclosures (2017)**, 'Recommendations of the Task Force on Climate related Financial Disclosures'.

**UBS Global Research (2021),** Does a lower carbon intensity sacrifice portfolio return?

**United Nations Environment Programme - Finance Initiative (2020)**, 'Sectoral Pathways to Net Zero emissions'.

**United Nations Environment Programme - Finance Initiative (2019)**, 'Emissions Gap Report'.

**World Bank**, Climate Knowledge Data Bank.