BACKGROUND PAPER

Monetary Policy and Sustainable Development Goals

What can central banks do? What should they do?

Abstract

This paper explores the links between monetary policy, central banks – the institutions mandated to implement monetary policy – and sustainable development goals (SDGs). It first highlights that besides their monetary policy mandate – i.e., price or exchange rate stability – central banks often have other mandates – like employment, growth and welfare objectives or support for government policies – that can matter for SDGs.

The paper then focuses on reduced inequality (SDG10) and climate action (SDG13), two SDGs that have been intensively discussed and explored by central banks, both in terms of mandates and policy instruments. The paper first highlights the synergies and trade-offs between these two objectives and central banks' monetary objectives. It then presents the monetary policy operation options that central banks have developed in the context of climate objectives and argues that similar schemes can potentially be implemented to support SDGs.

The paper then discusses the challenges that central banks face in implementing such policies and suggests options to address them. Finally, it presents some concrete steps, in addition to monetary policy operations schemes, that central banks can take to contribute to building a coherent national policy framework supporting SDGs.

Contents

1.	Introduction	3		Monetary policy operations can support economic activities contributing to SDGs	10
2.	Central bank mandates and SDGs	4		· · · · · · · · · · · · · · · · · · ·	13
	Central bank mandates and policy instruments	4		Central banks have degrees of freedom in targeting monetary policy operations	13
	Central banks have several objectives in their mandates	4		The degrees of freedom in monetary policy operations to support SDGs are limited	14
	Sustainability objectives are often directly or indirectly included in central bank mandates	5		Climate action: implementation experience from central banks	14
	Central banks use a wide range of monetary instruments to implement their policies	6		Aligning monetary policy operations with climate objectives: options for central banks	14
	Central banks also rely on supervisory and regulatory measures for financial stability objectives	7		Implementation examples	16
	Central bank objectives and SDGs: some synergies	8		Inequality: policy options are still to be defined and explored	16
	Price stability is central for investing in the transition to a low-carbon economy	8		Central bankers' attention and knowledge about inequality issues have been increasing	16
	Elevated inflation hits the poor most and increases inequality	9		Central banks' reflections on monetary policy and inequality are emerging	
	Achieving climate goals will likely help central banks keep prices stable	9	4.	The challenges of integrating SDGs into monetary	18
	Inequality matters for economic growth and stability, and for monetary policy transmission	10		Policy Overburdening the mandate?	
	Central bank objectives and SDGs: some trade-offs	10		Too blunt of a tool?	19
	Interest rate increases to mitigate inflation are slowing the transition to a low-carbon economy	10		Triggering side-effects on other central banks' objectives?	19
	Interest rate increases to mitigate inflation can increase inequality.	11	5	Challenging central bank independence?	
	Some instruments used to achieve price stability might increase inequality	11	0.	Improving common knowledge	
3.		12		Supporting the development of sustainable financial solutions.	21
	Monetary policy operations can potentially support SDGs	12		Contributing to national policy setting	
	Monetary policy operations indirectly support			Deepening international cooperation	22
		12	Re	ferences	22

Acronyms

AEs	Advanced Economies
BCBS	Basel Committee on Banking Supervision
BIS	Bank for International Settlements
BoJ	Bank of Japan
ECB	European Central Bank
EMEs	Emerging Market Economies
EU	European Union
Fed	US Federal Reserve
FOMC	Federal Open Market Committee
FSB	Financial Stability Board

IEA	International Energy Agency
IMF	International Monetary Fund
LIDCs	Low-Income Developing Countries
MAS	Monetary Authority of Singapore
OECD	Organization for Economic Co-operation and
	Development
PBOC	People's Bank of China
SDGs	Sustainable Development Goals
SNB	Swiss National Bank
US	United States

1. Introduction

Mobilizing financial markets' funding is crucial for the achievement of sustainable development goals (SDGs). Central banks, at the heart of the financial system, play an important role in shaping the allocation and the quantity financial flows. To some extent, through monetary policy operations, they can support shifting part of financial markets' funding to activities that contribute to achieving SDGs. However, central banks must remain within the remits of their mandate – which, in most jurisdictions, is focused on price stability.

Against this background, this paper first explores the limits and opportunities that mandates give to central banks to support national development objectives, including SDGs. It shows that besides their monetary policy mandate – i.e., price or exchange rate stability – central banks often have other mandates – like employment, growth and welfare objectives or support for government policies – that can matter for SDGs. It also highlights that to implement monetary policy, central banks rely on a wide set of monetary policy operations and financial policies.

The paper then focuses on two SDGs: reduced inequalities (SDG10) and climate action (SDG13), which are two issues that have been intensively discussed in the context of central banks. For climate action, central banks have been intensively exploring the possibilities and constraints that they face for a few years, notably with the work of the Central Banks and Supervisors Network for Greening the Financial System (NGFS). In this context, they have developed some policy options for monetary policy operations to support climate objectives. Some central banks have started to implement these policies and to gather experience with them. Central banks have also been discussing the links between monetary policy and inequality and some are thinking about the role they could play in it. However, the possible policy options they could implement in this context have been subject to less scrutiny than for climate action.

In the context of inequality and climate action objectives, several synergies and trade-offs between them and monetary objectives - the core objectives of central banks - can be highlighted. For example, price stability is central to providing a macroeconomic environment propitious to the investments necessary for the transition to a lowcarbon economy. Price stability is also likely to contribute to lower inequality as inflation tends to hit poor households most. However, the policy responses necessary to maintain price stability, like interest rate increases, can also work against inequality and climate action objectives: higher interest rates can slow down the transition to a low-carbon economy by increasing the funding costs for investment in sustainable technologies. They can also contribute to an increase in inequality as poorer households are disproportionally affected by a slowdown of the economy associated with contractionary monetary policy, notably because they rely relatively more on employment and wage income than wealthier households.

In terms of policy options to support SDGs, central banks, through their work on climate action, have identified some monetary policy operation schemes that can, to some extent, support climate objectives. They suggest several options to reflect climate issues that cover the whole range of monetary policy operations that central banks commonly use to implement monetary policy. With these schemes, central banks can indirectly and marginally support the funding conditions of some economic activities more relatively more than others. By applying climate considerations in them, central banks can provide relatively more support to economic activities that contribute to climate action than to economic activities that work against it. This paper argues that central banks can use similar schemes to support other SDGs too. It further claims that central banks have some degree of freedom, although limited, in implementing monetary policy operations schemes supporting SDGs without impairing the achievement of their core monetary objectives.

Central bankers and others rightly point out that reflecting SDGs in the implementation of monetary policy also raises significant challenges for central banks: there is a risk of overburdening their mandate, the monetary policy instruments they have might not be the most adequate to pursue such objectives and using them could potentially trigger side effects and unintended consequences for central banks, including weakening their independence. These concerns are valid but can also be mitigated with adequate practices. This paper suggests some of them. First, a clear hierarchy in the mandate, distinguishing between core primary objectives and other secondary objectives can help central banks resolve potential trade-offs, while still making it clear that contributing to SDGs is a mandatory duty not an option for central banks. Second, central banks should focus their policies on SDGs for which monetary policy instruments are the most impactful, as well as pay greater attention to SDGs that play a role in their core objectives. Third, central banks might want to start by implementing monetary policy operations targeted to a limited set of assets and economic activities, those contributing most to SDGs. Starting with a limited scope is likely to avoid large side effects and unintended consequences. It also allows central banks to gain experience with such instruments and expand their scope when appropriate.

Finally, this paper suggests some concrete steps, in addition to implementing monetary policy operations schemes, that central banks can take to contribute to building a coherent national policy framework aimed at SDGs. First, with their extensive access to data and research expertise, central banks are exceptionally well placed to contribute to improving the common knowledge of how SDGs interact with the economy and financial systems, as well as how economic and financial policies best support them. Second, they can play a key role in highlighting and supporting the financial instruments and data that are needed by financial institutions to support the funding of SDGs. Third, they can contribute actively to

developing and implementing a comprehensive and coherent national policy agenda for SDGs by engaging with other authorities and stakeholders, as well as advising, supporting, and feeding into collective policy initiatives around SDGs, at the national and international levels.

2. Central bank mandates and SDGs

Central banks do not operate in a vacuum: their objectives and policy instruments are defined in their mandate. Controlling inflation is core to their mandate, but several other objectives are often part of it too, which may include sustainability and development objectives. Central bank objectives can contribute to the achievement of SDGs, but they can also conflict with them. This section first presents the main objectives of modern central banks, as well as the policy instruments available to them, and then discusses their potential synergies and trade-offs with SDGs.

Central bank mandates and policy instruments

Central banks usually have several objectives defined in their mandate. Sustainability and development objectives are sometimes explicitly, sometimes implicitly, part of them. To achieve these objectives, central banks rely on a set of monetary and financial instruments. Although mainly aimed at achieving price and financial stability, some of these instruments can be implemented to also support SDGs.

Central banks have several objectives in their mandates

All central banks have a monetary objective. This is a price stability objective for most of them, but it can also be a currency or an exchange rate stability objective. In 2021, about 40% of central banks in the world were using an exchange rate anchor regime, which is usually associated with a currency or exchange rate stability objective.¹

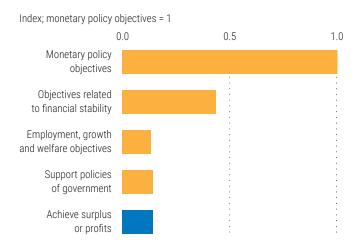
4

¹ IMF (2022.1).

Central banks usually also have objectives related to financial stability in their mandate. In this context, they are usually tasked to implement micro and macroprudential policies that contribute to increase the resilience of the financial system and limit systemic risk.2 In addition, central banks sometimes have additional objectives related to employment, growth and welfare, as well as to supporting government policies. In 2009, analysing central bank objectives in central bank laws, the BIS found that financial stability objectives are second after monetary objectives in the mandate of central banks. Employment, growth and welfare objectives, as well as support for government policies, follow these two objectives and are equally often in the mandate of central banks (Figure 1). These objectives are often related to sustainability and development objectives, such as SDGs.

These additional objectives can be explicitly spelled out in the mandate or mentioned in

Figure 1
Weight of Central Bank objectives in Central Bank laws (percent of 41 central banks worldwide)



Source: BIS (2009.1, see the list of central banks in Annex A).

vaguer terms. The overarching principle in central bank mandate is usually for them to work "for the economic interests of the nation, consistent with government economic policy."3 Central bank mandates sometimes specify how trade-offs between these objectives should be resolved, usually by defining primary and secondary mandates, but often they do not settle them. The NGFS estimates that 55% of central banks have several equal-rank objectives. 4 The Fed, for example, has two equally ranked objectives: price stability and full employment. Its mandate does not provide a clear hierarchy between them to solve potential trade-offs. By contrast, the mandate of the ECB, for example, clearly sets inflation as the primary objective and supporting economic policies to achieve the objective of the EU as the secondary objective. The ECB must pursue this secondary objective when it can do it without prejudice to the primary objective of inflation.

Sustainability objectives are often directly or indirectly included in central bank mandates

According to a recent NGFS survey, almost one out of four central banks have sustainability aspects mentioned in their primary or secondary objectives. In addition, half of them are mandated to support economic development or government economic policies, which sometimes include sustainability and development goals. In total, Dikau and Volz (2021) estimate that about half of central banks are equipped with a mandate to enhance the sustainability of economic growth or sustainability in general – 30% of them have an explicit sustainability mandate, through the government's policy objective (Figure 2).

² Systemic risk is usually defined as the risk of widespread disruption to the provision of financial services that is caused by an impairment of all or parts of the financial system, which can cause serious negative consequences for the real economy (Coelho and Restoy 2023).

³ BIS (2009.1).

⁴ NGFS (2020.1).

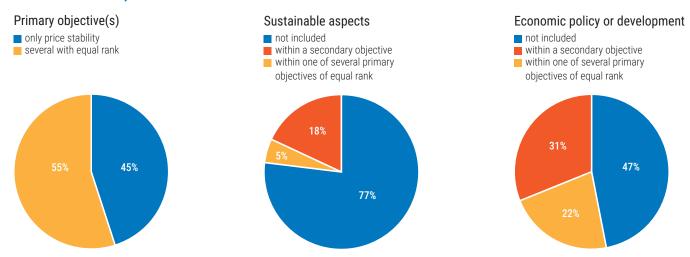
⁵ The NGFS estimates this proportion to be 23%, after reviewing the publicly available information for 107 central banks worldwide, leaving the matter of how these central banks actually interpret their mandates aside" (NGFS 2020.1).

⁶ The NGFS (2020.1) estimates this proportion to be 53%.

Dikau and Volz (2021) identify 15 countries and one monetary union with an explicit objective of promoting or supporting "sustainable" economic growth or development (Czech Republic, Fiji, Gambia, Georgia, Hungary, Iraq, Malaysia, Nepal, Philippines, Russian Federation, Singapore, South Africa, Tanzania, Ukraine and Zimbabwe, as well as the West African Monetary Union).

Figure 2

Central Bank mandates and sustainability (survey of publicly available information for 107 central banks worldwide)



Source: NGFS (2020.1).

It is also worth emphasizing that, even if sustainability and development objectives are not mentioned explicitly in the mandate of central banks, several of their other objectives have relatively close connections with issues related to SDGs. Employment objectives, for example, are relevant because unemployment is an important driver of poverty (SDG1) and inequality (SDG10). Economic growth and welfare objectives are also related to decent work and economic growth goals (SDG8), as well as industry, innovation, and infrastructure goals (SDG9). The objective to support government policies can also indirectly contribute to several SDGs to the extent that government policies contribute to them.

Central banks use a wide range of monetary instruments to implement their policies

To achieve their different objectives, central banks use a wide range of policy instruments. For monetary policy objectives – price or currency stability – central banks usually aim at steering the target instrument – the interest rate or the exchange rate – through different types of monetary policy operations. All these operations

rely on the ability of central banks to issue sovereign currency at will to control the volume, the price and, to some extent, the allocation of money in the economy. We can distinguish three main types of monetary policy operations:

- financial institutions with liquidity through different loan schemes. The maturity of these loans varies from very short-term— overnight or weekly loans against collateral or through the repo market—to longer-term—up to a few years8—depending on the objectives of the scheme. Central bank loan schemes can be broadly accessible by financial institutions or be conditioned on some criteria that banks must fulfil to be eligible for the scheme—like, e.g., lending to some specified segment of the economy.9
- Foreign currency purchases: central banks can issue sovereign currencies to buy foreign currencies on exchange rate markets. This type of operation is used by central banks to steer the exchange rate that they target and to manage the value and soundness of their

⁸ The TLTRO III program of the ECB, for example, use to provide refinancing loans to banks with a maturity of three years.

⁹ See Colesanti Senni and Monnin (2021) for an overview of such conditioned credit operations.

foreign reserves. The portfolio of foreign currency is then invested in foreign assets, usually mostly in foreign sovereign bonds but also frequently in foreign corporate financial assets and, to a lesser extent, in money market instruments.

Domestic assets purchases: in the last two decades, central banks have also embarked on large-scale domestic asset purchase programs - or quantitative easing. The BoJ started this movement before the 2008 financial crisis and, after it, was followed by other major central banks like the Fed, the ECB, and the BoE. Central banks have been using these programs to implement an expansionary monetary policy stance despite being limited by a zero lower bound for interest rates. They are currently unwinding to return to a contractionary monetary policy stance. The domestic assets bought by central banks through these programs are mostly domestic sovereign debt but also include corporate debt.

Note that the collateral framework of central banks – i.e., the financial assets that they accept as collateral in these operations – also play an important role. By extending or restricting the range of assets that are eligible for monetary policy operations, central banks also impact the liquidity conditions in financial markets.

With these operations, central banks usually primarily aim at steering the domestic interest rate or the exchange rate, depending on their monetary policy regime, to achieve their monetary policy objectives. However, these operations can also sometimes be implemented to achieve other policy objectives, including sustainability objectives.¹⁰

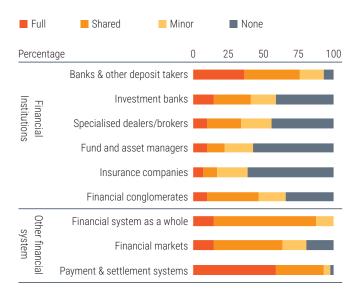
Central banks also rely on supervisory and regulatory measures for financial stability objectives

Most central banks consider that they have some policy responsibility for financial stability

objectives. This responsibility is sometimes explicitly attributed to them in their mandate and sometimes implied by it, with central banks being tasked with "promoting" or "contributing" to a safe, stable, or sound financial system. Central banks with such mandates are often granted some supervisory and regulatory powers over financial institutions. However, central banks do not always play the main role in this exercise. They often share this responsibility with other national financial authorities or play a minor role in it. Their responsibility level also varies across types of financial institutions. For example, about 75% of central banks are responsible for the development of prudential policies for the banking sector or share this responsibility with another authority. Most of the other central banks still play a minor role in it. The situation is quite different in the insurance sector, for example, where less than 20% of central banks have full or shared responsibility for developing prudential policies (see Figure 3).

Figure 3

Responsibility for the development of prudential policy (percent of 41 central banks)



Source: BIS (2009.1).

¹⁰ Targeted refinancing operations, for example, are commonly used for central bank objectives other than monetary objectives (inflation or exchange rate stability). See, e.g., Colesanti and Monnin (2021).

The link between climate change and financial stability has been highlighted by the early work of the NGFS: climate change is a source of financial risk. The NGFS states that it is "therefore within the mandates of central banks and supervisors to ensure the financial system is resilient to these risks" (NGFS 2019). This early recognition of the responsibility of central banks and supervisors to address climate risks has been the starting point of intense work by international supervisory bodies to develop measures to assess and mitigate climate risks when necessary. Main supervisory bodies, such as the BCBS, the FSB and the NGFS have since developed a full set of recommendations on how central banks and supervisors should address climate risk in the financial sector.11 These recommendations cover a wide range of policies spanning all three pillars of the Basel framework. Several central banks and supervisors have implemented a large part of these recommendations.12

The rapid policy development observed in the last few years regarding climate change and financial stability gives interesting insights into how central bank mandate and governance can potentially play a role in the adoption of climate policies by central banks. Focusing on financial policies implemented by central banks in G20 countries between 2000 and 2018, D'Orazio and Popoyan (2023) find that a broader monetary policy mandate increases the likelihood of adopting climate-related financial policies. They show that a more complex financial stability governance based on less integrated arrangements between authorities also increases climate-related financial policy adoption. Other factors, such as the presence of a democratic regime, the independence of the central bank, and being a member of the Sustainable Banking Network, also have a positive effect on climaterelated financial policy adoption. All these factors are potentially relevant for the adoption of climate-related monetary policies.

Central bank objectives and SDGs: some synergies

Central banks' objectives are often aligned with SDGs in the long term. For example, low and stable inflation helps achieve climate and inequality goals. At the same time, the pursuit of SDGs can also contribute to achieving central bank objectives. Some examples are developed below.

Price stability is central for investing in the transition to a low-carbon economy

Shifting world economies to a low-carbon model requires substantial investments in sustainable economic activities and infrastructure. High and volatile inflation is not the best environment to trigger such investments. For example, there is empirical evidence that inflation raises the user cost of capital by raising the effective tax rate (Cohen et.al 1999). Inflation also increases uncertainty, distorting relative price signals relevant to investment decisions, leading to more investment in short-lived assets relative to long-term investment in sustainable technologies (Badwin and Ruback 1986).

Empirically, investments in an economy are disproportionally lower when inflation is high, as shown for a panel of OECD countries by Cizkowicz and Rzonca (2013) and Madsen (2003). Inflation can also slow down investment in research and development, which are key for the transition (Costamagna 2015). As highlighted recently by Isabel Schnabel, a member of ECB's Executive Board, "the green transition would not thrive in a high inflation environment. Price stability is a precondition for the sustainable transformation of our economy" (Schnabel 2023).

8

¹¹ See NGFS (2020.3), BCBS (2022) and FSB (2022).

¹² It is beyond the scope of this paper, which focuses on monetary policy, to discuss options for central banks and supervisors to address climate risks. Interested readers will find an overview and analysis of supervisory and regulatory measures implemented so far in NGFS (2021.2).

Elevated inflation hits the poor most and increases inequality

The recent surge in inflation observed worldwide is a good reminder of the fact that poorer households tend to face higher inflation rates than the average, due to the composition of their consumption basket. Charalampakis et al. (2022) and Curci et al. (2022), for example, find that low-income euro area and Italian households, respectively, faced significantly higher inflation rates than other households in 2022 because of the composition of their consumption basket, in which energy expenditures are relatively higher than for higher-income households. Kaplan and Schulhofer-Wohl (2017) find similar results for the US over a period from 2004 through 2013 but conclude that higher inflation does not come from heterogenous consumption bundles but from higher variations in prices paid by lowincome households for the same types of goods.

This current observation is confirmed by longer-term empirical evidence which shows that income inequality tends to increase when inflation becomes elevated. This result is confirmed in empirical studies on European countries (Thalassinos et al. (2012) and on industrialized and developing countries (Albanesi 2007, Easterly and Fischer 2021). Note, however, that for lower but still positive levels of inflation, the relationship between inflation and inequality is less clear. Galli and van der Hoeven (2001), Monnin (2014) and Balcilar et al. (2018) all find a U-shape relationship between inflation and inequality where inflation is associated with higher inequality only once it reached a threshold level. Thus, by keeping inflation at low levels, central banks do thus contribute to containing inequality.

Achieving climate goals will likely help central banks keep prices stable

There is strong empirical evidence that extreme weather events generate substantial shocks to inflation. Some events, like droughts, tend to increase inflation, while others, like floods, tend to decrease it. Inflation shocks from extreme weather events are empirically larger and more persistent in emerging markets economies (EMEs) and in low-income developing countries (LIDCs) than in advanced economies (AEs).¹³

As climate changes, extreme weather events will become more frequent and severe. This is likely to challenge central banks in their objective of maintaining low and stable inflation, especially since such events often constitute supply shocks, which are more problematic for central banks. Supply shocks are more difficult to counter with monetary policy than demand shocks and they present a dilemma between stabilising inflation and boosting economic activity. In addition, frequent supply shocks will make it more difficult for central banks to disentangle permanent from transitory shocks, complicating the analysis underpinning monetary decisions (ECB 2021.1).

A transition to a low-carbon economy aims at containing the occurrence of extreme weather events. By reducing the frequency and size of price shocks caused by such events, the transition can thus potentially help central banks in their objectives of price stability in the long term. ECB research, for example, highlights how inertia in combating climate change can lead to structurally higher inflation and conclude that a well-managed ecological transition, despite some initial temporary inflationary pressure, is likely to minimize the inflationary impact of global warming (ECB 2021.1).

¹³ See, e.g., Kabundi et al. (2022) for empirical evidence on several types of extreme weather events in a large set AEs, EMEs and LIDCs, Mukherjee and Ouattara (2021) for temperature shocks in the same set of countries, Faccia et al. (2021) for temperature shocks in AEs and EMEs, and Parker (2018) for storms and floods in the same two set of countries.

Inequality matters for economic growth and stability, and for monetary policy transmission

Lower inequality matters for several objectives commonly included in central bank mandates. Growth is one of them. Empirical research on OECD countries over the last 30 years shows that higher inequality is associated with lower subsequent growth. What seems to matter most in this link is the gap between low-income households and the rest of the population rather than inequality at the top of the income distribution. Empirical evidence suggests that higher inequality depresses skills development among poorer individuals more, resulting in lower aggregate growth potential (Cingano 2014). Lower equality is also empirically associated with longer subsequent growth spells (Berg and Ostry 2017). Inequality is also important for economic stability: empirically, higher levels of income inequality seem to imply deeper recessions (Pereira da Silva et al. 2022).

Finally, the distribution of income and wealth is central to the transmission of monetary policy (Auclert 2019). Higher inequality can potentially obstruct the transmission of monetary policy stimulus to the economy. The intuition is that, in an unequal society, income is concentrated in the hands of a few, whose consumption is high and largely insensitive to interest rates. By contrast, those who react more to interest rates and have a higher propensity to consume - the poorest - may find themselves credit-constrained if their income is too low or too uncertain due to unemployment risk, and thus unable to relay the stimulus provided by lower interest rates. Pereira da Silva et al. (2022) report empirical evidence for this intuition, relying on both a crosscountry and a US cross-state analysis. These results suggest that rising inequality can make it increasingly difficult and costly for central banks to stimulate the economy.

Central bank objectives and SDGs: some trade-offs

If there are synergies between central bank objectives and SDGs in the long term, the policies that central banks implement to reach them can generate some negative side effects for the achievement of SDGs. Some of them are highlighted below.

Interest rate increases to mitigate inflation are slowing the transition to a low-carbon economy

Investments in renewable energy infrastructures, which are relatively capital-intensive are particularly susceptible to changes in interest rates. To put it simply renewable energies are more competitive when interest rates are low. The IEA (2020), for example, suggests that the cost of energy of a gas-fired power plant would change only marginally if interest rates were to double, but that the cost of energy from offshore wind could rise by nearly 45%. Similarly, Monnin (2015) finds that at interest rate levels above 2%, the average cost of producing electricity is higher for green energy technologies than for fossil energy technologies.

The low and declining rates observed in the last decade have thus markedly contributed to the fall in renewable energy prices. Egli et al. (2018), for example, estimate that lower interest rates significantly contributed decrease in the cost of electricity from photovoltaic and onshore wind projects in Germany over the last 18 years. However, the current risk is that this decreasing trend is reversed by the general increase in interest rates that central banks have implemented to counter inflationary pressures. Schmidt et al. (2019) estimate that, in Germany, a return of interest rate to pre-financial crisis levels could add 11% and 25% to the electricity for solar photovoltaics and onshore wind, respectively. The measures taken by central banks to reach their price stability objective can thus potentially slow down the achievement of climate objectives.

Interest rate increases to mitigate inflation can increase inequality

Monetary policy has an impact on inequality. In a seminal study, Romer and Romer (1999) find that the impact of monetary policy on low-income households' well-being is quantitatively large, statistically significant and robust. Empirical evidence shows that decreasing interest rates – i.e., expansionary monetary policy – can potentially reduce inequality between households. Furceri et al. (2018) highlight this relation for a panel of 32 advanced and emerging markets, Coibion et al. (2017) do the same for the US, Mumtaz and Theophilopoulou (2017) for the UK and Guerello (2018) for the euro area.

Based on this empirical relationship, in the current context of contractionary monetary policy, we can expect the increase in interest rate to result in an increase in inequality.

Note, however, that Furceri et al. (2018) find an asymmetric response of inequality to monetary policy stance: contractionary monetary policy increase inequality proportionally more than expansionary monetary policy reduces it. In such a case, the increase in inequality from a contractionary cycle might more than offset the decrease in inequality generated by the previous expansionary phase.

The potential disequalizing effect of contractionary monetary policy is the result of the impact of higher interest rates on economic activity and labour markets more particularly: poorer households rely relatively more on wage income than wealthier households and they are disproportionally affected by a slowdown of the economy associated with contractionary monetary policy. By aiming at reducing inflation by raising interest rates, to fulfill their objective of price stability, central banks can thus potentially generate high inequality as a side effect.

Some instruments used to achieve price stability might increase inequality

The choice of instruments that are used to achieve price stability can have materially different side effects on inequality.

Unconventional monetary policy – i.e., quantitative easing or large-scale asset purchases – is a case in point. The successive waves of large-scale asset purchases implemented by different major central banks in the last 20 years to support price stability have very different consequences on inequality when compared to conventional policies based on interest rates.

Expansionary monetary policy through conventional policy - lowering of interest rates - clearly tends to mitigate income inequality (see references in the previous section). Empirical evidence on expansionary unconventional monetary policies - large-scale asset purchases - are less conclusive. For the US, Montecino and Epstein (2017) and Jawadi et al. (2017) and find that the Fed's unconventional monetary policy led to modest increases in inequality. For the UK, Mumtaz and Theophilopoulou (2017) find that BoE's quantitative easing worsened income inequality. BoE's own research finds that the bottom decile of UK households has lost out from the loosening of monetary policy through quantitative easing (Bunn et al. 2018). For Japan, Saiki and Frost (2014, 2018) and Taghizadeh-Hesary et al. (2018) find that unconventional monetary policy widened income inequality, but Feldkircher and Kakamu (2018) come to the opposite conclusion. For the euro area, available empirical studies from central banks conclude that unconventional monetary policy had an equalizing impact (Deutsche Bundesbank 2016, Lenza and Slacalek 2018).

Expansionary unconventional monetary policy does not have the same impact on inequality as expansionary conventional monetary policy because it works through different transmission channels.¹⁴ Expansionary monetary policy,

¹⁴ For an overview of the transmission channels between monetary policy and inequality see Koedijk et al. (2018).

both conventional and unconventional tends to reduce unemployment and raise salaries for lower-income households by stimulating economic activities and employment. This has a strong equalizing effect across households. Unconventional monetary, however, comes with an additional side-effect: large-scale asset purchases by central banks boost returns from financial markets (Domanski et al. 2016). Since poorer households usually do not have substantial exposure to financial assets, they do not benefit from the financial income and wealth gains associated to unconventional monetary policy (Adam and Tzamourani 2016). This disequalizing effect through the financial income channel can potentially more than offset the equalizing effect from expansionary monetary policy through the wage income channel.

3. Monetary policy operations and SDGs

The role of monetary policy in supporting other objectives than price or currency stability has been and is still frequently discussed in academic and policy circles. This is particularly the case for climate objectives. If all central banks concur on fiscal tools being the first in line for achieving climate objectives, they have also explored their possible role in it.

Monetary policy operations – credit operations, foreign currency purchases and domestic asset purchases ¹⁶ – and their relationship with climate objectives have been the subject of intense scrutiny and several instruments have been evaluated. Central banks, through the NGFS, have identified their best options to reflect climate considerations in monetary policy operations (NGFS 2021.1). These options can be implemented in most monetary policy frameworks currently used by central banks around the globe. Any central bank can thus implement one of these

schemes if they want to contribute to climate objectives and if their mandate allows it.

The knowledge accumulated by central banks on monetary policy operations and climate objectives is a good basis to explore the options for central banks when it comes to other SDGs. The financial mechanisms on which they rely – i.e. indirect and marginal support to funding conditions for some specific economic activities – are also relevant to other SDGs. The next section first shows how, based on these principles, monetary policy operations can potentially support other SDGs. It then presents the constraints and limits that central banks face in their implementation.

Monetary policy operations can potentially support SDGs

Central banks, through monetary policy operations, have an impact on the funding of the economy. This impact is uneven: some economic activities are more impacted than others, depending on the central banks' monetary policy framework and the monetary policy operations they implement. Central banks can thus potentially use monetary policy operations to support economic activities aligned with SDGs.

Monetary policy operations indirectly support some economic activities more than others

All main types of monetary policy operations indirectly support funding for firms and households, and thus for the economic activities they are engaged in. Central bank credit operations incentivize banks to extend lending to firms and households. Asset purchases ease funding conditions for the entities issuing these assets. The issuers of assets accepted as collateral by central banks also benefit from marginally better funding conditions in financial markets. By adjusting the criteria defining which are assets

¹⁵ See, e.g., Krogstrup and Oman (2019) and NGFS (2020.2) for an overview of discussions on this issue.

¹⁶ See page 6.

eligible for monetary policy operations and by adjusting the prices and quantities they engage in them, central banks can thus impact the funding cost of some firms more than others.

Central banks are never perfectly neutral in terms of funding support across all economic agents (Colesanti Senni and Monnin 2020). This reflects the fact that central banks use multiple instruments when they implement monetary policy. Asset purchases, for example, do not affect the same firms as credit operations do. The former benefit more to large corporations that have access to financial markets, the latter more to SMEs which are traditionally bank-financed. Central banks also allocate their portfolio between public and private sectors, between different jurisdictions, and between different types of assets like bonds, stocks, and assetbacked securities. Each of these choices impacts some economic activities more than others.

Monetary policy operations can support economic activities contributing to SDGs

All types of monetary policy operations – credit operations, foreign currency purchases and domestic asset purchases – can potentially be somewhat shifted to support some economic activities more than others. Central banks can, for example, give preferred access to credit operations for banks with loan portfolios that meet certain criteria, 17 they can allocate their asset purchases to some economic activities more than to others, 18 and they can set the conditions at which an asset is accepted as collateral for credit operations. 19

In theory, central banks can thus set conditions for some monetary policy operation schemes that create financial incentives to marginally support economic activities aligned with sustainable objectives. Credit operations, like refinancing operations, for example, can be implemented to incentivize banks to extend their lending to firms, whose practices are aligned with SDGs. Asset purchases can be allocated toward a portfolio that includes SDGs considerations. In this way the entire balance sheet of a central bank can potentially be used to marginally support SDGs through the impact of monetary policy operations on real economic activities.

Central banks have explored these options for climate objectives (see below), but the same instruments could be used in the context of other SDGs. Monnin (2022) suggests some options for the case of biodiversity objectives, which are part of SDG 15. Central banks can also dedicate only specific parts of their monetary policy operation toolkit to such objectives. Colesanti Senni and Monnin (2021), for example, discuss how central bank refinancing operations can contribute to support the G20 sustainable objectives.

Central banks have degrees of freedom in targeting monetary policy operations

All central banks aim at stabilizing prices or currencies - their most common objectives. They usually do that by targeting one main instrument, like the interest rate or the exchange rate. This strategy is in-line with the Tinbergen rule of one policy instrument for one policy target (Tinbergen 1952). However, to steer the interest rate or the exchange rate, they implement a range of monetary policy operations, often in combination. For example, before recently entering a contractionary monetary cycle, the ECB has been both offering long-term refinancing operations at rates close to zero and massively buying domestic assets to lower interest rates on markets. In the same period, to mitigate Swiss Franc appreciation, the SNB has been offering negative short-term interest rates on money markets and buying significant amounts of foreign bonds and stocks.

¹⁷ The BoE's Funding for Lending Scheme, for example, was aimed at supporting bank lending to small businesses.

¹⁸ For example, the ECB recently started to reallocate its corporate bond portfolio towards firms that contribute to Paris Agreement objectives.

¹⁹ The ECB, for example, is currently in the process of implementing a level of haircut on the collateral value that reflects the climate risk exposure of the asset pledge as collateral.

However, what matters in steering the interest rate or the exchange rate is the aggregate quantity that central banks engage in credit and asset purchase operations, as well as the interest rate at which they lend to banks. Once the aggregate quantity is set, central banks have some degree of freedom in the allocation of these operations across economic agents. The BCE and the BoE, for example, have marginally reallocated their corporate bond portfolio to integrate climate considerations, but they have kept using the size of their portfolio to steer the interest rate. The BoJ has implemented refinancing operations at lower rates to support other policy objectives. This program comes, however, alongside a much larger refinancing scheme that drives the interest rate in the economy.

These examples show that to achieve their objective of price or currency stability, central banks need a mix of monetary policy operations that is broad enough to transmit monetary policy impulses throughout the entire economy to impact and influence macroeconomic variables like the interest rate or the exchange rate. However, in this mix, they have some degrees of freedom to implement more targeted monetary policy operations and marginally support some economic activities aligned with other objectives.

The degrees of freedom in monetary policy operations to support SDGs are limited

Central banks can, to some extent, target credit operations and asset purchases on specific segments of the economy and consequently marginally support other objectives. However, the size of these operations is constrained by the side effects that they create in several dimensions. First, these operations should not hinder the effectiveness of monetary policy transmission. Large operations aimed at supporting specific objectives can prevent monetary policy to transmit broadly in the economy and thus to implement the aggregate monetary policy stance that is necessary to achieve price or currency

stability. Second, the assets and credits resulting from such targeted operations should not be significantly riskier than the assets and credit necessary to implement price and currency stability. If they are, they can jeopardize the soundness of the central bank balance sheet, which is a key element contributing to its credibility (Bini Smaghi 2011). Central bank risk management frameworks typically aim to ensure that monetary policy objectives can be achieved with the lowest financial risk possible. Third, the implementation of targeted schemes should be operationally feasible. For this, central banks need sufficiently robust and broad-based data on the links between the objectives that they pursue and the assets eligible for their operations, as well as sound expertise and methodologies to embed these objectives into their operational frameworks.

Climate action: implementation experience from central banks

Central banks have thoroughly reviewed and assessed the options available to them in the context of climate action. Some of them have already started implementing some of these options.

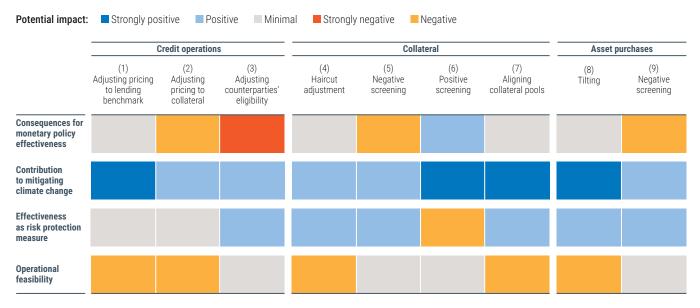
Aligning monetary policy operations with climate objectives: options for central banks

Through the work of the NGFS and INSPIRE, central banks have identified and analysed the main options to align monetary policy operations on climate objectives.²⁰ In this context, they have put into perspective the impact on climate objectives of the main monetary policy operations that they usually implement with the side effects that they create (see Figure 4).

Three options stand out as both potentially strongly contributing to mitigating climate change and being effective in managing risk in central bank balance sheets, as well as without

²⁰ See NGFS (2021) for a detailed analysis of central bank options for domestic assets and Fender et al. (2022) for foreign exchange reserves.

Figure 4
Simplified comparative assessment of monetary policy operations options for climate



Source: NGFS (2021.1).

negative consequences for monetary policy effectiveness. The first option is to adjust rates in credit operations to reflect climate considerations in the lending benchmark (column 1). Such policies – i.e., supporting some specific economic segments through credit operations at lower interest rates – are already implemented in many central banks in the form of targeted refinancing operations, but for other policy objectives than biodiversity conservation or biodiversity loss mitigation (Colesanti Senni and Monnin 2021). Central banks have experience in using them and generally consider that they achieve their objectives. The two other options are to align collateral policy and asset purchases on benchmarks that reflect climate considerations (columns 7 and 8). Such benchmarks can integrate protection concerns - i.e. by decreasing central bank portfolio exposure to climaterelated financial risk - but also proactive features to more actively support the transition - i.e., by moving away from economic activities aggravating climate change toward climateneutral economic activities.

Reflecting climate-related financial risks in collateral haircuts is also a measure that

protects central bank balance sheets and including proactive considerations in them would contribute to mitigating climate change (column 4). Note that negative screenings in collateral and asset purchases – i.e., excluding assets contributing to climate change from eligible collateral and purchased assets – are also measures contributing to mitigating climate change and protecting central bank balance sheets. They could however reduce the effectiveness of monetary policy transmission if the remaining pool of assets eligible for collateral or bought by the central bank is not large enough to pass monetary policy operations through to financial markets.

Finally, although adjusting counterparties' eligibility for credit operations can entail strong consequences for the transmission of monetary policy, this option should still be considered because its impact on mitigating climate change is likely to be substantial and its effectiveness as a protective measure might be underestimated in the NGFS analysis (column 3). Indeed, excluding counterparties that are highly exposed to climate-related financial risks is a strong protective measure for central banks against

counterparty default risk. Furthermore, the threat of being excluded from central bank credit operations is a strong incentive for financial institutions to carefully manage their exposure to climate risk. This measure is thus likely to enhance climate risk management at the financial system level.

new framework for managing its foreign reserves. It includes allocating foreign reserves to limit climate risk exposure and benefit from the transition. The Riksbank – the Swedish central bank – has sold its holdings for some states – provinces – in Australia and Canada because their economy was too reliant on carbon-intensive industrial sectors.

Implementation examples

Some central banks have recently already started implementing some of the options analysed above. For example, some of them have put in place refinancing lines dedicated to climate objectives. In September 2001, the BoJ has launched its "Fund-Provisioning Measure to Support Efforts on Climate Change" for loans to firms that contribute to Japan's actions to address climate change. To qualify for the program, banks must disclose key information on their sustainability practices and meet supervisory expectations in terms of climate risk management. The PBOC provides several refinancing facilities for prioritized projects and sectors of national importance, such as carbon reduction.²¹ Targeted refinancing operations are a tool that central banks regularly implement, for supporting several types of objectives.²²

Some central banks have included sustainability objectives in domestic corporate asset portfolios. The ECB, for example, is progressively aligning its corporate bond portfolios on benchmarks that better reflect climate risks and transition opportunities. The BoE had an objective of portfolio decarbonization for its corporate bond purchase program before terminating with the beginning of a contractionary monetary policy cycle. The BoJ aligns its domestic stock portfolio with benchmarks that include environmental and social criteria.

Finally, some central banks are managing their foreign exchange reserves with climate considerations. The MAS has recently adopted a

Inequality: policy options are still to be defined and explored

Although central bankers are increasingly paying attention to inequality issues and deepening their understanding of the links between monetary policy and inequality, they have not yet developed options to address this issue at the same level as what they have done for climate action.

Central bankers' attention and knowledge about inequality issues have been increasing

Distributional issues have gained prominence in the public and policy debate over the last decades. Central bankers have also followed this trend. Figure 5 shows that the share central bankers mentioning the words "inequality" and "distributional impact of monetary policy" in speeches has significantly increased in the last decade.

In parallel, central bankers' understanding of the links between monetary policy and inequality has considerably improved in recent years. This is due to two main factors: first, the development of heterogenous agents macroeconomic models has provided central bankers with the necessary tools to analyse and assess distributional issues of monetary policies, both at a theoretical and an empirical level – a task that was impossible with model based a single representative agent model.²³ Such models have largely contributed to a better understanding by central bankers of the different channels by which monetary

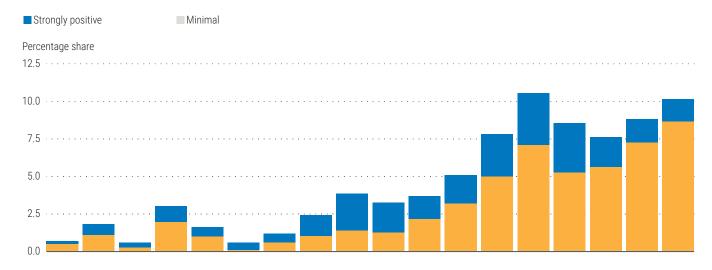
²¹ See Guo (2023) for an analysis of PBOC's targeted refinancing programs, and, more generally, of PBOC's structural framework for monetary policy.

²² See Colesanti Senni and Monnin (2021) for an overview of central bank uses of targeted refinancing operations.

²³ The seminal HANK model developed by Kaplan et al. (2018) is a pioneering example of a monetary policy heterogeneous agents model.

Figure 5

References to "inequality" in central bankers' speeches



Source: BIS calculations, taken from Carstens (2021).

Noted: Speeches of central bankers mentioning the keyword "inequality" and "distributional consequences/impact of monetary policy" expressed as a share of all central bankers' speeches in the BIS database. Data until February 2021.

policy impacts inequality (see, e.g., Colciago et al. 2019), as well as of how inequality matters in the transmission of monetary policy (Auclert 2019). Heterogeneous agent models are now part of the standard modelling toolkit that central banks rely on for their policy assessments. Second, the data necessary to estimate such models have greatly improved with the development of databases on income and wealth at the household level – e.g., the Household Finance and Consumption Survey (HFCS) in Europe.

Research on the link between monetary policy and inequality has highlighted that the impact from one to the other is not univocal. The same monetary policy stance can have opposing impacts on inequality depending on the channels through which it operates. For example, an accommodative monetary policy implemented by lowering interest rates tends to decrease inequality by supporting wage income on which households at the bottom of the income distribution usually mostly rely. The same policy can have a disequalizing impact through the financial income channel as lower interest rates tend to boost stock returns, which benefit mostly households at the top of the income distribution.

Similarly, research has also shown that the same policy stance can have a different impact on inequality depending on the instruments that are used to implement it: conventional and unconventional accommodative monetary policies do not always have the same impact on inequality. Determining the aggregate impact of monetary policy on inequality is ultimately thus an empirical question and the answer strongly depends on the structure of an economy and the instruments used.

Central banks' reflections on monetary policy and inequality are emerging

As highlighted in the previous section, central banks have extensively analysed their options for climate action. By contrast, they are only at the beginning of their reflections when it comes to integrating inequality dimensions in the implementation of their monetary policy. In the context of the just transition, which combines climate and inequality objectives, Robins and Monnin (2022) suggest some options to better address inequality issues with monetary policy.

First, as highlighted in section 2, central banks regularly face a trade-off between mitigating inflation and supporting labour market activity, the latter being sometimes key for reducing inequality. Central banks might thus want to prioritise certain employment objectives to support inequality objectives. In the US, the Federal Reserve may have taken a step in this direction with a change in its definition of the employment objective in its monetary policy framework - from "deviations from its maximum level" to "shortfalls of employment from its maximum level" (FOMC, 2022). This indicates that the Fed would no longer pre-emptively tighten monetary policy when unemployment is approaching levels estimated as consistent with stable inflation but wait until full employment is observed.

Second, based on the experience they have acquired in climate action, central banks could also adapt their monetary policy operations to include inequality objectives. As for climate objectives, central banks could introduce inequality dimensions in their asset purchases and refinancing operations. The BoJ, for example, regularly purchases exchange-traded funds (ETFs), of which underlying stocks are issued by firms that meet some criteria in terms of employment and job quality.²⁴ Central banks could do the same with targeted refinancing operations (Colesanti Senni and Monnin 2021). In the US, for example, Petrou (2021) and Nelson (2020) suggest that the Fed implements such schemes to support banks with an equality charter and low- and moderate-income areas and households, respectively.

At a more structural level, a widely discussed alternative is to implement some form of helicopter money instead of asset purchase for expansionary monetary policy (see, e.g., Fontan et al. 2016, Lonergan and Blyth 2014). Direct purchases of government bonds by the central bank accompanied by cash grants made by the

government to the general population could be an option for such a scheme. Such an instrument is potentially much more in line with inequality objectives than traditional asset purchases, but it also has some important implications in terms of fiscal and monetary coordination, as well as for central bank independence (Hononan 2019).

4. The challenges of integrating SDGs into monetary policy

Reflecting SDGs in monetary policy does not come without important challenges. Central bankers have highlighted that it can overburden their mandate, that monetary policy is too much of a blunt economic tool to address SDGs, that it can potentially trigger side effects on other central banks' objectives, and that it can threaten their independence. These are all valid and important concerns, but they do not rule out the possibility for central banks to bring some contribution to SDGs.

Overburdening the mandate?

Even if central banks have some degree of freedom in pursuing multiple objectives, they cannot deviate much from their main objective – inflation or exchange rate. Thus, adding several objectives to their remits can potentially affect their effectiveness in achieving their primary objectives and overburden their mandate. It might also make it difficult for central bankers to understand which objectives to prioritize in which circumstances and how to solve trade-offs between them.

Such problems can potentially be mitigated by a clear hierarchy of objectives in the mandates of central banks. In the context of climate change, for example, the mandate of the ECB

²⁴ The BoJ is purchasing ETFs under its 'Purchases of ETFs to Support Firms Proactively Investing in Physical and Human Capital' programme. To be included in these ETFs, firms must meet some criteria relative to growth in the number of employees and wage expenses, and to the implementation of policies that improve working environments, provide childcare support, or expand employee training programme (BoJ 2021).

is clear: the objective of price stability prevails over environmental objectives. This mandate stipulates that "without prejudice to the objective of price stability", the Eurosystem must also support the general economic policies in the EU which include contributing to "the sustainable development of Europe based on [...] a high level of protection and improvement of the quality of the environment". However, as highlighted by the ECB, this secondary mandate "stipulates a duty, not an option, for the ECB to provide its support" (Elderson 2021).

Selecting only a few main SDGs that central bankers must aim for is also likely to avoid overburdening the mandate. A key dimension to keep into account in the choice of these targeted SDGs is the ability of monetary policy to influence them, as well as how important is their role for their primary objectives. In this context, in addition to reduced inequality (SDG 10) and climate action (SDG 13), decent work and growth (SDG 8) and industry, innovation and infrastructure (SDG 9) seem also being influenced by monetary policy and potentially impacted by the operations. The recent resurgence of inflation, triggered by a surge in energy prices also shed new light on the link between central banks' objectives and the affordable and clean energy goals (SDG 7). Finally, given the importance of interest rates for the building industry, the objective of sustainable cities and communities (SDG 11) could also be further explored.

Too blunt of a tool?

Central banks often argue that the monetary policy tools at their disposal are too blunt for addressing specific SDGs because they are designed with aggregate outcomes and not subgroups of households, economic activities or regions in mind. It is true that changes in interest rates, for example, affect the economy as a whole and cannot target specific parts of the economy. The macroeconomic nature of their instruments significantly limits the potential of central bank to address SDGs.

However, as highlighted in section 3, central banks have some room for manoeuvre to target specific parts of the economy. As highlighted by NGFS's work on climate change, there are policy options to reflect climate objectives in all types of monetary policy operations (NGFS 2012.1). By doing so, central banks can indirectly and marginally support the funding conditions for some economic activities relatively more for others. Targeted refinancing operations is an instrument that central banks have experience with to implement such structural policies. They could be implemented to support sustainability and development objectives on a larger scale (Colesanti Senni and Monnin, 2021).

Triggering side-effects on other central banks' objectives?

The pursuit of additional objectives might also have negative side effects on central banks' policies. The NGFS (2021.1) highlights, for example, that policy options to reflect climate objectives in monetary policy operations could impair the transmission of monetary policy. This could happen if the volume of assets eligible for monetary policy operations is not diversified enough across asset markets. In that case, because monetary policy operations would only affect limited assets in the market, they would not be able to impact the financial conditions in markets at a macroeconomic level, as monetary policy requires.

The NGFS (2012.1) also highlights that reflecting climate objectives in monetary policy operations could also lead to higher risks for central banks' balance sheets. More generally, the climate risk exposure of financial institutions' balance sheets and of the financial system is a general concern for central banks and supervisors. Policies supporting climate objectives must also be weighted with the potential financial risks they could add.

Against this background, it is important to wisely design and implement monetary policy operation

schemes aimed at supporting potential SDGs. Two principles are particularly relevant in this context. First, the scheme should focus on a limited set of assets for which monetary policy operations have a real impact on the funding of the economic activities that contribute most to the SDGs. In this context, central banks should regularly examine alternative policy options to those implemented and, everything else equal chose those that have the largest positive impact on SDGs or the fewer adverse effects on them (Fontan et al. 2016). Second, the implementation of such SDGs supporting schemes should not limit central banks in the pursuit of their core objectives. In this context, central banks might want to first implement policies with a limited focus and then extend their scope with the experience and data they gather with such schemes.

Challenging central bank independence?

Many central bankers fear that including SDGs as secondary objectives could damage their independence, central to their ability to achieve their primary objectives. They highlight mostly that, first, central banks are not given the mandate and are not the legitimate institution to make important value judgments on behalf of society (Tucker 2018). Second, implementing monetary policy operations to support SDGs have often fiscal implications and thus can require more involvement from the government in central banks' decisions, or some form of fiscal dominance. To mitigate these issues and avoid compromising the independence needed for central banks' core mandate, a clear definition of the mandate and a clearly articulated governance relationship with the government or legislature is necessary (Honohan 2019).

It is however also important to recognize that if including SDGs in central banks' objectives can challenge their independence, ignoring them can also weaken it. Central banks need the support of the broader population to strengthen their

independence. For example, if central banks overlook the consequences of their actions on equality, they might trigger discontent and increase public pressure for reforms (Voinea and Monnin 2017). Similar pressures have already hit central banks worldwide for them to decrease their indirect funding to economic activities aggravating climate change and redirect it to economic activities in line with the transition to an environmentally sustainable economy. In recent years, the ECB and the BoE have been regularly challenged by climate activists and civil society representatives on the negative impact of their corporate bond portfolio on climate change and their non-alignment with transition objectives. US financial supervisors, including the Fed, or the SNB, for example, are also currently facing such challenges.

5. Way forward

Reflexions around the integration of SDGs in monetary policy are only in their infancy, but central banks have developed extensive knowledge and practices for some sustainability issues like climate action. The experience accumulated in this space highlights, at least, four important domains in which central banks can contribute to SDGs: improving common knowledge, supporting the development of sustainable financial solutions, contributing to national policy setting, and deepening international cooperation.

Improving common knowledge

The connections between central banks' core objectives and most SDGs, their economic and financial implications, as well as the impact of monetary policy on them are still a blind spot for central bankers and policymakers. This situation partly results from the strong reluctance of a large part of them to examine and discuss these issues, which has limited the development and exploration of potential policy options. However, a better understanding of these relations is

needed for monetary and macroeconomic analysis, not only for central banks but also for other authorities and the public. With their extensive access to data and research expertise, central banks are exceptionally well placed to improve the understanding of the systemic dynamics of SDGs as they interact with the economy and financial systems. Central banks have already developed a solid knowledge of the economic and financial consequences of climate change and the transition, including through the work of the NGFS. They need to fill this gap and build up capacities to better understand and assess other SDGs.

In this context, it is important to note that the greatest investment needs for SDGs lie in low- and middle-income countries, where real constraints exist there in terms of access to and cost of capital. It is therefore important for central banks to understand how financial regulation and monetary policy enable capital to flow across borders where it is needed for SDGs, and how to implement coordinated policies that enable the international financial framework to fulfill this function.

Supporting the development of sustainable financial solutions

Central banks are also particularly wellequipped to assess and monitor the role that financial markets and institutions play in SDGs. They can thus play a key role in highlighting and supporting the financial instruments and data that are needed by financial institutions to support the funding of SDGs. In the case of climate action, central banks are actively promoting and participating in initiatives that develop meaningful climate data, in particular for financial institutions and increase their availability for market participants. They could play a similar role in broader SDGs data. They could also, through their monetary policy operations, support new sustainable financial instruments, for example by including sustainability-linked bonds in their operations

or by using sustainable benchmarks in their portfolios. Central banks can also play a key role in the setting of international standards and frameworks that facilitate capital flows towards regions that need it most for SDGs.

Contributing to national policy setting

A significant part of central banks has the mandate to contribute to growth and welfare objectives and/or to support government policies. They thus have an interest in contributing to the policy effort for delivering these SDGs. When it comes to SDGs, clearly, governments have the primary responsibility to put in place the policy and financial frameworks to support SDGs, especially through fiscal policies. However, central banks can contribute, through their policies and their monetary policy operations, to the national policy package implemented to reach them. To deliver a coherent SDG policy framework at the national level, central bank actions should not be carved out of the overall policy response. In addition to monetary policy operations, central banks have other levers to support the development of SDG frameworks at the national and global level, essentially through their dialogue with stakeholders, economic expertise, and policy advocacy with governments and other agencies.

In this context, central banks can play several roles. They can engage directly with different stakeholders to make sure that their voices are considered and reflected in monetary policy decisions. In the context of the just transition, for example, central banks should reach out directly to trade unions and community organisations to ensure their concerns are also echoed in policies (Robins and Muller, 2021). Central banks can also support and feed into broad-based national initiatives around SDGs. Finally, if such initiatives are not yet in place, central banks and supervisors can initiate them and take a central role in setting the agenda and pace of just transition policies.

Deepening international cooperation

At an international level, central banks are ideally placed to advise, support and feed into collective initiatives. Central banks, for example, are key members of the G20 Sustainable Finance Working Group. In its 2022 report, this working group outlined a common set of principles including that decision-makers should "consider and include measures to facilitate an orderly, just and affordable transition, while avoiding or mitigating possible negative impacts on employment and affected households, communities and other SDGs (including environment protection and biodiversity), or risks to energy security and price stability" (G20 SFWG, 2022).

Given the success of the NGFS for climate action, one could think of initiating similar institutions for central banks and SDGs. In the case of climate action, the UN, through the 'UNEP Inquiry into the design of a sustainable financial system' played a crucial role in sensitizing the central bankers to the issue of climate change, as well as highlighting its relevance for central bank objectives (Hauke 2023). This initial work paved the way for the creation of the NGFS by a few pioneer central banks. The NGFS then allowed central banks to pool their resources and knowledge to address climate change issues. A similar process could lead to a better assessment of central banks' options regarding SDGs, as well as by leveraging their individual efforts.

References

Adam, K. and Tzamourani, P. (2016). "Distributional consequences of asset price inflation in the Euro Area", *European Economic Review*, 89, 172-192. October. (link)

Albanesi, S. (2007). "Inflation and inequality." *Journal of Monetary Economics*, 54(4), 1088-1114. (link)

Auclert, A. (2019). "Monetary policy and the redistribution channel", *American Economic Review*, 109(6), 2333-2367. (link)

Balcilar, M., Chang, S., Gupta, R. and Miller, S. (2018). "The relationship between the inflation rate and inequality across U.S. states: a semiparametric approach", *Quality & Quantity*, 52(5), 2413-2425. (link)

Baldwin, C. Y. and Ruback, R. S. (1986). "Inflation, uncertainty and investment", *Journal of Finance*, 41(3), 657-668. July. (link)

BCBS (2022.1). Principles for the effective management and supervision of climate-related financial risks. Bank for International Settlements. June. (link)

Berg, A.G. and Ostry, J.D. (2017). "Inequality and Unsustainable Growth: Two Sides of the Same Coin?", *IMF Economic Review*, 65, 792–815. (link)

Bini Smaghi, L. (2011). Risk management in central banking. Speech at the International Risk Management Conference 2011, Free University of Amsterdam. June 15. (link)

BIS (2009.1). Issues in the governance of central banks. Report from the Central Bank Governance Group. May. (link)

Blyth, M. and Lonergan, E. (2014). "Print Less but Transfer More: Why Central Banks Should Give Money Directly to People", *Foreign Affairs*, September/October. (<u>link</u>)

BoJ (2021). Special Rules for Purchases of ETFs to Support Firms Proactively Investing in Physical and Human Capital. March. (link)

Bunn, P., Pugh, A. and Yeats, C. (2018). The Distributional Impact of Monetary Policy Easing in the U.K. Between 2008 and 2014. Bank of England Staff Working Paper No. 720. March. (link)

Carstens, A. (2021). Central banks and inequality. Speech at Markus' Academy, Princeton University's Bendheim Center for Finance. May 6. (link)

Charalampakis, E., Fagandini, B., Henkel, L. and Osbat, C. (2022). "The impact of the recent rise in inflation on low-income households", *ECB Economic Bulletin*, 7/2022. (link)

Cingano, F. (2014). Trends in Income Inequality and its Impact on Economic Growth, OECD Social, Employment and Migration Working Papers, No. 163. (link)

Cizkowicz, P. and Rzonca, A. (2013). "Does inflation harm corporate investment? Empirical evidence from OECD countries", *Economics*, 7. April (<u>link</u>)

Coelho, R. and Restoy, F. (2023). Macroprudential policies for addressing climate-related financial risks: challenges and trade-offs. Financial Stability Institute Briefs No 18, BIS. April. (link)

Cohen, D., Hassett, K. A. and Hubbard, R. G. (1999). "Inflation and the User Cost of Capital: Does Inflation Still Matter?" in Feldstein, M. (ed.), *The Costs and Benefits of Price Stability*, University of Chicago Press. (link)

Coibion, O., Y. Gorodnichenko, Y., L. Kueng and J. Silvia (2017). "Innocent bystanders? Monetary policy and inequality." *Journal of Monetary Economics*, 88, 70-89. (link)

Colciago, A., Samarina, A. and de Haan, J. (2019). "Central bank policies and income and wealth inequality: a survey". *Journal of Economic Surveys*, 33(4), 1199-1231. September. (link)

Colesanti Senni, C. and Monnin, P. (2020). *Central bank market neutrality is a myth*. CEP Blog. October. (link)

Colesanti Senni, C. and Monnin, P. (2021). Aligning central bank refinancing operations with the G20 agenda. CEP Policy Brief. October. (link)

Costamagna, R. (2015). "Inflation and R&D investment", *Journal of Innovation Economics and Management*, 17, 143-163. (link)

Curci, N., Savegnago, M., Zevi, G. and Zizza, R. (2022). The redistributive effects of inflation: a microsimulation analysis for Italy. Banca d'Italia Occasional Papers, 738. December. (link)

Deutsche Bundesbank (2016). "Distributional Effects of Monetary Policy," *Deutsche Bundesbank Monthly Report*, 13–36. (September). (link)

Dikau, S. and Volz, U. (2021). "Central bank mandates, sustainability objectives and the promotion of green finance", *Ecological Economics*, 184. June. (link)

Domanski, D., Scatigna, M. and Zabai, A. (2016). Wealth Inequality and Monetary Policy. BIS Quarterly Review, 45–64. March. (link)

D'Orazio, P. and Popoyan, L. (2023). "Do monetary policy mandates and financial stability governance structures matter for the adoption of climate-related financial policies?" *International Economics*, 173, 284-295. May. (link)

Easterly, W. and Fischer, S. (2001). "Inflation and the poor." *Journal of Money, Credit and Banking*, 33(2), 160-178. May. (link)

ECB (2021.1). Climate change and monetary policy in the euro area. Occasional Paper Series. September. (link)

Egli, F., Steffen, B. and Schmidt, T. S. (2018). "A dynamic analysis of financing conditions for renewable energy technology", *Nature Energy*, 3, 1084-1092. November. (link)

Elderson, F. (2021). "Greening monetary policy." The ECB Blog. February 13. (link)

Faccia, D., Parker, M. and Stracca, L. (2021). Feeling the heat: extreme temperature and price stability. ECB Working Paper Series, no 2626. December. (link)

Feldkircher, M. and Kakamu, K. (2018). How Does Monetary Policy Affect Income Inequality in Japan? Evidence from Grouped Data. Working Papers in Regional Science No. 2018/03. WU Vienna University of Economics and Business. January. (link)

Fender, I., McMorrow, M. and Zulaica, O. (2022). Sustainable management of central banks' foreign exchange (FX) reserves. INSPIRE Policy Briefing Paper 06. July. (link)

Fontan, C., Claveau, F. and Dietsch, P. (2016). "Central banks and inequalities: taking off the blinders." *Politics, Philosophy and Economics*, 15(4). (<u>link</u>)

FOMC (2022). Statement on Longer-Run Goals and Monetary Policy Strategy. January 25. (link)

FSB (2022). Supervisory and regulatory approaches to climate-related risks. Interim report. April. (link)

Furceri, D., P. Loungani and A. Zdzienicka (2018). "The effects of monetary policy shocks on inequality." *Journal of International Money and Finance*, 85, 168-186. (link)

G20 SFWG (2022). Sustainable Finance Report. (link)

Galli, R. and van der Hoeven, R. (2001). Is inflation bad for income inequality: The importance of the initial rate of inflation." ILO Employment Paper 2001/29. (link)

Guerello, C. (2018). "Conventional and unconventional monetary policy vs. households income distribution: An empirical analysis for the Euro Area." Journal of International Money and Finance, 85, 187-214. (link)

Guo, S. (2022). China's structural monetary policy tools: objectives, limitations, unintended consequences. CEP Policy Brief. November. (link)

Hauke, F. (2023). Winning hearts and minds – How central banks went green. Springer Gabler. (link)

Honohan, P. (2019). Should monetary policy take inequality and climate change into account? Peterson Institute for International Economics Working Paper 19-18. (link)

IEA (2020). Projected costs of generating electricity 2020. December. (link)

IMF (2022.1). Annual Report on Exchange Arrangements and Exchange Restrictions 2021. (link)

Jawadi, F., Sousa, R. and Traverseo, R. (2017). "On the Macroeconomic and Wealth Effects of Unconventional Monetary Policy," *Macroeconomic Dynamics*, 21(5), 1189–1204. October. (link)

Kabundi, A. N., Mlachila, M. M. and Yao, J. (2022). How persistent are climate-related shocks? Implications for monetary policy. IMF Working Papers 2022-207. October. (link)

Kaplan, G., Moll, B. and Violante, G. L. (2019). "Monetary policy according to HANK", *American Economic Review*, 108(3), 697-743. March. (link)

Kaplan, G. and Schulhofer-Wohl, S. (2017). "Inflation at the household level", *Journal of Monetary Economics*, 91, 19-38. November. (link)

Koedijk, K. G., Loungani, P., and Monnin, P. (2018). "Monetary policy, macroprudential regulation, and inequality: an introduction to the special issue." *Journal of International Money and Finance*, 85, 163-167. July. (link)

Krogstrup, S. and Oman, W. (2019). *Macroeconomic* and financial policies for climate change mitigation: a review of the literature. IMF Working Paper, WP/19/185. September. (link)

Lenza, M. and Slacalek, J. (2018). How does monetary policy affect income and wealth inequality? Evidence from quantitative easing in the euro area. ECB Working Paper No. 2190. October. (link)

Madsen, J. B. (2003). "Inflation and investment", Scottish Journal of Political Economy, 50(4), 375-397. September. (link)

Monnin, P. (2014). Inflation and income inequality in developed economies. Council on Economic Policies Working Paper Series 2014/1. May. (link)

Monnin, P. (2015). The impact of interest rates on electricity production costs. Council on Economic Policies Discussion Note. June. (link)

Monnin, P. (2022). Monetary policy operations and biodiversity losses. CEP Policy Brief. March. (link)

Monnin, P. and Robins, N. (2022). Supporting the just transition: a roadmap for central banks and financial supervisors. INSPIRE Policy Briefing Paper 10. December. (link)

Montecino, J. and Epstein, G. (2017). "Did quantitative easing increase income inequality". Unpublished working paper. April. (link)

Mukherjee, K. and Ouattara, B. (2021). "Climate and monetary policy: do temperature shocks lead to inflationary pressures?", *Climatic Change*, 167. August. (link)

Muller, S. and Robins, N. (2022). Just Nature: How finance can support a just transition at the interface of action on climate and biodiversity. Grantham Research Institute on Climate Change and the Environment, London School of Economics. (link)

Mumtaz, H. and A. Theophilopoulou (2017). "The impact of monetary policy on inequality in the UK: An empirical analysis." *European Economic Review*, 98, 410-423. (<u>link</u>)

Nelson, B. (2020). "How to Design a Fed Credit Facility to Help Support LMI Communities." Blog post, Bank Policy Institute. August 5. (link)

NGFS (2019). A call for action – Climate change as a source of financial risk. First comprehensive report. April. (link)

NGFS (2020.1). Survey on monetary policy operations and climate change: key lessons for further analyses. Technical Document. December. (link)

NGFS (2020.2). Climate change and monetary policy – Initial takeaways. Technical document. June. (link)

NGFS (2020.3). Guide for supervisors – Integrating climate-related and environmental risks into prudential supervision. Technical document. May. (link)

NGFS (2021.1). Adapting central bank operations to a hotter world: reviewing some options. Technical document. March. (link)

NGFS (2021.2). Progress report on the guide to supervisors. Technical document. October. (link)

Parker, M. (2018). "The impact of disasters on inflation", *Economics of Disasters and Climate Change*, 2, 21-48. November. (link)

Pereira da Silva, L. A., Kharroubi, E., Kohlscheen, E., Lombardi, M. and Mojon, B. (2022). *Inequality hysteresis and the effectiveness of macroeconomic stabilisation policies*. Bank for International Settlements, May. (link)

Petrou, K. (2021). Engine of inequality: the Fed and the future of wealth in America. John Wiley & Sons. (link)

Romer, C. D. and Romer, D. (1999). "Monetary Policy and the Well-Being of the Poor." *Federal Reserve Bank of Kansas City Economic Review*, Q1, 21-49. (link) Saiki, A. and Frost, J. (2014). "Does Unconventional Monetary Policy Affect Inequality? Evidence from Japan," *Applied Economics*, 46(36), 4445–4454. October. (link)

Saiki, A. and Frost, J. (2018). *Japan's Unconventional Monetary Policy and Income Distribution: Revisited*. Tokyo Center for Economic Research Working Paper E-126. May. (link)

Schmidt, T. S., Steffen, B., Egli, F., Pahle, M., Tietjen, O. and Edenhofer, O. (2019). "Adverse effects of rising interest rates on sustainable energy transitions", *Nature Sustainability*, 2, 879-885. September. (link)

Schnabel, I. (2023). Monetary tightening and the green transition. Speech at International Symposium on Central Bank Independence, Sveriges Riksbank, Stockholm. January 10. (link)

Taghizadeh-Hesary, F., Yoshino, N. and Shimizu, S. (2018). The Impact of Monetary and Tax Policy on Income Inequality in Japan. Asian Development Bank Institute Working Paper Series No. 837. April. (link)

Thalassinos, E., Uğurlu, E. and Muratoğlu, Y. (2012). "Income inequality and inflation in the EU" *European Research Studies*, 15(1), 127-140. (link)

Tucker, P. (2018). Unelected Power: The Quest for Legitimacy in Central Banking and the Regulatory State. Princeton University Press. (link)

Voinea, L. and Monnin, P. (2017). "Inequality should matter for central banks." Blog post, Council on Economic Policies. February 16. (<u>link</u>)