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# The Dimensions of Responsibility: Perspectives on the ECB's Monetary Policy Mandate

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Policy Department for Economic, Scientific and Quality of Life Policies  
Directorate-General for Internal Policies

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# The Dimensions of Responsibility: Perspectives on the ECB's Monetary Policy Mandate

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## **Abstract**

A strong theoretical and empirical case exists for a dual monetary policy mandate. Central banks should aim to stabilise both prices (or inflation) and output (or employment). Other objectives, such as financial stability, reversing climate change, and reducing inequality are at best secondary objectives for which better policy tools are available.

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## LIST OF ABBREVIATIONS

<b>COVID</b>	Coronavirus disease
<b>ECB</b>	European Central Bank
<b>EU</b>	European Union
<b>LAW</b>	Leaning against the wind
<b>LOLR</b>	Lender of last resort
<b>NAIRU</b>	Non-accelerating inflation rate of unemployment
<b>QE</b>	Quantitative easing
<b>SSM</b>	Single Supervisory Mechanism
<b>US</b>	United States
<b>UK</b>	United Kingdom

## EXECUTIVE SUMMARY

- **This paper provides a normative analysis of how the ECB's mandate should be defined.** Particular emphasis is given to the central bank's core monetary policy mandate of macroeconomic stabilisation, and whether that mandate should be limited to inflation or price stability, or should also recognise a role for promoting maximum employment. If "yes" is the answer to the latter question, the paper examines whether inflation or price stability should take priority, or whether output stabilisation should be on an equal footing. The paper also examines the extent to which a central bank's mandate should include responsibility for financial stability and possibly addressing climate change and inequality concerns.
- **A strong theoretical and empirical case exists for a dual mandate for central banks comprising goals for both inflation or price and output stabilisation.** Focusing exclusively on price stabilisation at a time of demographic decline risks lulling a central bank into acting too timidly against negative deviations in output, and tolerating persistent undershooting of the price stability target.
- **Maintaining financial stability, including the role of lender-of-last-resort, is a crucial function of efficient modern central banking.** This function is, however, best carried out via thorough and tireless financial sector supervision, and through aggressive utilisation of macroprudential regulatory tools. Financial stability should not be a first-order concern for monetary policy, due to the high costs of countering rapidly rising asset prices though higher interest rates.
- **Central banks are not well equipped to directly address climate change concerns, a task best left to governments though the legislative tools at their disposal, including the introduction of comprehensive carbon pricing.** Central banks must, however, be vigilant against the impacts of climate change on their price stability, output and financial stability responsibilities. Independent central banks, such as the ECB, may at their own initiative seek guidance from relevant democratically elected bodies regarding the extent to which climate change should be an explicit criterion in the implementation of the central bank's regular monetary decisions. This may be particularly relevant for central banks' design of sound asset purchase programs.
- **Central banks can contribute importantly to combatting inequality by pursuing price and output stability, thereby mitigating economic contractions that invariably affect marginalised groups more than society's affluent layers.** As an empirical matter, this general perspective appears valid even when central banks exercise their more recently developed policy tools, including large scale asset purchases. The positive effects on inequality from stronger job creation arising from such purchases more than offset the benefit derived by the holders of appreciating assets. As with climate change, central banks may adopt inequality concerns as a design parameter, seeking explicitly to reduce any negative effect on inequality in the implementation of its monetary policy decisions.

## 1. INTRODUCTION

This paper discusses issues related to the definition of a central bank's mandate in the area of monetary policy. Until relatively recently, such a discussion would have dwelt mainly on the question of whether central banks like the European Central Bank (ECB) should focus solely on inflation or price stability or whether promoting the maximum sustainable level of employment is also a useful objective. Somewhere on the periphery, but probably as something of a theoretical curiosity—forgettable in the modern era with advanced supervision and extensive systems of deposit insurance—would have been central banks' lender-of-last-resort function. Today, with the global economy in the midst of its second economic crisis in a dozen years, the lender-of-last-resort function has, unfortunately, become a routine element of the monetary policy repertoire. As the central bank for a multi-country currency area containing highly diverse national economies, this new economic reality has presented the ECB with a particular set of monetary policy challenges as well as national legal challenges, such as from the German constitutional court.

Moreover, as the global economy gradually returns to normal over the next few years, debate will resume over potential extensions of a central bank's mandate to include responsibility for combatting global climate change and the increase in economic inequality.

Of course, many central banks carry out important responsibilities in other areas as well, including financial supervision and regulation, payment systems, and community development. The fact that those other functions are not discussed here does not reflect a belief on our part that they are unimportant, but rather that they are separable from the monetary policy responsibilities that are the focus of this paper because they employ non-monetary tools.

The next section of the paper provides a very brief tour through the history of economic thought regarding the price stability and output-smoothing objectives of monetary policy. Subsequent sections consider possible extensions to encompass aspects of financial stability, climate change or economic inequality.

## 2. THE ORIGIN OF THE PRICE STABILITY AND MAXIMUM EMPLOYMENT MONETARY POLICY OBJECTIVES

For many centuries, money was defined in terms of specific quantities of gold or other commodities. Monetary policy as we now know it did not exist.

The philosopher David Hume first described the effects of the gold supply on the overall price level, drawing on the inflationary experience of Europe in the sixteenth and seventeenth centuries, after the conquest of the Americas and the wholesale importation of gold from Spain's new colonies. According to Hume (1752, Essay IV), "[a]ll augmentation [of the gold supply] has no other effect than to heighten the price of labour and commodities."

In wartime, countries often suspended the link to gold and printed money to finance expenditures with inflationary consequences, but this practice was viewed as an unusual and deplorable necessity to be reversed as soon as possible. In 1873, the United States joined the gold standard as part of an attempt to reverse the inflation of the Civil War, when the link to silver had been cut. Rapid population growth and a paucity of new gold mines led to roughly 30 years of deflation from the late 1860s to the late 1890s. Milton Friedman and Anna Schwartz (1963) termed the 1870s the "Great Depression" because of the widespread discontent with falling prices.<sup>1</sup> By the 1890s, this discontent had intensified, culminating in the 1896 presidential campaign of William Jennings Bryan, who favoured the free coinage of silver at a value that would be inflationary. Bryan famously declared "[y]ou shall not crucify mankind upon a cross of gold."<sup>2</sup>

Perhaps inspired by this experience, the Swedish economist Knut Wicksell (1898) speculated on the possibility of operating a fiat monetary system with the aim of maintaining a stable overall price level. Wicksell argued that there is a natural rate of interest which would keep prices constant on average. The central bank's job should be to regulate the money supply to maintain interest rates at their natural level, which might change over time. Wicksell was not very influential, however, and the gold standard remained accepted by most economists and policy makers for the next few decades as the best basis for the international monetary system.

World War I forced European countries to abandon the gold standard, as war-related expenses far in excess of tax revenues, combined with supply shortages, caused significant spikes in inflation. In Germany, the Weimar government's attempt to print money to pay the gold-based war reparations laid down in the Treaty of Versailles and to support the domestic economy during the 1923 occupation of the Ruhr led to the infamous German hyperinflation of that year. The United Kingdom returned to gold at the pre-war parity in 1925, causing a sharp economic slowdown that led to the general strike of 1926. France returned to gold in 1928, but at a much depreciated parity and was able to avoid an immediate recession, though it suffered later after the United Kingdom was forced off gold in 1931 (Irwin, 2012).

John Maynard Keynes (1936) mounted the most successful challenge of gold standard orthodoxy with his General Theory of Employment, Interest, and Money. Writing in the depths of the Great Depression, Keynes rejected the classical view that economies fluctuated around a full-employment equilibrium with only short deviations that are not amenable to stabilisation by government policies. Keynes

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<sup>1</sup> They termed what we now call the Great Depression (the 1930s) the Great Contraction.

<sup>2</sup> <http://historymatters.gmu.edu/d/5354/>. Bryan lost the election. Ironically, new gold discoveries in the late 1890s would soon contribute to a modest upswing in prices around the world.

argued that wages and prices are sticky, especially downward, and thus the economy is slow to adjust, especially to periods of weak aggregate demand.

According to Keynes, a key implication of asymmetric wage and price adjustment is that economies spend most of the time below full employment. He wrote “the evidence indicates that full, or even approximately full, employment is of rare and short-lived occurrence” and “[i]t would be absurd to assert of the United States in 1929 the existence of over-investment in the strict sense” (Keynes 1936, locations 3061 and 3993).

Keynes decried the shackles imposed by the gold standard on a central bank’s ability to manage domestic interest rates and maintain full employment. He argued that the gold standard fomented protectionist pressures and international conflict because “all measures helpful to a state of chronic or intermittent under-employment were ruled out, except measures to improve the balance of trade” (Keynes 1936, location 4774). In contrast, he wrote that “[i]t is the policy of an autonomous rate of interest, unimpeded by international preoccupations, and of a rational investment programme directed to an optimum level of domestic employment which is twice blessed in the sense that it helps ourselves and our neighbours at the same time” (Keynes 1936, location 4336).

Keynes is most famous for his advocacy of fiscal policy to combat the Great Depression. However, his advocacy of fiscal policy reflects the fact that short-term and long-term interest rates were close to zero in the 1930s and he did not imagine more creative monetary policies such as forceful use of the central bank’s balance sheet.<sup>3</sup> In the *General Theory*, Keynes proceeds on the assumption that reducing interest rates by increasing the money supply, when feasible, should be the default choice among policy options to fight slumps. He also confirms the then-prevailing orthodoxy that higher interest rates should be used to fight inflation. Keynes is thus the first influential economist to argue that the goal of monetary policy is to achieve the highest level of employment consistent with stable prices.

In the 1960s, a famous debate broke out between Keynesians, led by Paul Samuelson and Robert Solow, and monetarists, led by Milton Friedman, on the ability of activist monetary and fiscal policies to stabilise or boost employment without destabilising prices. The outburst of inflation in the 1970s seemed at first to vindicate the monetarists. But subsequent attempts to implement monetarist policies also proved unsatisfactory. Despite this disagreement on the means, both sides agreed on the ends. Friedman (1968) says “[t]here is wide agreement about the major goals of economic policy: high employment, stable prices, and rapid growth.” Samuelson (1976, 314) says the goal of monetary policy is “to promote optimal real growth and price-level stability” while noting that central banks expand or contract “money and credit” in response to inflation and job vacancies.

We note that output and employment are closely linked as goals of monetary policy. Monetary actions to achieve one will also promote the other, unlike the trade-off commonly experienced between them and price stability. Central banks are able to choose any rate of inflation as their target, whereas they are not free to choose any level of employment or level of output in the long run. Any goal they have for output or employment is only an estimate of what the economy is capable of achieving. Accordingly, as is the case in the EU Treaty guiding the actions of the ECB, one may not regard a goal for output or employment as having the same status as the central bank’s target for inflation.<sup>4</sup> Most

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<sup>3</sup> Keynes believed that low interest rates of the 1930s were a secular phenomenon that would reappear after a large one-time increase in the money supply (or devaluation). He did not consider the possibility that a permanent increase in expected inflation would lower the real rate of interest and boost aggregate demand. He did consider and rejected a proposal to tax banknotes that would have allowed a negative rate of interest, arguing that it would lead to the adoption of alternative moneys, including “foreign money, jewellery and the precious metals generally, and so forth” (Keynes 1936, location 4451).

<sup>4</sup> The ECB accordingly initially set its price stability target as an annual consumer price index growth of below two percent. In 2003, this definition of the ECB’s inflation target was clarified to “inflation rates below, but close to, two percent over the medium term”. See <https://www.ecb.europa.eu/mopo/strategy/pricestab/html/index.en.html>.

central banks have chosen to target a rate of inflation somewhat above zero in order to increase their capability to fight recessions, and because many economists believe that sustainable employment is maximised with a rate of inflation moderately above zero.

A policy objective of stabilising output (or employment) and prices does not necessarily require policy actions that respond to output and prices. For example, Milton Friedman (1968) argued that a constant money growth rate with no response to output and prices would deliver the most stable output and prices possible. Blanchard and Galí (2007) noted that, under some assumptions, stabilising inflation is sufficient to also stabilise output—a property they termed the “divine coincidence.” But they argued that while stabilising prices may be sufficient to generate high and stable growth in a particularly simple model, this property breaks down in a more general model. When stable output and prices are among the main goals of policy, it is not surprising that a policy that responds systematically to output and prices may be optimal under some conditions.

Nevertheless, some economists and central bankers have expressed concern with policies that respond to output rather than focusing exclusively on promoting price stability. There are at least two reasons for this concern: (1) as noted earlier, a central bank does have latitude to choose their preferred inflation rate (and even the price level), and can deliver on that choice over the long term, whereas the long-run level of output is determined by many factors beyond the control of the central bank, including long-run demographics and productivity growth trends; and (2) acknowledging a desire to stabilise output invites political or internal pressure to respond to output at the expense of inflation, which would lead to higher inflation over time without any lasting increase in output (Kydland and Prescott, 1977).

National historical experiences with hyperinflation and political instability, such as Germany in 1923, may lead central banks to stress their inflation objectives almost to the exclusion of their output or employment objectives. Specific national characteristics such as a low home ownership ratio may produce a heightened public sensitivity to the impact of inflation on rents without the offsetting benefit of capital gains, also leading to a higher implicit weight on stabilising inflation relative to maximising employment.<sup>5</sup> Central banks should take account of perceived public preferences when permitted to set their own specific monetary policy goals, and when determining their strategies for achieving those goals. Central banks should, however, take care to do so in a manner reflecting their specialised expertise to ensure chosen policy goals are consistent with present day best practices, rather than historical experiences. In a multi-country currency union like the euro area, where public preferences may vary greatly, it is important that the central bank operate with a transparent, rigorous, practical, empirical and theoretical understanding of how the economy operates. This is the best shield against misguided biases affecting policy decisions.

In the 1990s, a “New Keynesian” consensus emerged that optimal monetary policy should be transparent, systematic and predictable. A focus on policy “rules” was motivated mainly by a desire to avoid the pitfall of discretionary policy that might respond excessively to output at the expense of price stability. John Taylor (1993) famously showed that Federal Reserve interest rate policy during a period of relative economic stability could be well described by a simple rule relating the policy rate to movements in the gap between inflation and a target level and the gap between output and its potential level. A subsequent literature grew up exploring the optimal functional form, variables, and coefficients of monetary rules. There remains disagreement over the importance of sticking to a specific rule versus retaining some discretion, but a strong consensus prevails that monetary policy should be systematic, clearly tied to the end goals, and clearly explained to the public.

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<sup>5</sup> Germany is the only member of the euro area with a home ownership ratio below 50 percent (OECD, 2019).

In their influential Ph.D.-level textbooks, Olivier Blanchard and Stanley Fischer (1989) and Michael Woodford (2003) assume that society's loss function (that is, the inverse of social welfare) may be approximated by the weighted sum of expected future squared deviations of inflation from a target level and output from its potential level. The job of monetary policy is to minimise this loss function; in other words, monetary policy seeks to stabilise output and inflation around their goal levels. Woodford shows that, in a generic New Keynesian model, the optimal policy rule takes the form of Taylor's (1993) rule, in which interest rates respond to deviations of output from potential and inflation from target.

Other leading monetary economists share this assumption that the goal of monetary policy is to stabilise both output and prices (or growth and inflation). Examples include Richard Clarida, Jordi Galí, and Mark Gertler (2000) and Ben Bernanke, Thomas Laubach, Frederic Mishkin, and Adam Posen (2001). The former paper estimates a Taylor-style rule using data from the terms of Federal Reserve Chairs Volcker and Greenspan. In the empirical specification, as in Taylor's original work, the interest rate responds to deviations of output and inflation from their goal levels; the paper shows that the estimated rule does in fact help to stabilise output and inflation in a small calibrated model. The latter book reviews the largely successful experiences that inflation-targeting monetary policy regimes had enjoyed to that point around the world. The authors interpret inflation targeting as a framework that restricts monetary policy to stabilising inflation in the long run while granting scope for discretionary responses to output deviations from its goal level in the short run.

Lars Svensson (2010) adopts the standard policy objective function of minimising deviations of inflation and output from respective goals but argues against backward-looking Taylor-style rules and in favour of "forecast targeting." Under forecast targeting, a central bank sets its policy rate to achieve a projection of inflation and output that maximises its objective function. An important advantage of forecast targeting is that it allows a central bank to better reflect in its policy choices information it may have about structural change or other forces bearing on the outlook.

Olivier Blanchard, Giovanni Dell'Ariccia, and Paolo Mauro (2013) argue, in the aftermath of the Great Recession, that the case for a monetary policy response to output deviations may be even stronger than previously believed. This conclusion rests on the observation that the Phillips curve seems to have become much flatter than before. Thus, monetary policy could have usefully eased more to boost recovery without incurring any significant losses from higher inflation. Indeed, one might argue—in retrospect, at least—that monetary policymakers must not have pushed hard enough during the recovery from the Great Recession because central banks in many advanced countries missed both of their objectives on the same side, with inflation running persistently below target and output running below potential.

The policy recommendation of Blanchard, Dell'Ariccia, and Mauro (2013)—that central banks should respond forcefully to deviations of output from potential—is bolstered by recent studies finding highly nonlinear Phillips curves in the United States and other advanced and emerging-market economies (Gagnon and Collins, 2019; Forbes, Gagnon, and Collins, 2020). When the unemployment rate is above the non-accelerating inflation rate of unemployment (NAIRU), as it was for many years after 2009, the Phillips curve is almost perfectly flat and changes in unemployment have essentially no effect on inflation. A central bank that responds only to inflation will forego an economic "free lunch"—that is, an increase in output and employment without any sacrifice on its inflation objective whenever the unemployment rate is above the NAIRU.<sup>6</sup> When the unemployment rate is below NAIRU, the Phillips

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<sup>6</sup> A corollary is that conventional methods for estimating the NAIRU, including those of the European Commission, the International Monetary Fund, and the Organization for Economic Cooperation and Development, are badly flawed. These methods assume a linear Phillips curve and estimate the NAIRU as the rate of unemployment that keeps inflation constant. With a nonlinear Phillips curve of the shape identified by Gagnon and Collins (2019), there is a large range of unemployment rates that are consistent with steady inflation. The

curve is steep, and changes in unemployment have substantial effects on inflation. These conclusions harken back to those of Keynes (1936), who argued that there is a wide range of employment outcomes consistent with stable prices and that central banks should set their policy interest rate to achieve the maximum level of employment consistent with stable prices.

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NAIRU should be estimated as the lowest rate of unemployment consistent with steady inflation, but most published estimates do not make this adjustment. The conventional methods find excessively high values of the NAIRU whenever unemployment is high. A similar critique applies to estimated output gaps.

### 3. IMPLICATIONS OF DEMOGRAPHICS AND SECULAR STAGNATION

Economic growth rates and real interest rates have trended downward over the past few decades in many countries, most notably in Japan but also in Western Europe and elsewhere. The main driving force appears to be declining birth rates and aging workforces. Declining growth of labour input (and, in some countries, an outright decline in labour input) reduces an economy's potential growth rate both directly and indirectly through reduced productivity growth.<sup>7</sup> For central banks that rely on a backward-looking policy rule of the Taylor (1993) type, there will be a tendency to keep policy too tight because—at least in its simplest formulation—the rule assumes a constant equilibrium real rate of interest, whereas the equilibrium real rate is actually declining. When the Phillips curve is quite flat, as it has been in advanced economies since the 1990s, the effect of excessively tight policy initially shows up mainly as excess unemployment.<sup>8</sup> Central banks, like the ECB, that focus mainly on inflation are especially likely to drift into suboptimal outcomes in such circumstances. By the time downward pressure on inflation becomes noticeable, the economy is likely to be deeply depressed. The consequent reduction in long-run inflation expectations, combined with an effective lower bound on the policy interest rate, reduces the central bank's scope to support the economy when recession strikes, by cutting nominal interest rates. A deflationary spiral looms.

Demographic decline hence adds to the urgency for central banks to act forcefully and persistently against deviations of output from potential. For the ECB, which has an inflation target without a well-defined lower bound<sup>9</sup>, focusing exclusively on subdued inflation poses an unusually acute risk to long-term price stability in an era of demographic decline. It is hence noteworthy that euro area inflation since 2015 has fallen into outright deflation twice, is currently 0.7 percent and, according to the ECB itself, only expected to reach 1.6 percent by 2022.<sup>10</sup>

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<sup>7</sup> Demographic decline reduces business investment and capital deepening, which is a source of long-term productivity growth. Demographically induced reductions in rates of new start-up firms also reduce productivity growth (Karahan, Pugsley, and Sahin, 2019).

<sup>8</sup> The excess unemployment is even worse than it appears because the natural rate of unemployment tends to decline as the median age of the workforce increases (Gagnon and Collins, 2019).

<sup>9</sup> The ECB's current inflation target of "close to, but below two percent" opens up the possibility that a de facto inflation outcome of perhaps 1.5 percent or lower might become acceptable for a majority on the ECB Governing Council.

<sup>10</sup> See ECB (2020).

## 4. FINANCIAL STABILITY

The global financial crisis of 2008-09 showed that imbalances in the financial system can weigh heavily on inflation and employment and hinder the ability of central banks to achieve their macroeconomic objectives. One important monetary tool used to promote financial stability is the central bank's ability to make emergency loans as the lender of last resort (LOLR). This is a monetary tool because it derives from the central bank's unique ability to create money. The standard prescription for LOLR policy is Walter Bagehot's dictum, summarised by Paul Tucker (2009) as "to avert panic, central banks should lend early and freely (i.e. without limit), to solvent firms, against good collateral, and at 'high rates.'" Following this dictum helps to achieve both financial stability and macroeconomic stability.

Just as financial instability has the potential to affect attainment of macroeconomic stability, so also the causality can go the other way around. For example, accommodative monetary policy in the form of low interest rates has the potential to motivate excessive risk taking by market participants and create vulnerabilities in the financial system. How should these financial stability concerns affect the way that central banks think about pursuing their mandates to promote price stability and maximum employment?

As the world's major central banks adopted flexible inflation targeting frameworks, a general consensus emerged that monetary policy should consider financial stability risks only to the extent that they influence inflation and output. In the context of a Taylor-style rule, monetary policy will not act to preempt a financial crisis beyond its normal response to excess inflation and output. However, it should curb macroeconomic overheating before the crisis, and help the economy recover after the crisis. This influential view, put forth by Ben Bernanke and Mark Gertler (1999), posited that if investors and market participants know the central bank will raise interest rates when rising asset prices threaten to overheat the economy, and vice versa if declining asset prices threaten to induce an economic contraction, then a flexible inflation targeting framework will promote both financial and macroeconomic stability.

The crux of the argument that monetary policy does not need to concern itself greatly with issues of financial stability comes from the idea that other tools, aside from monetary policy, will be available to fight financial instability, and will be capable of doing so reasonably efficiently and without incurring broader costs (in the form, for example, of lost output). Macroprudential policies such as loan-to-value or debt-to-income limits and bank capital requirements, and other forms of bank supervision and regulation are available in many jurisdictions, including in the euro area, where it is the responsibility of the Single Supervisory Mechanism (SSM). In contrast to monetary policies, macroprudential measures can be targeted to specific segments of the economy where the risk lies. Although macroprudential policies could reduce costs in terms of output, Jeremy Stein (2014) argues these measures could push risks to less regulated areas of the financial system. Although they come with other costs, Stein argues that higher interest rates operate throughout the entire system and, therefore, "get in all of the cracks."

Stephen Cecchetti, Hans Genberg, and Sushil Wadhvani (2002) also investigate whether asset prices should play any direct role in influencing the stance of policy in a flexible inflation targeting framework. They provide some theoretical support for having the central bank react to asset price fluctuations that are not driven by fundamentals and reflect long-lived misalignments. They argue that the central bank should react to asset price bubbles but not target specific levels of asset prices.

Although the notion of a central bank using its policy rate to prevent asset price bubbles from growing too large and threatening the system has some theoretical support, many are sceptical that it is capable of doing so in practice. First, it is almost always hard to tell, in real time, if a rapid rise in asset prices is the result of improved fundamentals, or a bubble that is the result of risk preferences that could reverse

quickly. The central bank would want to offset only the bubble portion and not the portion that reflects improved fundamentals. It is not clear that a central bank is better able to identify asset price bubbles than financial market participants. Second, even if the central bank had an informational advantage allowing it to better identify bubbles, there is little evidence that monetary policy can be fine-tuned to address them effectively. It is likely that, to have an observable effect, a central bank would need to raise interest rates sharply, and those higher rates in turn would be highly costly in terms of lost output (Bernanke 2002).<sup>11</sup> This view is supported by the little apparent benefit to financial stability experienced by countries with higher interest rates prior to the global financial crisis. As Philip Turner (2017) notes, interest rates were significantly higher in the United Kingdom than in Canada before the crisis, and yet UK banks suffered far worse than Canadian banks despite Canada's much closer financial and economic links to the US epicentre of the crisis. Turner also argues that the sustained rise of the US policy interest rate from 2004 through 2006 had no notable impact on various measures of risky financial behaviour.

Woodford (2011) argues that a central bank need not be able to preempt asset price bubbles in order to decide that it should use the tools of monetary policy to promote financial stability. It could be, for example, that small changes in interest rate policy can promote financial stability through modest reductions in leverage and maturity transformation in the financial sector. Therefore, Woodford argues, policymakers should focus on identifying situations in which the probability of large institutions facing simultaneous distress is non-trivial.

Blanchard, Dell'Ariccia, and Mauro (2013) suggest that perhaps the central bank should assume rapid asset price increases are bubbles with slightly higher probability, rather than trying to identify with any precision what portion of a given rise in asset prices is driven by fundamentals versus a bubble. This would, in effect, strike a trade-off in which a central bank would be willing to accept higher type I errors (acting as if there is a bubble when there is not) for less frequent type II errors (missing an asset price bubble). The result is a strategy, referred to as leaning against the wind (LAW), that acts as a sort of insurance policy against the buildup of financial risks. Policymakers who choose the LAW strategy during a period of rapidly rising asset prices would be trading a cost of lower output and inflation in the short term for the benefit of reduced financial risk and potentially greater output in the long term.

Research is mixed on the net benefits of using monetary policy to lean against the wind. The costs are relatively well understood. Higher interest rates slow down the economy leading to higher unemployment and lower output, and perhaps inflation that runs below target. The benefits of reduced financial stability risk are not well estimated. Adrian and Liang (2018) and Caballero and Simsek (2020) find that, when macroprudential policy is imperfect, there are conditions when it is optimal to raise interest rates to rein in asset price booms. On the other hand, Svensson (2017) argues that the costs of LAW exceed the benefits under all plausible assumptions about economic parameters. Ajello et al. (2016) find that only very small LAW deviations from a standard policy rule are optimal under their baseline parameters, and deviations under extreme parameter assumptions are still rather modest (implying a rise in interest rates of less than 1 percentage point in a typical bubble scenario). Gourio, Kashyap, and Sim (2017) also find only small benefits in their baseline model but point to gaps in knowledge and conclude that "it is too early to say that the question is settled."

It is widely believed that macroprudential policy could have done more to prevent the buildup of financial excesses before 2008 (Bernanke 2015a). However, the presumption among many advocates of LAW that both macroprudential and monetary policy should have tightened before 2008 is not necessarily correct. Spillovers from macroprudential policies to inflation and output are likely to be at

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<sup>11</sup> Referring to the 1920s US stock market, Keynes (1936, location 4000) says that "a rate of interest, high enough to overcome the speculative excitement, would have checked, at the same time, every kind of reasonable new investment."

least as important as spillovers from monetary policy to financial stability. Thus, more aggressive use of loan-to-value and debt-to-income limits prior to 2008 would have reduced housing demand and might have required lower policy interest rates, not higher rates.

As the central bank for a multi-country currency zone in which bank loans account for the overwhelming majority of financing for the private corporate sector, the ECB faces a financial stability issue directly linked to monetary policy. It is imperative to ensure that the ECB's monetary policy decisions are transmitted equally through the still divergent and domestically oriented national financial systems to the wider economy in the 19 euro area members. The introduction of the European Banking Union and associated sizable increase in the capital levels of euro area banks has mitigated perhaps the most destabilising financial stability factor for monetary policy in the euro area. This came in the form of undercapitalised banks frequently unable in times of financial market stress to transmit monetary easing measures to the non-financial sector. Persistently close links between national euro area banking systems and their respective sovereign governments nonetheless continue to affect ECB monetary policy decision making. This so-called "doom loop" sees financial market stress transmitted from individual (large) banks to their national sovereign government, and from there to a general national financial crisis. Several national-level banking systems continue to hold sizable shares of own-country sovereign debt on their balance sheets. In order to ensure an even transmission of monetary policy decisions across the euro area, the ECB is implicitly required to 1) safeguard the value of all euro area sovereign bonds, lest these otherwise become a source of financial instability in some national banking systems; and 2) ensure that all euro area banks have access to adequate liquidity so that they may transmit the ECB monetary policy signals to the real economy. This situation will raise financial stability concerns in times where monetary policy might otherwise dictate a rapid reduction in the size of the ECB's balance sheet through the selling back to private investors of sovereign bonds acquired as part of quantitative easing (QE) policies. Given the large differences in sovereign debt levels among the euro area member states, the importance of sovereign debt in some national banking systems is likely to remain an important factor for the ECB to take into account until such time as an alternative "safe asset" with euro-area-wide backing is available in adequate quantities. This would require a far-reaching political decision in the euro area outside the realm of monetary policy.

In sum, current research on the associated costs and benefits indicate that there are scenarios in which it may be optimal for monetary policy to lean against the wind (LAW), in the sense of damping asset price fluctuations. But these conditions are likely to be rare and uncertain, and the implied change in the policy interest rate may be small. Monetary policymakers should work with macroprudential policymakers to monitor financial risks, but macroprudential policy should remain the first line of defence for promoting financial stability. The setup of the ECB and the SSM, with both monetary policy and macroprudential policy within the same institution, but with separate decision-making bodies,<sup>12</sup> has been explicitly chosen to achieve this outcome.

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<sup>12</sup> The SSM vice chair is also a member of the Executive Board of the ECB, and as such is a key part of both bodies.

## 5. CLIMATE CHANGE

In thinking about the role that climate change might play in influencing central bank decision-making, an important distinction needs to be made from the outset—a distinction essentially between two directions of causality. The first direction of causality focuses on the question of whether climate change might affect the conduct of monetary policy, even if central bankers maintain exactly the traditional objectives of limiting fluctuations in inflation and activity; the second direction of causality focuses on the question of whether central banks should modify their objectives, and change the way that they conduct policy in hopes of affecting the evolution of climate change.

With regard to the first direction of causality, there is good reason to think that central banks will indeed need to take account of the reality of climate change. After all, climate change already undeniably affects the performance of the economy, and unfortunately will do so increasingly as time goes by. Cœuré (2018) outlines a number of ways in which these effects will be manifested. First, climate change will complicate the identification of shocks, and make more challenging the task of disentangling supply shocks from demand shocks. Second, it will probably “fatten the tails,” in that it will likely give rise to more shocks of extreme size. In turn, these larger shocks could cause more-frequent encounters with the effective lower bound on the policy interest rate. And third, the relative price changes that will have to occur as the economy adjusts to a lower-carbon future could destabilise inflation expectations. Central banks will do well to be highly conversant with the underlying mechanics and implications of climate change in order to deal with these implications as best they can.

Two practical considerations suggest that central banks should be capable of addressing these implications of climate change relatively naturally, in the normal course of conducting their monetary-policy business.

- First, monetary policy has a short horizon relative to the period over which climate evolves. Monetary policymaking committees typically meet many times per year and can recalibrate the stance of their policy at each of those meetings in response to the latest incoming information. By contrast, climate evolution takes place at the pace of many years, blurring into decades. And when shocks occur, the rapid adjustment speed of monetary policy implies that it can respond by hazarding its best guess as to the most appropriate response, implementing that guess, and then revisiting the question at its next meeting in light of incoming information.
- Second, monetary policymakers operate in an environment of pervasive uncertainty. It is never possible for them to know the structure of the economy with precision. Data are always measured with error, creating noise in standard economic relationships, and the structure of the economy is always evolving, often for reasons difficult or impossible to label with precision. In this context, the structural change implied by climate change is not something qualitatively new, but instead represents but one more source of uncertainty about the operating characteristics of the economy.

Combined, these two considerations imply that monetary policymakers must always be on the lookout for signs that the structure of the economy is shifting in some previously unforeseen way. They must be sufficiently agile to adjust the stance of their policy in response to possibly subtle signals about changes in the underlying structure of the economy, and agile as well in response to non-subtle shocks to the economic environment.

With regard to the second direction of causality, there seems an equally widely held consensus that central banks should not modify their pursuit of their traditional mandates in order to directly promote better climate-related outcomes. In the extreme, one could imagine a climate-conscious central bank deliberately and persistently running output a little short of its potential, on the theory that carbon

emissions are positively related to the pace of activity. With activity running lower than it would otherwise, emissions would be lower, and the central bank would be able to claim that it was helping to solve the problem of global climate change. However, that achievement would, of course, come at the immense cost of higher unemployment and all the economic damage attendant thereto (as well as, presumably, some cost stemming from inflation running below its target). These costs seem likely to be so high as to trigger a failure of the Tinbergen test:<sup>13</sup> The tools of monetary policy simply are not the best ones for addressing the problem of global climate change—no matter how important climate change may be.

Fortunately, even if monetary policy fails the Tinbergen test as applied to climate change, other policy instruments surely pass it. Again, to take the most obvious example, if the underlying issue is that the prices of fossil fuels do not reflect the damage that the burning of such fuel imposes on the environment and society, a more efficient approach to correcting the problem is to impose a carbon price. This can for instance be done by requiring that scarce carbon emission certificates are purchased by polluters, or in the form of a carbon tax, naturally causing those who consume fossil fuels to take due account of the consequences of their actions.

Some have proposed that other policy actions taken by central banks could be skewed in a more climate-friendly direction. For example, Olovsson (2018) suggests that a central bank could use its large-scale asset purchases to promote climate-related objectives. The central bank could, for example eschew purchasing securities issued by companies heavily involved in the fossil-fuel industry, or could over-weight the securities of companies involved in developing renewable forms of energy. Central banks are acutely aware of the economic distortions and political pressures that may arise from conducting their policies and purchases in a manner that favours some firms or individuals over others. Purchase or lending programs typically aim to cover the broadest possible range of securities or firms that meet criteria based on the central bank's macroeconomic stability objectives. Rather than formulate climate-oriented restrictions on its own, the ECB should instead solicit the guidance of the European Parliament and/or elected member governments in this matter. Restrictions on lending and purchase programs motivated by non-macroeconomic criteria should be considered carefully and used judiciously as they can diminish the central bank's ability to achieve its macroeconomic stability objectives.

Central banks must be aware of possible implications of climate change for other aspects of their responsibilities, aside from monetary policy, including financial stability and financial supervision and regulation.<sup>14</sup> For example, carbon spot and futures prices may fluctuate wildly, and to the extent those assets are held by financial institutions, affect their capital positions. Or a financial institution with lending heavily concentrated in a coastal area may be bearing far more risk going forward than would have been the case 50 or 100 years ago. Likewise, climate change may pose threats to financial stability if, for example, critical financial infrastructure is located in flood-prone areas. Thus, in arguing against expanding the remit of monetary policymakers to include climate change (except perhaps through restrictions on certain asset purchases), in no way do we wish to be construed as suggesting that central banks can be oblivious to climate change overall.

The EU's intention to fully decarbonise its economy by 2050 will lastly dictate that (almost) the entire European energy supply is converted into electricity and that this electricity is produced from

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<sup>13</sup> Jan Tinbergen (1952) analysed the optimal assignment of instruments to targets. When there are at least as many instruments as there are targets, instruments should be assigned to the targets that they can achieve with greatest efficiency.

<sup>14</sup> See, among many others, Brainard (2019) and Lane (2017).

renewable and mostly local sources. This will greatly reduce energy commodity price volatility as a source of overall price fluctuations.

## 6. INEQUALITY

Different considerations pertain to the question of how central banks should take account of inequality in the course of their conduct of monetary policy. One overwhelmingly important distinction is that the basic exercise of monetary policy in normal countercyclical fashion strongly contributes to the narrowing of economic inequality. It is well known that recessions hit relatively marginalised groups much harder than relatively privileged groups. For example, in the United States, Aaronson et al. (2019) document the following sobering facts: From 1976 through the end of 2018, the unemployment rate for African-American men was always—in every calendar quarter—at least 2 percentage points greater than the unemployment rate for white men. Moreover, when the aggregate unemployment rate gap (the difference between the actual unemployment rate and its estimated “natural” or sustainable rate) widened by 1 percentage point, the gap between the rate for African American men and white men widened by 0.9 percentage point, on average. Thus, Blacks started out at a deep unemployment disadvantage even at the very strongest part of the business cycle, and their relative position deteriorated from there as the economy weakened. Similar patterns hold for African American women relative to white women, as well as for Hispanic men and women. A widely shared view is that this widening in unemployment gaps as the economy weakens reflects an increasing ability of employers to indulge whatever latent tendency they may have toward racism and other forms of discrimination—no matter that such behaviour is illegal.

Data for the euro area (and EU) Member States show a similar pattern. Ho and Turk-Ariss (2018) shows persistently lower immigrant employment rates and higher cyclical immigrant unemployment sensitivity in 13 EU Member States. Their results show heterogeneity across countries, and highlight the importance of initial labour market conditions (i.e. low unemployment rates at the time of arrival favours immigrants’ job prospects). This highlights the important role played by initial and ongoing economic conditions, and hence monetary policy, in reducing the economic inequality facing immigrants across Europe.

Toward the end of the most recent business cycle, just before the COVID-induced collapse, anecdotes were very common that many individuals were getting a “second chance” in the labour market, because potential employers were much more willing to overlook past histories of substance abuse, or past episodes of incarceration. Thus, as recently as only a few months ago, there was real hope that permanent repair of damage dating back to the global financial crisis might be under way. Now that damage in economies across the globe seems sure to be inflicted anew.

No serious challenge has ever been mounted to the idea that the best anti-poverty program ever invented is a strong labour market, and that the best contribution a central bank can make toward a more equal society is to work strongly to temper the downside swings in the labour market. The case is all the more compelling if spells of unemployment have long-lasting or even permanent negative effects—a phenomenon referred to as hysteresis. The evidence for hysteresis appears even stronger in Europe than in the United States (Blanchard and Summers, 1986).

Although the positive contribution of normal countercyclical monetary policy to economic equality is not strongly in doubt, a more serious question pertains to whether the same confident statements can be made now that we seem to be in a world that will involve regular recourse to tools that previously would have been regarded as “unconventional” (but now seem to be becoming all too commonplace). For example, can we be so sure that QE does not contribute to economic inequality? After all, as Bernanke (2015b) notes, QE does involve a central bank purchasing vast amounts of financial assets expressly for the purpose of driving the prices of those assets up. Moreover, the wealthy (by definition)

hold far more assets than the middle or lower classes. Even if everyone benefits from the action, how confident can we be that the lower and middle classes benefit relatively more?

As in many important issues in economics, this one is an empirical question. There's nothing preordained that says it has to come out one way or the other. However, in this case, the evidence seems clear: Bivens (2015) concludes that "lowering unemployment is by far the largest impact of monetary policy changes on inequality." But there are other considerations as well that reinforce the case for believing that it would be a mistake to lay too much of the widening of economic inequality at the feet of unconventional tools of monetary policy. After all, as Bernanke (2015b) notes, inequality has been trending up for decades, and was doing so long before anyone imagined that massive asset purchases would become a regular part of the central banking repertoire. Furthermore, even if the use of unconventional tools did undo some of the progress on inequality that was achieved by restoring vitality to the jobs market, that unintended side effect could be rectified through the use of other policy tools (such as progressive taxation) to achieve the distribution of economic well-being that society as a whole desires.

In the euro area, where households' stock and bond ownership and financial market exposures via pension funds and life insurance products vary significantly across Member States, Lenza and Slakalek (2018) finds results broadly similar to US results with inequality reduced from the bottom up through increases in labour income by people finding new jobs. Existing employees in the middle of the income distribution are meanwhile found to receive higher nominal and real wages following the introduction of the ECB's QE program in 2014. Wealth inequality is reduced marginally through QE's positive effect on house prices, by far the largest asset class in all but the most affluent euro area households.

All that said, and especially as central bankers develop a wider set of alternative tools for dealing with the challenges posed by the effective lower bound on short-term policy rates, a choice will be available among non-traditional tools, and taking into account the implications of each tool for the evolution of economic inequality seems perfectly reasonable. For example, if a central bank has a choice as it expands a program of QE between purchasing more equities versus more corporate or other forms of debt, consideration should be given not only to the extent of the salutary effect on financial conditions, but also to the distribution of ownership of these two asset classes. More broadly, some may argue that "helicopter money" should be used more aggressively and QE should be given a rest (Honohan, 2019). That may be a perfectly fine position, but we would argue that helicopter money is intrinsically a fiscal rather than monetary policy action. If the argument is that fiscal policy should play a larger role in fighting recessions, we are all for that, and in no small part because it offers the tools for achieving not only the overall degree of support for economic activity desired by policymakers, but also for achieving the distribution of economic well-being they desire as well.

As important as the distinctions are in the considerations pertaining to climate change and inequality in the design of monetary policy, there is one important point of similarity. In particular, it is absolutely clear that central banks must take careful account of both, as they conduct their other responsibilities aside from monetary policy. With regard to inequality, in the supervisory realm, private financial institutions be held accountable for serving the communities in which they operate in an equitable manner, to ensure they are not seeking to avoid serving riskier segments of the population. Too often in the past, to give an example from the United States, financial institutions would engage in more-or-less explicit racism, and draw boundaries around minority communities that would not be served.<sup>15</sup>

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<sup>15</sup> For a vivid description of one aspect of this overt discrimination—much of it sanctioned by law in the United States, see Richard Rothstein (2017) *The Color of Law: A Forgotten History of How Our Government Segregated America*, Liveright Publishing Company, New York, New York. The cover of Rothstein's book shows a map created by the Home Owners' Loan Corporation in the 1930s. The map showed in red

Vigilant supervision is similarly required to protect vulnerable consumers, including minorities facing potential language barriers, low income groups and the elderly, against deceptive financial marketing hiding extraordinarily high fee charges.

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neighborhoods that were heavily populated by African-Americans, indicating that such neighborhoods would be too risky for federally backed mortgage lending to occur.

## 7. CONCLUSION

Modern central banks are powerful institutions imbued with the capacity to direct financial flows that have major implications for the entire economy. Perhaps for this reason, they are at this time of demographic transition, increasing political polarisation, and legislative sclerosis, being called upon with increasing frequency to exploit the full extent of their policy powers to promote a range of objectives, not always closely related to the traditional goals of monetary policy. Nowhere is this more true than in the euro area, where an incomplete economic and monetary union and frequent disagreements among Member States on joint economic policy continue to leave the ECB as the main, if not only, common institution capable of timely and potent stabilising policy actions. Exploring the foundations of and future for the ECB's mandate is hence of particular importance at this moment.

This paper provides a normative analysis of how the ECB's mandate should be defined. Particular emphasis is given to the central bank's core monetary policy mandate of macroeconomic stabilisation, and whether that mandate should be limited to inflation or price stability, or should also recognise a role for promoting maximum employment. If "yes" is the answer to the latter question, the paper examines whether inflation or price stability should take priority, or whether output stabilisation should be on an equal footing. The paper also examines the extent to which a central bank's mandate should include responsibility for financial stability and possibly addressing climate change and inequality concerns.

This paper argues that a strong theoretical and empirical case exists for a dual mandate for central banks comprising goals for both inflation or price and output stabilisation. Focusing exclusively on price stabilisation at a time of demographic decline risks lulling a central bank into acting too timidly against negative deviations in output, and tolerating persistent undershooting of the price stability target.

Maintaining financial stability, including the role of lender-of-last-resort, is a crucial function of efficient modern central banking. This paper argues however that this function is best carried out via thorough and tireless financial sector supervision, and through aggressive utilisation of macroprudential regulatory tools. Financial stability should not be a first-order concern for monetary policy, due to the high costs of countering rapidly rising asset prices through higher interest rates. As the central bank for a bank-dominated multi-country currency area, the ECB has a particular responsibility to safeguard the value of sovereign bonds, in order to avoid enabling self-fulfilling financial stress in national banking sectors.

Central banks are not well equipped to directly address climate change concerns, a task best left to governments through the legislative tools at their disposal, including the introduction of comprehensive carbon pricing, at their disposal. Central banks must, however, be vigilant against the impacts of climate change on their price stability, output and financial stability responsibilities. Independent central banks, such as the ECB, may at their own initiative seek guidance from relevant democratically elected bodies regarding the extent to which climate change should be an explicit criterion in the implementation of the central bank's regular monetary decisions. This may be particularly relevant for central banks' design of sound asset purchase programs.

Central banks can contribute importantly to combatting inequality by pursuing price and output stability, thereby mitigating economic contractions that invariably affect marginalised groups more than society's affluent layers. As an empirical matter, this general perspective appears valid even when central banks exercise their more recently developed policy tools, including large scale asset purchases. The positive effects on inequality from stronger job creation arising from such purchases more than offset the benefit derived by the holders of appreciating assets. As with climate change, central banks

may adopt inequality concerns as a design parameter, seeking explicitly to reduce any negative effect on inequality in the implementation of its monetary policy decisions.

## QUESTIONS FOR MEPS

- The ECB statute enshrines price stability as the principal mandate of the ECB. However, it is standard practice in the economics profession to formulate a dual objective for monetary policy of stabilising both prices and employment. Other central banks have adopted a "flexible" approach to inflation targeting that allows a significant role for stabilising employment around its maximum sustainable level. Do you see such a dual approach as inconsistent with the ECB's statute?
- Since the current formulation of the monetary policy objective was adopted, has the economic environment changed in any way that would cause you to reconsider the asymmetric nature of the inflation target? Doesn't the decline in the "neutral" real policy instrument (often referred to as  $r^*$ ) cause you concern that whatever was chosen for an inflation objective earlier cannot be the right choice for today's environment? In other words, would a higher inflation target reduce the harm from the lower bound on interest rates?

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A strong theoretical and empirical case exists for a dual monetary policy mandate. Central banks should aim to stabilise both prices (or inflation) and output (or employment). Other objectives, such as financial stability, reversing climate change, and reducing inequality are at best secondary objectives for which better policy tools are available.

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