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Elga Bartsch, Agnès Bénassy-Quéré, Giancarlo Corsetti and Xavier Debrun

IT'S ALL IN THE MIX
HOW MONETARY AND FISCAL POLICIES CAN WORK OR FAIL TOGETHER

ICMB INTERNATIONAL CENTER FOR MONETARY AND BANKING STUDIES
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Foreword

The Geneva Reports on the World Economy are published annually by CEPR and ICMB and have been providing innovative analysis on important topical issues facing the global economy since 1999.

Since the Global Financial Crisis of 2008-2009, central banks in advanced economies have expanded their set of tools but, as shown in previous Geneva reports, often undershot their official inflation targets. The massive economic crisis associated with the COVID-19 pandemic has exacerbated the problem and highlighted the need for stronger coordination between monetary and fiscal policy. The concept of policy mix, which has virtually disappeared from standard economics textbooks, is back with a vengeance.

This 23rd Geneva Report convincingly argues that, while 'mixing' monetary and fiscal is sometimes necessary, history has also shown that without a strong and credible institutional framework, monetary-fiscal coordination can end in tears. Credibility is key. Sustainable fiscal policy amplifies the credibility of the central bank by ruling out fiscal dominance, and a credible central bank contributes to debt sustainability by reducing the likelihood of disruptive self-fulfilling crises.

The authors start by going back to the classics and revising what we learned from Tinbergen, Mundell, Tobin and Okun. Two key concepts highlighted in the report are Tobin's funnel in which monetary and fiscal policies jointly determine output and Okun's idea that policies should ideally be 'in the middle of the road'.

After reviewing the evidence on (the lack of) congruence in monetary and fiscal policies, the authors argue that the legacy of past excesses reduces economies' policy space and exposes countries to disruptive tail events. While the authors show that coordination is important, they also illustrate that it is not easy and present several examples of open conflicts between the central bank and the treasury.

The report concludes with a discussion of the benefits of increasing the currently low equilibrium real interest rate (R*). In their view, a higher R* could play a key role in moving the policy mix closer to the middle of the road and thus increase countries' ability to prevent tail events. However, in a financially globalised world, individual countries have a limited impact on R*. Hence, the authors highlight the benefits from global coordination and point to the need for international policy initiatives aimed at increasing R*. They conclude that the ongoing strategic reviews of monetary and fiscal frameworks in a number of countries provide a unique opportunity to rethink the issues discussed in this report.

This report was produced following the Geneva Conference on the World Economy held online in October 2020. CEPR and ICMB are very grateful to the authors and several discussants for their efforts in preparing material for this report, as well as to the conference attendees for their insightful comments. We also thank Laurence Procter for her continued efficient organisation of the Geneva conference series, to Hayley Pallan for recording and summarising the discussions and to Anil Shamdasani for his unstinting and patient work in publishing the report.

CEPR, which takes no institutional positions on economic policy matters, is delighted to provide a platform for an exchange of views on this topic.

Tessa Ogden
Chief Executive Officer, CEPR

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Executive summary

High levels of public and private debt and policy rates close to their lower bound make our economies vulnerable to macroeconomic and financial instability and disruptive crises such as the COVID-19 pandemic. Even worse, smaller disturbances can activate perverse loops that, without a convincing and sufficient policy response, can undermine activity in advanced and developing economies. This causes a persistent state of uncertainty and anxiety that feeds high precautionary saving by households while discouraging investment by firms, slowing down growth and pushing equilibrium interest rates further down to zero or even negative territory.

In this context, neither monetary nor fiscal policy by itself can shield the economy from the 'tail risk' of extreme output contractions, job losses and financial turmoil. Monetary and fiscal policies must forcefully act together, which can blur the distinction between the two. The policy mix, long forgotten in the public debate as well as in economics textbooks, is back with a vengeance, and with it the impression that the conventional wisdom about the respective roles of monetary and fiscal authorities is seriously outmoded.

How should we rethink the policy mix in the 21st century? To address this question, we distil the main lessons from three key sources: the seminal literature on the policy mix (Chapter 1), the empirical evidence regarding the mix in advanced economies during the last three decades (Chapter 2), and past episodes of large crises (Chapter 3). A fourth chapter brings these lessons together to look into the reasons behind the current vulnerability to tail events. It proposes to gear the policy mix to raise the neutral interest rate so as to subsequently achieve a 'Great Normalisation' of the policy mix.

One key conclusion of the report is that successful stimulus requires fiscal and monetary authorities to create policy space for each other. With high debt, monetary stimulus creates fiscal space by determining favourable borrowing conditions for the treasury. But for this space to be effective, the central bank must also provide a credible monetary backstop to government debt – essentially shielding the debt markets from belief-driven surges in sovereign risk. With rates at their lower bound, the treasury creates space for monetary stimulus via QE and unconventional measures by offering a contingent backstop to the central bank balance sheet, so that monetary authorities do not face the risks of losing control of money creation and inflation even in the case of large losses.

However, virtuous mutual support in turn requires a solid institutional framework that preserves policy credibility over time. A 'monetary backstop' to government debt cannot be successful if inflation expectations are unanchored; a 'fiscal backstop' to central banks' unconventional policy cannot work if public debt sustainability is in jeopardy. In the short run, the required stimulus may bring both authorities to the edge of their ability to create money and run fiscal deficits – an edge that stands high enough only if both

policies support it. What the two authorities cannot do is fall into a regime where optimal temporary actions turn into a permanent situation, leading to disaster. Beyond healthy coordination between monetary and fiscal policies, we also argue that coordination among policymakers in all major economies is a must.

In our first chapter we drink at the fountain of the classics. Tinbergen taught us that many policy objectives require many independent policy instruments. All instruments affect all objectives and interact with each other; hence, the policy problem cannot be solved piecewise, but the mix must take into account how policies interact. Mundell taught us that an efficient mix should recognise that policies should be assigned to the objectives that they can control more efficiently (the assignment problem). Tobin taught us that fiscal and monetary policies are substitutes in driving aggregate demand (nominal spending) – a given macroeconomic stance can be achieved with loose money and a tight budget, or tight money and a loose budget. Yet the two combinations have different long-run implications for growth, the external balance and fiscal sustainability.

The neo-classical revolution taught us that a policy mix cannot be effective if its policy elements are not credible; it needs to be embedded in an institutional framework that ensures credibility. Okun taught us that a good policy mix must keep an eye on the future policies. Hence, today instruments must keep as much as possible to the middle of the road – not only because we may be less confident of the effects of instruments when they are stretched, but also for a precautionary motive. We do not want to erode policy effectiveness by pushing them to a corner – i.e., the budget should tend to be in surplus in booms to create a fiscal buffer for rainy days. Putting all these considerations together, we conclude that while a policy mix need not have all instruments deployed countercyclically at all times, congruence, with countercyclical monetary and fiscal policies, should occur much more often than not.

In our second chapter, we turn to the evidence for advanced countries in the sample from the years 1986 to 2019. At odds with the prescriptions of the classics, we find that a 'congruent' policy mix of simultaneously countercyclical policies is rare; most often, monetary and fiscal policies pull in different directions. In some cases, this may be the case for good reasons – supply or financial shocks that require one of the two instruments to be best used procyclically. But the frequency of divergent or even destabilising mixes (where the two policies run against output stabilisation) is too high to be explained by these shocks. The message is that, especially for fiscal policy, political economy factors and, in some cases, debt constraints have prevented governments from following good principles.

In our third chapter, we ask how one should rethink the model of the policy mix in a context where, against the advice of the classics, the instruments are already stretched. The first observation is that with policy rates at their lower bound, monetary policy is far from being ineffective – unconventional instruments drive a wedge between the lower bound constraint and a liquidity trap. The second is that unconventional monetary policy blurs the distinction between monetary and fiscal policies, and low borrowing costs complicate the assessment of debt sustainability.

In this context, we emphasise that a good policy mix can be effective only to the extent that fiscal and monetary authorities internalise the effects of their actions on each other's policy space. Monetary policy creates fiscal space by keeping borrowing costs low – as a by-product of its forward guidance and measures to influence risk-free rates further into the term structure – and by effectively providing a monetary backstop to government debt, shielding the debt market from potentially disruptive self-fulfilling crises. For its part, the treasury creates monetary space by 'backstopping' monetary authorities. The fiscal backstop protects the central bank from having to run with thin or negative capital if it incurs large portfolio losses from its monetary policy operations. Such insurance thus preserves the central bank's independence and credibility by enabling the significant risk-taking inherent to unconventional monetary operations. This is the key lesson from confronting the policy mix with tail risk. Without creating fiscal space for each other, monetary and fiscal policy cannot pursue the level of stimulus required to address tail events. While complementarities between monetary and fiscal policies should be fully exploited to deliver the required support to the post-COVID-19 economy, success also depends on preserving credible commitments to long-term goals (i.e., public debt sustainability and price stability).

The exit from a temporary regime of close coordination between monetary and fiscal policymakers may be a long and winding road. To gain insight, we draw on the experience of central banks with yield curve control in the United States, United Kingdom, Japan and Australia. Embraced for good reasons during an emergency, yield curve control ultimately ignites a clear conflict of interest between the treasury, enjoying the easy ride of cheap borrowing costs, and the central bank, concerned with possible inflationary consequences once the emergency has subsided. History teaches us that this conflict of interest may work in subtle ways. The moment markets start to doubt the ability of policymakers to return to rhyme and reason, bad things can happen. It is worth stressing that this problem was well understood by the classics. From different angles and with different motivations, most of the authors contributing to the pure theory of the policy mix are convinced that a good mix only works if independent instruments are controlled by independent policymakers.

In our fourth chapter, we take a step back and look into a key root cause of the current vulnerability of our economies to disruptive tail risk, namely, the negative trend in the equilibrium interest rate, R*. This is a clear indicator of a destabilising global inefficiency – too much savings chases too little investment. Hence, with a reasonable target inflation

in most countries, central banks are systematically at risk of hitting the lower bound of policy rates. Accepting a low R* is tantamount to giving up on correcting the frictions and inefficiencies that have plagued growth and stability for more than a decade. As long as the negative trend in R* is not reversed, there is little hope to build effective and resilient policy strategies, away from repeated falls into the emergency patterns we are experiencing now.

We propose that a rise in R* should be considered a global public good. Much like containing the rise in global temperatures, policymakers should understand that raising R* is a matter of common interest requiring bold action. Leaders of large nations cannot but recognise that in this context, self-interested, aggressive and beggar-thy-neighbour actions are bound to be self-defeating – not just ultimately, but already today. To be concrete, trade wars and vaccine nationalism must be left in the graveyard of bad ideas as they feed uncertainties that have been heavily weighing on R*. Just like lower temperatures are needed to stabilise the climate, a higher R* is a precondition for a subsequent 'Great Normalisation' of the policy mix and a much-wanted resilience to tail risk.

While we are fully aware of the perennial difficulties of coordinating international policy initiatives, the current COVID-19 crisis creates a unique opportunity for countries to see the mutual benefits from acting in the same direction – overcoming the problems created by their debt levels and constrained monetary instruments. In the third chapter, we elaborate on the need for fiscal and monetary policy to sustain each other's policy space; the same applies at the international level. The prospect of bringing the policy mix back to the middle of the road would considerably increase the stabilisation potential of countries, and thus their ability to handle potentially large and global shocks. Reduced uncertainty about the effects of bad shocks would, on its own, contribute to a sustained rise in R* by lowering savings and encouraging investment.

We review leading proposals that may go in the direction of raising R*. These include pursuing fiscal deficits not offset by future primary surpluses backed by temporary monetisation (to lift inflation back to target), raising high-quality public spending to take advantage of low borrowing costs, and expanding the supply of safe assets. We argue that there are strong links among them: all work only if the central bank can offer a convincing monetary backstop to fiscal policy; and they are effective only if public spending enhances overall investment (possibly exploiting complementarities between private and public capital) and reduces precautionary saving (providing income insurance and addressing unsustainable trends in income inequality). But we insist that while many aspects of these proposals are in uncharted territory, they can only work if the main lessons from theory and experience reviewed above are not forgotten, which implies resisting adventurous walks into the confusing intellectual woods of 'new' or 'modern' theories.

With COVID-19 having caused a deep contraction in economic activity, the lessons learned so far from history and economics should convince us that the time to act – forcefully and together – is now.

Introduction

"Why do many countries follow seemingly sub optimal procyclical fiscal policies that add to macroeconomic instability?" Alberto Alesina (1957–2020)[1]

"But is there a zero bound problem when policy is more generally considered to include both fiscal and monetary instruments?" Emmanuel Farhi (1978–2020)[2]

What mix of monetary and fiscal policies will enable (advanced) economies to pursue macroeconomic and financial stability in the coming decade? The COVID-19 crisis leaves most countries with substantially higher public and private debt relative to the already high legacy debt from the Global Financial Crisis. At the same time, consensus estimates of the 'equilibrium' interest rate (the real risk-less interest rate at which economies can operate at full employment on average, known as R*) have been on a downward trend for the last few decades, bringing it close to or even below zero.

A low or even negative R* leaves central banks with hardly any monetary policy space to react to even moderate adverse shocks while keeping inflation around target (most often, 2%). Easier monetary policy requires the central bank to push the actual risk-free real interest rate significantly below R*, which is hard to do when inflation is persistently hovering below target and nominal short rates are constrained by zero interest rates on cash.[3] While unconventional monetary policy instruments such as asset purchase programmes can further the reach of monetary policy in the universe of interest rates, it is common to call on fiscal policy to 'do its part', which means playing a greater stabilising role (Draghi, 2019).

The long-run structural factors that weigh on R*, ranging from population ageing and low productivity growth to financial imbalances, have hardly subsided. Although inflated debt-to-GDP ratios may trigger a rise in risk premia in some countries, the risk-less world equilibrium rate will likely remain very low as long as world savings remain plentiful and productivity growth stays anaemic – with two key consequences for policy. A low or negative R* complicates assessments of debt sustainability. To the extent that long-term GDP growth is positive, a negative or very low real interest rate may encourage governments to resort to fiscal expansions (which may be a good thing in the current circumstances), but do so on the presumption that 'the debt will repay itself'. That said, accounting, history and fiscal projections warn against any debt magic. First, negative interest rates may allow countries to run persistent deficits, but by no means can these deficits be unbounded. Second, in the past, negative real interest rates have not necessarily prevented fiscal stress or crises (Mauro and Zhou, 2020). Finally, beyond

1 Quote taken from Alesina et al. (2008).
2 Quote taken from Correia et al. (2013).
3 The so-called zero lower bound is not as binding as it seems, since the costs of hoarding cash safely are significant. This allows nominal rates to be slightly negative.

explicit government liabilities, implicit and contingent liabilities continue to weigh on the stability of the fiscal outlook (European Commission, 2018a). And it is always and everywhere true that larger balance sheets are more vulnerable to market accidents and multiple equilibria.

In addition, a low-flying R* blurs the distinction between fiscal and monetary policy. With policy rates at their effective lower bound, monetary authorities have little choice but to engage in unconventional measures that are, in essence, targeted and direct interventions with stronger distributional consequences. This reflects a deep change (some say, a revolution) in the way monetary authorities operate as they are effectively venturing into areas traditionally belonging to the fiscal realm (Alesina and Tabellini, 2007).

Since the Global Financial Crisis, and especially with the COVID-19 crisis, it has become apparent that stabilisation requires fiscal and monetary policy to join forces. This evolution follows several decades of institutional efforts to make central banks legally and operationally independent, and the dominant presumption – certainly during the so-called Great Moderation – was that monetary policy would be sufficient to ensure cyclical and inflation stabilisation. Come the crises, reduced monetary space paved the way for a spectacular comeback of the notion of the 'policy mix'.

As we will argue in this report, in a crisis, fiscal and monetary authorities should not only be aware that they need to act together to provide sufficient stimulus. In addition, and most crucially, they should also be aware that they depend on each other for policy space – in the short as well in the long run. In the short run, monetary policy creates fiscal space by keeping borrowing costs low and offering the government a monetary shield against destabilising market dynamics that may activate self-fulfilling sovereign risk crises. Fiscal policy creates space for unconventional monetary policy by offering guarantees on central banks' balance sheets, which are necessary for the monetary authorities to be able to keep inflation expectations anchored and contribute to a stable financial outlook.

Even if successful in the short run, synchronised fiscal and monetary actions aimed at stabilising output and prices may lead to self-defeating dynamics in an era of high debt and low or negative R*. One concern is that a large expansion in the scope and scale of fiscal and monetary policies may result in a progressive erosion of their effectiveness. Is there a concrete risk that policymakers could overstretch their instruments to the point of losing them and becoming unable to influence the economy? Another concern is that, as central banks expand their bond purchase programmes or go as far as to introduce yield curve control policies, they may end up sleepwalking into a new regime where monetary policy will become de facto, or even possibly de jure, subordinate to fiscal policy. In this case, even if still formally 'independent', the two instruments of monetary expansion and deficit financing will effectively merge into one single policy.

In this report, we raise and discuss the questions of which policy mix can 'work' in a world of high debt and ultra-low R*, and what are the institutional and economic preconditions for the policy mix to deliver. We organise our discussion of the policy mix into four chapters. In the first chapter, we briefly review the basics of monetary and fiscal policy and dig into theory and history to illustrate the notion of the 'policy mix' – with the goal of distilling lessons that may and should have resonance in today's debate. Considering this notion, in the second chapter, we look at the evidence on the policy mix in recent decades, documenting how well it fits theory and good practice. In the third chapter, we raise the issue of which policy mix works best in the extreme circumstances of tail, or disaster, risk. In doing so, we elaborate on a key feature of stabilisation policy in a crisis, namely, the ability of fiscal and monetary policy to create space for each other without compromising independence. In the fourth chapter, we discuss possible reforms of the policy mix and its institutional framework, stressing the (possibly dire) consequences of failing to act.

CHAPTER 1

The mix of monetary and fiscal policies: Why does it matter?

On 3 November 2020, a Google Scholar search for "policy mix" (or "policy-mix") yielded 52,600 references. That is about 60 times lower than the 3.3 million hits obtained for searches on either "fiscal policy" or "monetary policy" alone. As crude as this beauty contest might be, it shows that the policy mix attracts much less attention from economists than each of its components taken in isolation. As a matter of fact, the very concept of the policy mix has almost disappeared from standard macroeconomics textbooks.

In hindsight, this state of affairs is unfortunate because the one-two punch of the Global Financial Crisis (GFC) and the COVID-19 pandemic has simultaneously stretched both instruments to an extent unknown in peace time. Historically high public debts have coincided with historically low interest rates, leaving little room for manoeuvre in macroeconomic policy. As this report will discuss at great length, a fair amount of cooperation in the effective deployment of monetary and fiscal responses is required to preserve much-needed firepower for macroeconomic policy.

In this first chapter, we define the concept of the policy mix, looking at how its components can interact to influence key macroeconomic variables, including growth, inflation, employment, the exchange rate and the external balance. We trace the origins of the concept back to the seminal works of Tinbergen, Mundell, Tobin and Okun. Their path-breaking analyses help us understand what an adequate policy mix might look like, and most importantly, how it might come about.

Particular attention is paid to the characterisation of a desirable mix during extreme crises, and to the institutional setup most conducive to its emergence. An important issue is the extent to which the different institutions in charge of monetary and fiscal policies should actively coordinate their plans and actions to deliver the goods. This is highly relevant – but also very sensitive – in an environment where post-1980s macroeconomic theory unambiguously supports a strict separation of power between monetary and fiscal institutions, and where politically independent central banks are widely seen as having been instrumental in the so-called Great Moderation – the period of low and stable inflation and tame business cycles spanning from the mid-1980s until the GFC of 2008 – and subsequent crisis management (i.e., 'the only game in town').

Our reading of the economic literature is selective by necessity – the purpose of such a report is not to substitute for textbooks – and partial by choice – our premise is that the world economy has been facing a deep and protracted demand shortage for some time. As such, a substantial part of our analysis fits the most stylised textbook descriptions of how macroeconomic policy works through aggregate demand to yield full employment and stable prices. Well-tested frameworks such as the 'IS-LM' or its open-economy variant (the Mundell-Fleming model) thus remain natural references to gain relevant analytical insights when thinking about how to address those contemporary issues. The events since 2008 make us unapologetic about the urgency of a decisive policy response to those large shocks that, directly or indirectly (e.g., through a disruption of the financial system), weaken aggregate demand, incomes and jobs, and keep policy instruments severely stretched and individually ineffective.

This first section of this chapter provides a brief overview of the basics: what are fiscal and monetary policies – in, short F and M – and what can they achieve from a macroeconomic perspective? The second section draws lessons from a fresh reading of what we call the 'classical' literature inaugurated by Tinbergen. The third section brings these lessons together to reveal the key features of 'a good policy mix'. We then review the evolution from the classic analyses of the mix to the combinations of fiscal and monetary policies that shaped the Great Moderation (Section 1.4). To ensure credible commitments to sound policies, formal institutional frameworks assigned clear roles to M and F, often supported by binding rules, numerical targets, and legal mandates to stabilise economic activity while keeping inflation appropriately low and predictable. Before a brief conclusion, a fifth section elaborates on the cross-border dimensions of the M-F mix, including in the peculiar context of a currency unions, and a sixth describes how monetary authorities have created monetary policy space despite hitting the effective lower bound rate since the global financial crisis of 2008.

1.1 THE NUTS AND BOLTS OF MONETARY AND FISCAL POLICIES

Three first-order differences between monetary and fiscal policies survive most circumstances. First, monetary policy mainly works indirectly via asset markets and financial firms' balance sheets – its effectiveness depends on the lending and risk-taking behaviours of financial intermediaries and market participants. In contrast, fiscal policy can directly influence aggregate demand through variations in public spending. The second key difference is that only fiscal policy can legitimately handle primarily distributive matters, essentially by organising deliberate transfers between different groups of agents. Thus, while fiscal policy can effectively and legitimately target specific (groups of) firms and households, monetary policy may not purposely do so. Of course, monetary policy also involves transfers – for example, from creditor to debtors, or from its shareholders (governments) to the banks – but they are a by-product of its actions. Finally,

monetary policy faces much shorter decision and implementation lags than discretionary fiscal actions,[4] and it can be envisaged on a much greater scale exploiting the potentially unlimited leverage capacity of central banks. In that sense, monetary policy is generally seen as more nimble than discretionary fiscal measures.

In the aftermath of the GFC, however, several central banks, faced with increasingly limited scope for using conventional monetary policy instruments (i.e., those that determine the short-term funding costs of financial intermediaries), created a range of new instruments through which they effectively engaged in more direct and more targeted activities, including large-scale purchases of various asset classes, among which were government securities. Those facilities have been reactivated or expanded in response to the COVID-19 crisis.

Reliance on more direct and more targeted instruments inevitably gives a quasi-fiscal flavour to central banks' decisions. In some instances, central banks simply bypassed the gatekeeping role of financial institutions. Such programmes include the Bank of England's direct lending facility to the UK Treasury or the US Federal Reserve's highly targeted facilities through which it provides funding to financial institutions originating loans to specific entities. For example, the Fed introduced a facility supporting the Administration's Paycheck Protection Program as well as its very own Mainstreet Lending Program, both focused on small and medium-sized companies considered financially sound by the loan's originator. Through its Municipal Lending Facility, the Fed also directly purchases short-term paper from US states, counties (with a population of at least half a million) and cities (with a population of at least a quarter of a million). The ECB has so far not 'gone direct', in part because of European treaty provisions aimed at drawing a clear line between monetary and fiscal matters. Although it introduced targeted longer-term refinancing operations (TLTROs) (first launched in 2014), those support the general lending activities of financial institutions – which continue to serve as gatekeepers – and not specific categories of borrowers.

The epitome of a go-direct strategy would be so-called helicopter money whereby the central bank, then openly behaving as a fiscal agent, would *transfer* liquidity to economic agents. Helicopter money would amount to a complete merger between monetary and fiscal policies, raising serious practical and conceptual issues (Reichlin et al., 2013; Buiter, 2014; Bernanke, 2016; Blanchard and Pisani-Ferry, 2019; Gali, 2020). Another interesting manifestation of a go-direct approach is the central banks' expansion of their traditional role as lender of last resort to become 'market makers of last resort' to prevent the unravelling of certain financial market segments. We will come back to these developments in Chapter 3.

4 Of course, the so-called automatic fiscal stabilisers do 'work' silently and in real time. Except for selected social transfers designed to protect incomes against downturns (e.g., unemployment benefits), they reflect the relative size of the government sector compared to the overall economy and are not as such policy levers requiring deliberate decisions (e.g., Debrun et al., 2008a). In countries with limited automatic stabilisers, governments occasionally rely on crude discretionary substitutes such as the indiscriminate mailing of checks to households.

For now, the best way to appreciate the ongoing evolution (if not revolution) is through going back to the pre-GFC status quo and reviewing the gradual evolution of the two policies since the GFC.

1.1.1 Tools, transmission and effectiveness of monetary policy

Monetary policy operates via asset prices and the financial conditions faced by borrowers and lenders – which in turn are key determinants of the cost of capital, households' wealth, the balance sheet of firms and financial intermediaries, and the strength of the currency. In general, it operates by:

1. setting short-term nominal rates;
2. managing expectations using a range of communication tools;
3. providing liquidity to financial intermediaries and financial markets in case their stability is threatened by non-fundamental stress or panic;
4. adopting regulatory/supervisory measures when in charge; and
5. carrying foreign exchange interventions when in charge.

Central banks control the volume and/or price of the monetary base (i.e., cash in circulation and banks' reserves) via a variety of instruments, including open market operations, open market credit operations (in the case of the ECB), standing facilities and reserves requirements. By communicating its policy to the public, the central bank can set the path of short-term market rates at the desired level. The movement of these safe, nominal rates and the associated communication of the central bank transmits to the entire term structure of interest rates, risk premia and to the exchange rate.

Central banks manage macroeconomic risk indirectly, and financial and liquidity risk directly, by acting as lender of last resort and providing (if only implicitly) a backstop to government debt. After the GFC, monetary authorities relied on unconventional tools that led to a considerable expansion of their balance sheets. Risk management, however, relies on their ability to leverage substantially and carry out maturity and liquidity transformation through their balance sheet.

Monetary policy with policy rates at their lower bound

Cash – which carries zero nominal interest – constrains central banks' choice of policy rates as they cannot go too far into negative territory without creating an arbitrage opportunity. The insurance and storage costs of hoarding large amounts of cash imply that the effective lower bound can be significantly below zero – by up to 75 basis points zero, if recent experiences in some countries are any guide. Therefore, the term 'effective lower bound' (ELB) is sometimes used instead of zero lower bound (ZLB). In principle, this constraint could be softened or eliminated by restricting or ruling out the use of cash

(Ball et al. 2016; Rogoff, 2017) and switching to a system where all money transactions are digital. However, financial inclusion and, above all, resilience to systemic cyber threats and other tail events are strong arguments in favour of keeping cash as a form of central bank money.

Policy rates at the lower bound do not mean that monetary policy is powerless – unconventional instruments can partly make up for the lack of conventional policy space. Unconventional policy breaks away from standard practice in three key dimensions. First, central banks significantly expand their balance sheets and extend the class of assets they purchase. The goal here is to affect credit, borrowing conditions and risk taking by operating directly on the portfolios of financial intermediaries, saturating them with reserves up to the point where they rebalance their composition in favour of loans. Second, unconventional instruments strengthen the credibility of a central bank announcements about future policy measures. Thus, central banks can develop more complex strategies to manage expectations, including 'forward guidance' by which they effectively commit to keep interest rates at some desired level either over a predetermined time period, even when economic conditions would normally motivate an increase, or contingent on a predefined set of conditions, typically concerning inflation or unemployment rates. Third, they can differentiate interest rates depending on the lending and deposit behaviour of financial intermediaries.

Although central banks operate under specific legal and political constraints on the assets they can trade, these constraints have been progressively relaxed. Before COVID-19, the Fed mainly bought government bonds or bonds issued by government-sponsored enterprises. The ECB had to overcome several obstacles before being able to implement significant government bond purchases from 2015 on. Over the years, however, the ECB has been able operate on a larger universe of assets relative to other central banks.

Is unconventional monetary policy effective at the effective lower bound?

The effectiveness of unconventional monetary policy remains controversial. Asset purchases can be expected to be more effective the more segmented markets are, so that there is less scope for arbitrageurs to undo the effects of policy interventions on, say, prices of bonds at different maturities. Thus, purchase programmes are typically found to be relatively more effective at the peak of a financial crisis, when financial markets can be dysfunctional and central bank interventions aim at restoring stable market conditions.

Bernanke's (2020) review of the literature suggests that unconventional measures may amount to the equivalent of a three percentage point cut in conventional policy interest rates. That said, if there is consensus around the idea that unconventional monetary policy can lower the so-called shadow rate (an estimate of the 'conventional policy equivalent' of unconventional measures), this is much less the case when it comes to the effectiveness of such a 'cut' (i.e., its impact on aggregate demand and inflation).

Even if they stimulate credit demand by firms and households, negative rates may raise issues around financial stability – i.e., the health of financial intermediaries, life insurance and pension systems – which may in turn tighten financial and borrowing conditions. On impact, pushing interest rates into negative territory raises the valuation of assets on the banks' balance sheets, strengthening their equity position and thus their capacity to lend. Over time, however, persistent negative rates reduce banks' profits by squeezing their margins on lending, with overall negative effects on the banks' net worth (Brunnermeier and Koby, 2019). There could also be a threshold below which reducing rates would actually encourage savings (for example, if individuals want to preserve their future purchasing power) and reduce demand – the 'reversal rate' hypothesis.

Institutional arrangements with the treasury matter

Extensive asset purchase programmes inevitably shift the institutional balance between the central bank and the treasury. One key reason is that, by engaging in large-scale purchases of risky assets, the central bank takes on credit or interest rate risk and may thus suffer significant losses, which would be passed on to the government through reduced seigniorage. Furthermore, raising the interest rate (for example, to counter a return of inflationary pressures) may involve a loss if long-term bonds are to be offloaded. For the treasury, the combined loss of seigniorage revenue and increase in interest payments could result in unsustainable fiscal positions.

Because it can create money at will, the central bank is sometimes considered to have unlimited loss-absorption capacity, feeding technical and institutional discussions about the risks for a central bank to operate with negative capital. Our take on this issue is that the loss-absorption capacity of central banks is de facto bounded by their anti-inflation mandate. Suppose losses were to exceed the present discounted value of seigniorage (net of any amount that the central bank may be obliged to transfer to the treasury)[5] evaluated conditional on keeping inflation around the official target. Without any fiscal help, monetary authorities would have to increase seigniorage, and hence inflation, effectively losing control of the printing press, and with it the ability to pursue price stability and anchor expectations.

Such a scenario can be avoided or mitigated to the extent that the central bank receives fiscal backing (e.g., Stella, 1997; Del Negro and Sims, 2015). The possibility for the treasury to recapitalise the central bank has been institutionalised in several countries such as the United States and the United Kingdom. In other contexts, however, it may be problematic. It would run into political and institutional objections in the euro area, as it could be seen as a form of transfers/indirect bailout asymmetrically benefitting one or more member states, implemented outside of democratic controls (for a critical view, see Buiter, 2020).

5 Precisely, what matters is the flow of dividend and net income rules, which ultimately determines the need for the central bank to create money for the sole purpose of meeting its obligations.

The institutional relationship between the central bank and the treasury is nonetheless crucial in determining the success of balance sheet policies. At one extreme, the prospect of receiving no fiscal help (if only in the form of reduced obligations to the treasury) in case of losses may discourage the central bank from expanding its balance sheet by the scale required to stabilise the economy. At the other extreme, with a large balance sheet, fiscal help may come in ways that undermine the bank's political independence. Ex ante, this scenario may again make monetary authorities reluctant to activate stabilisation measures.

1.1.2 Tools, transmission and effectiveness of fiscal policy

Relative to monetary policy, the transmission of fiscal policy operates via a much wider range of tools and mechanisms, impinging on households' incomes and firms' profitability much more directly and selectively than monetary policy. The difference between both policies has been especially clear during the COVID-19 crisis, when central banks tried to extend liquidity support to firms through commercial banks, while governments provided quick tax relief and temporary unemployment schemes (to keep them liquid and solvent).

While the plurality of instruments and the targeting of interventions are specific advantages of fiscal policy, the decision process on fiscal measures is typically quite long, as consensus must be reached among many stakeholders. Moreover, even if consensus is reached in a timely fashion, many layers of governance may delay or water down implementation. Experience suggests that timing and implementation issues have been overcome during crises and large downturns. Yet, the literature has long pointed out that fiscal stabilisation policy should not be left to discretionary decision making but should be embedded as much as possible in the tax code, spending programmes and more generally in the welfare state and institutions that can keep the fiscal stance automatically countercyclical. Unemployment benefits and income taxation are the primary examples of such automatic stabilisers.

Automatic stabilisation has key advantages not only relative to policy measures decided on a discretionary basis, but also over monetary policy. While monetary decisions can be reached swiftly, they usually affect the economy with 'long and variable lags' – which is a problem when the goal is to quickly affect incomes and incentives to spend. By contrast, automatic stabilisers operate in real time, and in a predictable fashion. However, the flipside of automaticity is that policymakers cannot control the timing or the adequacy of the impulse on aggregate demand. For instance, automatic stabilisers prove destabilising in the face of adverse supply shocks, and they cause a quick and potentially premature reversal in the fiscal policy stance as soon as the economy bottoms out and the output gap starts to close.

Are fiscal policy instruments effective?

The short answer is that, on balance, fiscal policy influences aggregate demand. Conceptually, effectiveness requires breaking the so-called Ricardian equivalence according to which under perfect markets, infinitely lived agents and neutral (non-distortionary) taxation, the level of the public deficit has no effect on economic activity and prices. In reality of course, taxes are not neutral (they do influence individual choices), people die and markets are imperfect (for example, many economic agents have no or limited access to saving or borrowing and are constrained to spend their current income in full).

The key metric for fiscal policy effectiveness is the fiscal multiplier (i.e., the dollar impact on GDP of a one dollar increase in the government deficit). Multipliers depend on the state of the economy. In particular, they tend to be higher when there are financial constraints (that is, some firms and households cannot borrow) or when the interest rate is at its effective lower bound (in which case, funding the government deficit does not crowd out private agents' access to borrowing).

An important lesson from the economic literature post-GFC concerns the incidence of credit and liquidity constraint in advanced economies. The conventional view used to be that the level of income would be enough to indicate whether these constraints would be binding – that is, they would be a problem only for relatively poor households. Theoretical and empirical work highlights that credit and liquidity constraints are pervasive among the 'wealthy hand-to-mouth', in other words, households that are rich enough to buy a house financed with a mortgage (e.g., Kaplan et al., 2014; Misra and Surico, 2014). The need to come up with the cash to honour their debt every month make these individuals' spending extremely sensitive to cash transfers (e.g., Acconcia et al., 2020). The expansion of home ownership and the rise in bank credit to households are clear indicators of the size of these population groups – and may explain why the empirical response of private consumption to transfers is typically found to be quite substantial, also among middle-class households.

At the same time, however, the literature suggests a reduced effect of fiscal policy when sovereign debts are already high.[6] Specifically, expectations of sustained deficits leading to higher public debt may undermine investors' confidence in the ability of the government to face its obligations in full and in all circumstances. Investors then price the possibility of debt debasement via unexpected inflation or different forms of explicit/implicit restructuring, including lengthening of maturities, haircuts or redenomination. Rising risk premia and interest rates ignite endogenous debt accumulation, which in turn deteriorates borrowing conditions also for private households and firms (Corsetti et al., 2013; Arellano et al., 2019).

6 Some have even suggested that multipliers could be negative when highly indebted governments engage in credible fiscal consolidations as the reduction in private savings more than offsets the increase in public savings. The cases of expansionary fiscal contractions nevertheless remain limited and sometimes controversial; see the seminal paper by Giavazzi and Pagano (1990) and the abundant subsequent literature.

1.2 THE POLICY MIX: LESSONS FROM THE CLASSICAL LITERATURE

Although monetary and fiscal policies both contribute as independent sets of instruments to economic stabilisation, their effects on the economy are generally interconnected. They can be substitutes in supporting activity, but their mix may have different consequences for growth, inflation, competitiveness and financial and fiscal sustainability. In some circumstances, they may become complementary, as the use of one instrument may create more space for the other.

What follows revisits the intellectual roots of the idea of a policy mix, largely inspired by seminal references on the topic, starting with Mundell and Tobin, and going through the new classical and new Keynesian theories. The goal is to extract lessons that resonate with the current debate.

1.2.1 The intellectual origin of the policy mix

The concept of a monetary-fiscal policy mix emerged in the institutional and intellectual context of the post-World War II recovery. In the interwar period, the government footprint on the economy had increased markedly. Policy objectives became increasingly well-defined and focused on macroeconomic stabilisation: inflation, economic activity and unemployment, investment and growth, the external balance, and fiscal and financial stability. These are many objectives, and to fulfil all of them, the government would in principle need a plurality of independent policy instruments. But instruments in turn may interact with each other and affect several objectives at once. A sound policy programme requires a good understanding how these instruments can best be combined to achieve the objectives.

Tinbergen was the first to formalise policy design as an optimal control problem, classifying economic variables as 'targets' and 'instruments' (Klein, 2004). To achieve n targets, one needs at least as many independent instruments. If the number of objectives exceeds the number of instruments, the policymakers will not be able to achieve all their goals. However, they can still do well, once they explicitly define their preferences across objectives and indicate how they are willing to trade them off against each other. Given policymakers' preferences – mathematically summarised in a 'loss function' – policies can be designed to bring the economy as close as possible to their 'bliss point' in the social welfare metric defined by their 'loss'.

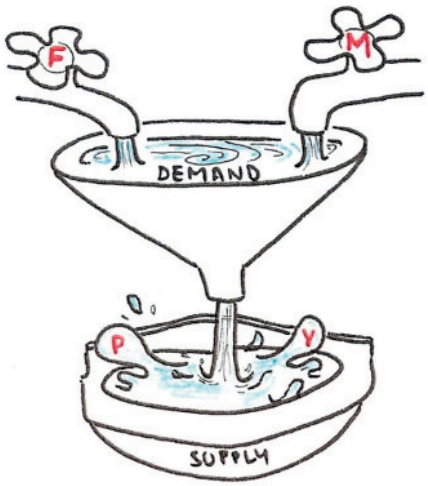
Tinbergen's condition on the number of objective and instruments has often been misinterpreted or misunderstood. Tobin (1987) clarifies its meaning as follows. Suppose policymakers' goals are low inflation and high employment – thus, two objectives. If they have two instruments – monetary and fiscal policy – shouldn't they be able to achieve both goals, that is, zero inflation and full employment? In Tobin's view, Tinbergen's rule is of

course mathematically correct. But while M and F can independently affect growth, the current account, the exchange and several other objectives, they cannot independently affect prices (P) and output (Y) but only their product, that is, nominal income – aggregate demand.

1.2.2 How does the policy mix work? Tobin's 'funnel'

Tobin popularised an image that provides a fundamental insight on how the policy mix works (Figure 1). Think of a funnel under two taps. One tap, F, is fiscal policy; the other, M, is monetary policy. The F and M authorities each provide stimulus that, together, goes into the flow of aggregate demand for domestically produced goods and services produced in the period (quarter or year). In other words, what flows out of the bottom of the funnel is aggregate nominal spending summing up private and public consumption, investment and net exports, all in nominal terms.

FIGURE 1 **TOBIN'S 'FUNNEL'**



Source: Blanche Quéré.

Tobin insists on the idea that, as primary determinants of aggregate demand, M and F are substitutes. Each authority can tighten or increase the amount of stimulus it provides. As long as the two taps can work without constraints, less from one tap can always be offset with more from the other tap. The same overall macroeconomic stance of the economy can be obtained using a different mix of M and F. A key conclusion is that, when going into the funnel, M cannot independently affect prices and F output, or vice versa. Both M and F determine the product of prices and output.

When coming out of the bottom of the funnel, however, current aggregate demand does split between output and prices. This occurs as aggregate demand 'splashes on' aggregate supply. For a given nominal spending, low supply means high price adjustment; high supply means low price adjustment.

Indeed, in addition to determining the flow of demand from above the funnel, M and F also influence how nominal income splits into P and Y below the funnel. To appreciate this point, F may impinge on labour supply, determining the 'natural' rate of unemployment in each period. It also creates incentives to invest and innovate, which drive capital stock accumulation and productivity growth over time, impacting aggregate supply in the future. Together with F, M plays a key role in anchoring inflation expectations. Observing an increase in demand today, firms will have to decide whether to respond by raising production, prices, or some combination of the two. This decision may change, depending on the rate at which firms expect the general level of prices and wages to grow in the future, a point at the core of new Keynesian models.

Moreover, a strong interaction of demand and supply distortions may further blur the 'funnel' view. In his recent Jean Monnet Lecture at the ECB, Michael Woodford argued that shocks with specific sectoral intensity, such as COVID-19, may compromise the substitutability of M and F in the upper part of the funnel. This is because what causes a contraction in demand is a break down in the circular flow of payment across sectors in the economy, in such a way that the 'natural rate' is unaffected. So, a cut in nominal interest rates (which govern intertemporal choices) is ineffective. The right instruments for demand stabilisation require targeted transfers and liquidity support.

1.2.3 Policy assignment and trade-offs between short- and long-run objectives

If the same macroeconomic stance can be achieved with different combinations of M and F, which combination should be chosen? One answer to this question is that, while all instruments ultimately affect all objectives through the economic system, some instruments may be best placed to reach specific goals – i.e., they are more 'effective'. Hence, each instrument should be 'assigned' to one goal depending on their relative effectiveness. Another answer calls attention to the need to assess the mix of policies against the whole array of desirable short- and long-run objectives, such as debt sustainability or external competitiveness.

These two (not necessarily alternative) approaches can be illustrated by two famous debates, one in the early 1960s led by Mundell, the other in the early 1980s heralded by Tobin. In the early 1960s, Mundell 'shocked the US establishment' by claiming that the United States had the mix upside down (Mundell, 1962). At the time, the United States was pursuing 'loose money' to maintain high employment, and a 'tight budget' to improve the trade balance and reduce the pressure on the balance of payment. Mundell took issue with the presumption that contracting domestic demand to 'make more room for exports' and improve external trade was an effective strategy to reduce the pressure on the US balance of payment. In Mundell's view, the root of the imbalance was financial – the United States needed to reward capital more to stem potential outflows. In other words, through a financial channel, monetary policy was a more effective instrument to pursue balance of payment objectives than fiscal policy.

Consistently, Mundell argued that monetary policy should have been assigned to achieving the external balance objective. Essentially, the United States needed to raise interest rates enough to attract and/or keep international capital. The contractionary effects of tight money on domestic activity should have been compensated with expansionary fiscal policy.

A different principle, put forward by Tobin, had great resonance in the early 1980s. During these years, Tobin heralded the discontent of economists with the combination of tight money and loose budgets resulting from the determination of Paul Volcker to bring down US inflation and Reagan's political agenda supporting tax cuts and a hike in (military) spending. In Tobin's view, the resulting high real interest rates and strong dollar undermined investment and growth, while creating fiscal imbalances conducive to instability (let alone adverse international spillovers). He strongly advocated a switch to loose money and a tight budget as better suited to promote growth, maintain US cost competitiveness and improve the trade balance.

Tobin's argument sets in stone what one could define as a 'growth and stability criterion' for choosing the right policy mix. For a given current stimulus, tight money and a loose budget cause high real rates and real appreciation. This mix reduces investment and the current account balance, with negative effects on the stock of domestic capital and foreign wealth. To the extent that it results in higher public debt, it also worsens the fiscal outlook. The opposite is true with loose money and a tight budget – a mix that Tobin considered overall more desirable because it achieved higher growth and a more balanced external position.

Tobin's approach is still relevant today, with three caveats. First, Tobin wrote at a time when banks' credit to households, especially in the form of mortgages, was quite contained relative to the recent decades (Jorda et al., 2014). So, he did not factor in the possibility that, exactly like a loose fiscal policy could lead to excessive public debt accumulation, cheap money could also stimulate excessive private debt accumulation (a point stressed in particular by Mian and Soufi, 2014). In light of the GFC and historical studies, we are now aware that private credit booms may result in financial instability, and this indirectly creates fiscal vulnerability.

However, and this is the second caveat, M and especially F can rely on a plurality of instruments potentially useful to correct undesirable effects of any given stance on long-run goals. Tobin himself argues that a mix of tight money and a loose budget may not be unfriendly to investment if the tax measures are directed to sustain capital accumulation (as was the case of the investment tax credit introduced in 1962). Today, we entertain the idea that (at least some of) the potential adverse effects of low interest rates on private debt accumulation could be mitigated using macro- and microprudential instruments.

Last but not least, the growth and stability consequences may depend on the state of the economy and the policy instruments available to decision makers. GDP growth may be undermined more by severe underinvestment in public infrastructure than by the marginal increase in the tax rate required to finance public investment. With negative real rates and policy rates constrained at their effective lower bound, a public deficit may have a benign impact on the fiscal outlook.

1.3 THE MAKING OF A GOOD POLICY MIX

The discussion so far has shown that the best answer to the question "what is a good policy mix?" is the proverbial "it depends." At the current juncture, however, we believe that the contribution of the mix to macroeconomic stabilisation should be in focus. Thus, in line with our premise that the world economy has been facing a significant demand shortage for some time, we view it as necessary for a 'good' policy mix to be stabilising. The subsections below address several key questions regarding the contribution of the mix to output and price stability. To fix the terminology, we first propose a simple taxonomy.

1.3.1 Macroeconomic stabilisation and the policy mix: A taxonomy

Policies: Countercyclical, acyclical and procyclical

A policy stance that tends to stabilise economic growth and employment is said to be *countercyclical*; otherwise, it is either *acyclical/neutral* (i.e., no systematic impact on economic activity) or *procyclical* (i.e., it tends to amplify fluctuations). There are of course other desirable economic policy objectives aside from macroeconomic stability, including promoting economic efficiency (which is expected to raise potential growth and contribute to full employment) and fostering income equality through taxes and transfers. While pursuing these objectives may at times conflict with stabilisation (for example, filling urgent gaps in public infrastructure while the economy grows above potential), there is no reason to believe that fulfilling them should systematically conflict with macroeconomic stability. Quite the contrary – an unstable macroeconomic environment only complicates the job of policymakers to pursue other goals.

The policy mix: Congruent, divergent or destabilising

There are three broad types of policy mix. The first has both policies on a countercyclical stance. We call such a mix *congruent*. The other types consist of a *divergent* mix, when both instruments deliver offsetting impulses to aggregate demand, and a *destabilising* mix, when both instruments magnify gyrations in output.[7]

7 Of course, the policy mix can also be acyclical/neutral if both instruments are simultaneously acyclical/neutral.

Strategic complementarity and substitutability

Given the possibility for both instruments to either pull together or pull apart, it is tempting to refer to M and F as either complements or substitutes. In the remainder of this report, we give to these terms a strategic interpretation by default. In other words, M and F will be labelled as *strategic substitutes* when more stimulus by one instrument is offset (at least in part) by a reduced stimulus from the other. In the opposite case, M and F will be labelled as strategic complements. We label these responses of each instrument to the other regardless of whether such response is theoretically optimal, empirically observed, or both.

1.3.2 Stabilisation, congruence and divergence: It's complicated...

Effective macroeconomic stabilisation usually requires the overall macro policy stance to be countercyclical. In other words, what matters most for stabilisation is the combination of M and F flowing into the 'funnel'. The desirable M-F mix depends on circumstances, and there is a priori no universal ranking according to which a congruent mix would be always and everywhere better than a divergent mix or vice versa.

Indeed, procyclicality in M or F may be desirable, implying that the instruments are best used in opposite directions based on their relative effectiveness and objectives (including other objectives than the short-run stabilisation of aggregate demand). For instance, to provide stimulus in a liquidity trap, monetary authorities may engage in forward guidance and commit to maintain a relatively loose stance for a protracted period, and even if economic conditions start improving. If they keep their promise (as is essential to their credibility), the monetary stance can be expected to become intentionally acyclical or even procyclical. Adverse supply shocks may also call for a monetary tightening that runs against automatic fiscal 'stabilisers' (or other efforts to cope with the social effects of the shock) and reduces fiscal space by increasing the budgetary footprint of public debt.

One could even think of situations in which stabilisation could paradoxically call for a destabilising mix. Shocks to foreign capital flows come to mind. Specifically, a reversal or sudden stop in inflows could trigger the correction of a public debt overhang in bad times, forcing a procyclical fiscal contraction while monetary policy might also need to be tightened to prevent an excessive currency depreciation and unwanted imported inflation. In the same vein, pressures on a fixed exchange rate parity could require a monetary contraction and possibly also a fiscal contraction if the funding of government deficits depends on capital inflows.

That said, from an *economic* perspective, procyclical policies are desirable insofar as they prevent worse things (for example, a systemic financial crisis) from happening. Procyclical contractions are rarely harmless for the economy, and they can be counter-productive if GDP falls more than the amount of debt. So even if a fiscal consolidation during a financial crisis may prevent a much deeper contraction by avoiding the meltdown of the financial system, the fiscal 'multiplier' under fiscal austerity is usually high and budget cuts can only hurt economic activity, possibly for a long time.

Outside crisis episodes, however, *politics* can also feed divergence in the policy mix. A case in point is the well-documented tendency for fiscal policies to be often procyclical, especially in good times (Alesina and Tabellini, 2008). As documented in Chapter 2, procyclical fiscal policy is indeed much more frequent than procyclical monetary policy. In some cases, political conflicts exacerbate an already difficult situation for the mix. As a prime example, in the early 1990s, the German policy mix became spectacularly divergent due to an open conflict between the government and the Bundesbank on how to manage reunification. The Bundesbank strongly objected to the conversion at par of former Eastern marks into Western marks (effectively causing a sharp supply contraction in the East) and a massive transfer scheme that fed excessive demand. To curb inflationary pressures, the central bank tightened monetary policy, quickly raising short-term interest rates to unprecedented levels and destabilising the European Monetary System in the process.[8]

Overall, it remains that persistent policy divergence within the policy mix should be an indicator that something is wrong. This echoes an early recommendation by Arthur Okun, which we discuss next.

The virtue of congruence

According to Arthur Okun, keeping a congruent policy mix on average over the cycle has a key advantage. Quoting Tobin (1987, p. 150): "*both [M and F] policies should stay in the middle of the road, where there is ample room for variation in the interest of demand stabilization and other objectives. Another reason [...] is risk avoidance. We can be more confident of the effect of policy instruments where they are not moved away from actual experience.*" Effectively, Okun insisted on the idea that fiscal policy should be as countercyclical as possible, including by running surpluses during booms.[9]

Okun's recommendation encapsulates a key message from our report: the policy mix must be designed and assessed with regard to its effectiveness in delivering stability both in the short and the longer run. Thus, it is critical to maintain as much policy space as possible for both M and F, in the interest of a stable macroeconomic, financial and fiscal outlook.

8 Arguably, even in the absence of a conflict, the policy mix would have been divergent. German unification would have entailed fiscal costs independently of the generous transfer programme and wage rate conversion rate, motivating deficits; any inflationary pressure would have to be curbed by monetary policy. The conflict, however, exacerbated the distance between the two policies.

9 This was emphasised during our conversation with Bill Brainard, Okun's teaching assistant at Yale University.

To put it another way, there is an option value in maintaining both M and F functional in the future, hence in avoiding merging them into a single instrument *de facto,* or making one of them ineffective due to excessive debt (F), excessive risk taking (M), or to any other reason.

A congruent mix can mitigate two risks. The first is the risk of overstretching instruments. A divergent mix may require one policy to be overburdened with the task of delivering the appropriate countercyclical stance, responding to both the economic cycle and the procyclical impulse from the other policy. The result would be to push one instrument to a corner, effectively killing off the notion of a mix made of two instruments. The second is the risk of generating imbalances that progressively erode both fiscal and/or monetary space, limiting the overall stabilisation capacity of macroeconomic policy.

1.3.3 Does financial integration destroy the very notion of the policy mix?

In small open economies financially integrated with the rest of the world, the choice of the exchange rate regime rules out either fiscal or monetary policy as an effective instrument for the stabilisation of domestic conditions. The international monetary trilemma[10] arises as a logical consequence of the model. Countries opting for financial openness (free capital mobility) can only achieve one out of the two remaining objectives: a stable exchange rate or a domestically oriented monetary policy. Choosing a currency peg prevents deviations of domestic monetary policy from foreign monetary conditions. In that case, only fiscal policy is effective to stabilise domestic conditions, and sticking to the peg ensures a full monetary accommodation of any fiscal impulse by precluding any crowding-out (if fiscal expansion) or crowding-in (if fiscal contraction) effect. Under flexible exchange rates, instead, monetary policy can be assigned to stabilise domestic aggregate demand, whereas fiscal policy is made ineffective by complete crowding-out (exchange rate appreciation kills any fiscal stimulus) or crowding-in (depreciation offsets the adverse effect of fiscal austerity). Only monetary policy is effective. If this reasoning were perfectly correct, we could not speak of a policy mix for financially open economies since only monetary or fiscal policy (but never both) would be effective as a stabilisation tool.

In practice, however, a variety of frictions (taxes, capital controls, prudential measures, imperfect credibility, and other factors hindering international arbitrage), or being a relatively large country (whose policy influences the world interest rate), prevent the textbook trilemma from translating mechanically to the real world. Not surprisingly, history and evidence show that a flexible exchange rate regime does not necessarily preclude fiscal policy effectiveness, and thus, a meaningful policy mix. First, adopting floating rates, monetary authorities may pursue a variety of policy rules to establish a

10 The trilemma states that only two out of the three desirable goals of financial openness, exchange rate stability, and monetary sovereignty can be achieved at the same time. Indeed, if one wants both stable exchange rates and a central bank serving domestic considerations, one must give up financial openness.

nominal anchor – ranging from old-style monetary targeting to today's flexible inflation targeting. Second, the presumption that an increase in government spending or deficits is undermined by real exchange rate appreciation has long been puzzling (Dornbusch, 1980) and is contradicted by a large body of empirical research (Corsetti et al., 2012). If anything, increased spending and deficits seem to be associated with a currency depreciation, not an appreciation. Importantly, this pattern is observed among countries with good institutional quality and pursuing (credible) inflation targeting, which suggests that the depreciation does not necessarily reflect expectations of deficit monetisation.

In fact, international conditions confront monetary and fiscal authorities with complex trade-offs. For instance, the fact that international trade is largely priced in US dollars reduces the role of the exchange rate in adjusting international relative prices to shocks (Boz et al., 2019). This in turn constrains the ability of policies to stabilise economic activity, inflation and international misalignments at once (the case of 'divine coincidence'). Furthermore, the transmission of global shocks via financial channels, through capital flows and risk premia – i.e., the global financial cycle – has motivated the view that monetary policy is subject to a dilemma instead of the standard trilemma (Rey, 2016). Hence, regardless of the exchange rate regime, monetary policy independence could only be achieved by delinking domestic financial conditions from the global environment through restrictions to international financial transactions.

1.3.4 Can independent policymakers deliver a well-functioning policy mix?

Tinbergen's seminal work clarifies that the very concept of policy mix depends on the existence of *independent* policy instruments. As Tobin argues, the capacity to choose a mix requires that government deficits are not financed wholly by printing money, and that public debt is not just the mirror of bank reserves. The price of bank deposits and government bonds cannot be pegged by an open-ended commitment by the central bank (or the banking system). "By maturity, denomination and risk of capital loss, these instruments must be differentiated from base money and its close substitutes [...] budget deficits determine the growth of money supplies, and fiscal policy is indistinguishable from monetary policy" (Tobin, 1987, p. 143).

For Tinbergen, the optimal policy mix is the coordinated solution of the policy problem, jointly addressed by fiscal and monetary authorities sharing the same objective function (a cooperative, Pareto-efficient solution to the basic optimal control problem). However, the independence of *instruments* is conceptually distinct from independence of *institutions*. The latter can lead to costly coordination failures as policymakers may not have the same goals or the same preferences over the various goals, or face different constraints.

Remarkably, however, many of the leading economists who shared Tinbergen's intellectual heritage strongly favour strict central bank independence over coordination between monetary and fiscal authorities. The reason for this resonates with today's circumstances. One key problem is that the process by which fiscal and monetary decisions are made

follows separate logics specific to each authority's remit. Objectives, time frames and accountability mechanisms are different for both. As a result, while routine cooperation in the form of information exchanges regularly takes place, strict coordination supported by binding ex-ante commitments would likely end up with the dominance of fiscal considerations over others. These difficulties may partly be circumvented through policy rules that help each authority anticipate each other's policy, though the experience with policy rules is not fully convincing, especially on the fiscal side (see below).

Of course, that does not imply that in times of greater stabilisation needs, monetary and fiscal policymakers should not take advantage of the complementarity between the two instruments. Without prejudice of its core mandate, monetary policy should consider those complementarities in the general interest of stabilisation. The ultimate question is when does evolution stop and revolution (i.e., regime change) begin. Historical evidence suggests that once the Rubicon of ex-ante coordination is crossed and the control over money is back in politicians' hands, normalisation is difficult and is likely to take a long time – an issue explored in great detail in Chapter 3.

1.4 THE EVOLUTION OF THE POLICY MIX

Early theories of the policy mix lost ground with the stagflation of the 1970s and the rational expectations revolution in macroeconomics. This revolution deeply affected the way policies entering in the mix (and the mix itself) are envisioned.

The theoretical work associated with the Lucas' critique and the time-consistency argument (Kydland and Prescott, 1977) not only questioned the effectiveness of cyclical stabilisation but also suggested that discretionary policy activism was bound to be counterproductive. The well-known headline result is that lack of policy credibility yields excessive inflation at the 'natural' employment level. In short, to be effective, stabilisation policies presuppose credibility, which in practice is achieved by constraining discretion, leading to a trade-off between policy credibility and flexibility.

1.4.1 Credibility of the policies in the mix

The shift in the consensus in favour of institutions that could effectively constrain discretion in stabilisation policies suggested a new approach to the problem of policy assignment. Early on, Thompson (1981) argued that monetary policy decisions should be left in the hands of independent policymakers with 'peculiar' preferences. In Rogoff's (1985) celebrated model, those peculiar preferences meant being relatively more averse to inflation than the average member of society. Expecting such 'hard-nosed' policymakers to be tough on price dynamics, workers and firms would revise down their inflation expectations. A problem with this approach is that the benefits from a lower average inflation comes at the price of socially suboptimal stabilisation of cost-push (supply) shocks. Hence, there is a trade-off between credibility and flexibility. Subsequent work

shows that more efficient delegation technologies based on complete inflation contracts between the political principal and the monetary agent can eliminate the trade-off (Walsh, 1995; Svensson, 1997). The theoretical case for inflation targeting (IT) was born, with IT quickly spreading around the world to become the norm for modern central banks.

The case for constrained discretion applies with equal force to fiscal policy. A large body of theoretical work engaged in the characterisation of the optimal rules of fiscal conduct that satisfy two conditions: first, they are predictable, state contingent and time consistent (just like optimal monetary rules); second, they preserve debt stability in the long run, by requiring debt accumulation to result in self-correcting fiscal consolidation measures. This work has strengthened the intellectual support for automatic stabilisers and institutional constraints on discretion, in the form of fiscal rules and independent fiscal institutions, a type of fiscal watchdog expected to raise the reputational costs of fiscal profligacy and to foster discipline in the budget process.

Compared to monetary policy, however, institutional developments in the fiscal realm have been much less successful in delivering a convincing solution to the credibility problem. Spending and taxation plans are often revised when not radically reformed, with new governments undoing existing policies and shifting priorities. Discretionary decisions frequently overshadow and/or offset the impact of automatic stabilisers. The experience with the introduction of fiscal rules and independent fiscal councils has generally been mixed (Beetsma and Debrun, 2018).

An important dimension of having independent policymakers in charge of each instrument is the different abilities of fiscal and monetary authorities to 'pre-commit' to predetermined policy paths. This asymmetry may give rise to situations in which the authority that can credibly pre-commit to a course of action acts as a leader (i.e., act first and stick to its choice) able to steer the policy mix to her advantage but away from the socially desirable outcome. An important contribution of academic work on the subject has been to clarify how strategic interactions between formally independent authorities may strengthen or undermine the credibility, and hence the effectiveness, of each other's policies (e.g., Beetsma and Bovenberg, 1997; Dixit and Lambertini, 2003; Castellani and Debrun, 2005).

1.4.2 Monetary 'dominance' and the Great Moderation

The overarching problem of monetary policy credibility is crystallised in the idea that, for central banks to deliver price stability, they cannot be granted responsibility for also stabilising public debt dynamics. In the jargon popularised by Leeper (1991), an effective central bank cannot operate in a regime of 'fiscal dominance'. Instead, it must be able to actively stabilise economic activity around a hypothetical level where inflation neither accelerates nor decelerates away from a predetermined level deemed desirable. Hence, a regime where fiscal policy avoids strategies inconsistent with stable public debt dynamics and enables monetary policy to shape aggregate demand and keep inflation in check is a

sensible option, and is often labelled as 'monetary dominance'. In principle, such a regime presupposes that both monetary and fiscal authorities can credibly commit to specific policy paths. If that is not the case, the interaction between monetary and fiscal authorities can then be portrayed as a 'game of chicken' in which one of the players is forced to chicken out from achieving its stated goal.[11] One possible implication is known as the unpleasant monetarist arithmetic whereby a central bank's attempt to impose low inflation through tight money (and limited seigniorage revenues for the treasury) ultimately breaks down if fiscal authorities stick to a path of (state-contingent) spending and taxation that violates the public sector budget constraint given the amount of seigniorage received from the central bank.

Overall, a regime of monetary dominance enables monetary authorities to anchor market expectations on their preferred inflation (price-level) path. Fiscal authorities make spending and taxation decisions subject to their intertemporal budget constraint evaluated along this inflation (price-level) path. Much of the new Keynesian theory of stabilisation is developed in this framework. The assignment problem is clear-cut: M stabilises inflation, F targets other objectives (efficiency and distribution), smoothing taxes over time. Specifically, as long as conventional monetary instruments are not constrained – i.e., the central bank can set the path of policy rates at the desired level – monetary policy is enough to guarantee that the funnel receives adequate inflows from above, and the flow of demand at the bottom splits into low and stable inflation on the one hand, and an efficient level of activity on the other.[12]

Often overlooked, but certainly implicit to monetary dominance, is efficient supervision and regulation of the financial system. Inflation targeting should not be threatened by financial instability as monetary authorities' efforts to save the financial sector might ultimately conflict with their objectives to stabilise inflation and economic activity. A most direct threat from financial instability to monetary policy operates via the government budget: the size of interventions required to save the banks from a systemic crisis might undermine fiscal sustainability. In a sense, 'financial dominance' could be as big a threat as 'fiscal dominance'.

Much of the stabilisation theory during the Great Moderation looks at the design of monetary policy abstracting from distributional issues and a potential role of monetary interventions to provide insurance to different groups in the society. In the ideal policy mix, distribution and insurance are regarded as an area for fiscal, not monetary, interventions. But the literature also worked out the design of monetary policy in economies where,

11 Sargent and Wallace (1981) is the classical contribution.

12 To reach and sustain this desirable macroeconomic state, monetary authorities can primarily focus on targeting inflation efficiently: inflation should remain strictly at target in response to productivity shocks or saving (preference) shocks; it may optimally (but only moderately) deviate from target as the central banks accommodate cost-push (markup) shocks that generate a downturn, while simultaneously committing to an offsetting moderate expansion in the future to anchor expectations. So, overall, optimal policy results in an inflation rate that is on average somewhat countercyclical – strictly at target during a productivity-led boom, and above target during recession associated with cost-push factors (Woodford, 2020). Fiscal policy keeps contributing to the flow into the Tobin's funnel from above, but it is not instrumental in keeping the funnel efficiently full.

for various reasons, these goals cannot be achieved using fiscal instruments. With more objectives to pay attention to, monetary authorities optimally trade off price stability and the output gaps with other 'gaps', reflecting for instance undesirable and inefficient divergences in income and demand across economic agents over the business cycle.[13] Many of the basic policy conclusions from the leading new Keynesian models are modified, or even turned upside down, in these models. For instance, Bhandari et al. (2018) argue that the response to a cost-push downturn is not a moderate contraction accommodating some inflation (as standard in textbooks) but a monetary expansion, propping up wages and therefore the demand of agents who cannot rely on financial insurance and/or profit income from firms. The policy mix in economies with increasing income divides across groups and limited opportunity to access financial markets to borrow indeed challenges the pre-GFC consensus.

1.5 THE POLICY MIX ACROSS BORDERS AND IN A MONETARY UNION

Our discussion of the policy mix would not be complete without a reference to the role of cross-border policy interactions and cooperation. A classical starting point is Keynes' concern with the 'adjustment problem' in an international monetary system (like Bretton Woods) that places the burden of correcting cross-border imbalances on deficit countries, while leaving surplus countries free to focus on domestic objectives. In Keynes' view, this asymmetry creates a systematic bias towards a policy stance that is globally contractionary: while surplus countries only need enough policy stimulus to remain at full employment, deficit countries have to curb domestic demand and reduce imports, and possibly stimulate exports via real depreciation. As a result, global stimulus – the sum of 'just enough' in surplus countries and a contraction in deficit countries – is insufficient to support full employment at the global level.

It should be stressed that, given the limited role of the exchange rate in correcting price misalignment, this problem turns out to be hardly confined to fixed exchange rate systems. In short, it remains an unsolved problem at the international level, also affecting to a various degree countries adopting a flexible exchange rate regime. Note also that the problem is distinct from the monetary policy 'dilemma' discussed above. The issue is not which instruments are appropriate to correct imbalances; rather, the issue is that whether excessive borrowing and excessive lending – the two being the mirror of each other – place the economic and political costs of corrective action on one side only.

13 Recent literature has pushed the use of two-agent or heterogenous agent new Keynesian (TANK or HANK) models. In the tradition of open macro, policy problems are analysed allowing for insufficient financial and market integration, implying that policy instruments should correct demand and income imbalances across borders, associated to inefficient capital flows and misalignment in relative prices (e.g., Corsetti et al., 2010).

Cross-border cooperation in principle can attenuate the contractionary bias by committing all countries to burden sharing. But the record is not encouraging. Cooperation has seldom been successful in bringing surplus countries to adopt expansionary policies for the sake of reducing the adjustment costs of deficit countries.

The problem is at the core of the functioning of the euro area. Unlike a fixed exchange rate system, a common central bank offers some degree of risk- and cost-sharing. But the ECB mandate is to target union-wide inflation and economic activity, whereas fiscal policy must provide 'residual' stabilisation at the country level (in case of asymmetric shocks or divergent effects of common shocks). In the euro area, national fiscal stances are set independently, subject to union-wide (the Stability and Growth Pact) and national rules supposed to ensure medium- and long-run fiscal sustainability. The challenge faced by the euro area, as an incomplete monetary union, is to find an effective institutional framework (and political equilibrium) that can simultaneously ensure (i) efficient stabilisation at national level, and (ii) the appropriate monetary stance at the EU level.

The implications for the policy mix in the euro area are quite clear. A systematic failure of fiscal coordination in achieving the desirable union-wide fiscal stance puts more pressure on M. At the union level, this may not necessarily be a problem in normal times (with the important qualification that, of course, a common M cannot address country-specific disturbances). But it can have large consequences when policy rates are at the ELB, as cross-border fiscal spillovers can be expected to be larger and lack of coordination means that these are not internalised. In view of the difficulties of achieving coordination 'horizontally', the future resilience of the euro area will rest on its capacity to evolve towards coordination by 'vertical means' or some form of a central fiscal capacity, especially when circumstances make this extremely valuable. The Recovery and Resilience Facility agreed upon in 2020 to secure a prompt and sustainable recovery after the COVID-19 pandemic is a prime example of such vertical coordination. We will return to this issue in Chapter 4.

1.6 THE POLICY MIX AT THE ZERO LOWER BOUND: THE STANDARD VIEW ON ITS HEAD?

We conclude this chapter by observing that, in the classic literature, a liquidity trap is a situation in which monetary policy is completely ineffective. Consumers save only in cash because they expect interest rates to ultimately rise from their lower bound (and thus, bond prices to ultimately fall), or because the expected return on financial assets is not worth the risk and loss of liquidity. In that case, there is no meaningful policy 'mix' to talk about and macroeconomic stabilisation falls entirely on fiscal policy.

Since the GFC, however, even though policy rates were at their zero lower bound, central banks have managed to create policy space through monetary policy operations that went beyond changing short-term interest rates (Bernanke, 2020). These unconventional operations encourage lending and risk-taking to stimulate output and inflation in pretty much the same way as conventional measures (e.g., Lhuissier et al., 2020). Hence, as

forcefully argued by Ball et al. (2016), monetary policy did not disappear at all from the policy mix at the zero lower bound – far from it. If anything, the buzzword was that central banks were 'the only game in town' (El-Erian, 2016) – the exact opposite to the classic theory.

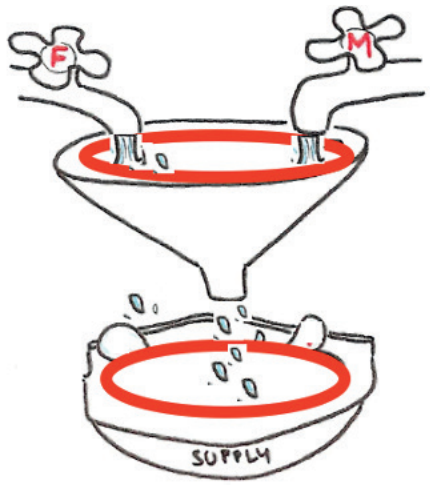
The experience in the last ten years suggests that things can play out quite differently in practice. As discussed in the next chapters, while a congruent mix of strongly countercyclical policies was the initial response to the 2008 tail event, debt sustainability concerns soon became dominant and fiscal support waned or was even reversed. In some areas of the world, a divergent mix of loose M and tight F emerged but was nonetheless relatively successful in reining in the worst consequences of the crisis – especially unemployment. In other regions, most notably the euro area, the policy mix was not supportive enough, reflecting significant fiscal procyclicality. We will argue below that a sustainable rebalancing of the mix, with a greater role for fiscal stimulus, is the key priority in the ongoing COVID-19 crisis.

1.7 CONCLUSIONS

During the Great Moderation, whether out of luck or out of good economic policy, the top of Tobin's funnel (nominal demand) depicted in Figure 1 has, by and large, been full in most circumstances. Business cycle movements were moderate; and academic and policy debates could focus on the 'bottom' of the funnel, that is, the conditions under which nominal demand could support stable inflation and efficient growth/level of activity. The Global Financial Crisis put an end to this, and the COVID-19 crisis has only been making things worse.

With these large shocks, the top of the funnel went dry. A combination of real and financial, sectoral and international disturbances made the outlook highly uncertain, motivating households and firms to increase precautionary savings. Insufficient nominal demand has simultaneously pushed inflation below target and activity below potential. Figure 2 illustrates this situation, which has now been going on for many years and is likely to continue for the foreseeable future, in terms of Tobin's funnel. In our view, this is an instance where a simple drawing speaks louder than a thousand models, pointing to the need to reconsider the policy regime whose golden years are gone since the GFC abruptly put an end to the Great Moderation.

FIGURE 2 **TOBIN'S FUNNEL WITH INSUFFICIENT STIMULUS**



Source: Blanche Quéré; authors.

M and F interactions are indeed quite different when policy space is scarce and instruments operate against their constraints – for example, the effective lower bound for conventional monetary policy, high and elastic borrowing costs for fiscal policy. In this case, not only are both M and F needed, but pursuing expansion via one instrument may create space for additional expansion using the other. In such a situation, M and F become strategic complements and deeper cooperation between monetary and fiscal authorities is a must to deliver on the desirable mix.

Put simply, while what matters in normal time is the sum of M + F (since M and F are substitutes), what matters when policy space is scarce is M × F (since more of M enhances the efficacity of F, and vice versa). The challenge is to make sure that such strict interaction does not come at the cost of lost credibility for policymakers – a credibility that, for the last three decades, has relied on a strict separation of monetary and fiscal powers.

The rest of this report takes up that challenge. Having just learned from the masters, Chapter 2 turns to the data, drawing the lessons from the evolution of the policy mix in advanced economies over the last three decades. Chapter 3 zooms in on the policy mix during acute crises, illustrating both the potential costs of ignoring M-F complementarities and the difficulties of normalising relations between monetary and fiscal authorities after episodes of active cooperation between them. That discussion sets the stage for Chapter 4, which explores plausible paths to a normalisation of the policy mix where both instruments recover substantial room for manoeuvre.

CHAPTER 2

The policy mix at work: Congruent, divergent or destabilising?

This chapter turns to the data to describe the most common features of the monetary and fiscal policy mix in advanced economies over the last three decades. Looking at a sample of 22 OECD countries over the period 1986-2019, the evidence suggests that harmony is rarely achieved. The main culprit is a strong tendency for fiscal policy to be procyclical, thus amplifying macroeconomic volatility. While procyclicality may be inevitable or even welcome in specific circumstances (see Chapter 1), the presumption that business cycles are mostly driven by demand shocks calls for countercyclical fiscal policies unless countries have limited access to borrowing. The first section briefly describes how we implement the taxonomy of policy mixes introduced in Chapter 1. Section 2.2 documents the cyclical properties of monetary and fiscal policies. The potential determinants of cyclicality are explored in Section 2.3.

2.1. MACROECONOMIC POLICIES AND THE BUSINESS CYCLE

Chapter 1 points to two overarching principles in the choice of a sound mix. The first is that the combined fiscal-monetary stance should contribute to macroeconomic stability, which requires keeping aggregate demand as close to aggregate supply as possible around an adequately low rate of inflation. The second is that it should preserve enough policy space on both sides to address a broad range of shocks, including tail events. For fiscal policy, this means (i) avoiding public debt overhang, and (ii) rebuilding buffers when circumstances allow, for instance by not spending revenue windfalls or by actively reducing excessive deficits in good times. For monetary policy, this requires keeping inflation expectations firmly anchored around an explicit target by moving interest rates around the average equilibrium interest rate (above to cool the economy and below to stimulate it). The tricky part of that exercise, however, is that this equilibrium rate, commonly dubbed R*, is itself uncertain, time-varying and shaped by factors that largely escape monetary policy (see Chapter 4).

The previous chapter also makes clear that focusing our empirical assessment of the mix on its stabilising properties does not imply any denial of the relevance of other considerations. First, we are well aware of other desirable economic policy objectives aside from macroeconomic stability, including the promotion of economic efficiency and the mitigation of income inequality. We realise that these objectives might occasionally conflict with each other, but we see no reason for such conflicts to systematically suppress the stabilising role of the M-F mix.

Second, we also appreciate that not all shocks stem from real expenditure (demand). Capital flows, credit growth, asset prices and consumer prices may not always move in synch with GDP, especially given the flattening of the Phillips curve and the globalisation of credit cycles. In advanced economies, though, demand shocks are generally considered to be dominant in explaining unexpected variations in activity (see Cover et al., 2006, for the case of the United States from 1954 to 2001, for example). Hence, stabilising GDP (or the output gap) in general is consistent with stabilising consumer price inflation – the 'divine coincidence' (Blanchard and Galí, 2007). Thus, although we acknowledge the need for a variety of monetary and fiscal policy responses depending on circumstances, we focus on demand shocks. For our empirical characterisation of the policy mix, we implement the taxonomy introduced in Chapter 1 (see Box 1).

BOX 1 THE TAXONOMY OF MACROECONOMIC POLICIES

A policy stance that offsets shocks to economic growth and employment is *countercyclical*. The absence of any systematic response to shocks describes an *acyclical* or *neutral* policy, whereas a response that amplifies the effect of the shock on output is considered *procyclical*.

Fiscal and monetary policy may also tend to react to each other. They are *strategic complements* when loosening (tightening) one of the two makes it *more likely* that the other one also loosens (tightens). For instance, fiscal policy may be more expansionary when interest rates are lower because policymakers want to use the induced fiscal space. Conversely, fiscal and monetary policies are *strategic substitutes* when loosening (tightening) one of the two makes it *more likely* that the other one tightens (loosens). For instance, fiscal austerity may encourage monetary policy to loosen in order to reach its price stability objective.

In this chapter, we do not explore the interactions between fiscal and monetary policies, but rather study whether they happen to be countercyclical, procyclical or neutral in tandem or not. When both happen to be countercyclical, whether this is the result of independent decisions or of explicit coordination, we label the policy mix as *congruent*. Conversely, if both instruments happen to be procyclical, we call it *destabilising*. If one is countercyclical while the other is procyclical, we consider the policy mix to be *divergent*. Finally, we consider the policy mix to be *neutral* if monetary or fiscal policy (or both) is neutral.

When aggregate fluctuations mainly originate in aggregate demand, a congruent policy mix delivers the goods in terms of simultaneously stabilising output, employment and inflation. In Chapter 1, we also emphasised Okun's view that the great virtue of congruence is to preserve policy space on both sides of the mix. In a recession, easy monetary policy boosts the effectiveness of a given fiscal stimulus (no crowding-out) *and* reduces the costs of government funding. A countercyclical fiscal policy in turn reduces the need to push interest rates far below R* in a downturn, reducing the risk of hitting the effective lower bound on nominal interest rates; and to the extent that a stabilising fiscal stance brings about meaningful long-term growth dividends (Fatás and Mihov, 2003; IMF, 2015), fiscal

countercyclicality can also raise R*. Thus, taking advantage of booms to rebuild fiscal buffers and reduce public debt brings about significant benefits in the short term as well as in the longer term.

With shocks other than demand shocks, congruence may not be desirable. Chapter 1 flagged the cases of aggregate supply disturbances or sudden changes in foreign capital flows. Hence, in the data, the relative frequency of congruence may reflect the specific constellation of shocks hitting a given economy at a given point in time as much as policymakers' revealed preference for using fiscal policy in a stabilising fashion or not. However, if demand shocks are indeed dominant, as the literature suggests for advanced economies, infrequent congruence could signal issues with policy design and implementation.

2.2. CONGRUENCE IS RARE

Turning to the empirical analysis, this section suggests that congruence is relatively rare despite the likely prevalence of demand disturbances as drivers of the business cycle. Admittedly, there may be some bias in the sense that we use 'ex-post' data, that is, data that benefitted from several rounds of revision and which therefore contain information unavailable at the time decisionmakers formulated their policies. Hence, the policy mix may be non-congruent ex post despite being so ex ante (at the time of decision).

2.2.1 Measuring pro- and countercyclicality

Our metric for the fiscal stance is the government budget balance excluding (i) the estimated effect of the business cycle on the budget (i.e., the automatic stabilisers), (ii) interest expenditure (which reflects past policies), and (iii) one-off revenues or expenses (i.e. noise covering systematic patterns of fiscal behaviour). Although automatic stabilisers are clearly part of stabilisation policies, it is common practice to focus on policy changes resulting from a decision by policymakers as these translate actual patterns of behaviour. Hence, international and European institutions usually measure the fiscal stance through variations in the cyclically adjusted primary balance or in the underlying primary balance (e.g., European Fiscal Board, 2020).[14]

In our sample of 22 OECD countries[15] over 1986-2019, we define a fiscal policy as countercyclical if the year-on-year change in the underlying primary balance has the same sign as the change in the output gap (for example, it rises when actual GDP growth exceeds potential growth). Fiscal policy is said to be procyclical when the underlying

14 We also follow the literature in excluding the interest bill which depends on past policies. In exceptional circumstances as the Covid crisis, some one-off measures may also actively contribute to fiscal stabilization. They are left aside here since our sample ends in 2019.

15 Our sample includes Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany (after 1990), Greece (after 1994), Iceland, Ireland (after 1989), Italy, Japan, the Netherlands, New Zealand (after 1988), Norway, Portugal, Spain, Sweden, Switzerland, the United Kingdom and the United States. The exact time span may vary further across countries depending on data availability.

primary balance moves in the opposite direction with respect to the output gap (for example, a lower surplus or higher deficit while GDP increases with respect to potential GDP). When the variation of the output gap or of the underlying primary balance is small, we consider fiscal policy to be acyclical or neutral (see Box 2).[16] Our analysis is meant to remain descriptive and based on 'ex-post' data (as opposed to 'real-time' measures capturing estimated or expected values at the time when the decision is made). Hence, we do not try to unveil causality, but simply to document meaningful correlations.

BOX 2 **DEFINING PRO- AND COUNTERCYCLICAL POLICIES**

For each country, we first calculate absolute yearly changes in the output gap, the underlying primary fiscal balance and the short-term nominal interest rate, and calculate the first decile of the distribution of these different variables over 1986-2019. Then, we calculate the simple average of these first deciles over the 22 OECD countries (see data sources in Appendix A). We find that the lowest yearly variations (first decile) are:

- less than 0.24% of potential output for the output gap;
- less than 0.15% of potential output for the underlying primary balance;
- less than 7 basis points for the short-term nominal interest rate.

Alternatively, we could calculate the deciles on the pooled series. This would amount to attributing a lower weight to countries with some missing data (mainly Eastern European countries). We tentatively choose the following thresholds:

- 0.2 percentage points for the absolute change in the output gap;
- 0.1 percentage points for the absolute change in the underlying primary balance and for the interest rate.

When variations are smaller (in absolute values) than these thresholds, we consider the policy to be acyclical/neutral.

As regards monetary policy, we define it as countercyclical when the short-term nominal interest rate and the output gap move in the same direction (for example, the interest rate increases when GDP grows faster than potential GDP), and as procyclical if they move in opposite directions. We could have used real rather than nominal interest rates. However, as we are trying to understand policy behaviour, we opted for a variable that is as much as possible under the central bank's control. As for fiscal policy, we define a neutral band for events where either the output gap or the interest rate displays limited variations (Box 2).

16 Estimating the output gap is extremely difficult and highly controversial. However, we rely on the variation of the output gap rather than on its level. To the extent that potential growth is relatively stable, our measure of pro- and counter-cyclicality is not vulnerable to mismeasurements of potential output. As a matter of facts, the correlation between output-gap changes and GDP growth exceeds 90% in 15 out of the 22 countries of our sample, and it is never lower than 74% (in Norway).

We focus on the three-month nominal interest rate rather than on the main policy rate in order to capture the impact of central banks' communication on the shorter end of the yield curve. An obvious limitation is that we miss unconventional policy measures, including asset purchase programmes and forward guidance. We come back to this point at the end of the chapter. The data for output gaps, underlying primary balances and short-term interest rates are extracted from the November 2019 OECD Economic Outlook database. Hence, year 2019 is still a forecast, while 2018 is not final.

2.2.2 M more countercyclical than F

Figure 3A shows the share of countries exhibiting countercyclical fiscal and monetary policies during 1986-2019. There is considerable variation over time. We observe synchronised peaks for both instruments during the 2009 crisis, when most countries in the sample opted for a congruent, expansionary policy mix. The percentage of countries pursuing countercyclical policies collapses as early as in 2010 only to recover briefly for monetary policy over 2011-13, just before collapsing again. These stylised facts capture the premature policy tightening prior to the euro area sovereign debt crisis and, after 2014, when the effective lower bound constraint on interest rates became binding.

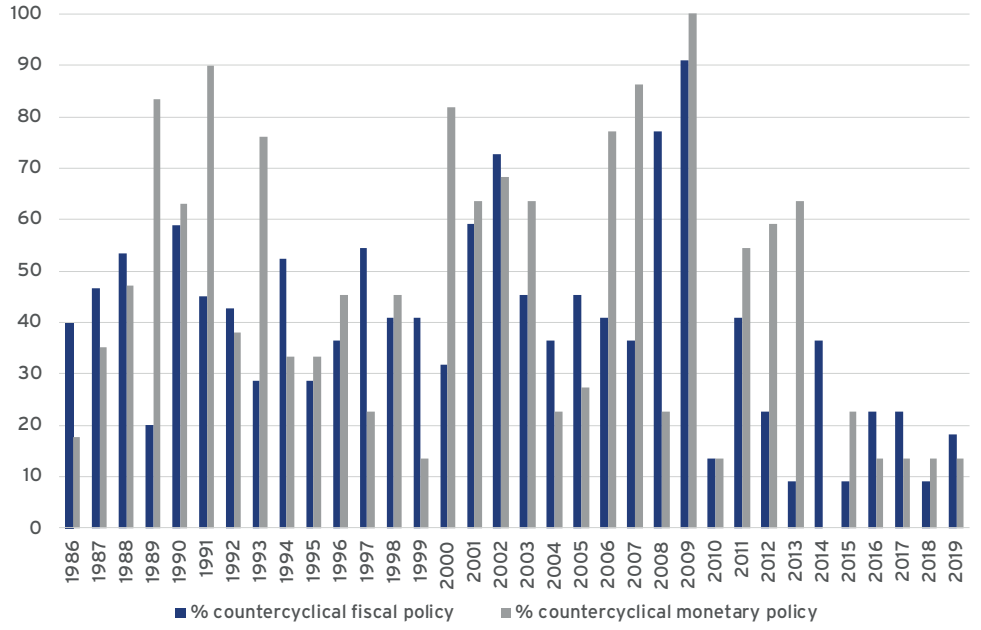
On average, monetary policy is more frequently countercyclical than fiscal policy. This is hardly surprising since central banks' mandate is primarily to keep inflation in check, which often coincides with closing the output gap. By contrast, the fiscal stance reflects policy actions aimed at other objectives, including economic efficiency and redistribution, and is subject to politically driven shifts in priorities among these objectives. Central banks' focus on low and stable inflation also explains why monetary policies are overwhelmingly countercyclical in good times, when inflationary pressures are most likely to materialise (e.g., the years 2000 and 2006-2007). It is interesting to note that during the run-up to the European monetary union (1994-98), there is noticeably little countercyclicality for fiscal and monetary policies in our sample as many countries scramble to meet Maastricht's nominal and fiscal convergence criteria.

Almost symmetrically, Figure 3B shows the share of countries with procyclical policies over time. The percentage is close to zero in 2009 but jumps to 70% during the premature exit from easing in 2010 and stays at high levels for fiscal policy thereafter, as European countries experience market pressures or seek to comply with the requirements of the Stability and Growth Pact despite sub-par growth. Looking backward, another peak in fiscal pro-cyclicality is visible at the top of the business cycle in 2000. Monetary pro-cyclicality peaked in 1999, likely reflecting the fall of non-German interest rates at a time of strong growth in relation to monetary union. Overall, the percentage of procyclical policies is often higher than 40%, especially for fiscal policy.[17]

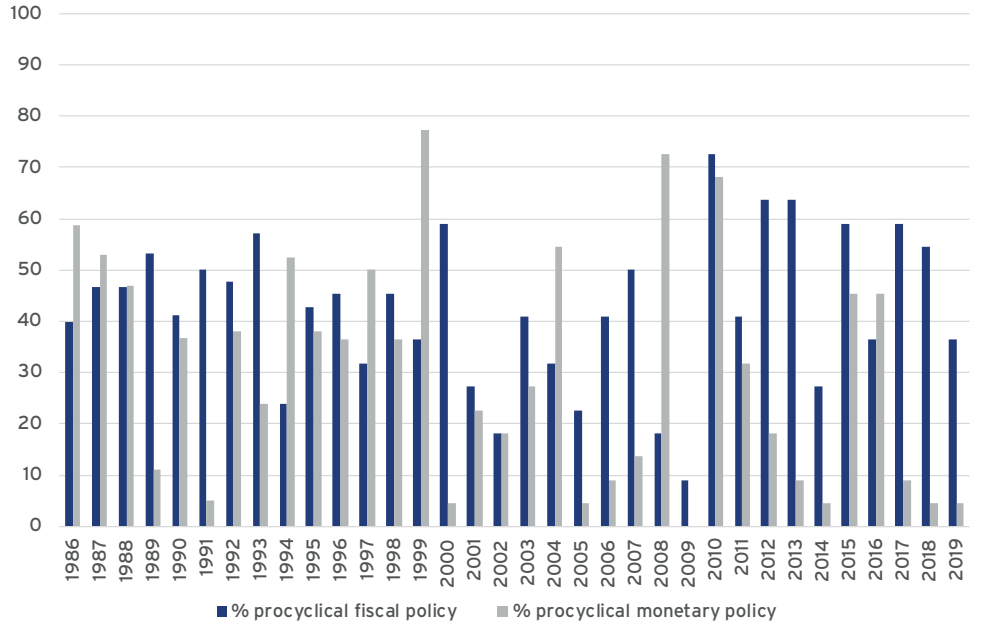
17 Interestingly, the percentage of procyclical policies is not systemically higher in the late 1980s and early 1990s, when inflation rates were still relatively high. Figure B1 in Appendix B shows that there is no large difference in terms of policy cyclicality at the country level between 1986-2019 and 1994-2019, except for Japan where countercyclical monetary policy evaporates when nominal interest rates converge to zero.

FIGURE 3 **CYCLICALITY OF MACROECONOMIC POLICIES OVER TIME, OECD-22, 1986-2019**

A) SHARE OF COUNTERCYCLICAL COUNTRIES (%)



B) SHARE OF PROCYCLICAL COUNTRIES (%)



Source: Authors, based on November 2019 OECD Economic Outlook.

2.2.3 Cyclicality varies across countries

Strikingly, most countries exhibit countercyclical macroeconomic policies less than half of the time between 1986 and 2019 (Figure 4A). Only the United States seems to conduct monetary and fiscal policies that are countercyclical more than half of the time (although not necessarily in synch). The United Kingdom, Denmark and Norway have countercyclical fiscal policies more often than not, while monetary policy is mostly countercyclical in Switzerland, Iceland and Austria. Interestingly, only the latter is a member of the euro area.

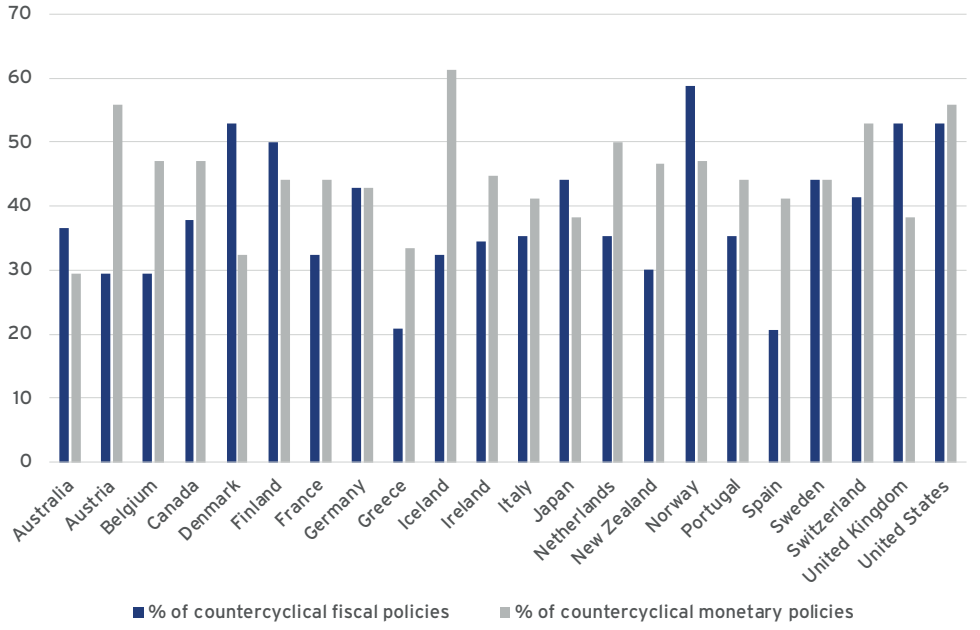
Looking at the percentage of procyclical years over the same period for each country (Figure 4B), the United States, the United Kingdom, Sweden and Switzerland, but also Germany and France, seem less prone to procyclical policies than the other countries. Procyclical fiscal policies are frequent in the periphery of the euro area and Iceland but also, perhaps more surprisingly, in the Netherlands and New Zealand despite fiscal frameworks centred on expenditure ceilings in both countries. Monetary policy, although less frequently procyclical than fiscal policy, is still destabilising 40% of the time in Australia, Denmark, Italy, Norway and Portugal, a group that covers a great variety of monetary regimes.

It could be argued that large countries have more leeway to conduct countercyclical policies, due to higher fiscal multipliers and to more de facto monetary independence (regardless of the exchange rate regime). Hence, they should be less prone to procyclicality. Figure 5 shows that this is not systematically the case. For instance, during the 1990s, there is often more procyclicality in the seven large economies of our sample than in the smaller countries. During the 2010s, small countries tend to exhibit more procyclicality, but this may have to do with the crisis in peripheral countries of the euro area.

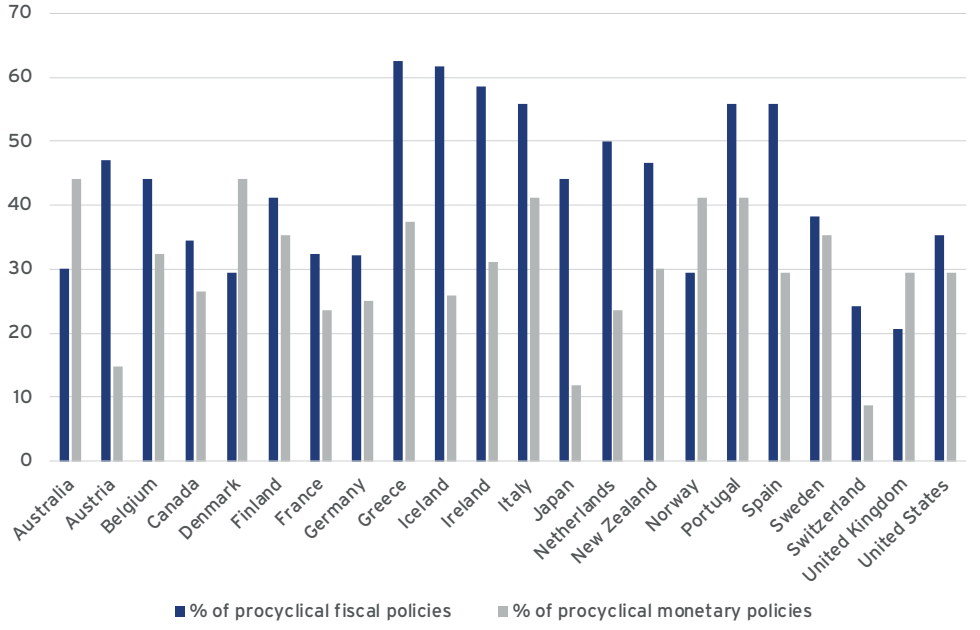
In fact, when splitting the sample into euro area and non-euro area countries (Figure 6), the procyclicality of fiscal policy stands out in the 1990s (in the run-up of monetary unification) and again in the 2010s (during the euro area crisis). In contrast, monetary policy is generally not procyclical other than in some specific years: 1999, 2004, 2008, 2010, 2015-2016. The latter period corresponds to an improving economy but still weak inflation rate in the euro area.

FIGURE 4 **CYCLICALITY OF MACROECONOMIC POLICIES ACROSS COUNTRIES, OECD-22, 1986-2019**

A) SHARE OF COUNTERCYCLICAL YEARS (%)



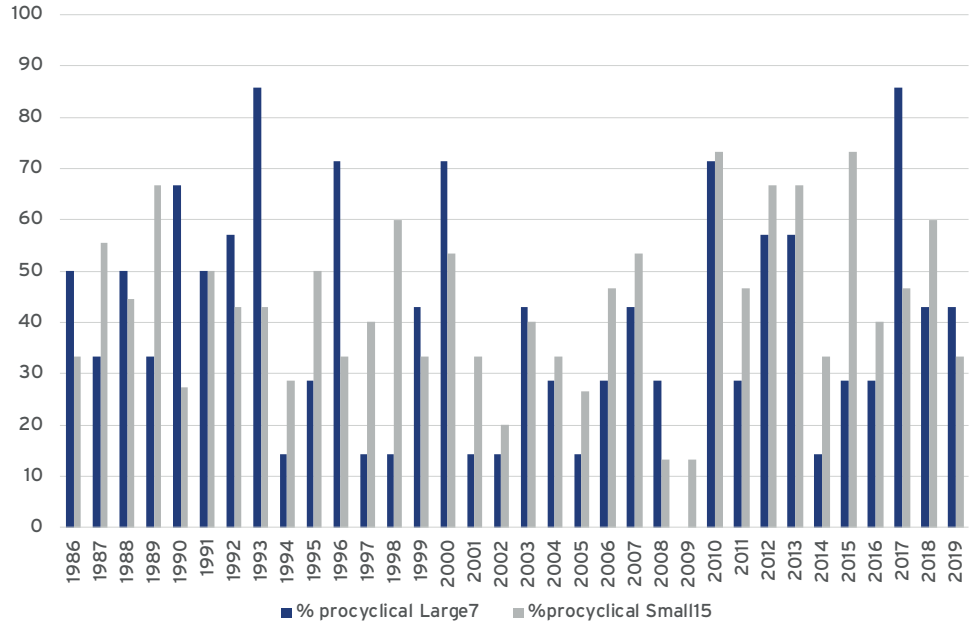
B) SHARE OF PROCYCLICAL YEARS (%)



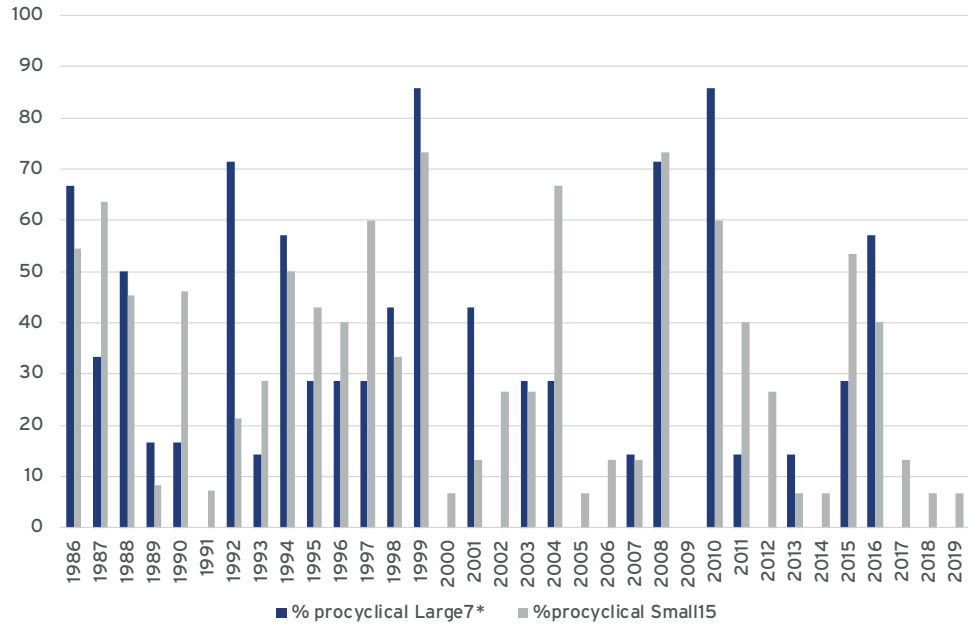
Source: Authors, based on November 2019 OECD Economic Outlook.

FIGURE 5 **PROCYCLICAL POLICIES: LARGE VS SMALL COUNTRIES**

A) SHARE OF COUNTRIES WITH PROCYCLICAL FISCAL POLICY (%)



B) SHARE OF COUNTRIES WITH PROCYCLICAL MONETARY POLICY (%)

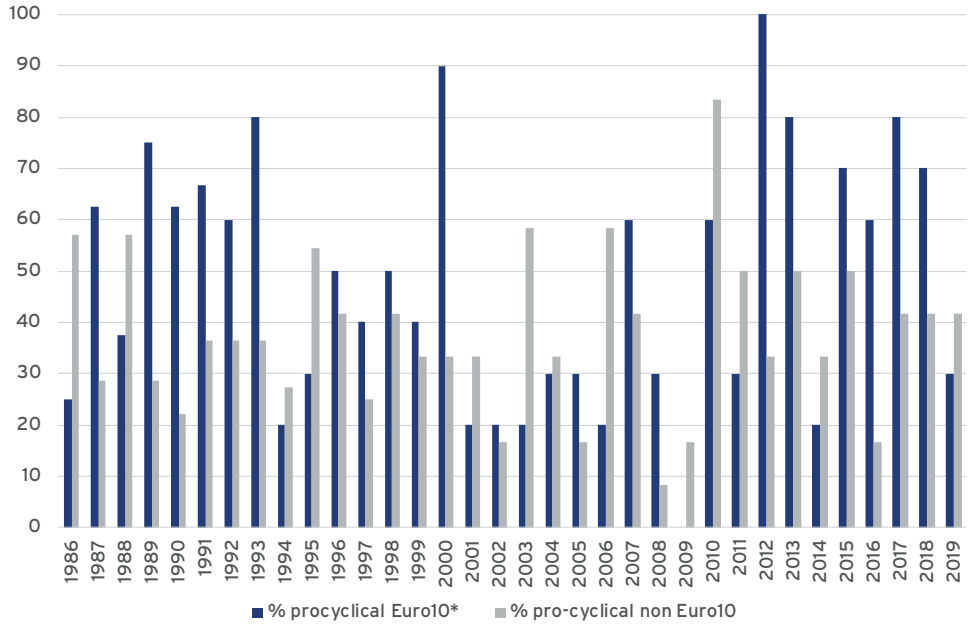


Note: * Large7 group includes the United States, the United Kingdom, Japan, Germany, France, Italy and Spain. Small15 group includes the other countries.

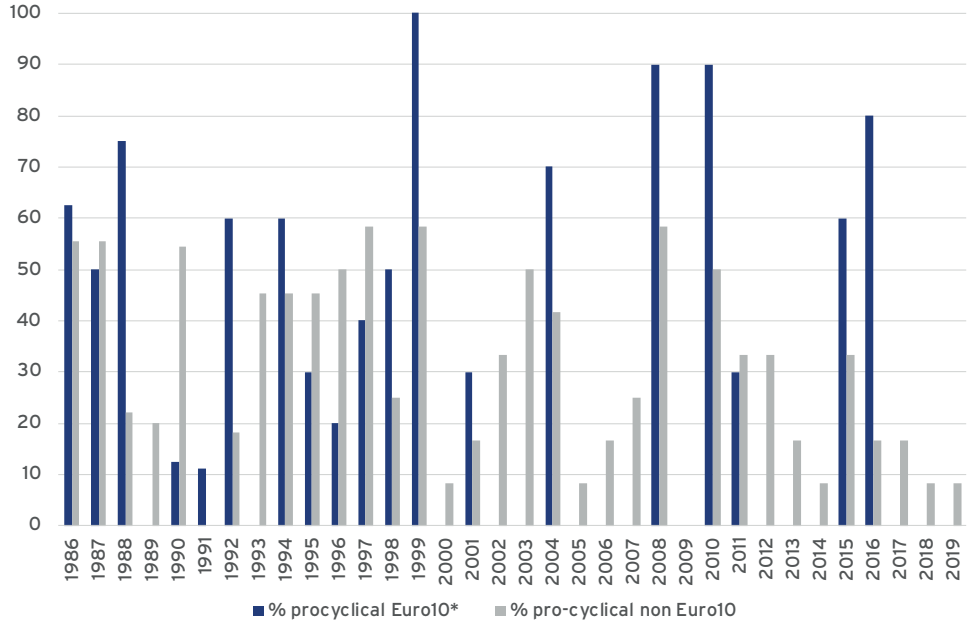
Source: Authors, based on November 2019 OECD Economic Outlook.

FIGURE 6 **PROCYCLICAL POLICIES: EURO AREA* VS NON-EURO AREA**

A) SHARE OF COUNTRIES WITH PROCYCLICAL FISCAL POLICY (%)



B) SHARE OF COUNTRIES WITH PROCYCLICAL MONETARY POLICY (%)



Note: * Members of the euro area as of 1 Jan 1999, except Luxembourg.

Source: Authors, based on November 2019 OECD Economic Outlook.

2.2.4 Congruence is not frequent

We now turn to the congruence of the policy mix. Contrary to expectations, but in line with the evidence for individual instruments, a congruent policy mix appears to be the exception rather than the rule. Except for during the 2009 Global Financial Crisis and the 2002 slowdown, only a minority of countries exhibited a congruent policy mix (Figure 7A). This suggests that extreme demand shocks (2009) and ample policy space (2002) are conducive to congruence. Overall, congruence is rarely sustained over time. It is worth noting that the relatively widespread congruence during 2001-2003 reflects in part the possibility for many euro area members to use the fiscal space created during the run-up to EMU. This incidentally led to the suspension of European fiscal rules between 2003 and 2005. By contrast, a destabilising policy mix is a remarkably frequent occurrence that can hardly be ascribed to bad luck alone. The run-up to EMU (1992-1999), characterised by strict nominal and fiscal convergence criteria, arguably left its mark in terms of a destabilising policy mix in many candidates for euro accession. Policy mistakes also stand out, such as the premature fiscal and monetary tightening of 2010 in the euro area. From 2012 onwards, congruence essentially disappears as more countries hit the lower bound of their conventional monetary policy tools.

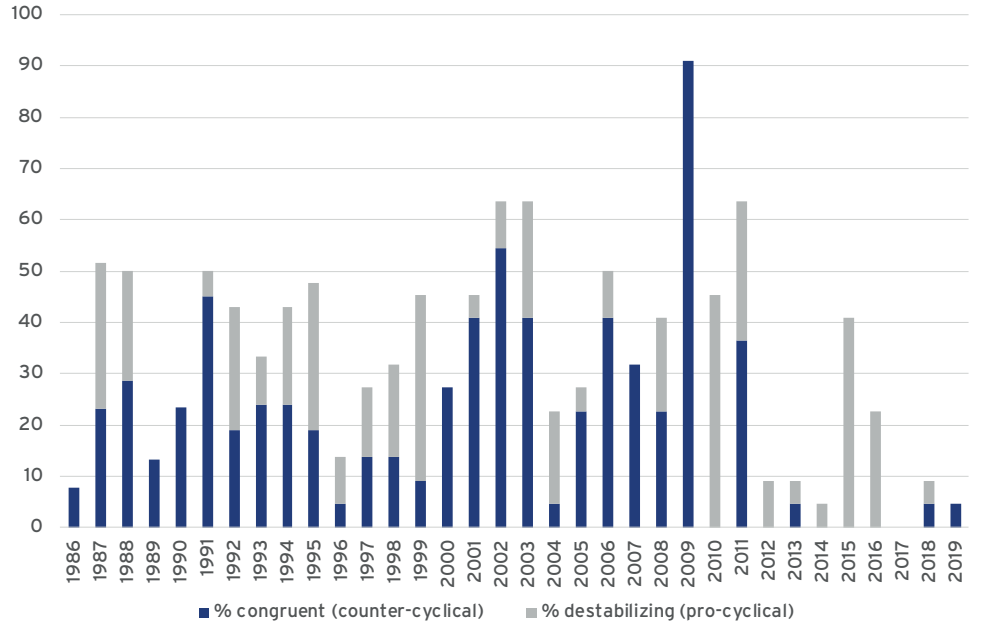
Looking at the evidence across countries (Figure 7B) confirms that congruence is a relatively rare event for most countries (well below half). It is slightly more frequent in Switzerland, the United Kingdom, the United States, Norway, Finland, Germany; and less so in the periphery of the euro area. The policy mix is even more frequently destabilising than congruent in Australia, Belgium, Greece, Italy, New Zealand, Portugal and Spain.

A legitimate question, in light of the high frequency of congruent policy mixes in 2009, is whether tail events are more conducive to congruence than normal cyclical fluctuations. Figure B2 in Appendix B replicates the analysis in terms of percentage of 'very bad times' (defined as years when actual output is more than 2% below potential). Once again, congruence remains the exception, with only Canada, Germany, Japan, Norway, Switzerland and the United Kingdom having been able to deliver a congruent mix during close to half of those very bad years. Some countries, such as Iceland, Italy, the Netherlands, Portugal, and Spain, ended up with destabilising policy mixes in at least a fifth of those crisis years.

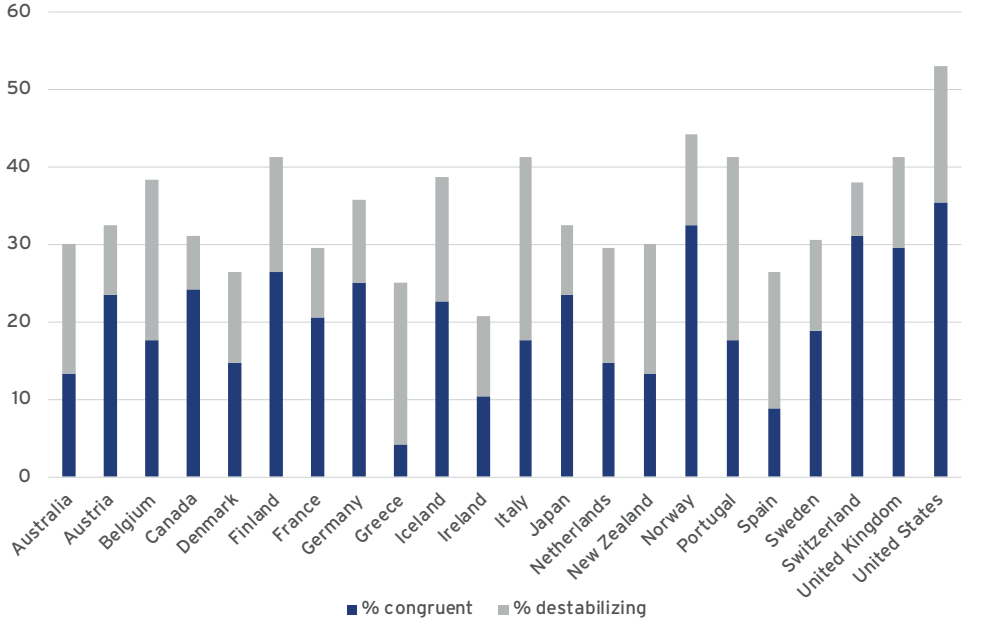
Equally interesting is the failure of most countries to take advantage of very good years (defined as actual output at least 2% above potential) to deploy a restrictive policy mix and rebuild monetary and fiscal policy space. Figure B3 shows that Finland, Germany, Portugal and Spain enacted destabilising (expansionary) policy mixes in at least a third of those episodes. Only Italy, Japan, the Netherlands and Norway managed to rebuild monetary and fiscal space during about half of those years.

FIGURE 7 **CONGRUENT VS DESTABILISING POLICY MIXES, OECD-22, 1986-2019**

A) SHARE OF CONGRUENT AND OF DESTABILISING COUNTRIES (%)



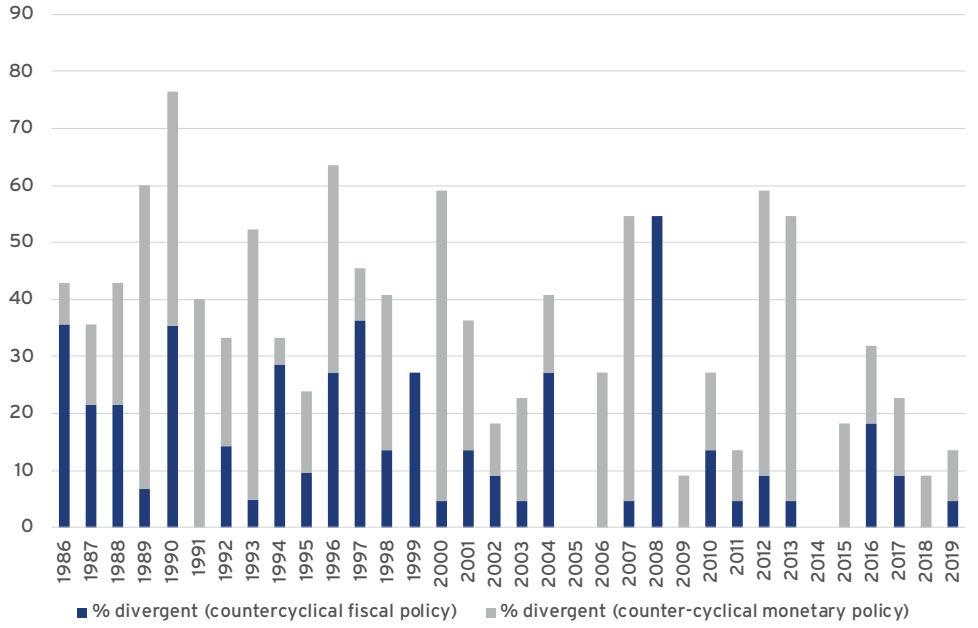
B) SHARE OF CONGRUENT AND OF DESTABILISING YEARS (%)



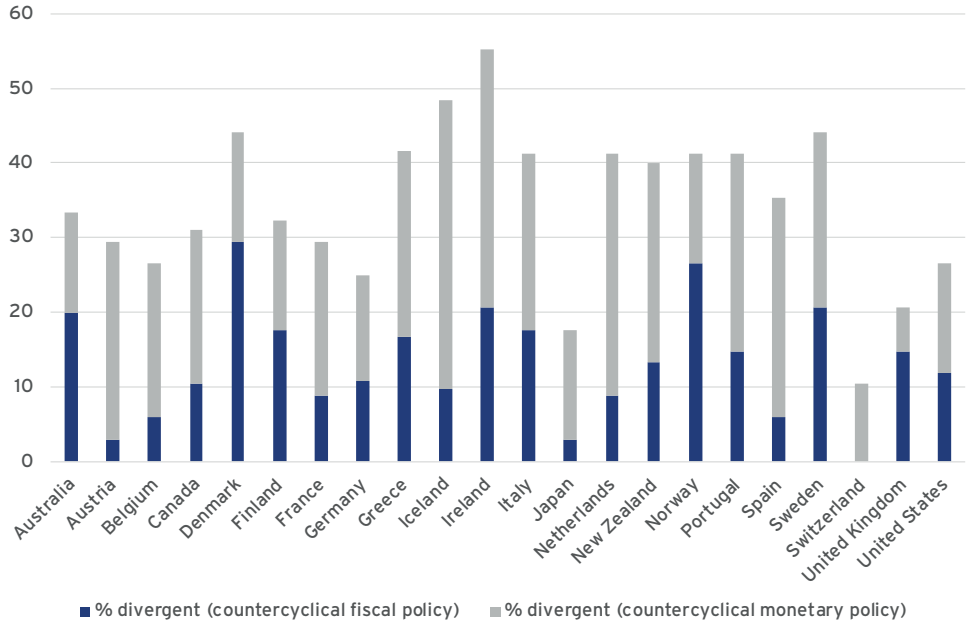
Source: Authors, based on November 2019 OECD Economic Outlook.

FIGURE 8 **DIVERGENT POLICY MIXES, OECD-22, 1986-2019**

A) SHARE OF COUNTRIES WITH A DIVERGENT POLICY MIX (%)



B) SHARE OF YEARS WITH A DIVERGENT POLICY MIX (%)



Source: Authors, based on November 2019 OECD Economic Outlook.

2.2.5 Divergence is frequent

When it is neither congruent nor destabilising, the policy mix may be either neutral or divergent. Figure 8A shows that the latter outcome in fact is the most frequent in several years, including 2000, 2007-2008 and 2012-2013.[18] Once again, the lack of congruence does not necessarily imply that first-order policy mistakes are made. For instance, countries facing imperfect policy credibility may be subject to procyclical capital flows under fixed or managed exchange rate regimes, forcing them into divergent monetary and fiscal paths during such events. Here, though, divergence is more often due to procyclical fiscal policy and countercyclical monetary policy than the other way around. Furthermore, some countries with flexible currencies, such as New Zealand and Norway, exhibit a high share of divergent policy mixes (Figure 8B). In the case of Norway, procyclicality even comes from monetary policy. In contrast, Switzerland, Japan and the United Kingdom exhibit the lowest rates of policy divergence. In fact, there is no evident relationship between full monetary (and fiscal) sovereignty and policy divergence, as euro area countries do not exhibit systematically higher shares of divergent mixes. In fact, Germany has a lower divergence rate than the United States, and Belgium fares better than Canada on that same metric. Furthermore, and perhaps surprisingly in light of standard arguments stemming from the optimum currency area literature, divergence is more often due to procyclical fiscal policy than to a destabilising monetary stance.

2.3 UNDERSTANDING PROCYCLICALITY

The stylised facts discussed above speak loudly. A congruent policy mix comes across as a relatively rare occurrence in a world where business cycles are usually thought to be shaped by aggregate demand fluctuations. Unless non-demand shocks and policy delays are more frequent than we think, the existence of an unhealthy penchant among policymakers for procyclical policies, particularly on the fiscal side of things, is a distinct possibility. Indeed, the procyclicality of fiscal policy – especially in good times – has been extensively documented, and related to political agency problems.[19] On the monetary side, the combination of imperfect credibility and procyclical capital flows arguably complicates the central bankers' task of enacting countercyclical policies. The frequency of procyclical monetary impulses nevertheless remains relatively high and quite steady over time, despite the spread of fiercely independent central banks.

18 By contrast, none of the 22 countries studied here experienced policy divergence in 2005 and 2014, and only a few countries did so in 2009 (all with a combination of countercyclical monetary policy and procyclical fiscal policy).

19 See Tornell and Lane (1998), Balassone and Francese (2003), Lane (2003), Talvi and Vegh (2005), Alesina et al. (2008), Debrun et al. (2008b), and Wyplosz (2012) among many others. Panizza and Jaimovich (2011) suggest that procyclicality may be more apparent than real due to the failure of many empirical studies to properly identify a truly causal relation. A related argument is that procyclicality does not seem to exist when using real-time fiscal data (instead of revised, ex-post data), indicating that policymakers may not intend to destabilise the economy when preparing budget plans (e.g., Forni and Momigliano, 2004; Cimadomo, 2008). However, many countries allow frequent revisions to budget plans during the fiscal year, which in theory allows governments to account for new shocks.

In this section, we further exploit our dataset to unveil robust conditional correlations between the occurrence of procyclical policies and some potential determinants of such policy behaviour. More specifically, we estimate the probability of the policy to be procyclical depending on:

- the economic situation (output gap level or GDP growth, inflation);
- financial stress (debt-to-GDP ratio, long-term interest rate, VIX);
- the monetary and fiscal regime (exchange rate regime, zero lower bound).

The analysis is reminiscent of Larch et al. (2020), although their sample is broader as it covers 36 countries over 1967-2017. That said, they consider a number of smaller Eastern European countries for which no data are available prior to 1995. Our sample has the advantage of greater homogeneity and less risk of a structural break over time due to changes in policy regimes. Box 3 provides key technical details on our approach. Data sources are reported in Appendix A. The estimation results are detailed in Appendix C and summarised in Table 1.

The first column of Table 1 shows that the probability of a procyclical fiscal policy is higher when growth is above potential (i.e., when the output gap increases),[20] when the debt-to-GDP ratio is higher and when the exchange rate regime is less flexible. This suggests that procyclicality is likely related to both stricter constraints on fiscal discretion (less fiscal space and external commitments often acting as an agency of restraint on fiscal policy) and to occasional opportunities to escape such constraints (i.e., in good times, when certain fiscal policy rules are also easier to comply with). The level of long-term sovereign yields has no significant impact, even when taking into account the inflation rate or when the zero lower bound on interest rate binds. Inflation and the zero lower bound constraint also have an insignificant effect on the probability of a procyclical fiscal policy.

20 The table reports the results obtained with changes in the output gap. We get similar results with GDP growth rates.

TABLE 1 **THE DETERMINANTS OF PROCYCLICAL POLICIES: LOGIT ESTIMATION RESULTS**

	Procyclical fiscal policy	Procyclical monetary policy
Output gap variation	+(0)[a]	+
Government debt/GDP	+(0)[b]	0
Long-term interest rates	0	+
Flexible exchange rate	-	0
VIX	-	+
Lagged VIX	+	0
Output gap variation OECD	+	0
Financial assistance	+	0
Inflation	0	0
Zero lower bound	0	+

Notes: [a] Coefficient becomes insignificant when the VIX or OECD output-gap variation is introduced. [b] Coefficient becomes insignificant when dummy for financial assistance programme is introduced.

Source: Estimation results reported in Appendix C.

A higher contemporaneous VIX is associated with a lower probability of fiscal procyclicality, whereas its lagged value coincides with greater odds of procyclicality. This suggests that episodes of financial stress may encourage fiscal policymakers to focus on macroeconomic stabilisation, but only temporarily so. Interestingly, introducing the VIX reduces the statistical significance – i.e., the degree of precision of the estimated effect – of the output gap variation on the probability of a procyclical fiscal policy. However, the variation of the output gap of the OECD has a positive and significant impact on the probability of a procyclical fiscal policy. Overall, the estimated impact of the VIX and of the OECD output gap suggest that fiscal policies are more procyclical when the world economy is booming along with a benign perception of financial volatility.

There is evidence that emergency assistance programmes during the euro area crisis are associated with more procyclical fiscal policies, while in this case the impact of government debt is no longer significant. The procyclicality related to debt thus seems to reflect in part the existence of funding stress severe enough to require official assistance. This is consistent with the above interpretation of the debt level as a signal of limitations on fiscal space.

BOX 3 **FROM REACTION FUNCTIONS TO LOGIT MODELS**

There is a vast empirical literature on 'reaction functions' linking a measure of the policy stance to the output gap and other potential determinants capturing policymakers' incentives and constraints.[21] In the case of fiscal policy, the fiscal stance – i.e. the level of, or variation in, the underlying (primary) balance – is explained by the output gap and a varied set of control variables, including the lagged debt ratio, as suggested by Bohn (1998).[22] In the case of monetary policy, the empirical model links the short-term interest rate to the output gap and the inflation rate in a way reminiscent of Taylor (1993). These models are generally dynamic to account for the likely persistence in policy instruments, and estimation techniques account for the fact that policy itself affects the output gap (reverse causality).

The reaction function approach can be described by equation (1):

$$z_t = a + bx_t + cX_t + \varepsilon_t \quad (1)$$

where z_t is the policy variable (fiscal stance or short-term interest rate), x_t is the output gap, X_t is a vector of controls, and ε_t is the residual. This equation can be estimated separately for each country or in panel, and the lagged value of z_t may be added on the right hand-side of the equation (e.g., European Commission, 2018b). The policy is considered counter-cyclical if $\hat{b} > 0$.

The problem with this approach is that $\hat{b}$ is the same whatever the condition of the economy in terms of debt, inflation, unemployment, and so on. In order to study the determinants of pro- or countercyclical policies, the output gap needs to be interacted with other variables, which comes at the cost of many degrees of freedom, statistical issues when handling reverse causality, and tricky interpretations.

Similarly to Larch et al. (2020), we seek to circumvent those issues by trying to explain the probability of occurrence of a procyclical policy. The variable to explain is therefore a 0-1 dummy representing whether the policy is countercyclical versus not procyclical, or procyclical versus not procyclical. We keep our definition of procyclical policies outlined in Section 2.1.[23] Thus, we estimate the probability of the policy stance being procyclical ($b_t < 0$) or countercyclical ($b_t > 0$), conditional on a set of plausible explanatory variables forming a vector X_t:

The probability of policy being procyclical is $P(Pro_t|X_t) = P(b_t < 0|X_t) = f\beta(X_t)$

where Pro_t is a binary variable for procyclicality and f symbolises the logistic function. The estimation is based on panel data. Individual fixed effects cannot be estimated in a logit model. Preliminary estimations showed similar results with random effects as with a pooled estimation. As we are interested in pro- or countercyclicality in general rather than in difference compared to other OECD countries, we opted for pooled estimations. The VIX captures some of the common developments simultaneously affecting all the countries in the sample. We also introduce the variation in the OECD output gap as a measure of the international business cycle.

21 These empirical models are not genuine reaction functions describing an optimal response of a given policy instrument to the objectives and constraints of the policymakers. They only aim at establishing broad patterns of policy behaviour.

22 Monetary and fiscal reaction functions are often estimated separately. An exception is Combes et al. (2018), who analyse them jointly showing complementarities between monetary and fiscal frameworks.

23 Compared to Larch et al. (2020), we have a slightly different definition of neutral bands. Additionally, Larch et al. only cover fiscal policy, whereas we also look at monetary policy. In contrast, they study the impact of fiscal rules, which we do not address.

The second column of Table 1 summarises the results for monetary policy. Again, the probability of a procyclical policy is positively associated with an economy growing above potential. Such apparent reluctance to actively cool the economy may in part reflect a 'risk management' approach to monetary policy. In a context of well-anchored inflation expectations and uncertain potential growth, policy inertia may be stronger in good times than in bad times as the costs of missing a good surprise probably exceed those of missing a bad one. This is especially relevant in an environment where R* seems firmly on a downward trend. That said, the appearance of monetary policy procyclicality could also reflect that the impact of a positive output gap on future inflation has diminished as the Phillip's curve relationship all but vanished in wake of the GFC, in particular for inflation-targeting central banks. The impact of the country's output gap variation on monetary procyclicality is mitigated by the positive effect of the VIX – when the economy is booming with limited perceived financial risk, monetary policy is not necessarily more procyclical compared to a crisis period. It is interesting to note here that the OECD output gap variation does not appear to play much of a role, suggesting that it is the country-specific business cycle that matters (on top of global financial volatility).

The debt ratio and the exchange rate regime do not appear to have any significant effect on the probability of a procyclical monetary policies. This result is hardly surprising for debt (as a measure of fiscal space) but more so for the exchange rate regime, although it is consistent with the stylised facts shown in Section 2.2. Conversely, higher long-term yields are typically associated with a higher probability of procyclical monetary policy. One possible interpretation of this result is the lower policy credibility generally associated with higher yields. Only credible central banks can actively cater for macroeconomic stability without fearing adverse market reactions. The inflation rate has no systematic association with monetary pro-cyclicality. However, a binding ZLB constraint is related to more frequent procyclicality (not just neutrality).

Altogether, Table 1 provides a general interpretation of the low frequency of a congruent policy mix found in Section 2.2, since fiscal and monetary policy basically react to different variables. Fiscal procyclicality appears together with high government debt (or financial assistance programmes), a less flexible exchange rate regime, a booming global economy and in the aftermath of financial instability (lagged VIX). Conversely, monetary procyclicality is more frequent at the zero lower bound or in the midst of financial turmoil (contemporaneous VIX, long-term interest rate). Only the change in the output gap appears to affect both probabilities simultaneously, although the estimated effect in the case of fiscal policy is not robust once the influence of the VIX or OECD output gap is taken into account.

In Appendix C, the analysis is replicated using a dummy variable for countercyclical policy (instead of procyclical policy) as the model's dependent variable. The results are consistent with those just presented. Fiscal policy is more likely to be countercyclical if the output gap or the debt ratio is lower, or if the exchange rate is more flexible. It is also more countercyclical when the VIX is higher. As for monetary policy, it is more countercyclical when the output gap is lower but becomes less so at the zero lower bound, with no significant effect of the VIX or long-term yields.

2.4 CONCLUSION

Based on observed monetary and discretionary fiscal policies in 22 OECD countries over the last three decades, we can conclude that the policy mix is most frequently divergent (i.e., with monetary and fiscal policies pulling in different directions), very often destabilising, and rarely congruent. Non-demand shocks alone cannot plausibly explain this situation. Fiscal policy is more frequently procyclical than monetary policy. While this could reflect a broader mandate and more complex trade-offs, a vast literature points to political agency problems as a key culprit.

A statistical exploration (simple logit estimations) of the potential determinants of procyclicality suggest that the lack of congruence may be due to both policies reacting to different variables. In particular, fiscal procyclicality seems to be related to high government debt (or financial assistance programmes), a less flexible exchange rate regime, when the global economy is booming or in the aftermath of financial instability. Conversely, monetary procyclicality is more frequent at the zero lower bound or during financial stress. The level of long-term interest rates does not seem to affect the odds of observing procyclical fiscal policies.

Overall, the lack of congruence in the policy mix appears to reflect political economy factors and agency problems that encourage procyclical fiscal measures, as well as imperfect policy credibility and limits on conventional monetary policy instruments. Fostering congruence thus points to the need for synchronised strategic reviews of both monetary and fiscal frameworks aimed at fostering credibility, flexibility and meaningful cooperation between monetary and fiscal policymakers.

CHAPTER 3

‘Tail risk’ challenges to the policy mix

In this chapter, we turn to an in-depth analysis of how the strategic complementarity between M and F policies should play out in a large tail-event recession, in order to result in a large effective stimulus. Our message can be articulated in two points. First, M and F policies should not only both be expansionary, which is obvious, but also managed with a full understanding that each creates policy space for the other – and creating policy space is absolutely necessary to provide a sufficiently large stimulus. This argument is much less obvious, and we will unpack how and why tail events systematically lead to macroeconomic and financial instability. Second, for a mix of extraordinary policies to be successful in the abnormal economic conditions of a tail event, current and future policies must remain credible. In particular, markets and households must trust policymakers to be able to restore conditions closer to normality once the economy has been sufficiently stabilised.

The difficult trade-off between flexibility and credibility in policymaking is especially challenging in a tail event. Specifically, one can envisage a variety of macroeconomic scenarios describing the future ‘exit’ from the exceptional policies that were intended to be maintained for a short period only. Some of these scenarios are quite pessimistic – for example, they foreshadow the end of monetary policy control over the price level, with the return of financial repression cum inflation and the possibility of debt crises or even debt restructuring. An equally worrying scenario is the alternative of a long period where economies would operate with persistent debt overhang, reducing investment and growth. All these adverse scenarios cannot but feed back into, and thus undermine, the effectiveness of policies in place in the short run.

In this chapter, we first reconsider what tail risk and tail event recessions are and what specific stabilisation issues they raise. Second, we go through the specific dimensions and instruments of fiscal and monetary policy that can give rise to *virtuous* complementarity and interdependence in the short run. Third, we focus on the recent euro area experience after the GFC to highlight the consequences of falling short of pursuing such virtuous complementarity. In the last part of the chapter, we will turn to the problem of ‘exit’ from the short-run exception policies. After analysing the potential damage from a ‘policy mix unravelling’ resulting from policy mismanagement, we devote a final, large section to a rich analysis of concrete historical examples whereas an exceptional policy, appropriately adopted in extreme circumstances, proved difficult to fold back after

these extreme circumstances subsided. We focus on episodes where the central banks in different countries adopted yield curve control (YCC). The main lesson is that the trade-off between flexibility and credibility may be substantially ameliorated by stating upfront, and clearly, the objectives of specific measures.

3.1 WHAT IS TAIL RISK?

After the Global Financial Crisis, advanced economies had to come to terms with their vulnerability to the kind of economic and financial instability usually confined to some chronically unstable emerging and developing economies. This uncomfortable truth raised questions about the resilience of the policy frameworks gradually developed during the post-World War II period and celebrated during the Great Moderation.

As in emerging and developing countries, the events that bring about instability are not necessarily low-probability, high-impact shocks, such as devastating earthquakes or deadly pandemics. They can also be (and usually are) the result of a vicious circle of negative feedback loops, which allow even a seemingly benign disturbance to quickly escalate into 'tail events'. Bernanke (2013, pp. 71-72) explains this when he recalls that ahead of the GFC,

> *"... if you took all the subprime mortgages in the United States and put them all together and assume they were all worthless, the total losses to the financial system will be about the size of one bad day at the stock market, they just weren't that big."*

Taken in isolation, a root disturbance of the size of a bad day in a given segment of financial markets would likely not be enough to instantly alarm policymakers and push them to act, even under the presumption of a central bank's 'put' in that market segment. Hence, when things unexpectedly get out of control, policymakers can be caught unprepared and unable to respond as quickly and effectively as possible with the right mix of instruments.

Whatever their root causes, the endogenous vicious circles that define tail risk are mostly financial. Primary examples include the illiquidity of financial intermediaries triggering a solvency crisis, as well as the much-dreaded sovereign-bank doom loop experienced in the euro area. But similar disruptive dynamics link income and spending. Adverse expectations and greater uncertainty about incomes and profits in a large downturn can raise precautionary saving and encourage firms to postpone or cancel investment plans. The resulting fall in aggregate demand further depresses income and profits and raises uncertainty, creating an economic doom loop very similar to financial doom loop (e.g., Den Haan et al., 2018; Rendahl, 2016). As with financial crises, market expectations play a key role in pushing the economy in the bad deflationary trap (Benigno and Fornaro, 2018).

In the end, a tail event is such because it exceeds the reach of the standard policy mix that normally ensures macroeconomic stability. To fight a tail event successfully, policymakers have no alternative but to massively deploy all instruments at their disposal well beyond historical norms. In the taxonomy of Chapter 2, tail events require a congruent mix of exceptionally supportive policies. But these policies can be successful only to the extent that, in the process, policymakers manage to preserve the effectiveness of their instruments and the credibility of their policies.

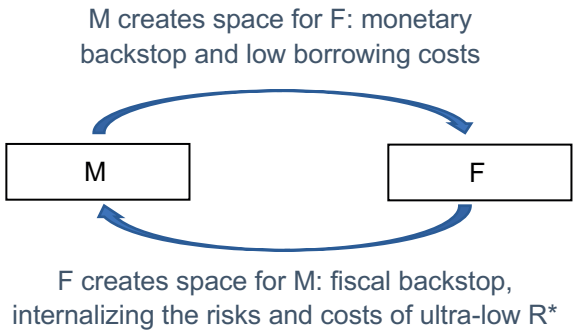
3.2 COMPLEMENTARITY OF POLICIES AND INTERDEPENDENCE OF MONETARY AND FISCAL AUTHORITIES

At the time of writing, and against all standard policy predictions, monetary authorities have so far largely escaped the curse of the zero lower bound. They remained focused on their core mandate, effectively preserving independence from the treasury. Recurrent talks of ongoing debt monetisation stem from confusion in the face of observational equivalence between the highly congruent and accommodative mix one should observe in response to a tail event, and the uncontrolled monetary financing of fiscal deficits. In other words, there is confusion between strong congruence as the natural outcome of extreme circumstances and a change in the central banks' remit – an event that simply did not take place. This confusion underscores the importance of clarifying the interdependence of monetary and fiscal authorities that the crisis cast in an entirely new light.

A key message from this chapter is that an appropriate mix of expansionary monetary and fiscal policies jointly creates space for each other. Such complementarity proves critical in shaping the right response to tail events. Under stress, the central bank creates fiscal space by substantially lowering treasury's borrowing costs – as a by-product of its forward guidance and measures to influence risk-free rates farther into the term structure – and by effectively providing a monetary backstop to government debt – with the implication, if not the explicit goal, of forcing market beliefs to converge on the good equilibrium.

For its part, the treasury creates monetary space by 'backstopping' monetary authorities. The fiscal backstop protects the central bank from having to run with thin or negative capital in case it incurs large portfolio losses from its monetary policy operations. Such insurance thus preserves the central bank's independence and credibility by enabling the significant risk-taking inherent to unconventional monetary operations. In addition, fiscal policy may also create monetary space by internalising the costs and risks of a low equilibrium interest rate (R*). As stressed by Rachel and Summers (2019), in periods of excess savings, weak investment and low interest rates, higher public deficits and debts may raise R*, creating more room for conventional monetary policy (Figure 9). Rachel and Summers argue that R* could have been more than 300 basis points lower, had it not been for the material rise in public debts over the last decades.

FIGURE 9 **TWO-WAY POLICY SPACE CREATION**



The interdependence between monetary and fiscal authorities in the build-up of policy space is a central piece of hydraulics at play for a successful policy mix to emerge in a tail event. The institutional governance of this 'deep plumbing' must enable sufficient stabilisation in the short run while preserving the benefits from credible commitments to price stability and sustainable public finances – and thus, favourable financing conditions and financial stability.

The ability for joint expansionary M and F to create further space for each other is not needed in normal times, i.e., outside of tail or extreme events. As discussed in Chapter 1, in normal times M and F are strategic substitutes – policy space is abundant and congruence in the mix is not needed to deliver the desired degree of macroeconomic stabilisation in the short run. In contrast, in a tail event, both M and F are short of policy space – they need to support each other to ensure that the demand stimulus is appropriately scaled. M and F are strategic complements.

Below we elaborate on the interdependence between monetary and fiscal authorities in the creation of policy space. Later in the chapter, we draw on history and experience to show how the institutional setup governing that interdependence has a strong bearing on achieving a successful policy mix both in the short and in the long run.

3.2.1 Fiscal authorities depend on a monetary backstop for fiscal space

As public debts and deficits rose during the large downturn in 2008-2009, many countries entered an uncomfortable era of historically high debt stocks. Unprecedented in peacetime, such debt levels made countries vulnerable to a self-fulfilling sovereign crisis. In that environment, investors could arbitrarily anticipate a debt restructuring under macroeconomic stress, and thus charge a premium on government securities. Higher borrowing costs would then cause debt to grow faster – the more so the shorter the debt maturity structure. The combination of a higher debt stock and gross financing needs (i.e., the funds needed to cover the deficit and to roll over maturing obligations) raises the likelihood of liquidity stress and, ultimately, debt restructuring or default in a

self-fulfilling way. It is important to emphasise that such toxic dynamics may arise even when the *safe* nominal rate is very low and below the growth rates. Whether or not r-g is negative, what raises the cost of borrowing in a crisis is not a hike in the safe rate, but a hike in the risk premia.

The possibility of a belief-driven rise in borrowing costs clearly constrains fiscal space. Policy decisions must be made under the Damocles' sword that financing a stimulus package (and rolling the existing debt) may suddenly become very expensive. What is worse, during a sovereign crisis, fiscal multipliers for a stimulus plummet because sovereign risk tends to spill over the borrowing costs of both households and corporates, with strong negative effects on private demand (Corsetti et al., 2013; Arellano et al., 2019).

In this situation, the central bank can rule out bad equilibria by offering a *credible* backstop to government debt. The monetary backstop expands fiscal space and boosts the effectiveness of its use through stimulus measures. Provided that government debt is issued in national currency, or the currency of a monetary union, the central bank can thus ensure, as a last resort, the treasury's access to liquidity. As shown by Corsetti and Dedola (2015), an effective backstop does not necessarily require large (or even any) monetary interventions in the government bond market. For instance, the ECB's Outright Monetary Transactions (OMT) programme is explicitly envisioned as a 'threat' – a nuclear option of sort. The ECB *stands ready* to activate OMT's debt purchases in case of non-fundamental turmoil in the government debt market, and provided the country enters a programme with the European Stability Mechanism. When these conditions are satisfied, the ECB can purchase government bonds with one- to three-year residual maturity. What makes the OMT threat credible is that purchases are potentially unlimited.[24] As nobody can beat the central bank at that game, nobody tries and no intervention is required. At the time of writing, the ECB has yet to carry out a single OMT purchase. The 'threat' has been credible enough to keep sovereign spreads outside crisis levels.

Although the monetary backstop of government debt is not explicitly wired into the central bank's mandate, there is little doubt that the bank stands ready to kill bad equilibria. Letting them happen would be far too costly for economic and financial stability, which are explicit goals of central banks. Thus, throughout crisis years, monetary authorities have played that backstop role (see the discussion by Trichet, 2013).

24 Also the ECB has made clear that it is willing to act on its mandate to preserve the integrity and the functionality of the euro area – resisting legal challenges that appeal to a different reading of the Treaties. As ECB Board member Isabel Schnabel put it: "In the euro area, the ECB can only be a lender of last resort to financial institutions. The Treaty explicitly prohibits monetary financing of public debt. But the ECB can, and should, provide liquidity when the market fails to coordinate and when the risk absorption capacity of financial market participants is severely constrained. Central bank interventions quickly instil confidence and allow the market to coordinate on the "good" equilibrium once the initial fog of panic and fear has lifted. A prime example is the announcement of outright monetary transactions (OMT) in the summer of 2012. The "whatever it takes" speech by Mario Draghi constituted a coordination device and thereby calmed markets, whereby the euro area gained precious time for reforms. The announcement of the PEPP in March of this year operated similarly: it built a bridge for the historical response of euro area governments to this crisis and supported market functioning at a time of exceptional uncertainty" (Schnabel, 2020).

3.2.2 Borrowing costs

Monetary decisions obviously have a large and direct effect on the borrowing costs of the treasury. In addition to supporting demand, unconventional monetary policy operating via forward guidance and/or on the term structure creates fiscal space that governments can use. This is a clear and well-understood 'monetary footprint' on the fiscal realm.

Conceptually, this 'monetary footprint' is fundamentally different from the monetary backstop (targeting self-fulfilling prophecies) discussed above. A backstop coordinates markets on a 'good equilibrium', where investors price fundamental risk, and as flagged earlier, can be effective without any actual bond purchase. As such, it has no direct 'moral hazard' implications. This is an important, yet often misunderstood point – a monetary backstop could actually strengthen the incentives for governments to 'do the right thing', since it prevents the expected benefits from desirable but costly reforms or policies from being squandered in random crises caused by arbitrary shifts in market sentiment (Corsetti et al., 2006; Morris and Shin, 2006).

By contrast, policies pursuing low interest rates and term premia *change* the good equilibrium. To affect equilibrium rates and premia, the central bank *must* intervene in the market and alter the relative supply of assets in the economy. This has a direct moral hazard effect in the sense that pushing the borrowing costs lower is likely to affect the government's incentives to tax and spend (lower interest rates may of course also increase the present value of the expected gains from certain reforms).

We should note that a high debt-to-GDP ratio may raise the attractiveness of monetary financing and ex-post debt debasement via a hike in inflation, cutting the ex-post interest cost of the government. The relative benefit is stronger when the maturity structure of sovereign debt is long – so that even a moderate rise in inflation may produce substantial fiscal advantages by debasing coupons and principal of outstanding bonds. In assessing costs and benefits, however, it is important to have a full view of the conditions under which these materialise and to understand the trade-offs.

In circumstances in which a central banks engage in massive bond purchase programmes under quantitative easing (QE) or other headlines, and central banks pay an interest on bank reserves, the maturity of the consolidated (central bank and government) debt may be considerably shorter than the maturity of the general government debt. In practice, an increase in inflation may reduce the interest costs of outstanding long-term bonds issued by the treasury, but at the same time raise the interest paid to banks on their reserves. While possibly shielding sovereigns from self-fulfilling crises, asset purchases by central banks do imply a faster pass-through of inflation and interest rates onto borrowing costs of governments.

In addition, independently of QE, there are two long-standing complications. First, markets will start to charge an inflation premium, raising borrowing costs above expected inflation. Dynamically, this aggravates the budget. Second, if and when the time comes for the central bank and the government to rein in inflation, any unexpected drop in inflation will translate into higher ex-post real rates paid by the government on outstanding bonds issued in the past at high yields. Just like an unexpected bout of inflation can reduce the real value of outstanding debt, deflation that is not priced by markets when the bonds are issued will raise the interest costs of the government in real terms. The problem may be particularly relevant after a long spell of high inflation, over many years. This is because the longer the high inflation lasts, the higher the share of outstanding public debt that is priced including the inflation premium.

The main lesson is straightforward. Monetary financing can only have temporary effects on borrowing costs. The net relief may be small, in view of the fact that, once the dynamic development in issuances and bond prices is appropriately taken into account, lower adjustment in primary spending and taxes in the short run will be offset by the need for larger adjustment in the medium and long run.[25]

3.2.3 Monetary authorities depend on fiscal authorities for monetary space

By engaging in large asset purchases in the bond markets (and other segments), a central bank exposes its balance sheet to extreme losses that in principle may impair its ability to pursue its primary objectives. Concerns over prospective losses may therefore weigh on monetary policy decisions. On the one hand, they may cause the central bank to implement unconventional policies too timidly, on a suboptimal scale. Worried about the credibility of their inflation target, monetary authorities may indeed become reluctant to expand their balance sheet. On the other hand, to the extent that prospective losses foreshadow inflation off target, unconventional policies may ultimately undermine the credibility of the central bank, and with that its ability to anchor expectations. For these reasons, fiscal authorities committing to cover any central bank losses is crucial even though central banks can operate with negative capital. For instance, Chile, the Czech Republic, Israel and Mexico all were able to pursue their policy objectives effectively in spite of technical insolvency in recent years (Archer and Moser-Boehm, 2013). Note in passing that this commitment to recapitalise is different from arrangements where the fiscal authorities

25 Broadbent (2020) provides and insightful and instructive stylised simulation, calibrated to outstanding debt maturity for the UK: "[Ignoring QE,] with an extra percentage point of inflation the real value of existing conventional debt is initially eaten up at that same rate. Over time, however, maturing lower-yielding debt has to be refinanced at the higher cost and the rate of decline slows. So, although after 18 years the price level is almost 20% higher than it would have been, the real value of conventional debt is down by less than 7%. With indexed debt unaffected the peak decline in the aggregate debt-to-GDP ratio, which comes at around that 18-year point, is just under 5%. Thereafter, as the share of the original debt continues to decline, the higher cost of newer debt starts to dominate and the debt ratio starts very gradually to climb back to its original level [...] If 40% of the conventional debt is in the central banks, and funded by interest-bearing reserves, [however, the impact of higher inflation is also reduced by 40%. A permanent increase of 1 percentage point in the rate of inflation would, at its peak, reduce the real value of the public sector's liabilities by just under 3%, a 3 percentage point rise by a little over 7%. In the grand scheme of things, and even if there were no increase in the inflation risk premium in response, these are not large numbers."

agree to cover the first losses part on a specific operation based on a contract between the central bank and the fiscal authorities (for example, the recent agreement between the Federal Reserve and the US Treasury regarding several measures designed to stem the fallout from COVID-19).

To see why the treasury has a stake in avoiding undue constraints on an adequate use of monetary space, it is critical to understand that unanchored inflation expectations are *not* in the treasury's interest. Seminal work by Calvo (1988), motivated by the high and persistent inflation in Brazil associated with fiscal imbalances in the early 1980s, makes that point loud and clear. When inflation expectations are unanchored, the nominal interest rate can be subject to the same belief-driven dynamics that raise the likelihood of debt restructuring under macroeconomic stress. The end point is the same: belief-driven expectations of inflation drive up nominal rates and borrowing costs for the government. Faced with the adverse trade-off between engineering painful disinflation or keeping the government afloat, the central bank may end up validating ex post the high inflation expectations of market participants (see also Corsetti and Dedola, 2015). If so, the overall borrowing conditions of the government are most likely to worsen – despite a higher level of monetary financing, investors become jittery and require an inflation risk premium on bonds. If anything, the government suffers a reduction of its fiscal space. In such cases, higher inflation does not translate into lower real interest rates – quite the opposite.

We stress that, by their constitution, modern central banks cannot intervene in asset markets on expectation of making losses. In crises with a strong liquidity component, for instance, central banks intervene holding expectations of making profits on average (many central banks did make profits out of their asset purchases in the GFC). Yet losses may materialise ex post. Even during pure liquidity crises there could be some 'value at risk' – liquidity assistance may not work, and/or conditions may turn out to be much worse than anticipated.

One solution to the problems created by possible losses on the central bank's balance sheet is an institutional arrangement by which fiscal authorities provide contingent backing. This can take the form of transfers aimed at preserving monetary space for sensible and credible stabilisation. If inflation is spiralling up, the central bank could then increase its refinancing rates and pay the interests on commercial banks' deposits without having to print new money, since the resulting unintended losses would be covered by recapitalisation.

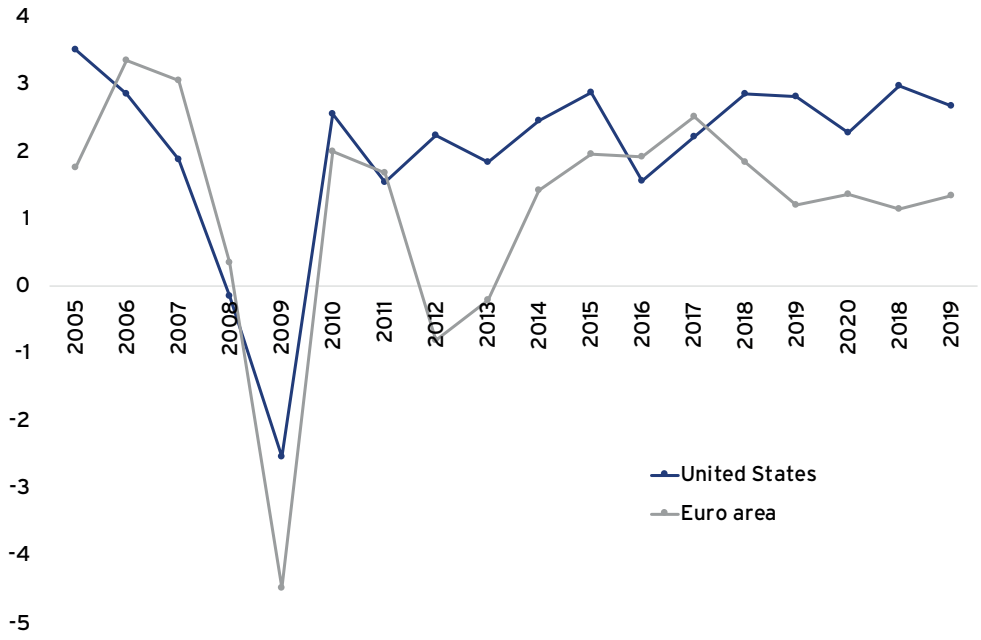
Absent fiscal backing, the central bank would seek to limit the accumulation of risks on its balance sheet, resulting in exceedingly cautious monetary policy. Pre-empting that issue is even more important in the aftermath of the COVID-19 crisis. The extension and scope of central banks' interventions have gone well beyond the measures taken in reaction to the GFC; uncertainty is much higher today; and monetary authorities have been increasingly concerned with going the extra mile.

3.3 GETTING THE POLICY MIX WRONG: THE EURO AREA EXPERIENCE AFTER THE GFC

Failing to institutionalise the interdependence between monetary and fiscal policies in the creation of fiscal space can have deleterious effects on the policy mix. The euro area experience in the aftermath of the Global Financial Crisis is a case in point, which this section briefly develops.

Simply comparing growth performance between the US and the euro area points to difficulties in stabilising the European economy after 2011 (Figure 10). Both economies still struggle with persistently low expected and realised inflation, but only the US had managed to operate back near full employment on the eve of the COVID-19 crisis. While several structural factors may help explain low growth in the euro area, it is hard to downplay the role of insufficiently supportive macroeconomic policies in producing an uneven and much weaker recovery in Europe (with the US growth rate higher by an average of 1.1 percentage points compared to the euro area over 2010-20).

FIGURE 10 **REAL GDP GROWTH IN THE US AND IN THE EURO AREA, 2005-2019 (%)**



Source: OECD.

How do the monetary-fiscal-space hydraulics matter here? Much of the performance gap with the US is the by-product of the polarisation of risk resulting in highly heterogenous financial and economic conditions across member states of the euro area after 2010. Between the GFC and the summer of 2012, unanchored market expectations

simultaneously drove risk premia too high in the countries with any combination of weak fiscal, external and banking conditions and too low in the countries with a relatively more stable outlook. At least until the summer of 2012, the ECB was unable and unwilling to provide a monetary backstop. In the words of Draghi (2014):

> *"Public debt is in aggregate not higher in the euro area than in the US or Japan… [T]he central bank in those countries could act and has acted as a backstop for government funding. This is an important reason why markets spared their fiscal authorities the loss of confidence that constrained many euro area governments' market access."*

After 2012, the euro area could rein in the worst of the self-fulfilling dynamics, but the damage was done – financial markets were strongly segmented, and debt dynamics diverged in the area.

Risk polarisation and market fragmentation inhibit stabilisation policy for at least two reasons. First, any monetary stance designed for the euro area as a whole would be an average of the stance most appropriate for the two groups – and hence too tight for some and too loose for others. By the nature of the crisis, the transmission of monetary policy became increasingly asymmetrical, requiring a higher dose of stimulus to sustain demand in the high-risk countries relative to the pre-crisis situation.

Second, fiscal policy tightened too early and too much everywhere. In the weaker countries, a steep response of risk premia to deficit meant that governments had no alternative but to consolidate. In the other countries, restrictive or neutral budgets were seen as a precautionary strategy to prevent any vulnerability to financial and macroeconomic stress. Because of the relatively favourable financial conditions (and very low risk premia) and accommodative monetary policy, governments in the stronger countries did not need fiscal support to recover. Faced with above potential growth, there was even a case for those countries to rebuild fiscal space.

Risk polarisation and market fragmentation reflect the failure of the euro area's institutional framework to cater for the interdependence between monetary and fiscal authorities. Polarisation emerged with the Greek crisis in 2010, which introduced the spectre of sovereign debt restructuring in the euro area. It took more than two years to address the most disruptive consequences, when the ECB formally committed to preserve the integrity of the euro area by providing monetary backing to government bonds. The introduction of the OMT programme accompanied the creation of a crisis management agency, the European Stability Mechanism (ESM). The monetary backstop introduced with OMT aligned the ECB with the standards of other central banks which, although often only implicitly, operate effectively to shield these markets from the disruptive effects of belief-driven crises.

Yet there should be no illusion that OMT could have meaningfully contributed to rebalancing the policy mix by encouraging a more accommodative fiscal stance. Indeed, OMT can only be activated conditional on a programme supported by the ESM, which typically requires relatively strict fiscal conditions for approval. To avoid engaging with the ESM, the more fragile countries have in any case maintained a relatively conservative fiscal stance, effectively keeping them close to these approval conditions. In low-risk countries, the introduction of OMT has left their bias towards fiscal rectitude largely unaffected (Corsetti et al., 2019). That said, and even though counterfactuals are unknowable, OMT arguably calmed markets, possibly preventing more vulnerable countries from being forced to signal commitment to fiscal responsibility through even more procyclical consolidations.

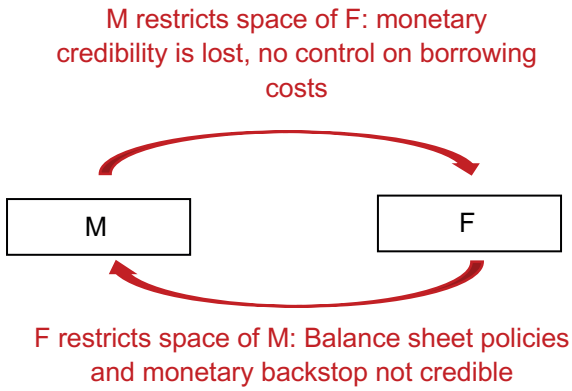
Of course, the ECB's willingness to pursue its price stability mandate by deploying asset purchase programmes and long-term refinancing operations has also played a key role in containing risk polarisation. In the aftermath of the COVID-19 crisis, the introduction of a sizable Pandemic Emergency Purchase Programme (PEPP) has temporarily put more flexibility and fire power in the hands of monetary authorities. However, concerns remain about future action, especially in view of the puzzling arguments put forward by the German constitutional court questioning the legitimacy of ECB measures that are clearly in line with international best practice and proportional to the challenge (Bofinger et al., 2020).

3.4 POLICY MIX UNRAVELLING: MISMANAGING THE MONETARY-FISCAL INTERDEPENDENCE

The monetary-fiscal interdependence in a large tail-event recession is tricky to manage. On the one hand, recent experience in many advanced economies suggests that if handled well, it can be fully consistent with the operational independence of the central bank to fulfil its mandate. On the other hand, history is littered with failed attempts to strike the right institutional balance between monetary and fiscal authorities, causing the policy mix to unravel as at least one instrument is pushed into a corner and becomes ineffective.

For instance, fiscal authorities may delay fiscal adjustments to the point of undermining the credibility of the fiscal backstop, with potentially deleterious effects on monetary credibility. Similarly, for monetary authorities, there is a point beyond which stretching their balance sheet could undermine credibility, resulting in unanchored inflation expectations and an inability to control government borrowing costs (Figure 11). In any case, institutional failure means policy mix unravelling, that is, the complete loss of policy space for at least one instrument.

FIGURE 11 **TWO-WAY POLICY SPACE RESTRICTION**



Such a situation creates extreme vulnerability to financial and macroeconomic instability. A case at the far end of the spectrum is arguably most useful to illustrate the struggle to establish credibility and recover a genuine policy mix. In Box 4, we discuss the case of Argentina. But of course, not all cases of unsustainable policy regimes are as clear cut as Argentina. The next section analyses past experiences of yield curve control (YCC). Under a YCC regime, the central bank commits to keep government bond yields close to a certain (low) level. While such a commitment may for some time be consistent with monetary authorities' mandate, YCC de facto forces the central bank to target the provision of additional policy space for the fiscal authority. In that sense, YCC could be interpreted as a soft form of (or an antechamber to) fiscal dominance. The experience of the United States and the United Kingdom in the 1950s and 1960s shows that exiting regimes heavily biased in favour of one of the two authorities is difficult. Exit usually comes late and after the costs of such bias have grown too high not to be tackled decisively.

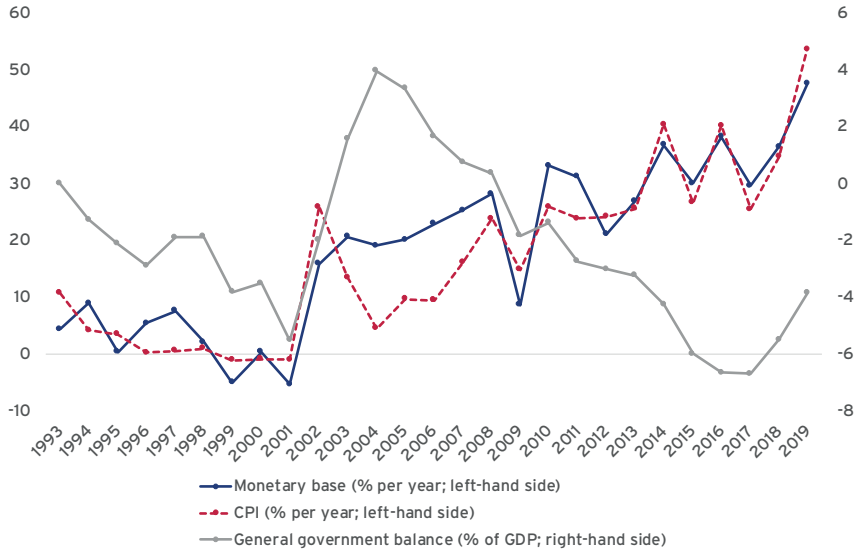
BOX 4 **WHEN CREDIBILITY IS MISSING: THE POLICY MIX IN ARGENTINA**

A case at the far end of the spectrum is arguably most useful to illustrate the struggle to establish credibility and recover a genuine policy mix. In the 1980s, Argentina was a textbook case of fiscal dominance (see Chapter 1), where the central bank's main task was to fund the government. The budget deficit was about 4% of GDP on average (peaking at 11% in 1983) and inflation rates were in the three digits (peaking at 400% in 1989). During this period, monetary policy had lost any credibility because fiscal policy had suppressed any policy room for macroeconomic stabilisation.

In 1991, the authorities dramatically changed the rules of the game by tying the central bank to a rigid currency peg (i.e., a currency board arrangement) instead of acting on the government's budget constraint. The binding monetary policy rule slashed inflation, as the government could not ignore the budget constraint anymore and had to cut its deficit. The disappearance of fiscal space was the price to pay for recovering whatever monetary space (to anchor expectations) a currency board arrangement can generate.[26]

After an initial boom, however, GDP growth declined steadily, from +12.7% in 1992 to -4.4% in 2001. The authorities could not act to alleviate the slowdown because there was too little monetary space (leading to liquidity shortages in the economy) and no fiscal stabilisation to speak of (Figure 12). To circumvent the liquidity and budgetary constraints, provincial governments took it on themselves to recover some fiscal space by issuing their own debt securities to be used as parallel currency. With the policy framework once again in disarray, credibility collapsed and a severe crisis hit Argentina, ending in the dramatic sovereign default of December 2001.

FIGURE 12 **ARGENTINA, 1993-2019**



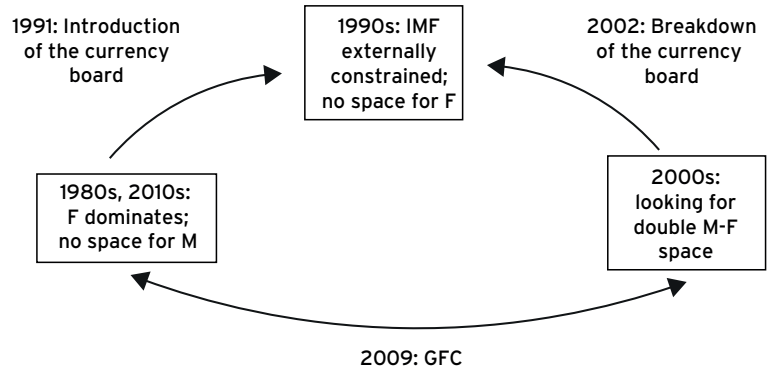
Sources: National sources and IMF.

26 The currency board arrangement subjects domestic monetary conditions to the behaviour external reserves. If foreign capital flows in as a result of the newfound credibility, reserves increase and domestic financial conditions may ease unless the central bank decides to let the coverage ratio of the monetary base by foreign reserves increase. As such, the currency board simultaneously governs the creation of policy space and strictly conditions its use. If net foreign capital inflows are procyclical, the central bank is free to either tighten monetary and financial conditions in a countercyclical way or to accommodate capital inflows by allowing procyclical domestic financial conditions. Foreign capital outflows destroy space, preventing a countercyclical monetary policy in bad times.

With the end of the currency board and a massive depreciation of the currency causing a burst in inflation, the central bank could let the monetary base increase rapidly. Growth in the central bank's monetary liabilities stabilised somewhat after 2003, with the introduction of a rule capping money growth. The inflation rate stabilised as a result. Meanwhile, rules limiting the budget deficit and primary expenditure were introduced.

Thanks to those attempts to contain policymakers' discretion in a way conducive to credibility, F and M contributed to each other's policy space, as described in Figure 12. Growth rates recovered to about 8–9% per year during that period. However, the rules-based policy framework was abandoned after the GFC. Inflation quickly accelerated, including during a failed attempt to introduce inflation targeting in 2016–18. From 2011 onwards, the government budget balance went deeper in the red again. Argentina was on its way back to square one (Figure 13). In 2017, the government started to slash the budget deficit, an effort that the lack of credible policy framework rewarded with a sharp slowdown and yet another balance-of-payment crisis, ending in the largest IMF bailout so far.

FIGURE 13 **BOUNCING BACK AND FORTH: THE CASE OF ARGENTINA**



The recent economic history of Argentina shows the importance of a sound framework effectively constraining policymakers' discretion to foster credible commitments to price stability and public debt sustainability. Such credibility is in turn instrumental to enable a stabilising policy mix, including in tail events where the interdependence in the build-up of policy space can be fully exploited. By contrast, any policy regime that curtails policy space (fiscal dominance) or misallocates it (procyclical monetary stance forced or encouraged by a currency board) makes the economy highly vulnerable to macroeconomic and financial instability and to acute crises bound to destroy the regime itself.

3.5 EXITING UNBALANCED POLICY REGIMES: A CASE STUDY OF YIELD CURVE CONTROL

The issue any institutional policy framework must resolve is how to balance the ability of monetary and fiscal authorities to flexibly deploy the policy mix as needed to stabilise the economy while preserving credibility over time. As illustrated above, the monetary-fiscal interdependence created by the double requirement of a fiscal backstop of the central bank and a monetary backstop of public debt complicates matters. To put it mildly, getting the policy regime right is darned hard. While the previous section focused

on extreme regimes where the absence of any formal framework or a poor choice of institutions basically destroyed the policy mix, this section looks into the experience of different central banks that, at some point, have engaged in yield curve control to pursue explicit coordination with the treasury. They entered YCC for good reasons – but they subsequently struggled to disengage.

Our first case study is the United States between 1942 and 1951. Originally to aid the war effort, the Fed ceded control of monetary policy to the US Treasury, only to claw back control in a major political stand-off after an inflation scare during the Korean War.

In the United Kingdom, the Bank of England also embarked on a policy of YCC designed to support the financing of the war, similar to what it had already done during first world conflict, whilst at the same time formally acting as a financial agent for the UK government from the late 1930s onwards. After the war, the Bank of England, which had been owned by private shareholders for 250 years, was nationalised. This gave the government the power to appoint the Bank's governors and directors, and even to issue instructions to the Bank. While the government did not use its power to issue instructions, the Bank of England continued to purchase Gilts for several decades and acted under the operational guidance from the Chancellor of the Exchequer until it formally gained independence in 1998.

A very different case study is Japan, where the Bank of Japan adopted YCC in 2016 to extend its exhausted policy toolkit in the face of deeply entrenched deflation. Having moved policy rates into negative territory in a controversial move and already owning such a large share of the Japanese Government Bond market that it was reaching its operational limits, the Bank of Japan effectively used YCC to slow down the pace of its bond purchases while still anchoring bond yields.

In the wake of the COVID-19 crisis, several countries have been considering YCC. The Reserve Bank Australia formally adopted YCC targeting in March 2020, targeting the three-year yields in order to avoid negative interest rates. In the view of market participants, other central banks might also consider YCC as a potential policy option, including the Bank of Canada, the Reserve Bank of New Zealand and the Bank of England.

But the policy deliberations are probably most advanced at the Federal Reserve, which has been studying YCC as a policy option at the zero lower bound for some time (Bernanke, 2002). In 2010, the Federal Open Market Committee (FOMC) rejected the idea of YCC, but it seems to have become more open to the idea since then.[27] In the US context, YCC is seen as preferable to negative interest rates and as another way to greatly enhance the effectiveness of forward guidance.

27 The discussion on YCC in the US regained prominence in the context of the limited ammunition to counter a downturn in 2019, when the minutes showed that the topic had been debated at the October meeting and Governor Lael Brainard argued in a speech in November that yield curve caps for the one-year yields in conjunction with average inflation targeting could be a feasible way to overcome counter a potential downturn (www.federalreserve.gov/newsevents/speech/brainard20191126a.htm). More recently, Vice Chair Richard Clarida and a number of other FOMC members also expressed support for YCC as a means to extend the Fed's policy arsenal, as have former Chairs Bernanke and Yellen.

In the wake of the massive expansion in fiscal deficits to combat the COVID-19 crisis and the steep upward trajectory of public debts, the discussion on YCC seems to have moved from it being an innovative way of extending the policy toolkit to it being a coordination mechanism between monetary and fiscal policy with the aim of preventing a sharp increase in government bond yields that could potentially result from debt sustainability concerns.

Differently from QE, where the central bank commits to purchasing a certain amount of assets from the private sector, under YCC it would commit to keeping government bond yields close to a certain level. As a result, the size of the purchases becomes endogenous, with the size depending on the government's debt issuance on the one hand and the public's willingness to hold the debt at the targeted yield level (Garbade, 2020). In contrast to so-called 'helicopter money' or 'Modern Monetary Theory' (MMT), a central bank implementing YCC does not turn into a government's fiscal agent any more than it would do under a large-scale asset purchase programme. Instead, the central bank still retains independence (Cecchetti and Schoenholtz, 2020). But, as the experience of the Federal Reserve and the Bank of England discussed below shows, central banks can come under serious political pressure once they try to exit YCC. In addition, government bond markets can also be destabilised if market participants start to question the continuation of the yield target.

3.5.1 The yield curve control experience in the United States

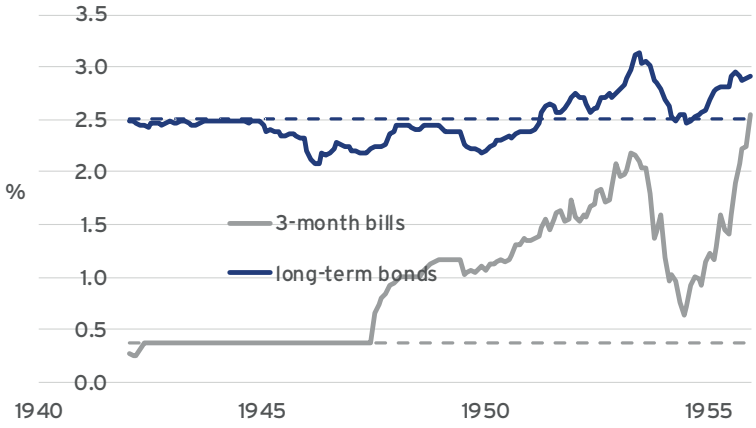
In the 1940s, the circumstances of World War II forced the Federal Reserve to cede control of its monetary policy to the US Treasury. Even though YCC was never formally announced to the public, it seems to have worked reasonably well without the Federal Reserve having to absorb large amounts of government bonds. Only in 1947, when inflation pressures started to rise more openly after the wartime price controls were gradually lifted, did the Federal Reserve start to struggle more to keep yields near the 2.5% target for the ten-year yields (Figure 14).

It is important to note that in the immediate aftermath of World War II, the predominant concern of US public policy was to prevent a return of the Great Depression. However, the primary postwar economic problem turned out to be rising inflation after the end of wartime price controls – CPI inflation moved into double digit territory. In 1948, the inflation spurt petered out over the summer and a recession, starting in November, stalled discussions about lifting the interest rate ceiling. By the time inflation picked up to about 10% with the outbreak of the Korean War,[28] five years of relative economic stability had lowered concerns of a return of the Great Depression.

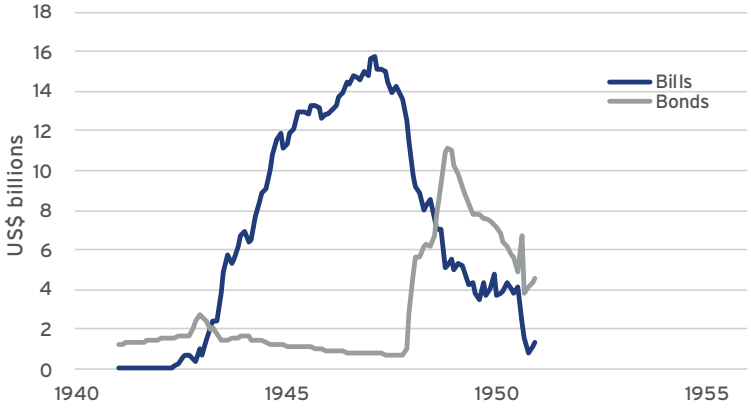
28 As the United States entered the Korean War in June 1950 and inflation started rising, the FOMC took the view that the continuation of YCC would lead to excessive inflation. In 1950, the FOMC tried to raise short-term interest rates by various means but was successfully opposed by the Treasury on each occasion. By February 1951, inflation had climbed close to 10% and the FOMC became concerned that it could be forced to monetise a considerable part of the debt issuance as the Korean War intensified. In the view of the FOMC, YCC was increasingly becoming untenable.

FIGURE 14 **YIELD CURVE CONTROL IN THE UNITED STATES**

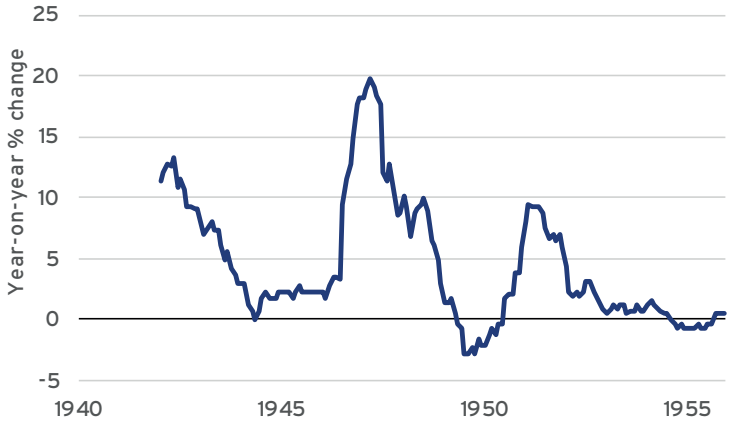
A) YIELDS ON US TREASURY SECURITIES



B) FEDERAL RESERVE HOLDINGS OF US TREASURY SECURITIES



C) US CONSUMER PRICE INDEX



Source: Federal Reserve; Haver Analytics.

Nevertheless, the Fed was not yet in a strong enough position to assert its views against the Treasury and terminate YCC. The Treasury still had to sign off on all Fed policy changes (Humpage, 2016). In the summer of 1950, the FOMC asked the US Treasury to replace the 2.5% cap on marketable bonds with one on non-marketable bonds. The idea behind this proposal was that if market forces were to push up long-term interest rates, the Fed would no longer have to buy the bonds. The Treasury refused the Fed's request though, underscoring the Treasury's strong position at the time.[29]

The Federal Reserve notes in its historical records that:

> *"the conflict came to a head when Truman invited the entire FOMC to a meeting at the White House. After the meeting, he issued a statement saying that the FOMC had "pledged its support to President Truman to maintain the stability of Government securities as long as the emergency lasts" [see Box 5]. But in fact, the FOMC had made no such pledge. With conflicting stories about the dispute appearing in the press, [former Fed Chair] Eccles decided to release the FOMC's own account of the meeting with the president—without consulting the rest of the committee (Marriner S. Eccles Document Collection 1951). As Eccles wrote in his memoir, "The fat was in the fire" (Eccles, 1951)."*

It is interesting to note that in 1948, President Truman had failed to reappoint Eccles as Board Chairman in 1948 to show him "who's boss" (Donovan, 1982, p. 331, quoted in Hetzel and Leach, 2001).

Shortly afterwards, the Fed informed the Treasury that, starting 19 February 1951, it would no longer "maintain the existing situation". Eventually, the Treasury and Fed negotiated a compromise under which the Fed would continue to support the price of five-year notes for a short time, but afterwards the bond market would be on its own. On 4 March 1951, the Treasury and the Fed issued a statement saying they had "reached full accord with respect to debt management and monetary policies to be pursued in furthering their common purpose and to assure the successful financing of the government's requirements and, at the same time, to minimize monetization of the public debt" (William McChesney Martin, Jr., Collection 1951).

Hence, it took the inflation scare of 1951 and the lone actions of former Fed Chair Eccles for the Federal Reserve to assert its concerns regarding inflation more successfully vis-à-vis the Treasury. Rapidly rising inflation pressures and growing political support for the Federal Reserve's inflation concerns in Congress helped pave the way for the Fed-Treasury Accord of March 1951. The Accord effectively ended YCC in the United States and allowed the Federal Reserve to conduct its policies more independently of the Treasury's debt management considerations in the subsequent decades. But the Accord only came about after a fierce stand-off between the US administration and the Federal Reserve.

29 See the FOMC Minutes of 18 August 1950 (p. 131).

BOX 5 AN INTIMATE ACCOUNT OF EXITING YCC IN THE UNITED STATES

In the run-up to the March 1951 Accord being agreed, the policy conflict between the Federal Reserve, President Truman and Treasury Secretary Snyder escalated materially (Eggertsson et al., 2008). On 25 January 1951, former Fed Chair and then Governor Eccles openly challenged the US administration in his testimony before the Joint Committee on the Economic Report by stating:[30]

> *"As long as the Federal Reserve is required to buy government securities at the will of the market for the purpose of defending a fixed pattern of interest rates established by the Treasury, it must stand ready to create new bank reserves in unlimited amount. This policy makes the entire banking system, through the action of the Federal Reserve System, an engine of inflation".* (US Congress 1951, p. 158)

A subsequent exchange with Congressman Patman (Texas) got rather heated on weighing rising inflation risks versus rising bond yields and the issue of Fed independence.

> *Patman: Don't you think there is some obligation of the Federal Reserve System to protect the public against excessive interest rates?*
>
> *Eccles: I think there is a greater obligation to the American public to protect them against the deterioration of the dollar.*
>
> *Patman: Who is master, the Federal Reserve or the Treasury? You know, the Treasury came here first.*
>
> *Eccles: How do you reconcile the Treasury's position of saying they want the interest rate low, with the Federal Reserve standing ready to peg the market, and at the same time expect to stop inflation?*
>
> *Patman: Will the Federal Reserve System support the Secretary of the Treasury in that effort [to retain the 2 1/2 percent rate] or will it refuse? You are sabotaging the Treasury. I think it ought to be stopped.*
>
> *Eccles: [E]ither the Federal Reserve should be recognized as having some independent status, or it should be considered as simply an agency or a bureau of the Treasury.* (US Congress 1951, pp. 172–76)

On 29 January 1951, the Fed openly challenged instructions from the Treasury by marginally raising its short-term interest target by 1/32 (i.e., 3 basis points). Although the long-term bond yield still remained just below 2.5%, the FOMC's action prompted President Truman to summon the entire FOMC to the White House,[31] marking the first time in history that a US president called the FOMC to meet with him. When the FOMC met on 31 January 1951 before heading to the White House, Fed Chair Thomas McCabe, who took over from Eccles in 1948 after President Truman did not extend Eccles' term as Chair, informed FOMC members that they could either comply with the president's demand to cap interest rates or resign.[32]

30 See https://www.richmondfed.org/-/media/richmondfedorg/publications/research/economic_quarterly/2001/winter/pdf/hetzel.pdf)
31 See the FOMC Minutes of 32 January 1951 (p. 20).
32 See https://fraser.stlouisfed.org/timeline/treasury-fed-accord#32

The FOMC met with President Truman late in the afternoon of Wednesday, 31 January 1951. President Truman began by stating that:

> *"the present emergency is the greatest this country has ever faced, including the two World Wars and all the preceding wars. ... [W]e must combat Communist influence on many fronts. [I]f the people lose confidence in government securities all we hope to gain from our military mobilization, and war if need be, might be jeopardized."*

Chair McCabe in turn explained the responsibility of the Federal Reserve:

> *"to promote stability in the economy by regulating the volume, cost and availability of money, keeping in mind at all times the best interests of the whole economy."*

Chair McCabe suggested an ongoing dialogue with Treasury Secretary Snyder and, should that dialogue fail, another meeting between him and the President (Hetzel and Leach, 2001). After the meeting, the FOMC reconvened and asked Governor Evans to prepare a memorandum recording the events of the meeting. The memorandum recorded that FOMC members had made no commitment to the President. Nonetheless, the next morning the White House issued a statement that:

> *"The Federal Reserve Board has pledged its support to President Truman to maintain the stability of Government securities as long as the emergency lasts."*

And the US Treasury issued an additional statement saying that the White House announcement:

> *"means the market for Government securities will be stabilized at present levels and that these levels will be maintained during the present emergency."*

In the wake of these two statements, Governor Eccles received telephone calls from journalists at the *Washington Post* and the *New York Times*. In these conversations, Governor Eccles contradicted the administration's press releases and told the journalists, off the record, that the FOMC had in fact made no such commitment. Without any attribution to Eccles, who had been Chairman of the FOMC from its creation in 1935 until 1948, both newspapers reported his comments the next day, bringing the tensions between Eccles and the administration to boiling point.

Fed Chair McCabe then received a letter from President Truman, which included a false statement:

> *"I have your assurance that the market on government securities will be stabilized and maintained at present levels."*

After some discussion, the FOMC agreed that Chair McCabe should meet with President Truman privately and ask him to withdraw the letter. Instead of seeing the president, McCabe went home for the weekend. In reaction to the stories in the Washington Post and the New York Times, Treasury Secretary Snyder convinced Truman to release his (Truman's) letter to McCabe to the press. According to his memoirs, Eccles viewed the publication as:

> *"the final move in a Treasury attempt to impose its will on the Federal Reserve. If swift action was not taken the Federal Reserve would lose the independent status Congress meant it to have and would be reduced to the level of a Treasury bureau."*
> (Eccles, 1951, p. 494)

While Eccles had already completed a letter of resignation to the president, he decided to postpone his resignation and instead released a copy of the memorandum written to record the FOMC's account of the meeting with President Truman to the press. He arranged for it to appear in the Sunday, 4 February 1951 editions not only of the *New York Times,* but also of the *Washington Post* and the *Washington Evening Star.* As expected, the memorandum was headline news. Clearly, Eccles did not intend to leave the Fed under the control of the Treasury without putting up a fight, and instead put "*[t]he fat … in the fire*" (Eccles, 1951, p. 496). His biographer, Sidney Hyman, wrote, "*[b]y Monday morning the controversy had reached blast furnace heat*" (Hyman, 1976, p. 349).

Shortly afterwards, the Fed informed the Treasury that starting 19 February 1951, it would no longer "maintain the existing situation". Eventually, the Treasury and Fed negotiated the compromise mentioned in the main text.

The Fed-Treasury Accord marked a shift in the Fed's policy approach, which actively focused on bank reserves and controlling the money supply to stabilise the purchasing power of the US dollar. By establishing the Federal Reserve's independence from fiscal concerns, the Accord set the stage for the development of modern monetary policy. Given that the constraint of the government bond price-supporting policy originating from the government bond management policy objective was now gone, it became possible for the Fed to credibly pursue a price stabilisation policy.

In 1953, the Fed advocated that the goal of monetary policy be price stabilisation, and it employed a 'bills only' policy that stated that the target of the market operation of the Fed would be confined to Treasury Bills. However, for many years afterwards, the Fed was conscious of not giving the impression of interfering with the Treasury's debt management decisions. From 1954 to 1975, it engaged in so called 'even keel operations' to ensure smooth absorption and distribution of the issuance by the banking system. Only in the mid-1970s, when the US Treasury began to auction its debt, did the Fed abandon these operations.

In the 1960s, the 'bills only' policy was confronted with a serious policy challenge. Increasing concerns at the time for the prospects of the dollar triggered a surge in the gold price and significant capital outflows. The Fed came under pressure to defend the dollar, while the US economy was in a severe recession. For President Kennedy, who had just taken office, an improvement in the balance of payments and a recovery were crucial parts of his economic policy agenda. As a result, the Fed started a programme coined Operation Twist in 1961. Under Operation Twist, the Fed bought and sold short-term and long-term bonds, leaving the size of its overall balance sheet unchanged.

There are several key differences between the situation back then and today. For starters, we would note that only the extreme circumstances of WWII forced the Federal Reserve to effectively cede control of its monetary policy to the US Treasury – something that all major central banks had to confront at the time. In addition, YCC was never formally announced to the public. And last but not least, the financial system was much smaller and far less complex, and financial markets less liquid and less intertwined globally.

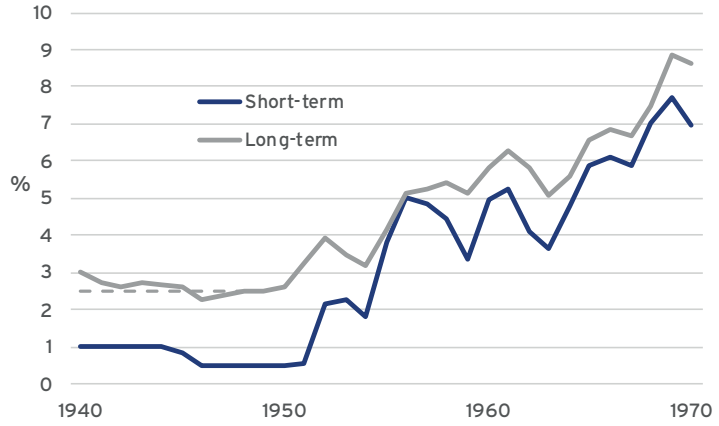
3.5.2 The experience of the United Kingdom

War-related monetary policies to support government bond prices were also pursued in the United Kingdom, where the Bank of England conducted government bond purchases after World War II. Between 1945 and 1947, the BoE propped up the Gilt market to achieve a target long-term interest rate at 2.5%. Afterwards, the YCC target was no longer set explicitly and monetary policy implementation focused on the official Bank Rate. However, government bond purchases aimed at curbing increases in yields were conducted intermittently for more than 20 years until 1971, causing Gilt holdings by the Bank of England to increase slowly but steadily (Figure 15).

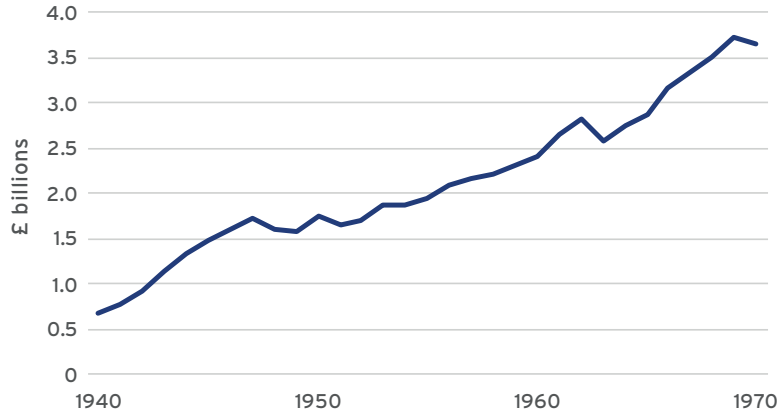
As in the United States, YCC started as part of the war effort but became increasingly difficult to sustain as inflation picked up. Some observers argue that these early episodes of YCC were conducted in the spirit of financial repression to achieve government funding objectives, not a price stability target (Amamiya, 2017). In both the United States and the United Kingdom, central bank purchases of government securities were explicitly geared towards stabilising debt dynamics that otherwise could have been explosive. Pursuing this government funding objective constrained monetary, allowing inflationary pressures to build over time. And it is only because those pressures became too costly to contemplate that central banks could ultimately free themselves from the shackles of YCC.

FIGURE 15 **YIELD CURVE CONTROL IN THE UNITED KINGDOM**

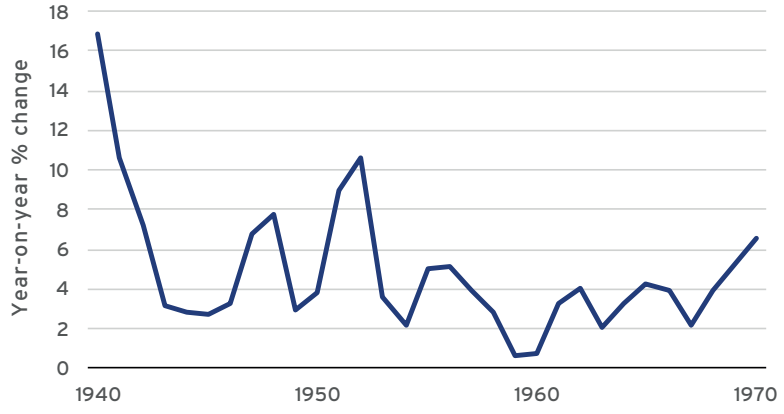
A) LONG- AND SHORT-TERM INTEREST RATES



B) GOVERNMENT BOND HOLDINGS OF THE BANK OF ENGLAND



C) CONSUMER PRICE INDEX



Source: Bank of England.

BOX 6 A MORE DETAILED ACCOUNT OF EXITING YIELD CURVE CONTROL IN THE UNITED KINGDOM

War-related central bank policies to support government bond prices were also pursued in the United Kingdom, where the Bank of England conducted government bond purchases after World War II. Between the end of the war and 1947, the Bank supported the Gilt market to achieve a target long-term interest rate of 2.5%. Even though, according the Bank of England's historical records, there were more differences in opinions between the Bank and the Treasury during World War II than during World War I, the two institutions kept working together closely.

In the run up to World War II, the Bank was somewhat hesitant to adopt an easy monetary policy stance again and lower interest rates. In fact, in April 1939, the Bank expressed concerns that additional borrowing of £350 million per year could potentially create major inflation pressures due to a reduced labour force and the deviation of production away from the consumer goods sector. While the Bank Rate had been unchanged at 2% since June 1932, the Bank felt in late 1938 that an increase might be warranted in the light of the pressure on the exchange rate vis-à-vis the US dollar.

However, the Treasury did not share the Bank's view that an increase in the Bank Rate was desirable. Instead, in January 1939, the Exchange Equalization Account was bolstered by transferring back £200 million in gold from the Issue Department. In late August 1939, the Governor of the Bank of England again indicated the need to raise the Bank Rate as a precaution, but his advice was not accepted by the Treasury. Further turbulence eventually convinced the Treasury that the Bank Rate needed to be raised from 2% to 4% just before the outbreak of the war. But the Bank Rate was quickly lowered again to 3% at the end of the September 1939 and was left unchanged afterwards, according to the wishes of the UK Treasury.

In a memorandum dated 14 April 1939, the Bank of England indicated for the first time the need to keep borrowing rates low and stable in the event of a war. A discussion of the appropriate interest level ensued, and the Chief Cashier proposed a rate of 3.5%, consistent with the largest outstanding bond issue at the time. However, Lord Keynes stressed in several letters to *The Times* that the interest rates on longer-dated debt should not exceed 2.5%. A war bond was eventually offered at 3%.[33]

Reference was made to the close coordination between the Bank of England and the UK Treasury in the House of Commons, where on November 9th, 1939, Labour MP (and later Chancellor) Hugh Dalton stated that:

> *"as between the Treasury and the Bank of England, the relationship has been completely revolutionized and that the Governor of the Bank of England is to a much greater extent that it is openly admitted or legally recognized today the agent and servant of the Treasury rather than an independent financial dictator as it has been the case in the past. The government has enormous powers so far as the settlement of interest and other terms of borrowing are concerned"* (see Part I, Chapter 3, page 110).

In fact, the Chancellor was asked repeatedly in the House of Commons what kind of the control he exerted over the fixing of the Bank Rate and whether the effective control of the Bank Rate was not in the hand of the Treasury Committee at the Bank. Eventually, John Simon admitted in the House of Commons that he had the power to give directions on the level of the Bank Rate. A deliberation over cutting the Bank Rate further to 1% was not acted upon though, and the Bank Rate remained unchanged at 3% from 26 October 1939 onwards.

33 Source: Bank of England archives.

In 1945, the Labour Party won a landslide election. In its election manifesto, Labour had already stated that the Bank of England would need to come under public ownership. As in several other developed market economies, such as Denmark, New Zealand, Canada and France before, the Bank of England was nationalised in 1946. Whilst long-term yields had been pegged at 3% during the war, the Labour government aimed to reduce them to 2.5% by refusing to offer government debt securities at higher yields.

The result was an increase in short-term financing costs of the government, as investors concluded that 2.5% was not an adequate long-term yield against the background of extensive pent-up demand and ample liquidity, both in the banking system and elsewhere. Yields rose during 1947 to levels well above 2.5% at the long end. The 2.5% objective was abandoned in 1947, when the Treasury prioritised "sound financing" over cheap money. However, net purchases of Gilts continued until 1948. Bond purchases aimed at curbing increases in yields were conducted intermittently for more than 20 years until 1971, causing Gilt holdings by the Bank of England to increase slowly but steadily.

After World War II, the Bank pursued the goals of 'easy money' and low interest rates to support aggregate demand while also keeping a fixed exchange rate – through credit and exchange controls – and containing inflation. Only on 6 May 1997, following a general election that brought a Labour government to power for the first time since 1979, did the Chancellor of the Exchequer, Gordon Brown, announce that the Bank would be granted operational independence over monetary policy.

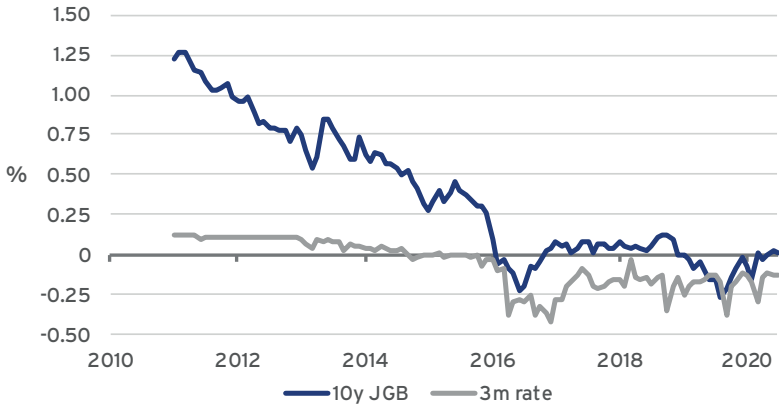
Under the terms of the Bank of England Act 1998 (which came into force on 1 June 1998), the Bank's Monetary Policy Committee was given sole responsibility for setting interest rates to meet the inflation target set by the government. The target was initially set as Retail Prices Index (RPI) of 2.5%, but later changed to 2% on the Consumer Price Index (CPI). If actual inflation misses the target by more than 1 percentage point, the Governor of the Bank of the England is obliged to write a letter to the Chancellor of the Exchequer explaining why the target was missed and how the situation will be remedied.

3.5.3 The yield curve control experience in Japan

The Bank of Japan adopted YCC on 21 September 2016 and has been targeting a zero yield for ten-year JGBs since then, 10 basis points above its policy rate. While the early episodes of YCC were conducted in the spirit of financial repression to achieve government funding objectives, the Bank of Japan's YCC is geared towards achieving a price stability target (Amamiya, 2017). The Bank introduced YCC in response to the difficulties it faced in purchasing JGBs at an annual pace of 80 trillion yen, given that large share of the JGB market it already owned. Announcing a target for the ten-year JGB yields allowed the Bank to slow down the pace of its balance sheet expansion (Figure 16).

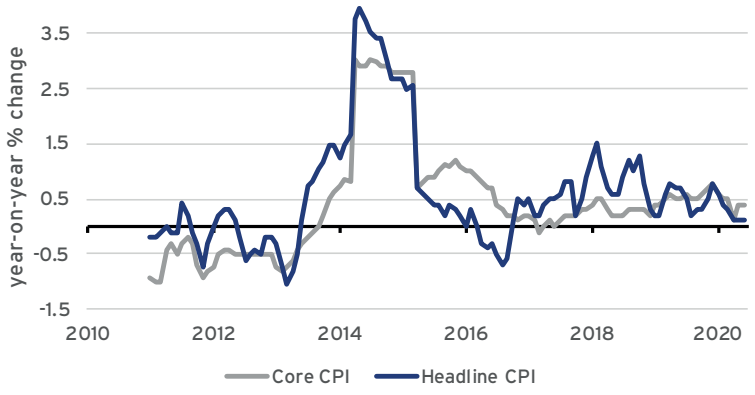
FIGURE 16 **YIELD CURVE CONTROL IN JAPAN**

A) YIELDS ON JAPANESE GOVERNMENT SECURITIES



B) BANK OF JAPAN PURCHASES OF JGBS

C) JAPANESE CPI INFLATION



Source: Bank of Japan; Haver Analytics.

Since it first adopted YCC in 2016, the Bank of Japan has only made a small tweak to the YCC framework when, to the surprise of markets, it announced in 2018 that it would introduce more flexibility by doubling the symmetric range around its target of zero for ten-year JGB yields from +/-10 basis points to +/-20 basis points. As the range around the target is not symmetric in practice, the move by the Bank was seen as a 'stealth rate hike' or 'implicit tapering'. Maintaining the guidance ten-year JGB yields would stay near zero, while gradually increasing the supposedly symmetric tolerance band, was seen as an effective route to an eventual policy exit without triggering a 'tantrum' in financial markets at the time.

Since that tweak to the framework, the rapid escalation of trade policy and broader geopolitical tensions between the United States and China have made an exit from the Bank of Japan's ultra-loose monetary policy elusive at best. If anything, renewed deflation concerns have emerged which are proving to be even trickier for the Bank, given that it would normally need to reduce its purchases as bond yields fall toward the lower end of its tolerance band. However, reducing bond buying would seem to contradict the Bank's commitment to keep printing money until its inflation goal is met.

3.5.4 Too early to tell: The recent Reserve Bank of Australia attempt

On 19 March 2020, after holding an emergency policy meeting, the Reserve Bank of Australia announced that in addition to cutting its policy rate to a record low of 0.25%, it was also implementing yield curve control and forward guidance to provide further stimulus to the economy. Specifically, the Bank is targeting a three-year bond rate of 0.25%. In its forward guidance, the Bank states that it "will not increase the cash rate target until progress is being made towards full employment and it is confident that inflation will be sustainably within the 2–3 per cent target band (forward guidance)", a process that will likely to several years. In November 2020, the Bank announced a further cut in its cash rate target, the three-year yield target and the interest rate on new drawings under the Term Funding Facility to just 10 basis points (down from 25 basis points previously) and also launched a QE programme of government bond purchases.

With the policy only in place for just a few months at the time of writing, it seems premature to fully evaluate its impact. However, we note that the underlying motivation is the fulfilment of the price stability mandate, not securing favourable financing conditions for the treasury.

3.5.5 Lessons

Yield curve control is similar to QE in terms of the monetary policy transmission. Both work mostly via the portfolio rebalancing effect, essentially the interest channel; and both are effective ways to reinforce forward guidance, an essential policy tool at the effective lower bound. However, credible YCC can be expected to reduce bond market volatility more effectively than QE. In an extreme case, it can also morph into financial repression.

The crucial difference is that under QE, the central bank sets the *quantity* of the assets to be purchased, while under YCC it sets the *price* of the assets. Hence, the amounts the central bank needs to purchase depend on supply or issuance and investor demand. Focusing on shorter maturities, possibly in the combination with a QE programme for longer maturity, could potentially avoid some of the issues.

YCC is difficult to exit, either because the inflation objective is never reached (as in the case of Japan) or because of acute political pressure (as in the case of the United States in the aftermath of World War II). However, a lengthening of government debt maturities may facilitate a smooth exit since, when policy rates eventually rise in the future, this rise will be passed on to debt service costs only gradually.

While informative, past and present experiences with YCC do not allow one to draw straightforward conclusions for today's debate. In the case of Japan, the apparent lack of YCC effectiveness is difficult to extrapolate to other countries as deflation was already well entrenched when the Bank of Japan adopted it. One highly speculative lesson might nevertheless be that YCC could work better than in Japan if inflation expectations are not yet durably de-anchored or worse, re-anchored to a level below the official inflation target. The case of the Federal Reserve in the 1940s and early 1950s is hardly applicable to today's world of deeper and more open financial markets and transparent central banks. That said, it bears emphasising that the consideration given to YCC today by a number of prominent central banks is unambiguously framed in terms of expanding the reach of the central bank's toolkit to allow the pursuit of its price stability mandate. In the 1940s and 1950s, the Fed and the Bank of England were explicitly caught in a power game with the treasury and faced with a hard trade-off between keeping control of inflation and giving space to the treasury.

3.6 CONCLUSIONS

We conclude by emphasising three key lessons we derive from the theory and history discussed in this chapter.

- There is a strong interdependence between M and F. In tail events, M must backstop public debt and F must backstop the central bank's capital to get the mix right. To be successful in stabilising macroeconomic conditions, the mutual build-up of policy space cannot jeopardise credibility. Managing that interdependence is darned hard because the credibility-flexibility trade-off is difficult to get right. Experience shows that It is easy to get the macro framework wrong. The result is the unravelling of the policy mix (loss of space for at least one instrument).

- In tail events, objectives/mandates must be clear. Earlier examples of YCC suggest that when the central bank appeared to have a primary mandate to help treasury financing, it proved extremely difficult to exit such policies. More recent examples of YCC indicate that central banks remained within their remit. The challenge for the exit appears to be less the risk of political pressure not to exit, than the credibility of the fiscal backstop that might be required if a quick exit is needed.
- Unlike the post-war episodes of monetary-fiscal coordination through YCC, the risk of losing the anchor because of an inflation burst appears more limited. It nevertheless remains dependent on the as yet unknown amount of scarring to the supply side that will be left by COVID-19 (destruction of certain sectors and global supply chain disruptions) and how reallocations will take place to make such destruction somewhat creative.

CHAPTER 4

Objectives and instruments for a Great Normalisation

In response to the COVID-19 pandemic, policymakers around the world quickly activated a broad range of fiscal and monetary instruments to provide exceptional support to counter the deep impact on output and incomes caused by lockdowns and social distancing measures. This policy mix was highly congruent on a global scale. Monetary authorities expanded their use of unconventional instruments to alleviate the liquidity stress squeezing firms and consumers in the face of disrupted cashflows. Targeted lending programmes were deployed, often covered by implicit or explicit state guarantees. The fiscal policy response was no less exceptional – beefing up automatic stabilisers through generous short-time work schemes; cheques mailed to households, SMEs and self-employed; or tax deferrals and cuts combined with carry-backwards aimed at buffering income losses.[34]

These policies were implemented against the backdrop of policy instruments already stretched uncomfortably close to their limits. In many countries, pre-COVID-19 public debt levels had already reached levels unprecedented in peace time. At the same time, interest rates were historically low, and in many countries conventional policy rates were at or near their effective lower bound.

The good news is that monetary and fiscal authorities, each acting independently within their remit, have strongly supported each other. Unconventional monetary policy levers – sovereign bond purchase programmes in particular – have, as discussed in Chapter 3, created ample fiscal space[35] that was aggressively used to stabilise the economy. In many countries, treasuries have also offered explicit guarantees backing those monetary policy measures that entail material financial risks for the central bank's balance sheet. This is how a good policy mix should come about, and it did.

However, the fact that both monetary and fiscal policymakers are pushing instruments close to their limits and/or are contemplating the activation of new exceptional (and to a large extent untested) instruments and strategies raises a number of concerns. On the one hand, our economies remain vulnerable to some variant of sovereign or financial crisis that could wipe out massive amounts of savings and destabilise incomes and production. On the other hand, a radical shift in policy assignment could potentially damage the very fabric of an effective policy mix, with the emergence of a regime of fiscal dominance. In no

34 A detailed and informative discussion of these measures is provided by BIS (2020).
35 Fiscal space captures the capacity of a sovereign to borrow funds without undue stress on borrowing costs.

way do we see these adverse developments as unavoidable, or as a reason to tone down the policy response to the pandemic. But we should not ignore that the current policy mix is at tangible risk of unravelling, notably in those jurisdictions where policy credibility and clear policy anchors are less well-established or where the political decision makers are deeply divided. A proper management of the economic and institutional risks is a crucial element to ensure that the current policy response to the crisis remains effective now and in the future.

In this perspective, the return to conditions in which both fiscal and conventional monetary instruments can adequately respond to moderate (or ideally even tail) disturbances by remaining closer to the 'middle of the road' (as Okun would say) should be high on policymakers' agenda. In a context of heightened economic and policy uncertainty, the risk of policy mix unravelling could conceivably feed self-fulfilling expectations of downturn and crisis, locking economies into inescapable high-saving, low-investment traps – a Keynesian nightmare of sorts.

In this chapter, we articulate the case for interpreting the level of the real (i.e., inflation-adjusted) equilibrium interest rate, R*, as a key metric for policy normalisation. We argue that reaching a sufficiently positive R* should be formalised as an explicit, albeit flexible, policy target. In light of this new target, we discuss the need and the prospects for a global policy mix coherent with gradual normalisation. We first review the determinants of R* and identify which policies may have contributed to the negative trend experienced at a global level in the last decades. We then reconsider several current proposals to reform the policy mix and discuss how these could be integrated in the design of national and global policy strategies to revert the negative trend and foster a return to normalcy. In the process, we also try to clear up some misconceptions obfuscating the current debate.

4.1 DETERMINANTS AND CONSEQUENCES OF A LOW AND FALLING R*

R* is the real rate of interest that, averaged over the business cycle, balances the supply and demand of loanable funds, while keeping aggregate demand in line with potential output to prevent undue inflationary or deflationary pressure. Two key features of R* are that it is (i) expressed in real terms (i.e., excluding inflation)[36] and (ii) not subject to credit risk. Hence R* is meant to capture the equilibrium (real) rate of return of a safe asset. Although it is unobservable, its estimate provides a useful guidepost for monetary policy as it captures the level of the interest rate at which monetary policy can be considered

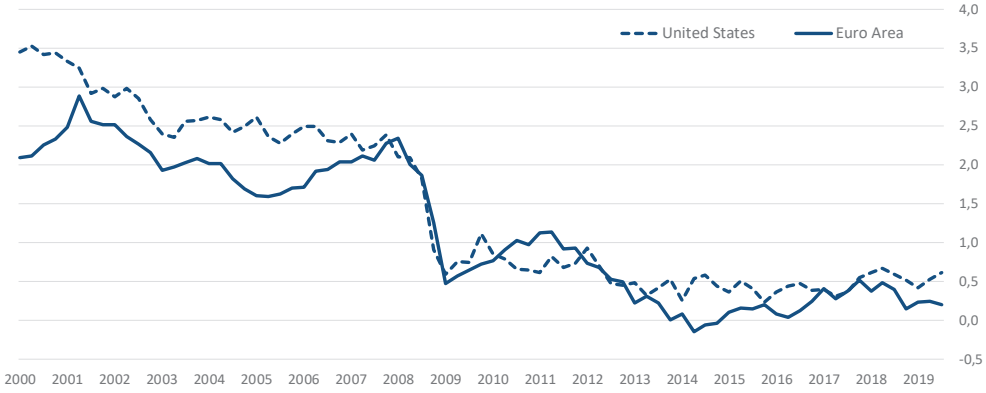
36 At the most basic level, the interest rate is the 'price of time' – the remuneration for postponing spending into the future. As such, it is a central element in economic agents' decision between spending now or later. By contrast, inflation is a 'tax on time' because it erodes the value of postponing spending into the future. Thus, what drives spending versus saving decisions is the real interest rate (i.e., the nominal interest rate *minus* the inflation rate *expected* over the relevant time horizon).

neutral (i.e., neither expansionary nor restrictive). Hence, when the economy runs below potential, pushing actual real policy rates sufficiently below R* makes policy expansionary, in the sense of stimulating the spending growth beyond the potential growth in output. The opposite applies when the economy overheats.

Many structural factors can influence R*. It is useful to distinguish those shaping saving (supply of loanable funds) and investment (demand for loanable funds) from those shaping the supply and demand for safe assets. These different sets of factors are obviously interrelated (for example, saving for retirement purposes feeds the demand for safe assets) but they are not equivalent since risk aversion or financial regulations both change over time and affect the allocation of savings between safe and risky assets. It is also useful to recognise from the start that the determinants of R* share a strong global component. While national policymakers can claim some control over domestic interest rates, financial globalisation means that reverting the downward trend in R* is largely outside their reach.

In recent decades, estimates of R* have been falling on a global scale (Rachel and Smith, 2017; Holston et al., 2017). The estimated sharp drop during the Global Financial Crisis of 2008-9 – by about 150 basis points in both the United States and the euro area, according to widely used estimates – was never subsequently recouped. In 2020, estimates of R* hover between zero and 50 basis points (Figure 17). Although the impact of the COVID-19 shock remains uncertain, the chances are that monetary policymakers will have to navigate for quite some time with a very low or even negative R*, as precautionary savings are rising further and investment plans are either postponed or abandoned (see below).

FIGURE 17 **EQUILIBRIUM REAL RATE OF INTEREST ESTIMATES (R*) IN THE UNITED STATES AND THE EURO AREA (%)**



Sources: National Bank of Belgium Annual Report 2019; calculations based on Holston et al. (2017).

Since R* can be estimated only imprecisely, it is inevitably subject to modelling caveats calling for caution in interpretations. For instance, estimates of the equilibrium interest rate can be materially impacted by the dynamics of the financial cycle – i.e., possibly large swings in the level of private sector debt to GDP (Boivin et al. 2018). That said, central banks targeting inflation are primarily expected to gear monetary policy towards closing the output gap, not smoothing the financial cycle on a systematic basis.

So for central banks, one economic and social cost of a low R* is that it constrains the room for easing monetary policy through conventional levers (short-term nominal interest rates). First, nominal rates can hardly be pushed far into negative territory due to the zero nominal return on cash, raising concerns over commercial banks' profitability. Second, low expected inflation prevents real interest rates from falling much below nominal rates. Although unconventional policy tools – asset purchase programmes, forward guidance, targeted funding-for-lending facilities – have allowed central banks to regain meaningful monetary policy space (Bernanke, 2020), questions have emerged as to how much more mileage can be generated without creating the risk of prohibitive costs, such as massive losses on asset portfolios, when reversing course (Ball et al., 2016). As discussed in Chapter 3, these risks point to the importance of a fiscal backstop to preserve monetary policy space. Still, the fact that actual and expected inflation remain persistently below target raises questions as to whether these measures can effectively anchor expectations.

More generally, however, an abnormally low R* is first and foremost a sign of economic malaise and imbalances, beyond the issues it raises for conducting conventional monetary policy. Consensus explanations point to factors that simultaneously and inefficiently push global savings up and global investment down. Some of these factors are slow-moving and predictable. This is the case of accelerating population ageing in the West and in East Asia (China, Japan, South Korea). As individuals approach retirement age, higher wage income and the prospect of lower pension payments encourage them to save more to smooth their living standards over their remaining lifetime.

Yet, the issue is why these extra savings do not find their way into investment. After all, the effects of ageing on investment are not necessarily negative on balance. While the anticipation of shrinking markets in large economies is undoubtedly a drag on investment plans, a relative fall in the working-age population could be expected to raise the return on capital. In addition, a larger elderly population could entail reallocations of productive capacity, fostering innovation and, ultimately, investment as the aggregate consumption basket changes in favour of goods and services intended to alleviate the consequences of dependency. For instance, the return on investment in robotics, telemedicine and other innovative options to deal with dependency could be expected to rise. What prevents these arguably desirable developments from moving faster and on a greater scale?

Other slow-moving but less easily predictable factors include the significant rise in income inequality in many countries, the slowdown in trend productivity growth and an increase in market concentration. Greater income inequality is generally thought to raise aggregate saving as the income share of more affluent households – who tend to save relatively more – increases. Weaker productivity gains and greater market power could both contribute to lower private investment and boost corporate savings, resulting in sizable stock buybacks and purchases of low-risk financial assets, such as sovereign bonds from reserve currency issuers. And in fact, the corporate savings glut is an essential part of the story. Again, the status quo is highly inefficient, and there are areas in which policies could intervene and correct imbalances.

In the absence of corrective measures, the future is not bright. Strong global downward pressures on R* could continue if the perception of greater risks and uncertainty after COVID-19 further raises precautionary savings and curtails productivity on a global scale. The financial crises of 1997-98 and 2008-9 had already been powerful reminders of the exorbitant costs of contagious financial stress, validating the choice made by many countries to build sizable buffers to self-insure against external crises. The COVID-19 pandemic (as well as the increasingly visible effects of climate change) can only raise further popular awareness of the complexity and sheer magnitude of mounting global threats to lives and livelihoods. Add to this the long shadow of previously unaddressed issues – the uncertain financial viability of pension systems, the endogenous rise in geopolitical risks as even basic international cooperation seems harder and harder to achieve in response to global challenges, and last but not least, growing policy uncertainty as policymakers struggle to articulate coherent responses – and the effectiveness of policy instruments is put into question.

Echoing in part these developments, a substantial literature interprets the decline in R* through financial lenses and attributes it to a global imbalance between the demand and the supply of safe assets. In this perspective, a near-zero or negative R* reflects the relative scarcity of assets free of default risk in the face of a global saving glut. The distinction between safe and risky debt is key to understand why we cannot expect R* to naturally rise with the overall rise in private and public debt. Put simply, if the newly issued debt is perceived as risky by markets, it cannot satisfy the demand for safe assets. The euro area illustrates the problem quite vividly. Compared to the United States, the excess supply of loanable funds is more pronounced, reflecting differences in the current account balance (a surplus in the euro area and a deficit in the United States). At the same time, large issuers of safe sovereign bonds, such as Germany, have long stuck to precautionary fiscal policy, rebalancing their state budget and curtailing euro-denominated safe bond supply. The gap could not be filled by large debt issuers, such as Italy, as these face persistent doubts about their creditworthiness and thus cannot contribute to increase the pool

of safe euro-denominated assets. Over time, this has resulted in a collapse of nominal sovereign yields – which turned negative even at long maturities – on all issuers still considered as safe, and variable and large spreads undermining the status of safe debt for all the other countries, only mitigated by the ECB's unconventional policies.

In this respect, an important step forward is the European Recovery Fund. Together with the ESM and European Investment Bank (EIB) debt, the supranational debt stack will have a similar size to Bunds. This is a very material event for financial markets and potentially also for the scarcity of safe assets in the euro area.

4.2 RAISING R*: A SHARED POLICY OBJECTIVE

The fall in R*, and the related melting of monetary policy space, is a global phenomenon. Thus, mitigating it calls for global policy action. Here, climate change mitigation efforts provide an interesting illustration as to how the required cooperation might happen. Faced with a global rise in temperatures, most countries in the world formally agreed (in the Paris Agreement) on an explicit long-term goal to limit global warming to below 2°C above pre-industrial levels and to pursue efforts to limit the increase to 1.5°C, recognising that this would substantially reduce the risks and impacts of climate change. In the same spirit, we think that agreeing on a target for R* and on effective policies to get there – for instance, in the context of the G20 – could provide an effective global compass for national economic policies to navigate the normalisation path.

At the global level, policymakers could recognise that they have a common interest in reverting the trend in excess saving and low investment and in addressing potential issues raised by the scarcity of safe assets. The earlier this happens, the better. The task is a tall order, though. The first challenge is to identify which policy mix, if any, can stabilise the economy in the short run while leaning against the forces that for decades have brought R* down. Provided that an effective policy mix can be identified, consisting of both demand-support measures and structural reforms, the second challenge is that no country can succeed by itself; success will require many countries to adopt the right mix of policies and reforms simultaneously.

For these reasons, we argue that raising R* should be considered as a shared policy objective for the largest economies in the world. Of course, R* is neither a final objective – it does not directly influence social welfare – nor an intermediate objective like monetary aggregates, which respond in a broadly predictable fashion to policies and ultimately affect spending and economic activity. We have seen above that R* provides a synthetic indicator of the incidence of global imbalances and misallocation that plague our economies. Proposing R* as a shared policy objective is a way to coordinate and focus policymakers' attention on the urgency of acting together.

Because of the global nature of the problem, a rise in R* will require the policy mixes of different countries to work in the same direction, namely, promoting investment, reducing the incentive to run high levels of precautionary saving and fostering an adequate supply of safe assets. Pursuing these policies in sync may not require explicit and tight international coordination, but it does require policymakers not to give in to the temptation to adopt opportunistic, strategic or confrontational measures, which would ultimately undermine the chance of success of a global effort.

As discussed in Chapter 1, aiming at an additional 'objective' requires a new 'instrument' or set of instruments. While R* is not, strictly speaking, a final or intermediate objective in the technical definition of these terms, one way to activate the 'extra instrument' required to pursue a higher R* would be to exploit more fully and in a systematic way the synergies (externalities) across existing instruments within countries and to foster coordination across countries.

Greater consistency across instruments means that in addition to a policy mix stimulating aggregate demand, regulatory interventions and other structural reforms should be geared towards greater efficiency to promote potential growth. The COVID-19 shock only magnifies the need for structural transformation of economies already challenged by global warming and innovations that, so far, have produced undesirable concentration and exacerbated inequalities. Supportive demand policies will have little traction on investment if firms' and individuals' incentives are inadequate. Hence, reforms and demand policies are strictly complementary. Thus, there is new ground to break for an effective mix of M, F and regulatory/structural policies. Okun's argument about M-F complementarity also extends to structural policies.

Across borders, achieving a cooperative outcome would be key. However, international policy coordination has long been met with deep scepticism in both academic and policy circles. Among academics, a consensus view has evolved that coordination is not sustainable (the 1970s), may be counterproductive (the 1980s) and produces negligible benefits (2000s). In policy circles, a call for coordination may sound naïve vis-à-vis the political and economic divide across regional blocks that has emerged in the last few years. Recurrent attacks from some quarters against the global governance system are clear warning signs, potentially undermining the goodwill of governments.

One may even take the pessimistic view that the COVID-19 crisis will only exacerbate the headwinds against cooperation, complicating congruent stabilisation at a global level. The deterioration of the fiscal outlook might raise vulnerability to sovereign debt crisis; and because unconventional monetary policy has limits, central banks' interventions could progressively become less effective and ultimately lead to financial instability, and/or set the stage for trade and currency wars. Uncertainty could exacerbate inefficient saving and kill investment. As a result, R*, if anything, would likely decline further.

But such a pessimistic view would underestimate the fact that the COVID-19 crisis is first and foremost a global crisis. All countries are exposed to the pandemic and its economic damage – trade and financial spillovers and spillbacks – will condition the recovery path for years to come. Out of necessity, policymakers around the world rationally ended up simultaneously adopting congruent measures. This is a striking contrast to the global policy response articulated during the GFC, where explicit cooperation and even some active coordination took place in various international forums, including the IMF and the G20. In 2020, the COVID-19 pandemic strengthened formal coordination in the euro area, but there was no international discussion across the main regions of the world. Yet, while mainly self-interested, the policy mix has so far remained well correlated across borders, and the support has been much stronger than in 2008-9 (although trade wars were avoided during the GFC). In short, the COVID-19 crisis provides an opportunity to circumvent many of the problems preventing congruence of the policy mix at the global level in practice – now and possibly in the foreseeable future.

It would be naïve to bet on good luck, though. Our proposal to make a rise in R* an official policy objective at the global level requires that regional blocks and international institutions actively foster some form of international cooperation. Existing forums could start by raising awareness about the global costs of accepting the status quo of ultra-low R* as a new normal that only requires adaptation in national policy processes. Convincing countries that they can instead leverage existing instruments in a coordinated manner to materially improve upon the status quo would be the next, albeit giant, step.

One could observe that the current state of the Paris Agreement on global warming should be enough to warn against grandiose but ultimately naïve calls to common action, since these are destined to shipwreck against the rocks of self-interested national sentiment. We nevertheless believe that this warning should be turned around. How naïve is it to think that we will be able to sail through decades of instability and high exposure to tail risk once we resign ourselves to giving up on conventional monetary policy – or if we look to reinstate it while walking the plank of highly negative rates, relying on a timely and smooth introduction of digital currencies, or substitute it with QE and other policies that, however effective, do not come without potentially sizable collateral damage?

The key issue is how to make policymakers contribute to a rise in R* (or at least a stop-loss in R*) when expectations for international coordination are low. The first answer is to avoid gross mistakes such as beggar-thy-neighbour policies in the form of trade or currency wars – an area where the G20 has proved reasonably successful, but where a rebuilding of the WTO would certainly help. The second answer is to leverage regional and bilateral agreements. One value of these agreements is that of coalition building. For instance, the European Union could complement its climate policy with a carbon border adjustment mechanism. Given the size of the EU block, such a mechanism could

encourage other countries to also adopt ambitious green transition policies which ultimately raise investment and reduce tail risks. The third answer is that of self-interest. For a country like China, whose growth remains highly dependent on external markets and the health of global value chains, cooperation would appear to be perfectly rational.

Overall, the sheer magnitude of the COVID-19 pandemic and the global context in which it has occurred imply uniquely large and visible costs from the absence of international cooperation. The alternative of 'not trying' out of fear of failure may simply become too costly to contemplate. The rising likelihood of tail risks combined with persistently stretched policy space is just too unpleasant a situation to be in.

4.3 ENHANCING THE POLICY MIX: A REVIEW OF PROPOSALS

Policies can contribute to increasing R* to the extent that, on a global scale, they foster a sustainable increase in investment (public or private) and an efficient fall in savings (through enhanced insurance and reduced uncertainty). Hereafter, we review three leading proposals to reform the policy strategy from our perspective. The first proposal is developed having in mind a liquidity trap à la Eggertsson and Krugman (2012). The second is premised on a secular stagnation story à la Eggertsson et al. (2020). The third takes a financial perspective, calling attention to global imbalances in the supply of safe assets. We highlight the strong links among these proposals, and then attempt to connect them into a workable mix.

It is worth stressing from the start that, in all the proposals discussed below, the expansionary side of M and F on the demand side can work efficiently only if accompanied by consistent policies on the supply side, guiding the mix of tax, subsidies and more generally the content of spending (e.g., infrastructure, green economy, digitalisation) on the one hand, and structural reforms on the other. In general, but especially in response to the COVID-19 pandemic, the supply side of the mix is essential in reducing the economic and social costs of sectoral reallocation, and maintain social cohesion by avoiding deepening inequality.

4.3.1 Out of a liquidity trap: Fiscal expansion with temporary monetary financing

A number of proposals advocate a 'non-Ricardian' fiscal expansion as a workable strategy to bring actual and expected inflation back to target and restore full employment in the face of a tail event (see Box 7). In a nutshell, a 'non-Ricardian' expansion consists of temporarily running public deficits without 'backing' the additional debt with a promise to raise primary surpluses in the future. This in principle would undermine the price of outstanding government bonds, as markets would start to charge a risk premium. But if the central bank backs the face value of government bonds in nominal terms, this commitment would prevent the nominal price of these bonds from falling – the fiscal expansion can only result in inflation. In short, the proposals reviewed in this subsection hold that the fiscal expansion (i) should be implemented with a commitment not to offset

current primary deficits with future surpluses, and (ii) should be accompanied by an explicit monetary guarantee on the face value of government bonds, implying that the central bank should be willing to intervene in the market on the scale required to prevent any sovereign risk premium. Moreover, the strategy should only aim at raising inflation back to target, implying that inflation expectations should remain anchored. It is worth stressing that the success of the strategy depends on a high degree of policy commitment. In particular, it can only be successful conditional on a credible exit, defining credible modalities for the central bank to abandon its guarantees (bond purchase programme).

BOX 7 **ENSURING THAT DEBT IS NON-DEFAULTABLE**

To appreciate the logic of this class of proposals, recall that government bonds are a claim on future primary surpluses. Ruling out Ponzi games, in equilibrium, the value of the outstanding public debt must then be equal to the present discounted value (PDV) of future primary surpluses *S*:

$$\frac{qB}{P} = PDV(S)$$

where *q* is the nominal price of debt, *B* is the nominal public debt and *P* the consumer price index, so that *qB*/*P* is the real market value of outstanding debt. A reduction in the PDV of future primary surplus (i.e., a non-Ricardian fiscal expansion) on the right-hand side must correspond to a reduction in the real value of outstanding debt. *Ruling out default* (cuts in the nominal value of debt), *q* is unaffected so, for a given *B*, this must be accommodated by an increase in the consumer price index *P*.

$$\frac{qB}{P\uparrow} = PDV(S)\downarrow$$

Note that, in the absence of a central bank guarantee on debt, a non-Ricardian fiscal expansion would lead to expectations of a default, which would translate into a fall in the price of bonds *q*:

$$\frac{q\downarrow B}{P} = PDV(S)\downarrow$$

In other words, adjustment exclusively through the price level P is only possible if the monetary authorities de facto guarantee the face value of nominal bonds – i.e., they make government bonds 'non-defaultable' in nominal terms, so that q remains unaffected.

It is worth stressing that at the zero lower bound, treasury and monetary liabilities are perfect substitutes only if markets price no default risk. By standing ready to exchange potentially default-risky nominal government bonds with monetary liabilities free of outright default risk on a one-to-one basis, the central bank can ensure that the debt is indeed non-defaultable.

Hence, the monetary guarantee on the face value of government bonds is meant to make government bonds temporarily indistinguishable from bank reserves. This policy works well in a liquidity trap, where near-zero interest rates already equate the return on bonds and reserves. It is uncharted territory outside a liquidity trap. But a guarantee should still be feasible though, as central banks can borrow by issuing interest-bearing nominal assets – the interest on bank reserves setting the nominally risk-free rate for the economy.

The goal of a temporary regime with fiscal expansions and monetary guarantees on the face value of debt is to support economic activity as needed to raise current and expected inflation to target, thus helping the central bank to regain space for conventional interventions. The following (from Corsetti et al., 2019) is an example of how this can work in practice:

> *"By way of example, consider an increase in transfers from the government to households lasting approximately as long as the policy rates remain at the lower bound. As the present value of transfers rises [the government commits not to raise taxes in the future], households are wealthier at the current price level. Households raise their demand for goods, and output and marginal costs increase. Higher marginal costs translate into higher contemporaneous prices and higher expected inflation. With the policy rates at the lower bound, the rise in expected inflation reduces the real interest rate, which boosts investment while further stimulating consumption. The multiplier effect of a change in transfers on output at the lower bound can be sizable. As in the case of the first fiscal intervention, however, it is essential that monetary policy accommodate the fiscal stimulus, by keeping the policy rates at the lower bound (or at most raising them weakly)."*

There are historical examples. Jacobson et al. (2019) argue that the 1933-37 recovery in the United States is a concrete illustration of such a strategy. While the exit of the dollar from the gold standard gave space to monetary policy – and made government bonds truly nominal assets – the Roosevelt administration effectively committed to run primary fiscal deficits until the price level and economic activity recovered. The fact that the fiscal stimulus was not tied to the expectation of future tax hikes made fiscal policy particularly effective, which was instrumental in pulling the economy out of a liquidity trap.

It is worth reiterating the core features of these proposals. First, as already stated, the logic of the proposal is that, vis-à-vis a fiscal expansion which is explicitly not backed by future adjustment in primary surpluses, guaranteeing non-defaultability of government bonds requires a degree of monetisation. This is bound to raise prices – precisely because this is the goal of the mix. Once the goal is reached and inflation is at target, going beyond that point raises the risks of switching to a regime where inflation expectations are not anchored. In other words, it should be stressed that this type of proposal works if and only if the monetary policy guarantee on government bonds is in place just long enough to raise inflation (actual and expected) and economic activity, *but not longer*. So, a certain degree of ('good') monetisation is inevitably taking place in this approach. Monetisation results from the combination an unbacked fiscal expansion with the monetary guarantee of non-defaultability of the government bond. It is that mechanism which delivers the increase in the price level. Thus, it seems clear that once inflation is back on target, exiting the strategy is a must to prevent fiscal dominance. As discussed in Chapter 3, the problem with fiscal dominance is that monetary policy is unable to anchor inflation expectations and therefore can no longer provide credible stabilisation of the economy.

Second, to work efficiently, such a strategy requires a fair amount of implicit or explicit coordination between fiscal and monetary authorities – they must converge ex ante on the plan and stick to it. The strategy must be conceived as a contingency plan with clear objectives, limits, and triggers (i.e., events causing its activation and its termination). At a minimum, the realisation of tail risks and/or clear evidence of a liquidity trap – i.e., a complete ineffectiveness of monetary policy – are the tests to pass before activating such a plan.

That said, it is easy to think of many practical and institutional problems when implementing the mix of unbacked fiscal expansion and monetary backing of government bonds. The most obvious one is the credibility of government commitments. Commitments to be 'fiscally irresponsible' may not go down well with voters, and it is unclear how today's administration/cabinet can tie the hands of tomorrow's administration/cabinet. Matters are obviously even more daunting in the euro area, where fiscally conservative countries would likely not support such experiments. As regards the central bank, a temporary and state-contingent commitment to guarantee the nominal value of government bonds would open an avenue to political pressures when the conditions of an exit are about to be met, putting in jeopardy the credibility of any pre-announced exit strategy.

The difficulties in defining strict, contingent and time-bound commitments by both monetary and fiscal authorities help explain why existing asset purchase programmes cannot be interpreted in the light of an unbacked fiscal expansion strategy (or temporary fiscal dominance). Once again, observational equivalence – i.e., observing a combination of considerable fiscal deficits and the accumulation of government bonds on central banks' balance sheets – can be deceiving. It is abundantly clear, however, that no government has committed not to offset current deficits with future surpluses and that no central bank has committed to permanently monetise public debt as needed to plug the eventual wedge in the intertemporal budget constraint.

So, can the strategy be implemented in practice? Are there institutional solutions to the problem of creating temporary deviations from a regime of monetary dominance? One leading proposal entertains the creation of a 'standing emergency financing facility' (SEFF) by monetary authorities (Bartsch et al., 2019a). A SEFF would provide a framework for temporary monetary financing of an expansionary fiscal policy stance in a situation where the central bank assesses that it won't be able to return to its inflation target using all monetary policy instruments at its disposal, including unconventional policy instruments. By providing such a standing emergency financing facility, the central bank lays out the framework for a coordinated policy approach with the fiscal authorities. Importantly, however, the framework would also allow the central bank to define the subsequent exit from the joint monitoring-fiscal policy effort. This exit will be explicitly determined by the inflation outlook (potentially even allowing for a make-up strategy of past inflation undershoot).

In the same spirit, Corsetti et al. (2019) explore the possibility of a common fund for the euro area. Under exceptional conditions under which the Stability and Growth Pact would be suspended, a common issuance of debt would finance exceptional spending with the ECB guarantees on the face (nominal) value of its bonds (see also Tabellini, 2016).

4.3.2 Out of secular stagnation: Taking advantage of low borrowing costs (r-g < 0)

Another strand of proposals (e.g., Blanchard et al., 2020) stresses that, as long as a negative R* translates into a negative growth-adjusted interest rate on debt (r-g), a large outstanding debt is a weak constraint on fiscal expansions. A country can, up to a limit, run primary deficits without raising its debt-to-GDP ratio. This is good news for the proponents of the secular stagnation hypothesis because there is space for the government to alter the basic problem underlying stagnation, namely, inefficiently high saving chasing inefficiently low investment. By borrowing more and investing more, the government holds levers to get out of that trap.

Once out of the zero lower bound, higher interest rates will weigh on the debt burden and governments will face the choice between fiscal consolidation or debt reduction measures. Focusing on a desirable scenario with fiscal consolidation, assigning fiscal policy to debt stabilisation implies that monetary policy will have to be, once again, mainly responsible for the overall macroeconomic stance. Thus, a sustainable mix will have to ensure that monetary authorities have enough monetary space to start – hence the importance of going into an equilibrium with a sufficiently high R* – and keep public debt safe from belief-driven stress. This is the return to normalcy for the policy mix.

One part of the debate around this proposal concerns the relevant measure of the government's debt burden. Critics stress that the stock of explicit government liabilities (the debt-to-GDP ratio), which is already high, is only the tip of the iceberg. If one includes contingent liabilities and future spending commitments on entitlements, the actual debt is many times larger than the official number, offering a far bleaker picture of sustainability and risks (Rogoff, 2020). Once again, it is worth reiterating that a negative R* does not preclude high risk premia, which means that a negative r-g can last only until markets start pricing outright default or inflation risk. At a time of unprecedently high debt levels, the risks associated with self-fulfilling prophecies of outright default or monetisation loom large. Hence, counting on the continuation of negative r-g is a risky bet for highly indebted governments.

If belief-driven sovereign stress looms large, effectively using fiscal space requires a monetary backstop (Chapter 3). This implies that the central bank should stand ready to purchase government securities on a large scale unless there is a clear fundamental element substantiating the belief of government insolvency (Corsetti, 2015). However, the distinction between self-fulfilling crises and genuine concerns about solvency is as neat in principle as it is muddied in practice. Hence, a fiscal expansion premised on persistently negative r-g may quickly morph into a scenario combining a central bank guarantee on

the face value of government bonds and unfettered fiscal stimulus. That brings us back to the delicate strategy of unbacked fiscal expansion discussed above and the material risk of fully-fledged fiscal dominance. Hence, far from being restored in a normal state, the policy mix would unravel.

In general, proponents of the secular stagnation hypothesis emphasise the need for large programmes of high-quality public spending. Stimulus is about leveraging present public expenditure to encourage higher private spending in the future. This could be done, first, by building public infrastructure or introducing tweaks in the tax/incentives system that raise firms' productivity, encourage private investment and foster confidence (ultimately raising R*). Second, in line with country-specific needs, the fiscal expansion could also be geared towards beefing up income redistribution and social safety nets, shielding livelihoods against the uninsurable aggregate uncertainty that typically supports precautionary savings.

The ability of the fiscal stimulus to sustainably raise private spending by incentivising private investment and reducing precautionary savings is central to address the second source of debate around the proposal, namely, the credibility of the exit. There are two preconditions for a credible exit from the ultra-congruent policy mix. The first is a high-quality fiscal expansion with durable repercussions on the private sector savings-investment balance. This requires more than raising spending; it will only be successful if complemented by consistent reforms addressing inefficiencies and constraints on economic activity and ensuring a less concentrated and more equitable growth. The second is a sustained increase in R* to provide enough monetary policy space. Should R* remain too low when the time is ripe for fiscal withdrawal, some sequencing might be warranted in the form of delayed or more gradual monetary exit. The price to pay for a gradual monetary exit might be an episode of above-target inflation, which should be of no concern if the central bank remains sufficiently transparent, cool-headed and independent to keep expectations well anchored. Against this scenario, premature withdrawal of monetary and fiscal support could of course cause the economy to roll back in a crisis.

4.3.3 Increasing the supply of safe assets

As is apparent from our discussion so far, a fiscal expansion can contribute to raising R* to the extent that it increases the supply of safe bonds – echoing an early analysis by Caballero et al. (2017). This is precisely where the monetary-fiscal interdependence fleshed out in Chapter 3 is crucial, and fuzzy economic thinking becomes most dangerous.

At the zero lower bound, the supply of safe bonds is a by-product of the monetary guarantee on bonds, whose purpose is to make them non-defaultable in nominal terms (a possibility obviously precluded in countries with a high level of dollarisation/eurorisation). A real-time experiment proving the point is the experience of the euro area where, between 2010 and 2012, the crisis polarised the fiscal outlook and borrowing conditions of the member

states. A few countries benefitted from a negative risk premium, whereas others had to pay a high and variable risk premium to borrow. The crisis would have been much worse (and possibly led to the end of the euro experiment) if, from 2012 on, the ECB had not eventually acted as a liquidity provider consistent with its mandate of price stability and its goal of equalising the monetary policy transmission in an environment of increasing (non-fundamental) risk polarisation. In a sense, the ECB's promise of Outright Monetary Transactions (OMT) has acted as a surrogate for the absence of a single European safe asset by making individual issuers appear more similar.

There is an open debate as to how far the central bank can go in compressing sovereign spreads in a monetary union without fiscal integration. But the main message is that, from an aggregate perspective, the euro area has been suffering from a structural undersupply of safe assets. The financial engineering of a safe euro area bond – by tranching and securitising national debt – may be able to increase the supply of safe asset, but only imperfectly (Leandro and Zettelmeyer, 2018).

New hopes for a more complete monetary union have emerged with the recent agreement on a jointly funded recovery plan. This seems to be a much more promising avenue to increase the pool of safe supranational assets in the euro area, as the borrowing will be backed by the EU budget and hopefully by new tax resources (which will not reduce the resources devoted to national budgets). Countries with higher debt have little or no fiscal space left so that the asymmetric disbursement of the recovery plan's grants will help too. Countries with lower debt may adopt a precautionary fiscal stance to maintain the benefits of a negative risk premia. An important concrete implication, however, is the need to carefully monitor the euro area aggregate fiscal stance. Since the GFC, it has arguably remained too contractionary on average, contributing to the undersupply of safe euro-denominated bonds. The adequate reaction to the COVID-19 crisis seems to suggest that the euro area is willing to take a few steps in the right direction. In this respect, the ongoing review of EU fiscal governance will be key.

4.3.4 Unanchored inflation

For more than a decade, monetary authorities around the world have been dealing with actual and expected inflation persistently below target. This 'lowflation' phenomenon happened independently of the success of national policy mix in raising employment and economic activity. In economic jargon, the Phillips curve seems to have become hopelessly flat in response to monetary stimulus, especially in the experience of the United States. Some mitigating evidence from Sweden suggests that inflation can nevertheless still respond quite strongly to a monetary tightening (Svensson, 2014).

Below-target inflation signals that the current policy mix may not be as effective as we may hope for, that inflation expectations are not well anchored and/or that something deep may simply be escaping our understanding of how the economy works. Some inflation is likely to be a sign of return to normal economic conditions, and as argued above, it might be wise to show some tolerance for temporarily overshooting official targets, provided of course that overshooting takes place within an institutional framework that guarantees the credibility of policies and policymakers.

A practical question is where the red line for inflation overshooting should lie. There is a vast literature on the social and economic costs of inflation, and depending on circumstances, there could be difficult trade-offs with other evils. As argued above, one could make the point that the costs of the extra inflation required to accommodate some (limited) monetisation of unsustainable deficits (as is inevitable in the unbacked fiscal expansion argument) are small when compared to the costs of debt restructuring and default and the benefits of creating, at the margin, some space for enhanced fiscal stabilisation.

Some may entertain a scenario in which, under the weight of a high level of public and private indebtedness, inflation will be traded off with 'debt sustainability' – with central banks lured into the game of liability monetisation and rising need for seigniorage revenue – at least for some time. A key question is whether this policy strategy would then require financial repression as a pre-condition for success as, in a financially globalised world, currency and portfolio substitution reduce the potency of higher inflation to produce the desired effects, since such substitution amounts to an evaporation of the tax base. A controlled monetisation scenario may even be quite friendly if assessed through the lens of models in which the required higher inflation rates remain stable. But this is exactly what is highly doubtful considering past experiences.

Hence, the real concern with debt monetisation is the risk of losing control over inflation altogether (i.e., losing the nominal anchor), not some temporary overshooting in the context of a well-defined strategy supported by a sound institutional framework. The realisation of that risk cannot but undermine financial and fiscal stability, and with it the status of public debt as a safe asset. In a context of high and volatile inflation, an effective central bank backstop guaranteeing the nominal value of the bond has little value. This is bound to raise borrowing costs (an inflation premium substituting a default risk premium), which may be repressed by administrative measures only at the cost of severe asset price distortions. Households and firms would then have a strong incentive to seek portfolio diversification, and some currency substitution may result. High inflation premia also tend to raise private borrowing costs in the economy.

In the end, unanchored inflation expectations would prevent inefficiently high precautionary saving and inefficiently low private investment from being addressed. Monetary stabilisation would be impaired, and policymakers may become concerned exclusively with restoring inflation and financial stability, as was the case through the adoption of the currency board regime in Argentina (Chapter 3). Losing the nominal anchor may also hamper the fiscal outlook, as monetary policy may become inefficient in providing fiscal space.

4.4 CONCLUSIONS

The analysis in this chapter suggests that monetary and fiscal policy are even more intertwined than described earlier. Not only does the (primary) fiscal balance matter for monetary policy and for the effectiveness of a bold policy mix in a liquidity trap, but also the quality of a fiscal expansion aimed at raising R* matters in terms of its success in durably promoting private investment and reducing precautionary savings in the future. In addition, exiting an exceptionally congruent policy mix is tricky, as removing both monetary and fiscal stimuli at the same time may be too risky. Designing the right policy mix may thus involve delicate sequencing issues, including a monetary exit taking place after the fiscal exit. This would imply that a highly congruent policy mix would be followed by a divergent one in which a procyclical monetary stance would let inflation temporarily overshoot official targets.

While exit strategies aimed at putting the policy mix back in 'the middle of the road' do exist, their success is premised on internalising the global nature of R*. Hence, achieving a positive R* is a global public good that requires more investment, less savings and more safe assets on a worldwide scale. The COVID-19 shock per se cannot but make things worse, and without decisive and coordinated (or congruent) action, the increased uncertainty and general fear in the face global threats is likely depress R* further.

In fact, the low level of R* in combination with already highly congruent fiscal and monetary policies suggests that 'additional instruments' (or, more precisely, enhancements to existing ones in the form of more fully exploiting synergies among them) need to be brought in. International initiatives contributing to reducing uncertainties at a global level in the short term (for example, through a global vaccine strategy and effective assistance to lower developed countries) and in the longer run (for example, through a reshuffling of the WTO or effective pressure on trade partners that do not comply with the Paris Agreement) will complement such a policy mix. At a bare minimum, cooperation requires the exchange of information and analysis establishing R* as a key indicator of global economic health and a matter of common concern. A first immediate step would be for all relevant parties to discontinue (and hopefully reverse) recent actions that contributed to undermine confidence in the system of global economic governance, such as trade wars or vaccine nationalism.

We see hopeful signs that policymakers can move in the right direction. Despite significant political hurdles, the ongoing initiative to build a common borrowing capacity at the EU level will contribute to global efforts to raise R* as it will involve both more fiscal support and a higher supply of safe assets.

Conclusion

In this report, we show why the need for an effective policy mix has rarely been more pressing. Since the Global Financial Crisis of 2008-2009, monetary policy has been caught in a race to ever expand the set of unconventional tools, without being able to meet official inflation targets. The economic crater opened by the COVID-19 pandemic has only exacerbated the problem. The policy debate has shifted from 'how far we can push negative interest rates and QE?' to 'fiscal and monetary policies must act vigorously together'. The concept of the policy mix, which had virtually disappeared from economics textbooks, is back with a vengeance.

Along the four main chapters of this report, our thinking built on two basic principles. First, a situation where either one of the two key instruments is unavailable or ineffective can be very costly. This is certainly the case when, as now, complementarities between the two legs of the mix must be fully exploited to deliver enough macroeconomic stimulus. Second, for a policy mix to be effective, the different policies must remain anchored to desirable long-term goals (i.e., public debt sustainability and price stability). History has repeatedly shown that no effective policy package can be envisaged if economic agents have fundamental doubts about public sector solvency under appropriately low and stable inflation. Credible policy anchors require well-designed institutional frameworks governing the conduct of monetary and fiscal policies, not a return to unhinged policy discretion.

The origin of the policy mix can be traced as far back as Tinbergen's view of economic policy as the solution to an optimal control problem. In that framework, having one more independent instrument always allows the pursuit of one more objective. Solving the assignment problem amounts to tying each instrument to the objective it can most efficiently serve. In the early 1960s, Mundell proposed that in a fixed exchange rate regime like Bretton Woods, monetary policy should cater for the external balance, whereas fiscal policy should secure the internal balance (i.e., full employment).

While Tinbergen emphasised independence among policy instruments, Tobin showed that monetary and fiscal policies jointly determine output and prices through their combined impact on aggregate demand – the 'common funnel theorem'. As many combinations of monetary and fiscal policies can deliver the aggregate demand impulse needed to preserve macroeconomic stability, the two instruments are substitutes in the short term. Overall, while Mundell suggested that monetary and fiscal policies should push aggregate demand in opposite directions – what we refer to as a *divergent* policy mix – Tobin's funnel would point to the desirability of jointly countercyclical policies – what we refer to as a *congruent* mix – to achieve price stability and full employment. Since the world has moved to more flexible exchange rates, the common funnel has effectively been the dominant paradigm.

By the late 1970s, the heydays of Keynesian fine-tuning were over and attention had turned to the overarching importance of policy credibility. On the monetary side of the mix, the fear of an inflationary bias motivated efforts to constrain central banks' discretion, first through crude, ineffective rules and ultimately through the delegation of monetary power to independent experts tied to a narrow mandate. The quest for credibility still motivates modern inflation targeting frameworks based on a strict separation of monetary and fiscal powers.

The rise of new-Keynesian models re-established the benefits of macroeconomic stabilisation policies, and thus the value of preserving enough monetary and fiscal leeway to buffer shocks. The implication is that a good policy mix must deliver macroeconomic stability in the short and the long run. To do so, policymakers should rebuild buffers whenever possible to keep instruments 'in the middle of the road' (to borrow Okun's words). The common, demand-driven business cycles would be expected to translate into a congruent policy mix most of the time, with non-congruent (i.e., divergent or wholly destabilising) mixes arising less frequently.

The evidence suggests that congruence has been rare over the last three decades in advanced economies; the policy mix is most frequently divergent and too often destabilising. Non-congruence of the policy mix often has to do with procyclical fiscal policies, although monetary policy also appears to be procyclical on occasions.

Looking into the circumstances in which procyclicality occurs, monetary policy is more likely to destabilise the economy when conventional instruments hit their lower bounds or when the risk of financial instability is elevated. On the fiscal side, procyclical policies are common when public debt and financial (sovereign) stress are high, up to requiring financial assistance.

The cost of procyclicality is a gradual erosion of policy space. The empirical relevance of this simple truth cannot be overemphasised. Following the GFC, it became apparent that lack of policy space exposes economies to instability, as the policy response to shocks is impaired by constraints on policies deriving from the legacy of past mismanagement.

A burning question today is thus whether the one-two policy punch required to address the consequences of the GFC and the COVID-19 pandemic can be delivered with sufficient strength when monetary and fiscal policies are constrained by the zero lower bound on interest rates and historically high public debts, respectively. Another way to ask the same question is whether, given that the hands of our economic policy *boxer* are somehow tied, even innocuous shocks (let alone the COVID-19 shock) could snowball into 'tail events'.

In light of the past decade, at least in the short term, the answer to these questions is more encouraging than one might fear. First, the lower bound on interest rates proved less devastating than the textbook 'liquidity trap'. Monetary policy proved it could still be effective by deploying unconventional measures that are both more direct in terms of shaping financial conditions and more targeted in their reach. Second, tail events led

monetary and fiscal authorities to exploit the strong complementarities between the two legs of the mix. Central banks reduced financing costs for governments and insured them against belief-driven market stress, allowing public budgets to support economies despite record high public indebtedness.

While these developments blurred the traditional boundaries between monetary and fiscal policies, they took place well within the three decade-old institutional setup establishing a strict separation of monetary and fiscal powers. Admittedly, the monetary-fiscal interaction may have switched from a game of strategic substitutability (in which more stimulus by one instrument reduces the need to use the other instrument) to a game of strategic complementarity (in which both instruments must pull together, and more stimulus by one raises the policy space and effectiveness for the other), but the underlying institutions did not change. That separation of powers continued to provide the credibility needed for policies to remain effective.

Going forward, the challenge is in continuing to take full advantage of monetary-fiscal complementarities while preserving institutions that back credible commitments to both price and debt stability over the long term. History shows that absent a strong institutional framework, monetary-fiscal coordination can end in tears. We provide examples of governments that either are afraid of navigating that interdependence (only to get the wrong, divergent policy mix, as was the case in the euro area after the GFC) or fail to understand its limits by stretching public sector and central bank balance sheets well beyond their breaking points. We analyse episodes in which monetary authorities embraced yield curve control (YCC) policies that created a host of issues regarding how to manage the 'exit' from arrangements that were effective precisely because they were understood to be temporary. The experience of the United States and the United Kingdom with YCC in the immediate post-war stabilisation period points to a risk of exiting too late from temporary coordinations, with open conflicts over central bank independence being likely.

Continued restrictions on monetary policy space create an ongoing danger for the policy mix. Indeed, a host of global factors – including population ageing and rising inequality – seem to boost savings and discourage investment, pushing down the risk-free 'equilibrium' inflation-adjusted interest rate (known as R*). A low R* raises the likelihood that monetary policy very quickly exhausts conventional space. It also makes the need for concomitant fiscal stimulus more pressing, which could push governments into unsafe debt territory where belief-driven crises are a much greater risk. This situation strengthens the case for explicit monetary-fiscal coordination. The difficulties of getting this coordination right are as real as the very high costs of getting it wrong.

In a world of high international capital mobility, each policymaker has a limited impact on R*, which should therefore be considered a global public good – much like containing the rise in global temperatures. The proposed strategies to raise R* are bold and invariably require significant fiscal action, including 'unbacked' fiscal expansions or

deficit-financed public expenditure boosts. High-quality fiscal stimulus, complemented by economic reforms, is essential to ultimately foster private investment and cut corporate and precautionary savings. In contrast, trade wars and vaccine nationalism can only contribute to lowering R* through prolonged uncertainties. A higher R* is the condition for a 'Great Normalisation' of the policy mix.

The shared goal of a higher R* defines a rare case in which the benefit from global coordination should be apparent to most countries. A higher R* could move the policy mix closer to the middle of the road, a move that would considerably increase the stabilisation potential of countries, and thus their ability to handle large and global shocks. Reduced uncertainty about the effects of bad shocks would on its own contribute to the sustainability of the rise in R* by lowering savings and encouraging investment.

Of course, there is no shortage of reasons to be pessimistic about cross-border cooperation. One may simply point to the current state of the Paris Agreement on global warming. We nevertheless believe that these warnings should not be exaggerated. As this report suggests, the costs of accepting permanent exposure to devastating tail events are too high to remain idle, and might hopefully convince the key global players that we face a uniquely beneficial opportunity to cooperate on a global scale.

The ongoing strategic reviews of monetary and fiscal frameworks in a number of countries provide a unique opportunity to thoroughly rethink the two issues discussed in this report. The first is how to wire the necessity of strong but temporary coordination between the treasury and the central bank into the institutional framework, and the modalities that could make such coordination most effective. Conditions to activate and terminate such coordination should be clearly spelled out, leaving no room for beliefs that commitments to long-run price and public debt stability are in jeopardy. The second is how to take advantage of the current convergence on a tightly coordinated policy mix among the largest economies in the world to develop a strategy to move back to more 'normal' conditions – boosting investment and absorbing excess saving in a productive and durable way. Restoring resilience through a joint effort to raise R* globally is the insurance the world needs against further global accidents.

Discussions

The report was discussed over two days (2 October 2020 and 5 October 2020). The first day featured discussions of Chapters 1 and 2 and an open floor discussion. The second day featured discussions of Chapters 3 and 4, an open floor discussion and three virtual 'breakout' rooms.

DISCUSSION OF CHAPTERS 1 AND 2

Chaired by Fritz Zurbrügg, Swiss National Bank

Katrin Assenmacher, *European Central Bank*
The report is highly relevant and timely, especially in light of the strong monetary and fiscal policy response to the COVID-19 pandemic. It contains a wealth of theoretical and empirical material on the monetary and fiscal policy mix. In my discussion, I will first comment on the theoretical framework and then offer some reflections on the empirical results.

The main message of the report is to 'stay in the middle of the road'. This means that policies should not be stretched to the extreme, for two main reasons. First, policies that are employed beyond their usual boundaries may spark unintended and unexpected effects. Second, staying in the middle of the road also means that sufficient policy space remains available to step up policy action if needed.

The current situation, however, is far from anything that can be considered as being 'in the middle of the road'. Interest rates are close to zero or even negative, imposing serious constraints on monetary policy. At the same time, fiscal policy is constrained by extraordinarily high debt levels. While the advice to 'stay in the middle of the road' may have been sensible some decades ago, the effectiveness of monetary and fiscal policies, as well as their future potential to stabilise the economy, now need to be evaluated in light of the current situation.

To set the stage, it seems useful to start with what we know about the optimal policy mix under normal conditions. In the standard setting, monetary policy should target inflation, while fiscal policy should smooth taxes over time. As regards specific characteristics of the optimal policy mix, we know that monetary policy can simultaneously stabilise inflation and output if a demand shock hits the economy, but not in case of a supply shock. In a monetary union, such as the European Monetary Union, monetary policy is unable to address country-specific shocks, which has to be done by fiscal policy. Furthermore, if inflation and debt are both to be stabilised, only one policy can be active in the sense of Leeper (1991), implying that, in a setting with an inflation-targeting, independent central bank, fiscal policy will have to adjust. When policymakers can commit credibly to a specific policy path, cyclical stabilisation is more effective. Model-based results show

that when one policy area is constrained, the other policy area should do more – so, for example, with interest rates at the lower bound, fiscal policy should play a larger role. At the same time, the ability of fiscal policy for stabilisation is reduced when debt ratios are already high.

These optimal policy prescriptions should be kept in mind when interpreting the empirical results. While the report mainly focuses on the congruence of the monetary and fiscal policy stance, policy constraints as well as situation- and country-specific factors for the optimality of the policy mix should be explored more. The empirical results show that for most countries, monetary and fiscal policies were countercyclical less than half of the time, with a policy mix that was often divergent and destabilising. The unavailability of euro area monetary policy to stabilise country-specific shocks cannot explain this result because fiscal policy is found to be even more procyclical than monetary policy.

At the same time, limits to stabilisation policies that emerged in the wake of crises seem to have affected the policy mix. According to the regression results, a debt overhang or a financial assistance programme increases the probability of fiscal policy being procyclical, while the probability of procyclical monetary policy is higher when interest rates are at the lower bound. This evidence is in accordance with the theoretical priors. Moreover, the less constrained policy area seems to step into the breach, although results are not fully conclusive. When the lower bound on interest rates binds, the probability of procyclical fiscal policy decreases, but not significantly. In the presence of high debt and a financial assistance programme, procyclical monetary policy is less likely, but again the coefficient is insignificant.

Debt stabilisation could be another potential explanation for the lack of congruent monetary and fiscal policies. The result that countercyclical monetary or fiscal policy increases the likelihood of the other policy area being procyclical could be interpreted in this way. However, procyclical policy also increases the probability of procyclicality in the other policy area, which does not fully accord with this interpretation. More work could be done to assess whether the lack of congruence reflects attempts to regain policy space, with one possible approach being the estimation of policy rules to evaluate active and passive policy combinations and to investigate the correlation of coefficients from such rules like in Calderon et al. (2016).

Overall, the report presents a wealth of material to inform our thinking about the optimal policy mix. While the report mainly focuses on the congruence of monetary and fiscal policies, the literature on the optimal policy mix under normal and constrained conditions could be drawn on to investigate additional hypotheses in more detail and enrich the empirical part. Intertemporal issues such as how and when to correct deviations from 'the middle of the road' could also be explored.

Marco Buti, *European Commission*

The report is excellent reading and very pedagogical. In a period of huge economic stress, it is good to go back to the fundamentals. I broadly agree with the report's analysis and the policy conclusions. Therefore, given my role as frontline policymaker, instead of quibbling with specific points, I will try to provide my own views on the policy mix debate based on Europe's experience during the financial crisis and drawing some lessons for handling the economic fallout of pandemics.

What did we learn from the global financial crisis about the policy mix? The answer is a lot, and the lessons help explain why today's policy reaction is very different from that at the outset of the financial crisis.

First, a certain amount of risk-sharing is needed in EMU, either explicitly by the national budget or by the ECB balance sheet. During the global financial crisis, policymakers focused on ECB balance sheets, but now we have reached the limit. With the COVID crisis, a more explicit risk-sharing by the balance sheets of governments and the EU budget is taking place.

Second, one should be wary of too early withdrawal of fiscal stimulus, as it could be very costly after a large and long-lasting shock.

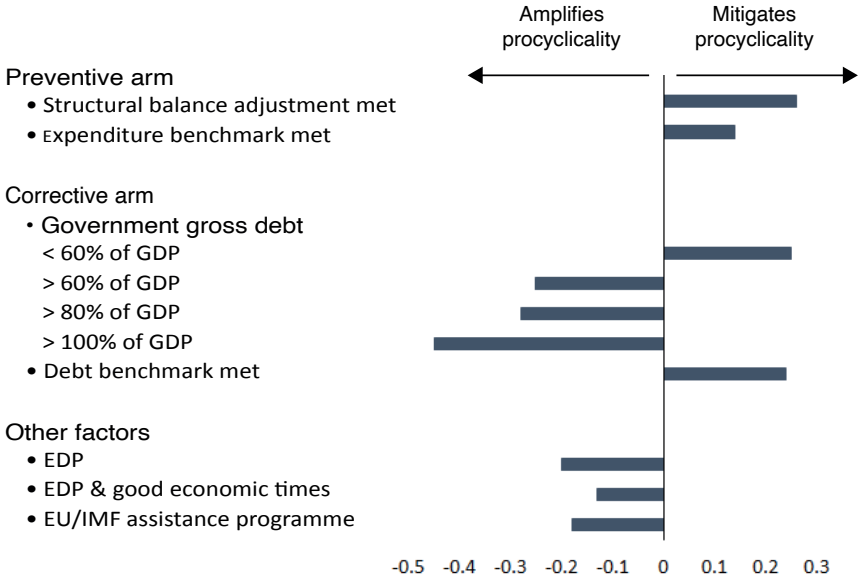
Third, achieving an appropriate euro area fiscal stance only via horizontal coordination of national policies is exceedingly difficult. During the financial crisis, countries with fiscal space refuse to use it, while those without fiscal space strive for it. The European response to the COVID crisis is an example of complementing horizontal coordination with vertical coordination with the EU budget.

Fourth, EU-level decisions should be insulated from domestic political considerations. They have an impact on the policy mix, as political economy considerations may lead to a non-congruent policy mix.

Finally, the geopolitical role of Europe is affected by these policy choices. Having a policy mix which is non-congruent and where destabilisation essentially comes from the monetary side weakens Europe in the geopolitical sphere and in global governance. This is very relevant for today's developments and helps explain the decisiveness of the policy reaction by the EU.

It is well established that the policy mix and the fiscal stance were suboptimal during the financial crisis. Are the fiscal constraints and rules at the European level responsible for the procyclical bias in fiscal policy? The answer is a qualified no. Looking at the upper part of Figure 1, you can see that when countries respect the structural balance (SB) rules and respect the expenditure benchmark, countries tend to have a more anticyclical policy. One aspect that is well established in the literature is that the more you have a high deficit and debt, the more you are forced to have procyclical behaviour, especially in bad times (that is shown in the middle part of Figure 1). In the lower part of Figure 1, it shows that countries in an excessive deficit procedure (EDP) tend to be more procyclical.

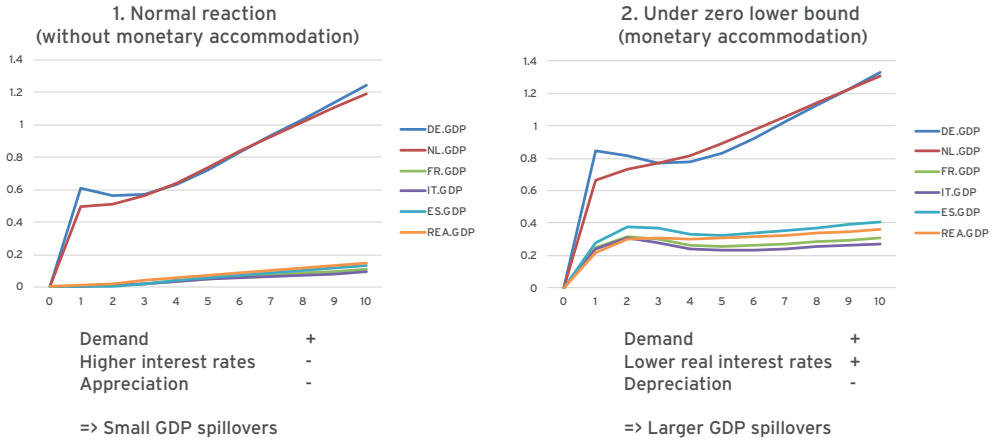
FIGURE 1 **PROCYCLICALITY UNDER VARIOUS SCENARIOS**



Note: For more information on the estimation technique used, see European Commission (2019, pp. 121-130).

Should we strive for a congruent policy mix? Yes, this is especially important for EMU, but also more difficult. Figure 2 shows simulation results with a 1% of GDP sustained increase in public investment. Comparing normal times and under the zero lower bound, positive spillovers are considerably higher when you are in the ZLB scenario. Hence, the massive fiscal response to the pandemic by national governments benefit not only themselves, but other countries as well.

FIGURE 2 **COMPARISON OF GDP SPILLOVERS**



Ricardo Reis, *London School of Economics*

This insightful report addresses an important question. It is such a broad question that the authors, rightfully, kept their approach very focused. They write within the setting of a classic Keynesian analysis, where the focus is aggregate demand. Such a focus was inevitable, given the breadth of topics covered. It leads, from the start, to an emphasis on having both fiscal and monetary policy be countercyclical, in order to move aggregate demand and stabilise the cycle. The report is useful because it is focused on Keynesian aggregate demand management considerations. The question of coordination of monetary and fiscal policy is then reduced to whether they move aggregate demand in the same direction or not, with an emphasis on flows of spending.

This approach is powerful, but it also comes with limitations. The emphasis on aggregate demand management leaves out dimensions of monetary and fiscal interactions that are also important. Let me offer some alternatives that might complement the report.

First, a neoclassical view would emphasise smoothing, reducing distortions, and the government providing social insurance with incomplete markets. Such a view suggests that monetary policy should be acylical, so that inflation is approximately uncorrelated over time. After a recession, inflation should spike in order to inflate away debt and generate fiscal resources. For the fiscal stance, recessions are times when you want to lower labour taxes to spur effort and increase capital income taxes, as explained in recent work by Bhandari et al. (2018).

Second, a new Keynesian view would perhaps focus on targeting rules, as can be read in the work of Benigno, Giannoni and Woodford (as sumarised in Woodford, 2010) Inflation should then be conditionally countercyclical – that is, moving in the opposite direction of the output gap after a shock. But inflation will depend positively on future expected shocks, and this is all taken as given past borrowing. Government borrowing is conditionally procyclical but varies in the opposite direction of future output.

Third, a monetarist view that emphasises liquidity, financial frictions and the ability of governments to commit sees monetary policy not so much as responding to the cycle, but rather as leading it. It would not look at spending, but rather at quantities of credit and risk spreads. Fiscal policy is procyclical because of the automatic stabilisers but, more important than its discretionary stimulus, is its ex-ante effect on incentives.

As this exposition hopefully makes clear, the question of whether – or at least the extent to which – fiscal and monetary policy should be cyclical becomes less clear once multiple channels are taken into account. Correspondingly, so does the question of whether different policies are helping, or sabotaging, each other.

Turning from the approach to the execution, the analysis is sound throughout. There are three points, however, that require further thought. First, when measuring cyclicality of fiscal policy, the authors define automatic stabilisers in a broad sense as the "estimated effects of the business cycle on the budget", and then subtract this from the budget stance.

The difficulty with the broad view is that once the estimated effect of the business cycle of the budget is removed, the fiscal budget measure is acyclical, by construction. It would have been better to take a narrow view of automatic stabilisers as the rules in the law that make fiscal revenues and outlays relative to total income change with the business cycle. Second, the logistic regressions that estimate the determinants of cyclicality are run separately for each country. This method might neglect common shocks that affect all countries, and that includes co-movement in policies. Third, the definition of fiscal backing of the central bank is not precise enough for my taste (although, given my research, I am probably pickier than most when it comes to this topic). While, as the authors mention, the ability of the central bank to absorb losses is limited by its inflation mandate, more accurately, the ability to absorb is bounded by the seignorage from currency issuance, which only partly depends on inflation. Moreover, it is not solely the possibility for the treasury to recapitalise the central bank that determines its fiscal backing, but rather the central bank's dividend and net income rules.

Finally, let me point to a few other monetary-fiscal interaction issues that are pressing today. First, with the enormous increase in debt in advanced economies, the fiscal footprint of monetary policy is huge. Any rise in interest rates has a direct and large impact on the public deficit. Ask yourself: would any central bank at the start of 2021 allow the long rate to increase by 3%, cognisant of the impact that this would have on the public purse? If the answer is no, then there is some fiscal dominance. To be clear, fiscal dominance, in this sense of there being an implicit or explicit ceiling on long-term interest rates, does not mean that inflation will inexorably rise. Rather, it means that inflation becomes unanchored, with the central bank unable to offset shocks that start an upward dynamic. Insofar as there are stronger forces pushing inflation down today, this may prove to be inconsequential, but shocks come and go – in both directions. Moreover, with such a large issuance of government bonds, the temptation to use financial repression to ensure a stable demand for these bonds is very large. Unpleasant macroprudential arithmetic can easily arise.

Second, with such large private debt accumulated over the last few months, private defaults may well be on the horizon. Invariably these leads to default on bank loans, spilling over to financial crises that require lending of last resort. Central bank lending, in turn, is often the first step before bailouts, which are inherently fiscal. Monetary and fiscal policy must interact in a financial crisis, regardless of what is happening to aggregate demand

Third, today, there is a new normal for central banking in which bank reserves at the central bank pay interest, and central banks 'go long' by focusing policy on controlling longer-term interest rates. In this world, the size and composition of the central bank's balance sheet are active monetary policies. Yet, they also clearly interact with the debt management performed by the treasury. This interaction between monetary and fiscal

is still seen as unconventional, even though it has been with us for more than a decade. Many central banks are undergoing strategic reviews right now, and an important part of these must be to conventionalise balance sheet policies by clearly stating their rules, limit and goals.

Floor discussion

Measurement issues

Dirk Niepelt (Gerzensee and University of Bern) commented on the primary balance and expectations. He argued that government debt and its change are unreliable measures of a government's fiscal position and fiscal stance. Similarly, the change in government debt and the primary balance only partly capture the impulse of fiscal policy.

Joseph Gagnon (Peterson Institute for International Economics) expressed concern regarding the measurement of monetary, fiscal and output variables. First, regarding the monetary changes using the change in interest rate, what you want is the change in interest rate relative to inflation expectations. Since the late-1990s this has been stable, so perhaps not so important, but it was important in the late-1980s and 1990s, when there was more change in inflation expectations. How sensitive are the results to that? Would results change if empirics are conducted after that period? On the output gap, which also affects fiscal measures, there is the opposite problem. In later years, we have mis-measured output gaps, because the Philips curve is highly non-linear and economies have been continuously in the flat region with high unemployment. Big movements in output do not affect inflation, so we think we are at potential but we are not (i.e., Japan). To measure the output gap correctly, we need to get to the steep part of the curve.

William English (Yale University) commented on fiscal policy measurement, specifically with respect to automatic stabilisers. In thinking about fiscal policy, if the point is to look at cyclicality, then the most important part of cyclicality of fiscal policy should not be left out of the fiscal policy measure.

Jean Pisani-Ferry (Bruegel) explained that it seems that the funnel has got lost in the methodology used, because monetary and fiscal policy are assessed separately using thresholds. He also asked about the authors' priors on congruence. The report says 30% is low. However, the standard assignment is not that congruence should be the norm, but rather that monetary policy can do the job – then there is no need for congruence. If that is the benchmark, then is 30% low?

Policies in practice

Alexandre Swoboda (The Graduate Institute) remarked that Brainard (1967) wrote that you should not try to approach your target with your instruments too closely. He expressed the importance of leaving some space for mistakes.

Benoît Cœuré (Bank for International Settlements) asked about supply shocks and instances where P and Y move in opposite directions. It seems that the starting point of the analytical framework is that monetary and fiscal policies are both stabilisation policies, but this is not always the case. Cœuré asked what happens if the economy is hit by a big supply shock, noting this may be an artificial distinction (e.g., COVID was a supply shocks and morphed into a demand shock). How does this fit in the authors' analytical framework?

Dirk Niepelt (Gerzensee and University of Bern) emphasised the importance of the consolidated government budget constraint and balance sheet, including central bank liabilities. Interest on reserves and the amount of money issued by the central bank have a direct effect on bank profits, independently of the conventional monetary policy channels. Fiscal impulses related to this effect could also be worth considering in the report.

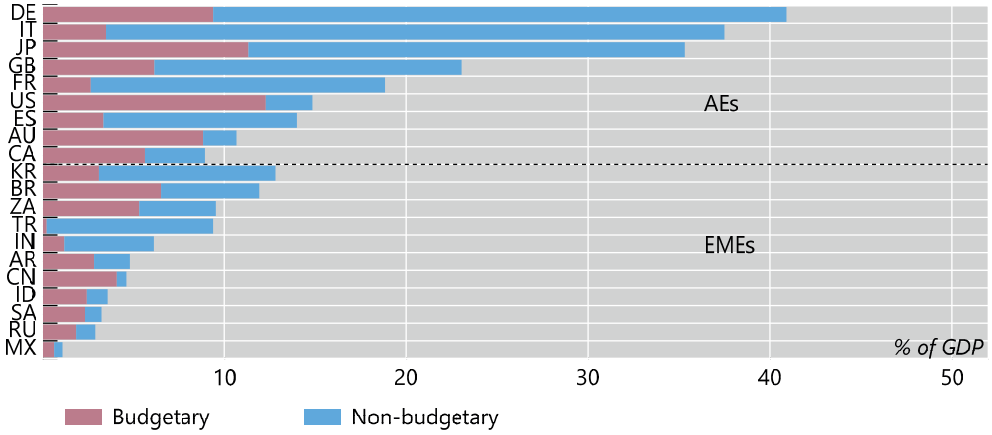
DISCUSSION OF CHAPTERS 3 AND 4

Chaired by Charles Wyplosz (The Graduate Institute)

Benoît Cœuré, *Bank for International Settlements*
What did we learn from the report? There is a 'middle of the road' situation where monetary and fiscal policy should be congruent, except in the case of odd shocks (e.g., large supply shocks). On the 'roadside' – that is, in case of extreme events – monetary and fiscal policy risk undermining each other with a procyclical outcome. However, there is opportunity for monetary and fiscal policy to empower each other and deliver stabilisation. The authors rightly note that such 'two-way policy space creation' does not contradict central bank independence.

The report primarily addresses advanced economies, but it is worth noting that in 2020, emerging economies have also been able to exploit two-way policy space creation. Many emerging economies have avoided policy tightening by putting fiscal policy on the front line. In addition, they have increased bond issuance in domestic currency and embraced quantitative easing. In so doing, they have been able to escape the 'original sin' that traditionally forced them to tighten monetary policy in the face of a global crisis. Figure 1 summarises various pledged fiscal packages in advanced and emerging economies. While these are positive developments, there are limits to these strategies due to institutional pressure and shallow bond markets in emerging economies.

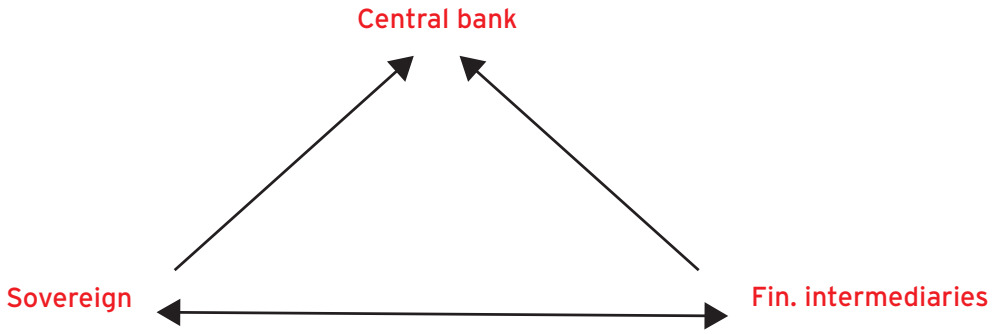
FIGURE 1 **BUDGETARY AND NON-BUDGETARY COMMITMENTS IN RESPONSE TO COVID-19**



Source: Shin (2020)

Looking ahead, how can advanced economies get back to the middle of the road? There are lots of reasons to be worried. The fear of government default can constrain monetary policy. Large balance sheets of banks and other financial intermediaries can make it worse and add financial dominance to fiscal dominance. Middle of the road safeguards against fiscal and financial dominance (FFD; see Figure 2), such as fiscal and prudential rules and market discipline, are either impaired or suspended. In a collateralised financial system, the 'moneyness' of government debt is central to inside money creation. In normal times, the moneyness of government debt is ensured by government solvency. In extreme events, the burden shifts to the central bank.

FIGURE 2 **THE FFD NEXUS**



De facto fiscal and financial dominance due to high debt and financial sector fragility risks being entrenched for years, if not decades. In addition, institutional frameworks are weakened by dysfunctional politics, while expectations towards the central bank become broader (i.e., related to climate change and inequality). It will be very difficult to get back to the middle of the road unless a miracle happens to R*, such as a positive productivity shock that lifts the return on capital. In other words, if you can't move back to the middle of the road, you have to pray that the road moves back to you.

There is a silver lining, though. Since the global financial crisis, central banks have been adding new instruments to their toolboxes, both across counterparties and market segments. More work is needed to understand the complementarity/substitutability between these new tools. In particular, we should try to understand better the relationship between the new tools and fiscal or prudential policies, to minimise FFD risk. Digital currencies and programmable money are additional concepts to be examined to see if they can help create new instruments and relax central banks' constraints.

William English, *Yale University*

The report addresses key policy challenges and emphasises the potential pay-off of using monetary and fiscal policy coordination.

Since the global financial crisis, it is well understood that accommodative monetary policy can help make fiscal policy more effective; that is, monetary policy can influence the fiscal policy multiplier. Perhaps less well understood is that fiscal policy can make monetary policy more effective. The focus in the report is on the possible need for a fiscal backstop for monetary policy, because balance sheet policies could lead to large losses for the central bank.

Central banks can print money in most circumstances. Losses have to be gigantic to use up the present discounted value of future central bank earnings (Hall and Reis, 2015). On the political side, at least with QE, the problem of losses arises if the economy recovers strongly, so policy needs to be tightened rapidly.

There are a few other mechanisms that should be considered in discussing monetary and fiscal policy cooperation. For example, by not tightening even as the economy recovers, fiscal policy can allow monetary policy to do more – that is, if automatic stabilisers are not allowed to operate for a period of time. In another scenario, with monetary policy at the zero lower bound, then fiscal policy can do more. Another example is how expansionary fiscal policy can, by boosting the economy, help make a temporary change in the monetary policy reaction function more visible, and as a result, more credible. This last point is emphasised in English et al. (2020).

Furthermore, on cooperation, there is the challenge of institutional design. The historical overview in the report shows that exiting from cooperation is difficult for central banks. In theory, you could give the central bank a lot of power (as in Bartsch et al., 2019b), but this may not be politically feasible. Another design is the 'dual key' approach of Bernanke (2016), where both monetary and fiscal authorities must agree. Even with the best design, politics can dominate. But it would be helpful to sort out what the institutional structure should be.

The low level of R* is a challenge for monetary policy but it supports fiscal policy (since it makes high levels of debt more sustainable). Is it clear that we want a higher R* if debt and deficits are large? If the main issue with a low R* is the constraint on monetary policy, then one could address that in other ways. For example, one could have a higher inflation target (Blanchard et al. 2010), or support changes to allow for more-negative nominal rates (Rogoff, 2016). However, the authors have broader concerns. They note that R* is not "a final objective". In the report it is suggested that the broader concern is about addressing the underlying imbalances, rather than R* as a specific target.

To begin addressing imbalances related to a low R*, perhaps it is helpful to think about why R* has fallen so low. Explanations include ageing populations, weaker productivity growth, rising income inequality, increased market power and a shortage of safe assets.

What should policymakers do that would have the effect of raising R*? Demographics are hard to change. With respect to productivity growth, there have been many attempts to boost it already and infrastructure investment might help (especially with $r < g$). Regarding inequality and market power, more discussion about how to address these issues would be helpful. Within reason, government deficits will increase the supply of safe assets and boost yields on such assets. Other actions might include more aggressive countercyclical policy, thereby reducing uncertainty and keeping labour markets tighter.

As the authors note, the central bank also can help with temporary monetary financing of fiscal actions.

A fiscal expansion that is not funded by taxation reduces primary surpluses. In line with this, the central bank can boost the price level, reducing the real value of government debt to maintain the government budget constraint without a rise in taxes. However, there is more to the story. In raising the price level, the central bank will generate seigniorage, which boosts the primary surplus directly. And to increase the price level, the central bank will have to generate lower real interest rates, which will raise the present discounted value of future primary surpluses.

Overall, the report addresses key challenges. In the current situation, more monetary and fiscal coordination could be helpful. However, it is not clear what the right institutional framework is for coordinating these policies. While a higher R* would be beneficial for monetary policy, policy is not about R* itself. Rather, the policies that would increase R* are themselves beneficial. Designing such policies is difficult, and it would be helpful to

have an outline of promising directions to potentially achieve an increase in R*. There might be other approaches, such as a higher inflation target or changes in the financial structure to allow more negative interest rates, which would create space for monetary policy.

Floor discussion

The right mix

Angel Ubide (Citadel LLC) expressed that the report is a good exercise for how to improve coordination between monetary and fiscal policy. It would be helpful to put more emphasis on how to do cooperation correctly. The reality is that it is highly likely that the next 20 years will be about how to do monetary and fiscal policy cooperation. Focusing on the fiscal side, if fiscal policy is the main demand policy in the next few years, can fiscal policy be done better? The issue of forward guidance on fiscal policy is important; forward guidance for monetary policy is clear. One example of fiscal forward guidance would be for governments to commit not to tighten fiscal policy until the economy has restored GDP to the levels of 2019. That is a practical and immediate proposal that could be replicated. Another example comes from Australia, where they have committed to not adjusting fiscal policy until unemployment comes down. If there is a sense of fear that fiscal policy cannot help and monetary policy is the only policy, then R* will remain low.

Carlo Monticelli (Council of Europe Development Bank) noted that no matter how low the equilibrium ('natural') real interest rate is, extremely expansionary policies (both fiscal and monetary) have been pushing measured real rates further down for quite a while, with all the attendant long-term problems which Wicksell first identified long ago. Secondly, in tail-risk scenarios (such as COVID-19 in 2020), the complementarity issue between monetary and fiscal policies becomes second-order, in the sense that both policies are pushing on the accelerator as much as they can. In these cases, the key issue for the policy mix is the return to normality – and this is where much more coordination is needed. Finally, one institutional point: the ECB's capital losses as such are relevant only because there is a distinction between the entity running the single monetary policy and the fiscal authorities that would ultimately shoulder it. In all other circumstances, when the central bank is underpinned by a single fiscal authority, the central bank's capital losses as such are irrelevant. What is relevant is the issue of fiscal dominance and hyperinflation.

Mark Carney (formerly Bank of Canada and Bank of England) agreed with Angel Ubide that fiscal forward guidance would be a constructive addition to the appropriate mix of fiscal and monetary policy. One risk to watch is the increased moneyness of corporate bonds and structured bonds through central banks and other interventions. Greater attention to the role of macroprudential policies in the policy mix would also be welcome.

Patrick Honohan (Trinity College, Dublin, formerly Central Bank of Ireland) focused on the question of mutual support between the central bank and government. As far as support from the fiscal to the monetary authorities is concerned, there is a big difference between a commitment from government to recapitalise the central bank and a contractual arrangement (such as the arrangement between the US Treasury and the Federal Reserve for COVID measures). With contractual agreements it is clearer what fiscal authorities are responsible for and what they have committed to. When the monetary authority implements exceptional policies for the purpose of financial market stability or price stability, there may be consequences for its balance sheet. In this scenario, the fiscal authority can support the monetary authority. On the other hand, if the monetary authority is backstopping the government in order to ease government financing problems, the government cannot support the central bank in return. It is worth better understanding the degree of support each side can give the other and when. Relatedly, **Charles Wyplosz** (The Graduate Institute) asked where governments would get the money to recapitalise the central bank. Would markets lend to a central bank whose government is bankrupt?

Joseph Gagnon (Peterson Institute for International Economics) agreed on the need for fiscal monetary coordination now. Certainly, now is a time for big infrastructure work and climate change work, but politicians may not do enough. We have to give a role to central banks to fill in the blanks. Fiscal policymakers (i.e., finance ministries) do not have staff with countercyclical stabilisation expertise, while central banks do have this expertise. Under strictly specified conditions, central banks should be given authority to perform 'helicopter money' (i.e., mailing cheques to households) only insofar as needed to achieve their mandates. The ECB statute provides for this, whereas the Federal Reserve Act does not. It is not difficult to exit if the helicopter money is only intended to achieve the central bank's mandate.

On R issues and other factors*

Jaime Caruana (formerly BIS and Bank of Spain) expressed concern about the concept of R*. The report tries to bring financial aspects into the definition of R*, which is very important. However, focusing on safe asset scarcity or debt sustainability is not enough. All of the complications and implications of booms and busts should be brought into R*. Many things have happened that need to be considered. One point that is missing is the misallocation of resources that tends to occur with booms and busts. There is lower productivity growth in the boom as well as the bust as resources tend to be allocated to sectors with lower productivity. The effects on the economy can be very persistent. There are other elements, such as zombie firms, which also depress R*. Incorporating all of these factors – fragile balance sheets, misallocation, and so on – for R* is challenging but important, as it would highlight the importance of reforms. On the effectiveness of fiscal policy, if it is linked to reforms, it may facilitate moving resources and could be very helpful in raising R*.

Oya Celasun (International Monetary Fund) commented that we were already struggling to bring R* to a manageable level and monetary policy is not enough. What are the obstacles to using fiscal policy to re-anchor inflation back to a healthier level and raise interest rates? There are two questions related to monetary and fiscal coordination. The first is related to the need for anchoring, rather than a temporary push. With that in mind, does fiscal policy needs to make an open-ended commitment to 'do whatever it takes'? Second, fiscal policy is typically slow to react, given the deliberativeness of democracies, so how do we get around that?

Stijn Claessens (Bank for International Settlements) asked about how countries can avoid getting into the 'red space'. There seems to be a missing discussion related to the asymmetry of fiscal policy and monetary policy coordination. We know more about coordination in crisis periods, but what about coordination during or after recovery? The debate should also incorporate the goals of assuring sufficient fiscal and monetary policy space to respond to future shocks. Providing assurance on those goals would, for many countries, also help lower risk premium today and support getting back to a higher growth path.

Gaston Gelos (International Monetary Fund) followed up on the role of fiscal policy in raising R*. There is work that suggests there is significant scope for total factor productivity gains through the elimination of tax distortions. This aspect may be missing in the role of fiscal policy in stimulating R*.

Gabriele Galati (De Nederlandsche Bank) explained the importance of policies that are robust to changes in the environment. For example, in a recent piece by Charles Goodhart, there are big changes in underlying factors that may drive-up inflation, due to COVID and demographic changes. Is it not important to debate whether policies are robust to a sudden increase in R*?

International aspects

Xavier Vives (IESE Business School, University of Navarra) commented that there has been no discussion of how the tension between monetary and fiscal policy interacts with potential currency wars. In general, it seems that QE has a lot to do with currency wars. What about this issue?

Alexander Swoboda (The Graduate Institute) remarked that international aspects of the issue are also important – for example, to what extent does monetary policy rely on the exchange rate channel? With that in mind, there are additional questions related to external constraints, capital flows, and confidence. Competitive monetary policies – e.g., the currency war concern raised by Xavier Vives – are an additional aspect.

Cedric Tille (The Graduate Institute) commented on raising R*. There is a key role for global factors at the world level, particularly for large countries such as the US, the EU, and China. One issue is how to get the big players to internalise the positive effect they have on the rest of the world. An increase in interest rates and expansionary fiscal policy is not necessarily a good thing – but here it is a good thing, as it may increase long-run potential growth.

BREAKOUT ROOMS

Breakout room chaired by Stefan Gerlach (EFG Bank)

Fiscal policy aspects

Tomasz Wieladek (T Rowe Price) noted that the fiscal theory of the price level is not discussed in relation to the policy mix. In some of his papers in the 1990s, Mike Woodford discusses the situation where you have a peg of the yield curve. In this scenario, the central bank accommodates completely while fiscal policy does all the work. The result is some inflation, especially if there is no commitment to future fiscal primary surpluses. What is the view on this? Will theory play out in reality in the next decade or so?

Giancarlo Corsetti (Cambridge University) noted that the discussion draws on the fiscal theory of the price level idea, consisting of promoting temporary unbacked fiscal expansions. Corsetti stressed that this idea requires a degree of commitment, no different to what is required to implement forward guidance in monetary policy. In many of the proposals for policies to raise employment and inflation back to target, fiscal forward guidance consists of committing to spending, without raising taxes for the same present discounted value, assessed along the price/inflation path before the implementation of such policy. The debate on forward guidance for fiscal policy of course is not new, it has been lively for a long time.

International cooperation

Benoît Cœuré (Bank for International Settlements) emphasised a comment made by Alexandre Swoboda and Carlo Monticelli on international cooperation. One of the stated objectives of the G20 was to cooperate on the macro framework. That has not worked. How can there be any hope that international cooperation will work better now than in the past? The kind of innovations that we count on to generate growth and to increase R* (e.g., digital innovations) create very strong protectionism. Innovation takes place in an area which is connected with national sovereignty issues and is not conducive to coordination.

Giancarlo Corsetti remarked that COVID had changed the international landscape. The situation is complicated. As a global shock, it may be conducive to cooperation, but because the national stocks of debt are high and rising, this may undermine the incentive to cooperate. The international system may see countries become more strategically

aggressive. Ex ante, it seems obvious that we all want to cooperate. But over time, there are paths of the economy that may generate large cross-border imbalances. These debt imbalances may create incentives to take advantage of international spillovers – leading to currency or tariff wars.

Gabriele Galati (De Nederlandsche Bank) asked about distributional issues. Recalling William English's discussion and the point about political economy issues, aren't those issues a bigger concern when debt is high? There may be distributional effects beyond those across countries – for example, distributional effects across generations and sectors of the economy. This makes it more difficult to implement welfare-enhancing policies. Back to Stefan Gerlach's point – how do we do this in practice? Giancarlo Corsetti replied that for many years there was a perception that cooperation was irrelevant – the literature showed there was little gain from going to full cooperation. However, the way theory was used to back up this conclusion had a problem, namely, that models assumed that ex-ante economies were completely symmetric and did not verify the argument along the dynamic equilibrium path of these economies. In reality, not only are economies not symmetric, but even when they are at some point, they may grow asymmetrically overtime. One fundamental problem that may emerge is the level of debt and/or distributional issues related to productivity. Are gains from cooperation large? The answer depends on the state of the economy and the cumulative effects of shocks. Over time, even countries that initially find it very advantageous to cooperate may face stronger and stronger incentives to deviate. This possibility is downplayed by the literature on cooperation.

Additional considerations

Carlo Monticelli noted that fiscal and monetary policies are multi-dimensional. For fiscal policies there is the quality of spending, and for monetary policies there are liquidity and macroprudential aspects. This is an interesting dimension that should be exploited and analysed more.

Gaston Gelos (International Monetary Fund) asked, given what we have been observing in the last years, can we rule out we are in a situation of multiple equilibria? If not, what can fiscal policy do in such an environment? As an example of unconventional fiscal policy, with fiscal policy using forward guidance, there is the case of reducing VAT in Germany now, with a forward path of increasing taxation in the future. Finally, regarding emerging markets, the degree to which fiscal and monetary policy are linked in these economies is striking. With any fiscal issue (including debt and liquidity management), there is an immediate impact on monetary policy. In emerging markets, if people get nervous about debt payments coming due, they switch currencies, the exchange rate moves, inflation expectations move, and so on.

Stefan Gerlach (EFG Bank) thought the report should have a strong statement on how to escape the current situation. There was not much in the report on exit strategies. In that regard, what would be the policy advice? What are other historical episodes, such as those with low inflation, low interest rates and low growth? For example, following the 1930s in the United States, there was massive fiscal expansion and yields of 2.5%.

Breakout room chaired by Fiorella de Fiore (Bank for International Settlements)

Central bank capital

The first set of comments and reactions related to whether a central bank's capital is a constraint on its actions. **Stephen Cecchetti** (Brandeis University) raised concerns about the clarity of some mechanisms underlining the roles played by central banks and stressed that central banks should be seen as integral entities of their respective governments. Central banks' liabilities are government liabilities; therefore, the main issue should be the debt sustainability condition of governments and not necessarily whether their central banks are accruing losses in their balance sheets.

Agnès Bénassy-Quéré (Paris School of Economics) agreed that governments should recognise that central banks' liabilities are public sector liabilities and added that such recognition is in fact critical for central bank independence. Cecchetti stressed his initial comment regarding central banks' balance sheets, and asked whether the authors really think that central banks should have a positive net worth to be able to anchor inflation, because that was the impression that he had from reading the report

Political aspects

The discussion took a slightly different direction, focusing now on political aspects related to the role central banks can play during tail events. This change of direction was a direct response to the initial exchanges between Stephen Cecchetti and Agnès Bénassy-Quéré about whether central banks can have or should have negative capital.

William English (Yale University) added to the discussion, showing how central banks might need to curb their actions to avoid threatening their own independence due to political risks. For instance, English explained that when QE was still a very controversial policy, there was a sense among some policymakers that if the Fed did QE and consequently did not transfer funds to Treasury over several years, Congress could end up seeking measures to limit the Fed's ability to do QE in future. Therefore, central banks running losses and having negative net worth is a political issue rather than an economic one.

Charles Goodhart (London School of Economics) weighed in supporting the argument that the central bank's negative net worth should be understood as a political issue. He argued that no central banker wants to go to the treasury to ask to be refinanced, as the treasury might use this to impose (further) restrictions on the central bank's activities. Also, populist politicians could push the idea that 'non-elected experts' are drawing money from public revenues rather than offering seigniorage.

Stephen Cecchetti (Brandeis University) agreed with the points previously raised by the other participants, but he still emphasised his views that from an economic standpoint, central banks could have negative capital and the political risk only exists because people do not understand what central banks are.

Coordination versus divergence

Ivan Adamovich (Private Client Bank AG) shared his perspectives as a practitioner, mentioning that he always thought of the central bank and other institutions as a system of checks and balances, and the report apparently overlooks these dynamics and their relevance. From a practical point of view, fiscal and monetary policies do not need to be working hand in hand, and in fact, divergence in policies can be helpful in creating and reinforcing checks and balances. Otherwise, the central bank could just be part of a ministry.

Agnès Bénassy-Quéré elaborated on the need for some coordination of the different policies, or congruence, when economies face tail events. Under such circumstances, monetary policy is not enough, and policymakers should coordinate actions on both the monetary and fiscal front. There are some voices advocating that these policies should become the same instrument, however, the report is in favour of cooperation without a merger.

Institutional structure for coordination

William English (Yale University) highlighted the importance of working out in advance what the right institutional structure would be for coordination of monetary and fiscal policies – in particular, how to set up a period of yield curve control that could end appropriately. What kind of structure is needed to help ensure that it might actually work?

Charles Goodhart (London School of Economics) argued that such an institutional structure may vary significantly and would necessarily reflect political institutional arrangements. For instance, having such institutional structure would not be difficult in the United Kingdom because the governor of the central bank and the Chancellor of the Exchequer talk every week. The situation is much harder in Europe because the ECB does not have a single counterpart – there are many treasuries, which makes it extremely hard to coordinate. Nevertheless, cases such as Europe are the exception.

Fiorella de Fiori (Bank for International Settlements) elaborated further on what institutional structure could end a period of yield curve control. She mentioned that the report addresses how this could be done, although it warns about the risk of fiscal dominance and, therefore, the importance of clear cooperation and roles for monetary and fiscal policies. Moreover, the report also suggests conditioning monetary-fiscal cooperation to the central bank achieving its mandate of price stability. de Fiori was sceptical about taking this route, since we are in an environment in which inflation is consistently below target, and therefore one might be at risk of having to continue with extended monetary measures beyond what would be necessary. De Fiori ended her intervention by asking why the report does not discuss this.

Agnès Bénassy-Quéré addressed De Fiori's question, saying that the authors are still discussing the exit strategy. However, she stressed that overall they think that the fiscal adjustment should come first, otherwise there is a big risk of financial crisis. On the other hand, the adjustment does not need to take place immediately; rather, forward guidance on both sides can give at the same time an anchor and a margin of space. Bénassy-Quéré made the point that long-term commitment is critical; however, we live in democracies and when governments change, and previous commitments might be threatened by the newcomers.

The 120% debt-to-ratio target

Charles Goodhart asked whether coordination to put a limit on the debt-to-GDP ratio of 120% would be feasible in the first place, as was suggested, since this would require considerably higher taxation and projections point out that debt ratios will rise exponentially, given current tax and expenditure policies. He also asked Agnès Bénassy-Quéré where she sees taxation falling.

Agnès Bénassy-Quéré disagreed with this conclusion and argued that debt-to-GDP ratios can be stabilised at very high levels. However, we might find ourselves in a scenario of multiple equilibria. Bénassy-Quéré also raised another important question, which is what do we do if we are hit by another financial crisis, or a climate event, when we already have a very high debt-to-GDP ratio?

Stephen Cecchetti weighed in, mentioning that he is sympathetic to stabilising the debt-to-GDP ratio at 120%, but he is also concerned about raising R*. He asked Bénassy-Quéré whether raising R* wouldn't require an increased primary surplus to stabilise the debt-to-GDP ratio?

Agnès Bénassy-Quéré addressed Cecchetti's question by saying that the authors think since R* and growth are correlated, the use of growth-enhancing policies can also increase R*.

The discussion about stabilising debt-to-GDP ratios at 120% became an exchange on growth-enhancing policies, demographics, productivity and targeting inflation. Charles Goodhart is sceptical about expecting that growth could be raised since working-age populations are decreasing rapidly. Therefore, increasing growth could only be possible with a productivity miracle. Goodhart asked Agnès Bénassy-Quéré how she thinks productivity could increase.

Agnès Bénassy-Quéré stressed that in fact the authors are thinking about growth-enhancing policies in terms of correcting saving and investment imbalances. Today there is an excess in savings in the private sector, compensated by deficits in the public sector. She elaborated further, mentioning that the authors are thinking of actions other than fiscal policies – for instance, setting up a carbon price that is credible and could boost

investments without changing savings or could even reduce savings, as it might be able to reduce uncertainties. Such policies cannot change demographics, but for promoting productivity growth, incentives could be creative for investments in innovation, although she acknowledged that these types of policies are harder to calibrate.

Charles Goodhart argued that such mechanisms to raise innovation and productivity – supply-side reforms – would only result in inflation. Goodhart also posed the question of whether central banks will be able to keep inflation low, below about 5% per annum, in the face of political pressures. When asked by Bénassy-Quéré what he thinks the nominal interest rate would be supposing that inflation goes back to 5% per annum, he replied saying that it would be lower than 5% as there would be a need for expansionary monetary policy in the form of low interest rates for a very long time. Central banks will face significant pressure from populist politicians to keep short-term interest rates as low as possible.

Bénassy-Quéré and Goodhart agreed that central banks keeping interest rates low will result in a currency war.

Oya Celasun reflected on whether we should not first worry about getting inflation to 5% and then see what to do next. Raising inflation to near 2% has been already a challenge – we might not be worrying enough about getting to 5%.

Breakout room chaired by Cédric Tille (The Graduate Institute)

Short- versus long-term roles

Cédric Tille opened the discussion and raised the issue of the suitability and time horizon of fiscal and monetary policies. Coordination implies the use of the two policies, but fiscal policy would be more suited to long-term investment while monetary policy would be more appropriate for reacting to shocks in the short run.

Xavier Debrun (National Bank of Belgium) agreed that fiscal policy is related to long-term investment and is therefore more suitable for commitment. He expressed concerns, however, that these long-term objectives might impair public debt sustainability. A well-designed fiscal framework and relevant fiscal rules are needed to frame the commitment.

Richard Herring (University of Pennsylvania) questioned the ability of markets to allocate capital efficiently in a low-interest environment where credit risk differentials are insignificant, highlighting the growing importance of zombie firms in the economy. In that sense, fiscal policy could play a role and be a substitute for capital markets to allocate capital efficiently to sustain economic growth.

Exit concerns and strategy

Mark Carney warned that one major risk is tightening fiscal policy too soon. There is a challenge for fiscal authorities to move from emergency support to the reallocation of jobs and capital that are no longer viable. In that sense, the regulatory polices associated with the European fiscal stimulus pointed in the right direction in giving incentives to the private sector to invest in green projects.

Patrick Honohan discussed the practicality of coordination between monetary and fiscal policy. Coordination might indeed require more interactions between monetary and fiscal authorities. More importantly, there is a need to structurally change the way they interact. The Eurogroup meeting, for example, only brings together finance ministers and not central bank governors.

Joseph Gagnon was worried about talking about exiting monetary policies too soon and was reminded of two recent episodes. In July 2009, Ben Bernanke presented an exit strategy that, according to Gagnon, was publicised too early. Markets interpreted the talk about exit as a signal that policy would not remain loose for much longer. Twenty years ago, Japanese monetary authorities were concerned about the risk of a sharp rise in inflation and decided not to expand their quantitative easing policy. Their premature worry about exit proved to be a mistake. These two episodes highlight that fiscal and monetary authorities need to implement the right policies to achieve their mandate, without discussing too early the difficulty of exiting.

Charles Wyplosz nuanced Joseph Gagnon's argument by arguing that academics could talk about exiting even though central banks need to be cautious about sending the wrong signal. More generally, it would be helpful to clarify the terms of exiting fiscal policies given budgetary constraints.

Political incentives and discretion

Xavier Debrun noted that much discussion was already taking place in informal meetings between policymakers. The real difficulty lies in the adequation between what policymakers can do and their own political incentives. He then acknowledged that the fear of exiting can be paralysing and can provide incentives to exit too early. Responding to Mark Carney's arguments, Xavier Debrun agreed that the composition of the fiscal support could be adjusted, but its quantum needs to be kept in place as long as it is needed. State-contingent rules (e.g, on employment or GDP) are a potential solution but it is hard to make them work in practice.

Cédric Tille noted that countries that are willing to employ their fiscal space have already used it, while countries that have fiscal space do not want to use it. He then asked the audience whether fiscal discretion could be acceptable in case of emergency.

Xavier Debrun first rejected the idea of discretion unless it is used by politically independent authorities that have a narrow mandate, which is not the case for fiscal policy by definition. He then returned to the concept of fiscal space which, to him, is not necessarily related to the level of debt but more to the capacity of governments to borrow at reasonable interest rates. The real challenge is to constrain fiscal spending towards productive long-term investment.

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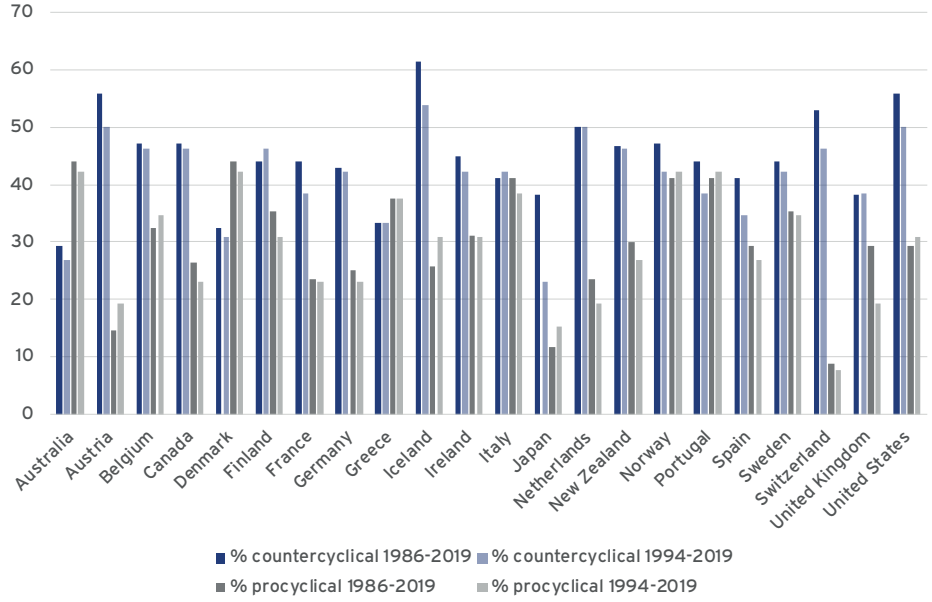
Appendices

APPENDIX A: **VARIABLES AND DATA SOURCES**

Variable	Description	Source
Output gap	Output gap in percent of potential GDP	
Fiscal balance	Underlying primary balance in percent of potential GDP	OECD
Interest rate	Short term nominal interest rate	
og_diff	Output gap as a percentage of potential GDP, yearly variation	OECD
Primary Balance	Underlying primary fiscal balance (% of potential GDP)	
Gdp_growth	Real GDP growth (%)	
debt	General government gross financial liabilities as a percentage of GDP	
yields_10yr	Long-term government bond yields	
cc_fiscal	=1 if Counter-cyclical fiscal policy	Self-constructed
cc_monetary	=1 if Counter-cyclical monetary policy	
pc_fiscal	=1 if Pro-cyclical fiscal policy	
pc_monetary	=1 if Pro-cyclical monetary policy	
Fin assist	EU Financial Assistance Programme dummy	
	Greece 2010-2018	
	Ireland 2011-2013	
	Portugal 2011-2014	
Inflation	Inflation, average consumer prices Annual percentages of average consumer prices, year-on-year changes.	IMF WEO, October 2019
er_reg	Exchange rate regime, coarse definition (values in the dataset range from 1 to 4 where lower values indicate more rigid regimes)	Reinhart and Rogoff (2004), dataset updated
VIX	CBOE Volatility Index	Chicago BoardOptions Exchange Market Volatility Index
ZLB	Zero lower bound dummy =1 when main policy rate ≤ 0.05%	ECB and IMF

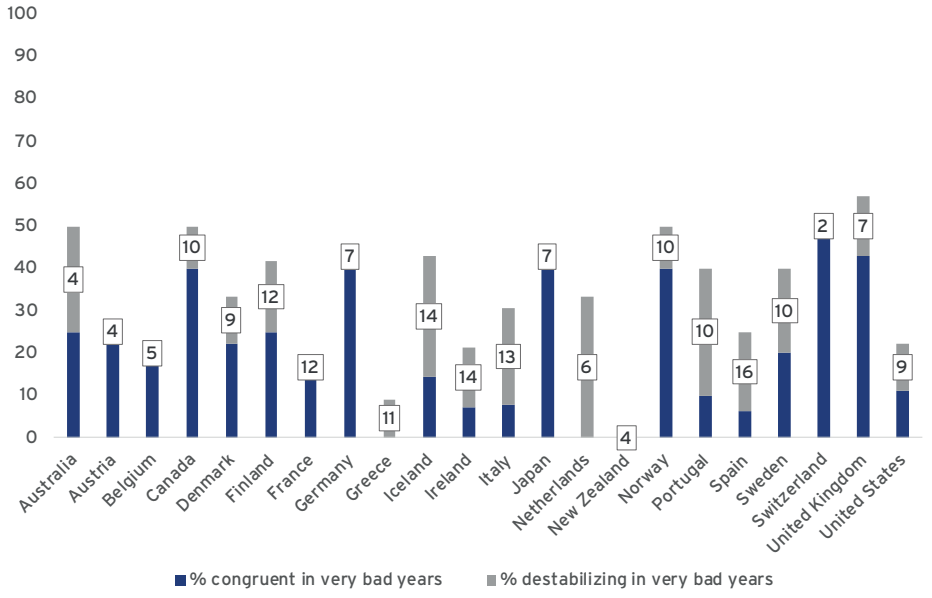
APPENDIX B: **ADDITIONAL FIGURES**

FIGURE B1 **SHARE OF YEARS WITH A COUNTERCYCLICAL OR A PROCYCLICAL MONETARY POLICY OVER 1986-2019 AND 1994-2019**



Source: Authors, based on November 2019 OECD Economic Outlook.

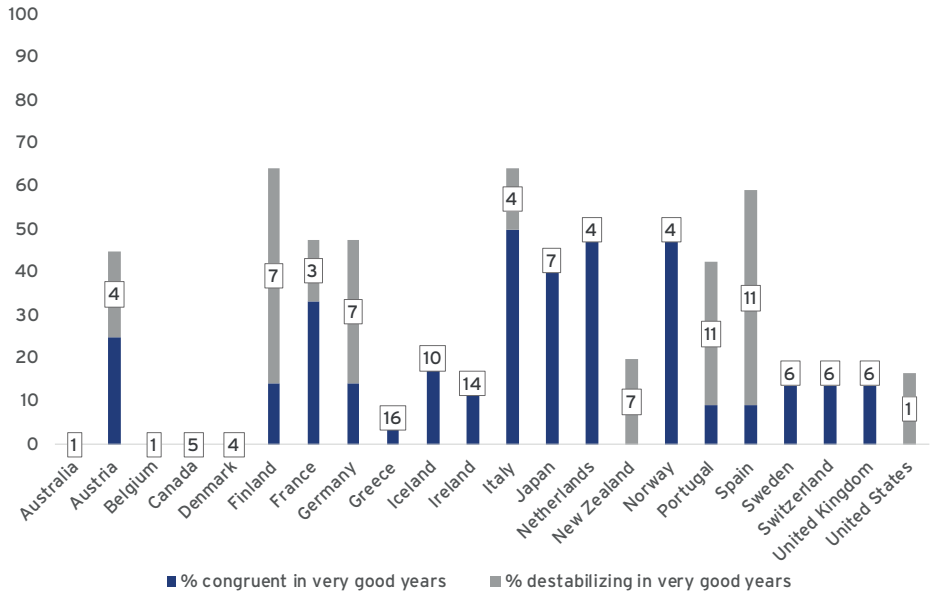
FIGURE B2 **SHARE OF 'VERY BAD YEARS'* WITH A CONGRUENT OR DESTABILISING POLICY MIX (%) AND NUMBER OF VERY BAD YEARS**



Note: * Very bad years are defined as years when the output gap is lower than -2%.

Source: Authors, based on November 2019 OECD Economic Outlook.

FIGURE B3 **SHARE OF 'VERY GOOD YEARS'* WITH A CONGRUENT OR DESTABILISING POLICY MIX (%) AND NUMBER OF VERY GOOD YEARS**



Note: * Very good years are defined as years when the output gap is higher than +2%.

Source: Authors, based on November 2019 OECD Economic Outlook.

APPENDIX C: **LOGIT ESTIMATION RESULTS**

TABLE C1 **LOGIT MODEL FOR PROCYCLICAL FISCAL POLICY**

	Dependent variable: Probability of procyclical fiscal policy					
	(1)	(2)	(3)	(4)	(5)	(6)
og_diff	0.093**	0.099**	0.061	0.075	0.087	-0.030
	(0.047)	(0.047)	(0.051)	(0.052)	(0.053)	(0.070)
debt	0.553**	0.643***	0.540**	0.543**	0.377	0.436
	(0.237)	(0.247)	(0.245)	(0.248)	(0.264)	(0.267)
yields_10yr	0.027	0.002	0.028	0.043	0.020	0.031
	(0.030)	(0.034)	(0.034)	(0.036)	(0.039)	(0.039)
er_reg	-0.167**	-0.168**	-0.169**	-0.159**	-0.147*	-0.141*
	(0.073)	(0.074)	(0.075)	(0.076)	(0.076)	(0.077)
VIX			-0.033**	-0.065***	-0.063***	-0.042*
			(0.016)	(0.023)	(0.023)	(0.024)
VIX_lag				0.050**	0.048**	0.041*
				(0.022)	(0.022)	(0.022)
og_diff_OECD						0.298**
						(0.116)
Fin assist					1.310*	0.936
					(0.734)	(0.735)
Inflation		0.084				
		(0.060)				
ZLB		-0.061				
		(0.574)				
Intercept	-0.634*	-0.762**	0.033	-0.421	-0.253	-0.631
	(0.336)	(0.352)	(0.506)	(0.547)	(0.556)	(0.576)
Log-Likelihood	-389.97	-388.24	-360.822	-350.12	-348.29	-344.810
Pseudo R2	0.022	0.024	0.028	0.034	0.039	0.049
Observations	595	594	554	540	540	540

Note: ***p < 0.01, **p < 0.05, *p < 0.1.

TABLE C2 **LOGIT MODEL FOR PROCYCLICAL MONETARY POLICY**

	Dependent variable: Probability of procyclical monetary policy					
	(1)	(2)	(3)	(4)	(5)	(6)
og_diff	0.221*** (0.055)	0.219*** (0.055)	0.333*** (0.062)	0.361*** (0.064)	0.354*** (0.065)	0.282*** (0.079)
debt	-0.077 (0.257)	-0.163 (0.271)	-0.094 (0.279)	-0.042 (0.282)	0.053 (0.299)	-0.010 (0.299)
yields_10yr	0.074** (0.031)	0.095** (0.037)	0.152*** (0.039)	0.161*** (0.043)	0.175*** (0.045)	0.173*** (0.047)
er_reg	-0.055 (0.078)	-0.036 (0.079)	0.011 (0.083)	0.022 (0.084)	0.018 (0.084)	-0.021 (0.083)
VIX			0.079*** (0.018)	0.085*** (0.022)	0.084*** (0.022)	0.094*** (0.024)
VIX_lag				-0.004 (0.022)	-0.003 (0.022)	-0.010 (0.022)
og_diff_OECD						0.181 (0.125)
Fin assist					-0.731 (0.811)	-0.768 (0.799)
Inflation		-0.022 (0.067)				
ZLB		1.414** (0.583)	1.951*** (0.610)	1.972*** (0.618)	2.022*** (0.619)	0.967** (0.474)
Intercept	-0.989*** (0.363)	-1.068*** (0.382)	-3.118*** (0.604)	-3.278*** (0.658)	-3.394*** (0.673)	-3.285*** (0.659)
Log-Likelihood	-362.31	-358.29	-319.87	-308.63	-308.19	-310.790
Pseudo R2	0.031	0.039	0.076	0.082	0.084	0.076
Observations	596	595	554	540	540	540

Note: ***p < 0.01, **p < 0.05, *p < 0.1.

TABLE C3 **LOGIT MODEL FOR COUNTERCYCLICAL FISCAL POLICY**

	Dependent variable: Probability of countercyclical fiscal policy					
	(1)	(2)	(3)	(4)	(5)	(6)
og_diff	-0.124***	-0.126***	-0.022	-0.031	-0.049	0.129*
	(0.046)	(0.046)	(0.051)	(0.052)	(0.053)	(0.073)
debt	-0.406*	-0.412	-0.278	-0.272	-0.046	-0.112
	(0.243)	(0.256)	(0.264)	(0.266)	(0.281)	(0.285)
yields_10yr	0.035	0.041	0.059	0.044	0.084*	0.062
	(0.030)	(0.035)	(0.037)	(0.039)	(0.043)	(0.044)
er_reg	0.171**	0.173**	0.205***	0.196**	0.181**	0.177**
	(0.072)	(0.072)	(0.077)	(0.077)	(0.078)	(0.079)
VIX			0.095***	0.117***	0.114***	0.085***
			(0.017)	(0.022)	(0.022)	(0.024)
VIX_lag				-0.035	-0.033	-0.026
				(0.022)	(0.022)	(0.023)
og_diff_OECD						-0.433***
						(0.121)
Fin assist					-2.503**	-1.731
					(1.140)	(1.113)
Inflation		-0.033				
		(0.060)				
ZLB		-0.209	0.083	0.028	0.102	-0.027
		(0.448)	(0.466)	(0.467)	(0.476)	(0.474)
Intercept	-0.585*	-0.528	-2.759***	-2.398***	-2.694***	-2.105***
	(0.340)	(0.352)	(0.545)	(0.583)	(0.602)	(0.628)
Log-Likelihood	-390.030	-389.360	-349.480	-340.890	-337.060	-330.090
Pseudo R sq	0.027	0.027	0.069	0.069	0.079	0.098
Observations	589	588	552	540	540	540

Note: ***p < 0.01, **p < 0.05, *p < 0.1.

TABLE C4 **LOGIT MODEL FOR COUNTERCYCLICAL MONETARY POLICY**

	Dependent variable: Probability of countercyclical monetary policy					
	(1)	(2)	(3)	(4)	(5)	(6)
og_diff	-0.252***	-0.243***	-0.262***	-0.278***	-0.281***	-0.172**
	(0.051)	(0.050)	(0.056)	(0.058)	(0.058)	(0.072)
debt	-0.523**	-0.281	-0.354	-0.420	-0.363	-0.407
	(0.249)	(0.267)	(0.268)	(0.275)	(0.290)	(0.293)
yields_10yr	0.047	-0.010	0.011	0.020	0.027	0.013
	(0.030)	(0.036)	(0.036)	(0.040)	(0.041)	(0.042)
er_reg	-0.103	-0.099	-0.110	-0.118	-0.121	-0.133*
	(0.073)	(0.074)	(0.077)	(0.078)	(0.078)	(0.079)
VIX			0.007	-0.007	-0.008	-0.029
			(0.016)	(0.021)	(0.021)	(0.022)
VIX_lag				0.020	0.021	0.027
				(0.021)	(0.021)	(0.021)
og_diff_OECD						-0.287**
						(0.118)
Fin assist					-0.411	-0.095
					(0.676)	(0.670)
Inflation		0.121*				
		(0.064)				
ZLB		-1.439**	-1.553***	-1.493**	-1.483**	-1.548***
		(0.581)	(0.588)	(0.594)	(0.595)	(0.586)
Intercept	0.253	0.150	0.236	0.134	0.077	0.477
	(0.346)	(0.366)	(0.524)	(0.574)	(0.581)	(0.606)
Log-Likelihood	-392.660	-385.840	-358.420	-345.950	-345.770	-342.660
Pseudo R sq	0.048	0.063	0.065	0.073	0.074	0.082
Observations	596	595	554	540	540	540

Note: ***p < 0.01, **p < 0.05, *p < 0.1.

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