

**BlackRock**

**Macro and market perspectives**  
June 2020

# Policy revolution

Macroeconomic policy has undergone a revolution in just three months. But without proper guardrails and a clear exit strategy, we believe it is a slippery slope.

BlackRock  
**Investment**  
Institute

# Summary

- Macroeconomic policy has gone through nothing short of a revolution in just three months. The policy response is on a completely different scale compared with the global financial crisis (GFC). Not only has the response been faster and the scale greater than at any moment in peacetime history, but core tenets of global policy frameworks and financial markets have been fundamentally transformed.
- There are three main aspects to this revolution. First, the new set of policies are explicitly attempting to “go direct” – bypassing financial sector transmission and instead finding more direct pipes to deliver liquidity to households and businesses. Second, there is an explicit blurring of fiscal and monetary policies. Third, government support for companies comes with stringent conditions, opening the door to unprecedented government intervention in the functioning of financial markets and in corporate governance.
- This policy revolution was inevitable given that the monetary policy space was insufficient to respond to a significant, let alone a dramatic, downturn. We discussed this in our paper *Dealing with the next downturn* in August 2019. We have crossed the Rubicon in terms of fiscal and monetary policy coordination. As central banks are increasingly implementing fiscal policies, they are becoming even more vulnerable to political interference and pressure.
- Without proper guardrails and a clear exit strategy, it is unclear how policymakers are going to put the genie back into the bottle. There will already be a need for central banks to absorb much of the debt issued by governments for some time to avoid an uncontrolled rise in long-term yields. And at that point, what will prevent governments from financing new spending in the same way? This opens the door to uncontrolled deficit spending with commensurate monetary expansion and ultimately inflation.
- A clear exit strategy is required. One approach we laid out is a Standing Emergency Financing Facility (SEFF), a framework in which the exit from the joint monetary-fiscal policy effort is explicitly determined by the inflation outlook. An orderly exit could be very difficult without an ex-ante commitment to a governance framework. And to be credible, this exit decision will need to be independently controlled by the central bank.
- Many of these policy-related risks would be mitigated if the economy and markets quickly return to a more normal environment. But the longer heavy policy lifting lasts, the more that ad-hoc policy coordination will raise fundamental questions about the functioning of financial markets and the distortions of government interventions – and who truly bears the financial risks associated with monetary policy innovations and corporate bailouts.
- The policy revolution is key in the near-term to ensure that this real shock doesn't morph into a financial crisis. We see implementation risks as well as the potential for policy fatigue. A German high court ruling threatens European Central Bank independence, and the proposal for a euro area recovery fund needs the buy-in of all member states. In the U.S., partisan politics in an election year may prevent a follow-up on the fiscal stimulus to cushion the pandemic's impact.
- A change towards a higher inflation regime is a risk in the medium term, with the lack of a clear exit strategy risking a de-anchoring of inflation expectations in an environment where deglobalization and re-regulation could push costs higher.
- Given that going direct implies relying less on lower interest rates, portfolio rebalancing and inflating asset price values to deliver stimulus, the playbook of 2008 and its aftermath doesn't apply. So on its own, this policy revolution is unlikely to be the prelude of a decade-long, policy-fueled bull market for risk assets.

---

## Authors



**Elga Bartsch**  
Head of Macro Research –  
BlackRock Investment  
Institute



**Jean Boivin**  
Head of BlackRock  
Investment Institute



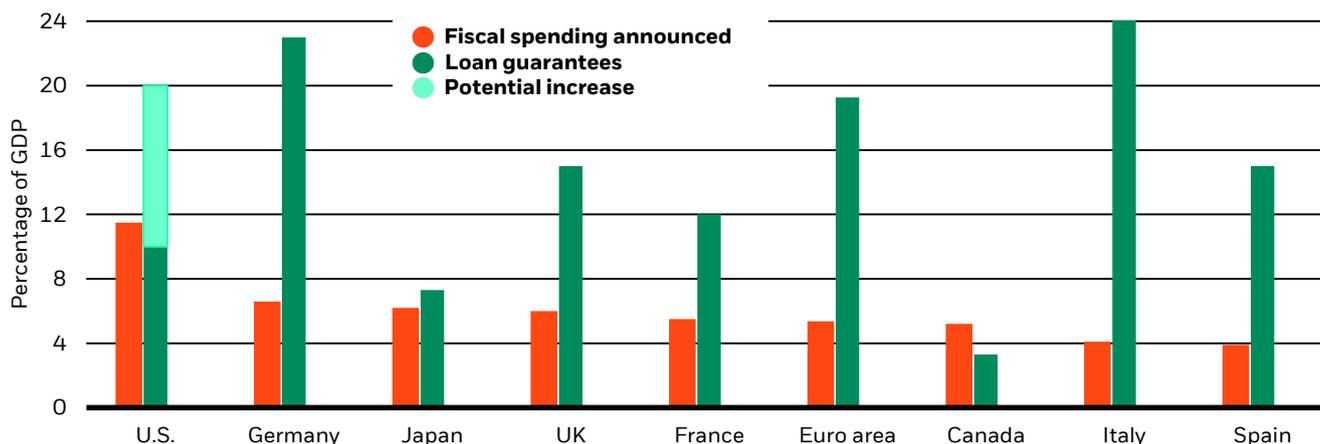
**Stanley Fischer**  
Senior Advisor –  
BlackRock



**Philipp Hildebrand**  
Vice Chairman –  
BlackRock

## Serious fiscal support

Global fiscal spending and loan guarantees as a share of GDP, 2020



Sources: BlackRock Investment Institute and finance ministries, June 2020. Notes: The chart shows actual and expected fiscal spending measures and actual loan guarantees across selected developed market economies. We add an area of potential increase to the U.S. loan guarantee bar because the structure of the U.S. programs means they can be scaled to be larger than what has been formally announced. Euro area data is the weighted average of the EMU4 (France, Italy, Germany, Spain). Forward looking estimates may not come to pass.

## Unprecedented speed and size

We have witnessed a revolution in macroeconomic policy in response to the coronavirus shock. The speed and size of the response has been greater than at any other moment in peacetime history. The core tenets of global policy frameworks and markets have been fundamentally transformed.

The scale of the fiscal policy response has surpassed the GFC in terms of discretionary fiscal stimulus and government guarantees. See the *Serious fiscal support* chart above. Fiscal policy mobilization on such a scale has not been seen since World War II. And in some cases, the fresh round of emergency stimulus comes on top of already sizeable budget deficits and steep upward trajectories in public debt.

The increase in “traditional” quantitative easing (QE) – central bank asset purchases – over the past few months is already projected to be slightly above the size of the Federal Reserve’s three QE programs from 2009 to 2014 combined. The additional credit facilities via a range of special purpose vehicles (SPVs) bring the current policy action to more than twice the size of what the Fed did over five years during the GFC. The ECB’s response is approaching two thirds of the balance sheet expansion during the GFC and beyond. See the *Unprecedented action* chart on the next page.

### New tools in the box

Major central bank policy tools

Central banks and policy tools	US	Euro area	Japan	UK
FX swap lines	✓	✓	✓	✓
Regulatory forbearance	✓	✓	✓	✓
QE – government bonds	✓	✓	✓	✓
QE – credit	✓	✓	?	✓
QE – equity	✗	✗	✓	✗
Negative policy rates	✗	✓	✓	?
Direct lending to public authorities	✓	✗	✗	✓

Source: BlackRock Investment Institute and central banks, June 2020. Notes: The table shows which major central banks have adopted or are considering different “unconventional” policies. FX swap lines are an agreement between two central banks to exchange currencies. Regulatory forbearance is where central banks state that commercial banks may eat into capital and liquidity buffers to boost liquidity. Direct lending to public authorities is direct cash transfers from the central bank to government to finance spending.

The policy response during the GFC forced policy innovations that were seen as a revolution at the time: forward-guidance, QE, negative rates, and funding for lending programs to promote bank lending. See the table. These unconventional policies worked mostly by lowering short- and long-term interest rates – and they also worked through the financial system, affecting the non-financial private sector indirectly. Some of these policies started to blur the distinction between fiscal and monetary policy. Examples are the funding for lending programs (UK), central bank purchases of equity (Japan) and corporate debt (euro area) – as well as the introduction of yield curve control targeting a range for long-term yields (Japan). Yet this blurring still only occurred at the fringes of the policy envelope.

The policy revolution is now taking on a new dimension, with global policy frameworks being redesigned in real time as specific needs arise, without much of an institutional framework. We spell out the three main aspects of this revolution on the next page.

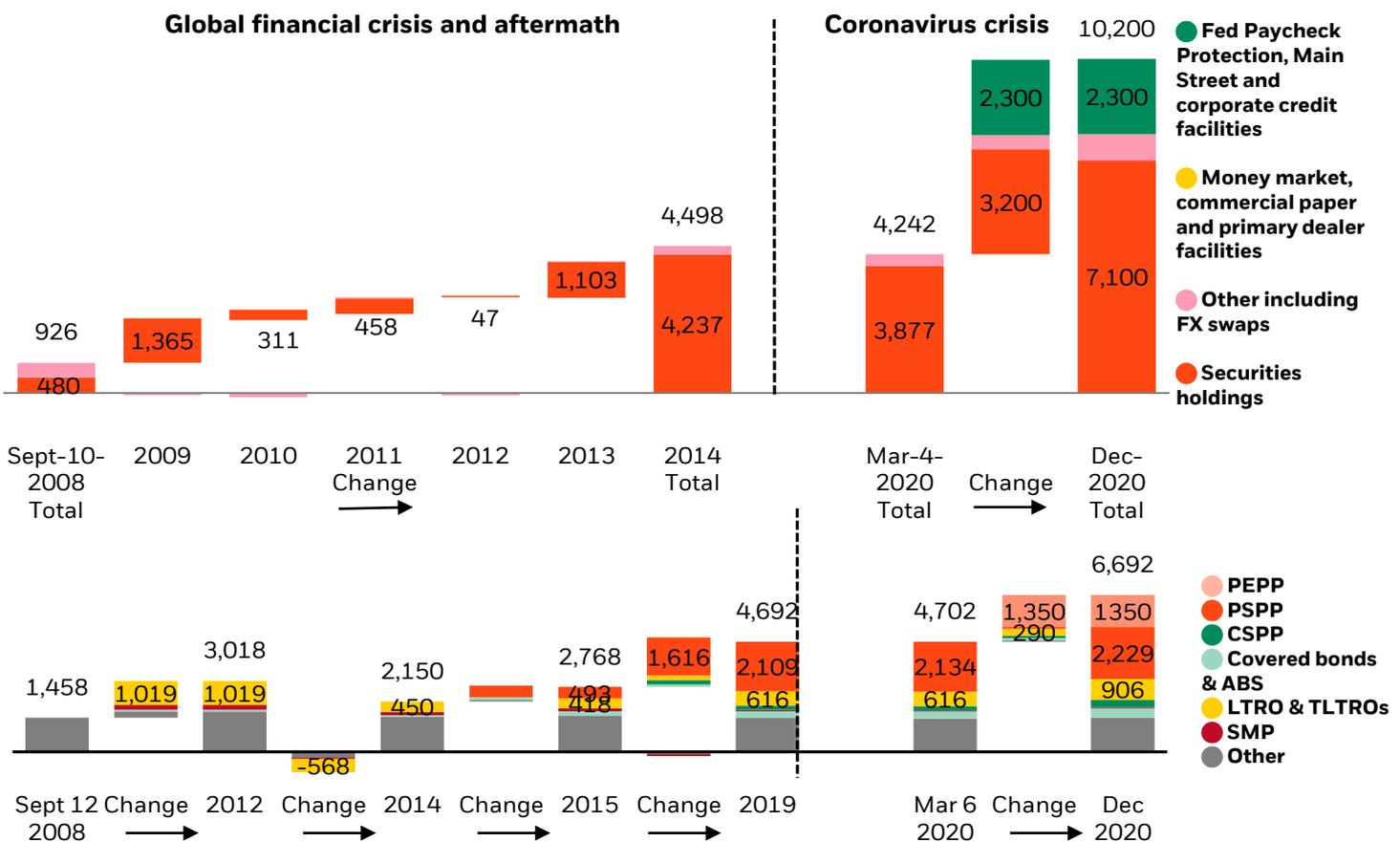
# Unchartered territory

The policy revolution has three main parts. First, the new policies are explicitly attempting to “go direct” – bypassing financial sector transmission and finding more direct pipes to deliver liquidity to a larger set of entities. These include businesses, households and foreign central banks. This is in return for a broader set of collateral such as corporate bonds and bank loans, up to and including the Fed’s Main Street facilities. The ECB and the Bank of Japan had already made baby-steps in that direction, but all central banks are now moving into unchartered territory. The U.S. and UK fiscal authorities are explicitly backing this type of central bank lending and in turn are starting to rely on direct borrowing from the central bank at the local government level. The chart below shows how important these direct policy instruments have become relative to the traditional unconventional toolkit. In the euro area, the main innovation is the pandemic emergency purchase programme (PEPP) that allows the ECB to buy government debt out of proportion to euro area country shareholdings in the bank. One consequence: going direct relies less on lower interest rates, portfolio rebalancing and inflating asset price values to deliver stimulus. So on its own, this policy revolution is unlikely to be the prelude of a decade-long, policy-fueled bull market for risk assets as we saw after the GFC.

The second aspect of this revolution is the explicit blurring of fiscal and monetary policies. The policy instruments represented by the green areas in the top chart below all involve credit risk that is explicitly backed by the U.S. Treasury. This is fiscal policy working through a Fed instrument. Boundaries have also been blurred in the use of monetary policy to keep interest rates low – buying government debt as fiscal spending surges (see the charts on page 6). Aside from the few places where it is explicitly presented as yield curve control, large or even unlimited asset purchase programs are tied to maintaining low government bond yields. Temporary monetary financing has been made explicit in the UK. The third aspect of the policy revolution is the stringent conditionality around dividend payouts, share buybacks and executive compensation imposed on companies taking government support. This opens the door to unprecedented government intervention in financial market functioning and corporate governance.

## Unprecedented action

Contributions to Fed and ECB balance sheets, in USD billions and EUR billions, 2008-2020



Source: BlackRock Investment Institute, Fed and ECB, with data from Haver Analytics, June 2020. Notes: The top chart shows what the Fed’s balance sheet could look like by the end of 2020 with the new facilities launched in the past two months compared with March 6 – just before it began its interventions. The balance sheet at the end of 2020 is based on estimates made by BlackRock’s Global Fixed Income economics team. These projections are based on data from the Fed’s H.4.1 (balance sheet) release and on the structure of the Fed’s facilities found on the Fed website. The purchase pace of securities is listed on the New York Fed website. The estimates also assume that the Fed will increase its planned support for its Paycheck Protection Program loan facility and expand its support for states and municipalities by several hundred billion dollars compared with the initial announcements. By comparison, the Fed pledged as much as \$2.3 trillion in loans to support the economy in its April 9 announcement. Estimates of the expected increase and December 2020 totals are rounded. The funding facilities (green bars in top chart) are funded with credit loss protection provided by the U.S. Treasury and lending by the Fed. These programs also include the Term Asset-Backed Securities Loan Program and Municipal Liquidity Facility. The bottom chart shows the ECB’s comparable balance sheet expansion. PEPP is the Pandemic Emergency Purchase Programme, PSPP is the Public Securities Purchase Programme, CSPP is the Corporate Securities Purchase Programme, LTROs and TLTROs are (Targeted) Long-Term Refinancing Operations and the SMP is the Securities Market Programme. Forward looking estimates may not come to pass.

# Historic labor market support

The labor market is one area experiencing an unprecedented amount of government intervention. There is a stark difference in approach on the two sides of the Atlantic. The U.S. is relying mostly on beefed-up unemployment insurance (UI) and Europe on short-time work programs. The former aims to help people who have lost their job, and the latter aims to keep people in work by paying companies to keep employees on at reduced hours. The policy choices matter in terms of the near-term recovery and any long-term scarring. The size of the U.S. and European interventions are similar, but they could have very different consequences for the distribution of lost income between consumers and companies.

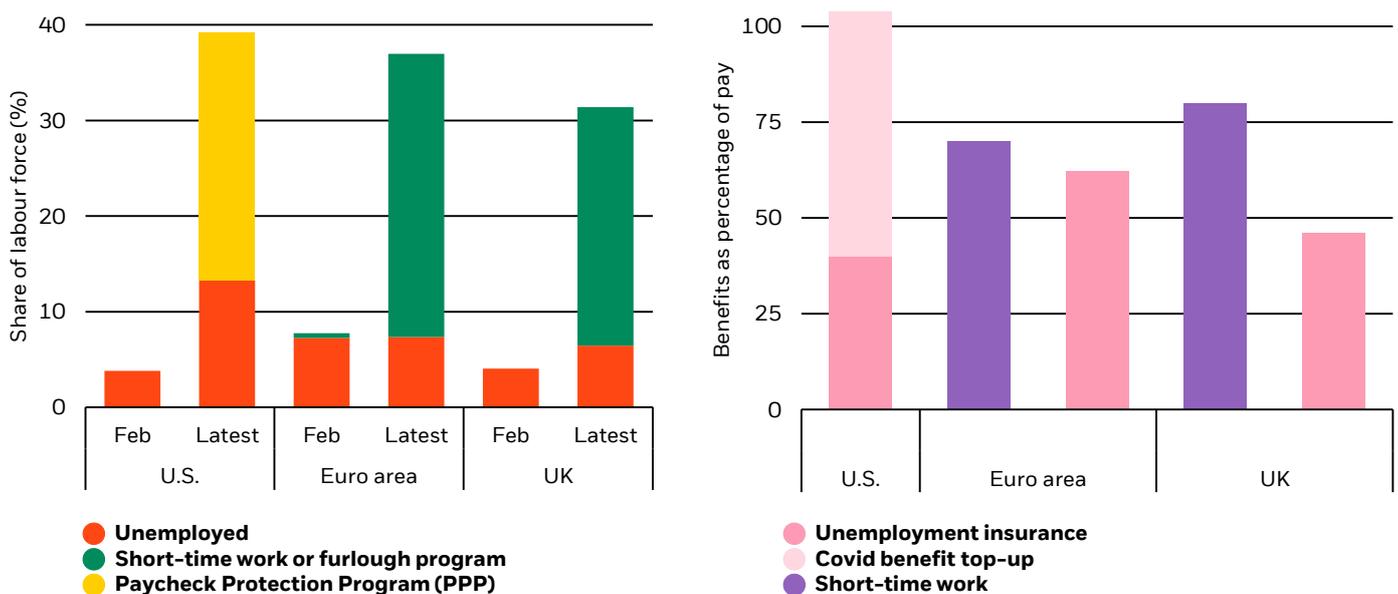
The difference between the approaches lies in who bears the risk of the policy falling short, the impact on company-specific, intangible human capital and future employment dynamics. The reliance on short-time work programs has historically correlated with the strictness of labor market regulations. These programs offer greater flexibility to reduce hours worked without redundancies, equally affecting all workers in a company and allowing companies to operate at reduced capacity. And they avoid the costs of firing and re-hiring. U.S. unemployment benefits currently are slightly more generous than short-time work benefits (see the chart on the right below), mainly due to a pandemic top-up that expires in July. An extension is being debated. Workers in short-time work programs keep social security contributions and healthcare coverage, and may be better off in the long run than those on unemployment benefits as a result.

Unemployment is more disruptive even in lightly regulated labor markets – such as in the U.S. – and company-specific human capital can get lost through the churning of the workforce. It is harder to rehire than to increase the number of hours worked – especially as uncertainty may remain as economies open up. Those labor markets relying mostly on letting staff go could take longer to recover. And the risk of a cash crunch as payments work through the system lies with the worker, not the company. This is important given the temporary nature of the stepped-up benefits in the U.S. (to the end of July) and in the UK (end of October). Cliff edges loom. U.S. consumers are more likely to bear the brunt of the coronavirus crisis, while in Europe companies might have to face the decision on layoffs later. In the U.S., which has introduced payroll support such as the Paycheck Protection Program (PPP) for businesses, the terms – capped at 24 of costs – are less generous than in Europe. And there were some teething problems to begin with.

Historically, the U.S. labor market has been able to weather downturns better than those in the euro area. Thanks to its flexibility it recovered more quickly and avoided many of the long term-increases in the NAIRU (non-accelerating inflation rate of unemployment) seen in the euro area until the 2000s. The rise in U.S. unemployment could become more persistent given the size of the coronavirus shock, however, and raise issues associated with long-term job losses. Short-time work programs, by contrast, smooth the labor market shock more effectively than unemployment insurance even assuming comparable replacement rates – provided the shock is short lived. At the same time, such programs might slow some of the longer-term structural changes that could result from the coronavirus pandemic, and make the economy less flexible, innovative and competitive as a result. The two approaches are clearly very different.

## Jobless jump

Unemployment levels and labor market policies, February 2020 and now



Sources: BlackRock Investment Institute, U.S. Small Business Association, UK Revenue and Customs, UK Treasury, European Trade Union Confederation, OECD, with data from Haver Analytics, June 2020. Notes: The orange bars in the left chart show the official unemployment rate for the U.S., euro area (EMU4) and UK. The yellow bar represents the estimated proportion of the U.S. workforce on the PPP. We calculate how many workers could be supported by the loans by assuming they are paid an average wage (taken from pre-crisis data) through the eight week period for which they are eligible for paycheck protection. The green bars show the share of the workforce registered for short time work or furlough programs. The pink bars on the right show the share of pay that is paid by UI in the U.S., and furlough schemes in the euro area and UK. For workers in the U.S. covered by the PPP, the replacement rate is 100%. Those who are then laid off would receive UI benefit at the replacement rate shown by the dark and light pink bar. In the U.S., the additional pandemic top-up payment expires after July but may be extended. The pink bars for the euro area and UK show replacement rates of conventional unemployment insurance.

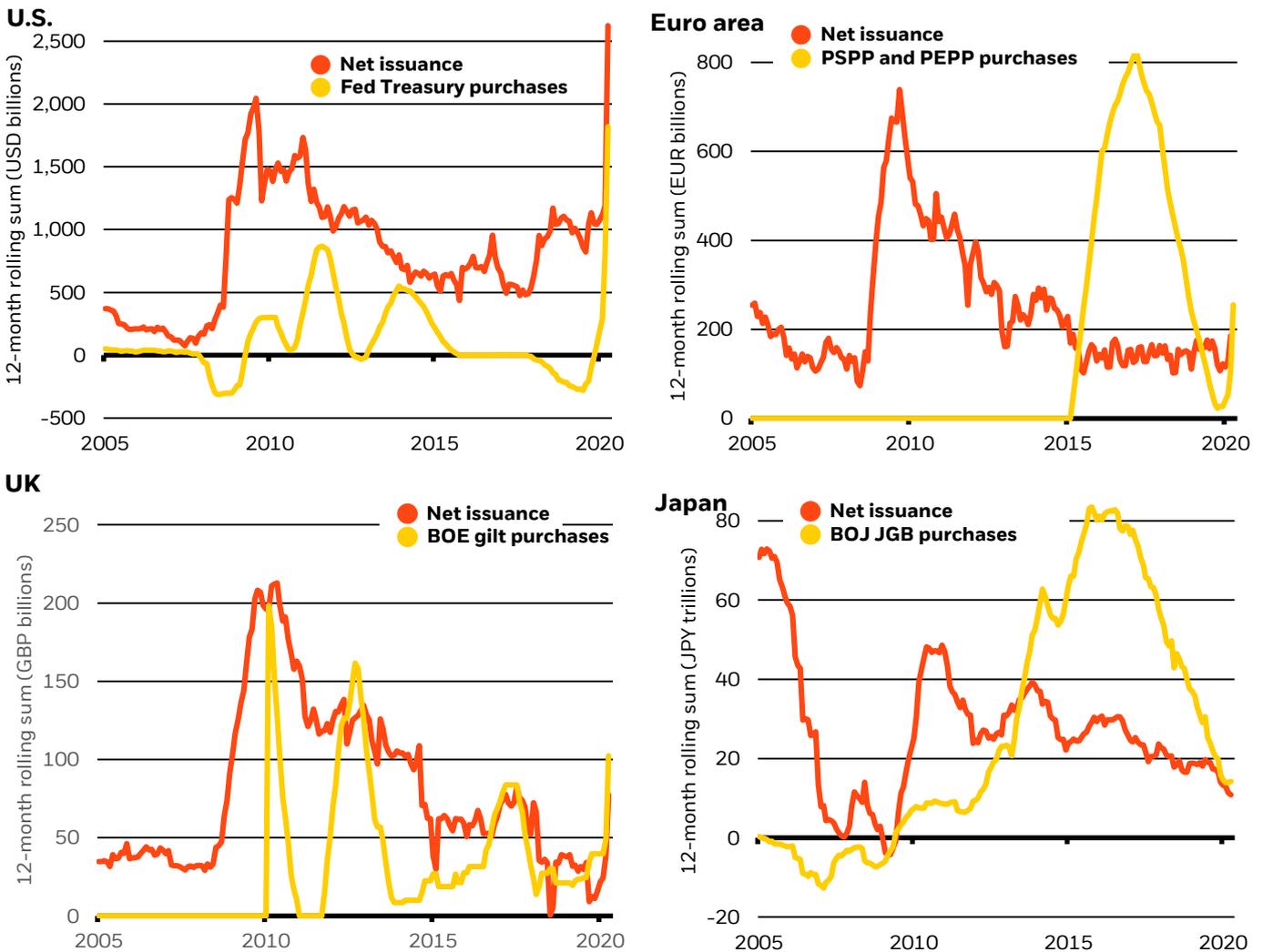
# A point of no return

This global policy revolution was inevitable and is largely going in the direction as we discussed last August. We also stressed at the time that closer coordination between monetary and fiscal policy would be a slippery slope without proper guardrails and a clear exit strategy. The risk now is that we start sliding down that slope. We have crossed the Rubicon in terms of fiscal and monetary policy coordination. Central banks are becoming ever more vulnerable to political interference and pressure as they implement policies that have clear fiscal dimensions. Currently the Fed is implementing credit support policy (as a banker), but the Treasury owns the credit risk (as the ultimate owner of the special purpose vehicle). Who gets to decide when to stop and on what basis?

The blurring of the boundaries can be illustrated by comparing net government bond issuance to central bank purchase programs. See the charts below. In the case of Japan, the formal adoption of yield curve control has pushed BOJ purchases well above net issuance in the past few years. The same has happened in the euro area as the ECB has tried to contain sovereign spreads since 2015. Now the Fed has dramatically picked up the pace of its bond purchases to keep up with the Treasury's net issuance. If purchases climb above net issuance, this could be interpreted as a more deliberate attempt to put a lid on bond yields. Observing a closer correlation between the pace of purchases and the pace of net issuance – as seen in the UK in the past – would be a further indication of boundaries becoming blurred.

## Blurring the boundaries

Government bond issuance and central bank bond buying, 2005-2020



Source: BlackRock Investment Institute, ECB, BOE, UK Debt Management Office, Japan Securities Dealers Association, Bank of Japan, US Federal Reserve and the US Bureau of Public Debt, with data from Haver Analytics, June 2020. Notes: These charts show the net issuance of government bonds in the four economies, and the government bond buying programs of the central banks in those economies. In the euro area, the PSPP and PEPP are the ECB's Public Securities Purchase Programme and the Pandemic Emergency Purchase Programme.

# The way out

It's important to have a clear exit strategy. Otherwise, it is not clear how policy makers would put the genie back in the bottle. There is a need for continued monetary policy coordination to avoid an uncontrolled rise in long-term yields. This implies that central banks will absorb new debt issued by governments. This amounts to de-facto debt monetization if it's done on a large scale and over a long period – even without public entities directly tapping the central bank (as it is now the case for the BOE). Without an exit strategy from the government debt purchases or from yield curve control, it is not clear what check and balance prevents full-blown uncontrolled fiscal spending (for example, Modern Monetary Theory).

There is a clear need for an institutional framework to enable an exit. We have suggested one that explicitly ties the exit from the joint monetary-fiscal policy effort to the inflation outlook and financial stability assessment. This is what our Standing Emergency Financing Facility (SEFF) – sketched out below – could achieve. It needs an ex-ante commitment from central banks and governments to an institutional framework guiding policy coordination. If this institutional void is not filled, markets could see high inflation outcomes as we did under Fed chairs during the 1970s. Getting inflation under control would require implementing painful policies such as former Fed Chair Paul Volcker's play book in the early 1980s: high interest rates to dampen inflation.

These risks could be particularly acute in the U.S. where the ad-hoc policy coordination is happening at a time where the Fed has become more explicitly part of the political debate and is under overt political pressure. In the UK, the radical shift in the BOE stance on debt monetization in the space of just a few days in April does not convey the impression of a robust policy framework, either.

Many of these policy-related risks can be mitigated if the current shock is only temporary, and the economy and markets quickly return to a more normal environment. But the longer heavy policy lifting lasts, the more the ad-hoc policy coordination will raise fundamental questions about the functioning of financial markets and the distortions from government interventions – and who bears the financial risks in the end. This concerns not only the financial risks associated with monetary policy innovations, but also the corporate bailouts and the accompanying restrictions.

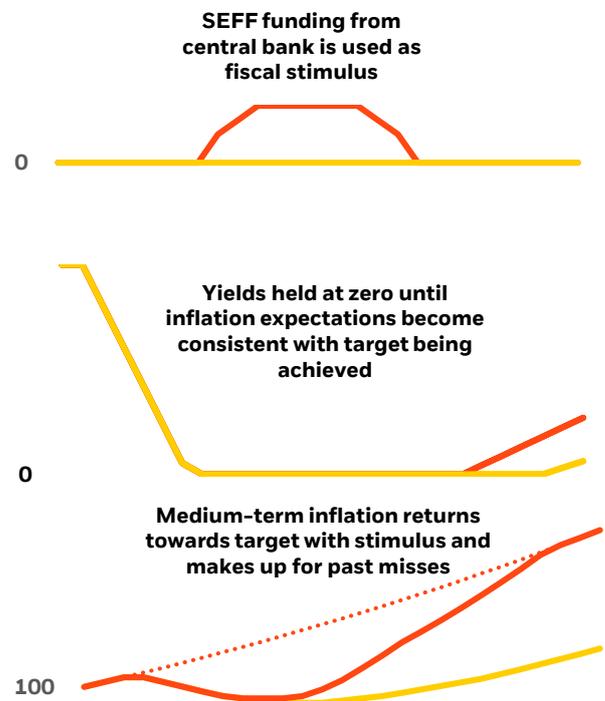
One important investment corollary of the current policy revolution is the potential for an eventual shift in the inflation regime – not now given the near-term deflationary outlook, but further down the road. A change in the central bank reaction function on the back of blurred boundaries between monetary and fiscal policy could create a greater inflationary bias and an upward shift in inflation expectations. Even if consumer price inflation does not react much to changes in capacity utilization or the unemployment rate, it is important to recognize that inflation expectations are a separate driver of inflation in their own right and can become self-fulfilling.

Deficit spending, deglobalization and reregulation could all contribute to higher costs once the initial deflationary shock from the giant demand shortfall dissipates. This could translate into higher consumer price inflation. In the near-term, the downside risks to the inflation outlook are likely to dominate as the size of the negative demand shock – with consumers taking time to feel safe enough to return to shops or to leisure activities – may outweigh the negative supply shock. This means some slack will open-up on the back of the collapse in activity. Median growth forecasts from Reuters imply that it could take a few years to close the output gap. Absorbing higher costs in already squeezed profit margins becomes increasingly difficult. Output prices will likely be raised as a result.

Over the medium-term, permanent damage to production could cause inflation pressure to build earlier in the cycle than otherwise. High debt levels and implicit yield curve controls to maintain debt stability might force monetary policy to become more tolerant of inflation, potentially causing inflation expectations to become unanchored.

## In action

Stylized impact of SEFF on yields and prices



Sources: BlackRock Investment Institute, August 2019. Notes: These stylized charts show the hypothetical impact of a temporary increase in fiscal stimulus financed by the central bank, as reflected in the SEFF funding (red line in top chart). The other red lines show the impact on the inflation trend relative to the inflation target (dotted line on bottom chart) and on the long-term sovereign bond yield (middle chart). The yellow lines show the hypothetical outcome if there is no stimulus. For illustrative purposes only. There is no guarantee that any forecasts made will come to pass.

# Policy implementation risks

We are watching several signposts for assessing the risk asset outlook during the coronavirus shock. First is how successful countries are at restarting activity and reducing social costs of the lockdown while controlling the virus spread. Second is how the joint fiscal-monetary policy is being delivered through successful and timely policy execution – especially for go-direct policies that put money into hands of entities that need help bridging cash flow shortfalls. Third is tracking whether cracks are appearing on the balance sheets of cash-constrained entities while keeping an eye on financial market functioning and plumbing.

We see policy execution risks cropping up in different places. The euro area is one. The German constitutional court decision requiring the ECB or the Bundesbank to justify its government bond purchases to the German government may be a cautionary tale of how execution can be scuppered. This ruling could potentially undermine the independence of the ECB – and threaten to fuel financial fragmentation within the euro area. The German court gave the ECB three months to justify its €2 trillion bond purchase program to the German parliament. Otherwise the Bundesbank – the ECB's largest shareholder and bond buyer – would have to pull out of the program, the court said. The ruling puts a wrench into the works of the ECB's "whatever it takes" commitment – at a time when effective execution of policies is critical to safeguard the economy against damages from the coronavirus shock.

The ruling, which had immediate consequences for the ECB's monetary policy, has led the European Union's top court to state that it alone has the power to rule on whether EU bodies are in breach of the bloc's rules. The legal spat could create long-term issues for the central bank and the euro area. Why? It throws legal uncertainty on the Bundesbank's ability to support ECB policies. The German court drew two red lines – on the capital share of each member central bank of the ECB and a 33% cap on buying any country's debt – potentially limiting the size of the ECB's bond purchases. The dispute is partly a consequence of the blurring of boundaries between monetary and fiscal policies – and particularly problematic in the euro area due to the lack of a joint fiscal authority. The creation of a joint European debt management agency or the creation of so-called eurobonds, issued under the liability of all member states, would require a change in the European Treaty. This would trigger referendums in some countries and remains a controversial issue.

The proposal by German Chancellor Angela Merkel and French President Emmanuel Macron to create a €500 billion recovery fund is a step in the right direction toward a common policy response by the EU to the coronavirus crisis. More evolutionary than revolutionary, it is significant for four reasons. First, the funds are intended as grants to member states hit hardest by the crisis, similar to funds distributed by the European Commission to the poorer euro area nations. Second, the overall amount at around 4% of GDP is meaningful on its own. Together with the measures agreed at the April EU Summit, the EU policy response now totals more than €1 trillion. Third, the additional spending is financed via the EU budget, and debt is issued under the standard EU mechanism. As a result, it does not count towards national debt levels. Fourth, up to 50% of the newly issued debt could be purchased by the ECB under current rules, giving the ECB extra room to manoeuvre.

The additional spending would be financed by all member states via a temporary increase of their contributions to the EU budget, most likely from 1-2% of gross national income for three years. The proposal was welcomed by the ECB and the Italian and Spanish governments. Pushback is coming from small core countries and some of the northern nations. The resistance of these countries would need to be overcome for the recovery fund to become a reality as the EU budget will need to be approved by all 27 member states.

Policy fatigue is a risk. This is most acute in the U.S., where fiscal support has been delivered via discretionary programs rather than through automatic stabilizers associated with the euro area's welfare. This means the support can be turned off abruptly. The debate in the U.S. on extending and expanding support for unemployed workers, disrupted businesses, and states and localities is likely to heat up. And the bipartisan effort to pass the nearly \$3 trillion of fiscal support to date may succumb to partisan politics on the next tranches of aid, starting around deadlines in the coming weeks. The upcoming presidential election only adds to the political complications.

Europe faces its own problems. Both Italy and Spain are governed by potentially unstable coalition governments. Germany's Merkel oversees a weak coalition and is still planning to step aside. France's Macron has lost his outright majority in parliament due to defecting lawmakers. And populism remains a potent force in many countries, helping exacerbate a drift toward European fragmentation and geopolitical tensions such as those between the U.S. and China. See the *European fragmentation* and *U.S.-China relations* risks on the [BlackRock geopolitical risk dashboard](#).

# BlackRock Investment Institute

The BlackRock Investment Institute (BII) leverages the firm's expertise to provide insights on the global economy, markets, geopolitics and long-term asset allocation – all to help our clients and portfolio managers navigate financial markets. BII offers strategic and tactical market views, publications and digital tools that are underpinned by proprietary research.

**General disclosure:** This material is not intended to be relied upon as a forecast, research or investment advice, and is not a recommendation, offer or solicitation to buy or sell any securities or to adopt any investment strategy. The opinions expressed are as of June 2020 and may change. The information and opinions are derived from proprietary and non-proprietary sources deemed by BlackRock to be reliable, are not necessarily all-inclusive and are not guaranteed as to accuracy. As such, no warranty of accuracy or reliability is given and no responsibility arising in any other way for errors and omissions (including responsibility to any person by reason of negligence) is accepted by BlackRock, its officers, employees or agents. This material may contain 'forward looking' information that is not purely historical in nature. Such information may include, among other things, projections and forecasts. There is no guarantee that any forecasts made will come to pass. Reliance upon information in this material is at the sole discretion of the reader.

**In the U.S. and Canada,** this material is intended for public distribution. **In the UK and outside the EEA:** Until 31 December 2020 this is issued by BlackRock Investment Management (UK) Limited, authorised and regulated by the Financial Conduct Authority. Registered office: 12 Throgmorton Avenue, London, EC2N 2DL. Tel: + 44 (0)20 7743 3000. Registered in England and Wales No. 2020394. For your protection telephone calls are usually recorded. Please refer to the Financial Conduct Authority website for a list of authorised activities conducted by BlackRock. From 31 December 2020 In the event the United Kingdom and the European Union do not enter into an arrangement which permits United Kingdom firms to offer and provide financial services into the European Union, the issuer of this material is: BlackRock Investment Management (UK) Limited for all outside of the European Union; and BlackRock (Netherlands) B.V.(1) for in the European Union, BlackRock (Netherlands) B.V. is authorised and regulated by the Netherlands Authority for the Financial Markets. Registered office Amstelplein 1, 1096 HA, Amsterdam, Tel: 020 – 549 5200, Tel: 31-20-549-5200. Trade Register No. 17068311 For more information, please see the website: www.blackrock.com. For your protection, telephone calls are usually recorded. BlackRock is a trading name of BlackRock (Netherlands) B.V. **In Switzerland,** this document is marketing material. This document shall be exclusively made available to, and directed at, qualified investors as defined in the Swiss Collective Investment Schemes Act of 23 June 2006, as amended. **For investors in Israel:** BlackRock Investment Management (UK) Limited is not licensed under Israel's Regulation of Investment Advice, Investment Marketing and Portfolio Management Law, 5755-1995 (the "Advice Law"), nor does it carry insurance thereunder. **In South Africa,** please be advised that BlackRock Investment Management (UK) Limited is an authorized financial services provider with the South African Financial Services Board, FSP No. 43288. **In the DIFC** this material can be distributed in and from the Dubai International Financial Centre (DIFC) by BlackRock Advisors (UK) Limited – Dubai Branch which is regulated by the Dubai Financial Services Authority (DFSA). This material is only directed at 'Professional Clients' and no other person should rely upon the information contained within it. **In the Kingdom of Saudi Arabia** this information is only directed to Exempt Persons, Authorized Persons or Investment Institutions, as defined in the relevant implementing regulations issued by the Capital Markets Authority (CMA). **In the United Arab Emirates** this material is only intended for -natural Qualified Investor as defined by the Securities and Commodities Authority (SCA) Chairman Decision No. 3/R.M. of 2017 concerning Promoting and Introducing Regulations. Neither the DFSA or any other authority or regulator located in the GCC or MENA region has approved this information. **In Singapore,** this is issued by BlackRock (Singapore) Limited (Co. registration no. 200010143N). **In Hong Kong,** this material is issued by BlackRock Asset Management North Asia Limited and has not been reviewed by the Securities and Futures Commission of Hong Kong. **In South Korea,** this material is for distribution to the Qualified Professional Investors (as defined in the Financial Investment Services and Capital Market Act and its sub-regulations). **In Taiwan,** independently operated by BlackRock Investment Management (Taiwan) Limited. Address: 28F., No. 100, Songren Rd., Xinyi Dist., Taipei City 110, Taiwan. Tel: (02)23261600. **In Japan,** this is issued by BlackRock Japan. Co., Ltd. (Financial Instruments Business Operator: The Kanto Regional Financial Bureau. License No375, Association Memberships: Japan Investment Advisers Association, the Investment Trusts Association, Japan, Japan Securities Dealers Association, Type II Financial Instruments Firms Association.) For Professional Investors only (Professional Investor is defined in Financial Instruments and Exchange Act). **In Australia,** issued by BlackRock Investment Management (Australia) Limited ABN 13 006 165 975 AFSL 230 523 (BIMAL). The material provides general information only and does not take into account your individual objectives, financial situation, needs or circumstances. **In China,** this material may not be distributed to individuals resident in the People's Republic of China ("PRC", for such purposes, excluding Hong Kong, Macau and Taiwan) or entities registered in the PRC unless such parties have received all the required PRC government approvals to participate in any investment or receive any investment advisory or investment management services. **For Other APAC Countries,** this material is issued for Institutional Investors only (or professional/sophisticated /qualified investors, as such term may apply in local jurisdictions) and does not constitute investment advice or an offer or solicitation to purchase or sell in any securities, BlackRock funds or any investment strategy nor shall any securities be offered or sold to any person in any jurisdiction in which an offer, solicitation, purchase or sale would be unlawful under the securities laws of such jurisdiction. **In Latin America,** for institutional investors and financial intermediaries only (not for public distribution). This material is for educational purposes only and does not constitute investment advice or an offer or solicitation to sell or a solicitation of an offer to buy any shares of any fund or security. If any funds are mentioned or inferred in this material, such funds may not have been registered with the securities regulators of any Latin American country and thus, may not be publicly offered in any such countries. The provision of investment management and investment advisory services is a regulated activity in Mexico thus is subject to strict rules. No securities regulator within Latin America has confirmed the accuracy of any information contained herein.

The information provided here is neither tax nor legal advice. Investors should speak to their tax professional for specific information regarding their tax situation. Investment involves risk including possible loss of principal. International investing involves risks, including risks related to foreign currency, limited liquidity, less government regulation, and the possibility of substantial volatility due to adverse political, economic or other developments. These risks are often heightened for investments in merging/developing markets or smaller capital markets.

©2020 BlackRock, Inc. All Rights Reserved. **BlackRock** is a registered trademark of BlackRock, Inc., or its subsidiaries in the United States and elsewhere. All other trademarks are those of their respective owners.