

**BlackRock**

**Macro and market perspectives**  
February 2021

# Testing debt tolerance

The assumption that low interest rates are here to stay is based on a fragile equilibrium as debt rises sharply.

## **Authors**

**Elga Bartsch** – Head of Marco Research, BlackRock Investment Institute

**Jean Boivin** – Head of BlackRock Investment Institute

**Philipp Hildebrand** – Vice Chairman, BlackRock

## **Contributor**

**Nicholas Fawcett** – Macro Research, BlackRock Investment Institute

BlackRock  
**Investment**  
Institute

# Summary

- **The fiscal policy outlook is very consequential for investors.** The consensus view is that the low interest rate regime is here to stay. This is the core justification for current asset valuations and strategic asset allocations. But whether it persists will depend crucially on the interplay between interest rates, inflation and debt.
- **The policy response to Covid-19 has sparked an unprecedented peacetime increase in sovereign debt.** In the U.S., the 2020 fiscal response amounted to \$3.3 trillion. Current Covid support approved in late 2020 and proposed spending by the new U.S. administration could add up to another \$2.8 trillion to the fiscal bill as of February 2021. And even more is likely on the way in coming years.
- **This is an enormous fiscal impulse on its own – but also relative to the size and the nature of the Covid-19 shock.** We estimate the cumulative activity shortfall in the U.S. and Europe will be a fraction – a quarter roughly – of the global financial crisis (GFC), yet the discretionary fiscal response now is a multiple of the response then – roughly four times. And the objective of policy today is not to stimulate – there is no point stimulating activity that’s been purposefully halted – but to provide a bridge to a post-Covid world. We see a large part of activity restarting on its own once the pandemic is under control even without fiscal support.
- **Up to now policymakers, taxpayers and financial markets have been surprisingly relaxed about the large increase in debt.** This is a stark contrast to the aftermath of the GFC when the focus quickly shifted to austerity. Debt servicing costs at record lows certainly help justify the relaxed attitude. International organizations like the International Monetary Fund are even calling for expansionary fiscal policy now.
- **The academic consensus on debt and deficits has also experienced a 180-degree shift over the past decade.** After the GFC, the work of [Reinhart & Rogoff \(2008\)](#) provided the intellectual backing to quickly embark on fiscal consolidation and debt reduction. Today, the consensus finds its backing in the arguments of [Blanchard & Summers \(2017\)](#) and the greater fiscal space created by historically low long-term government bond yields.
- **The crux: this is not only about low long-term yields but real interest rates being persistently below trend economic growth** – a topic we first touched on in [November 2017](#). This means that governments can run deficits while still keeping the debt/GDP ratio stable or even reducing it. This might sound like a free lunch, but what it really means is that the consensus now assumes that a growing part of the debt will *de facto* be repaid by debt holders rather than taxpayers.
- **The more relaxed attitude towards debt boils down to a belief in an entrenched low inflation and low long-term rate regime even in the face of record high debt levels amid rising inflation.** The entire logic of the new consensus breaks down if we were to move to a regime of higher real interest rates up to or above trend economic growth, causing debt to rise even with balanced budgets.
- **A big driver of this low long-term rate regime has been increased demand for assets seen as safe and liquid, like government bonds, due to heightened uncertainty and risk aversion.** Typically, investors demand compensation for risk in government bonds (term premium) – including inflation risk. But in recent years they have foregone such risk compensation. The question how much longer this might last given that government bonds have become much riskier as the interest paid in coupons has evaporated, duration has lengthened and overall debt has increased.
- **Government bonds have not always been perceived as safe – and this could change again.** Rising inflation – with record debt levels and nominal yields close to their effective lower bounds – could be the trigger. In this environment, developed market (DM) government bonds are exposed to capital losses and their ballast role in portfolios will be more challenged. Importantly, this is about investor sentiment more than fundamental drivers. Because this is about perceptions and sentiment, this equilibrium is also more fragile. And at high debt levels, smaller shifts in bond yields will have a much bigger impact on debt servicing costs.
- **We think central banks will initially lean against rising long-term bond yields – and that will likely work for some time.** Letting long-term rates rise will be fiscally difficult to absorb – through higher debt servicing costs – and financially disruptive. That is what we refer to as fiscal and financial dominance. This can temporarily head off the self-reinforcing dynamics set in motion by inflation and higher debt levels. But leaning against rising yields will become an increasingly challenging position for central banks over time as inflation rises beyond the new tolerance bands in the revised policy frameworks.
- **Bottom line: For now, we think the low long-term real rate regime continues as the dominant narrative, and it is difficult to know when sentiment will shift. This would change if long-term real rates show a sustained return to their historical sensitivity to higher inflation. At that point, we expect central banks to lean against this for a while. This is why we continue to be pro-risk on a 6- to 12-month horizon. But if the narrative around the perceived safety of government bonds changes more fundamentally, it will become difficult for central banks to contain the shift in market sentiment. That is a key reason why we are underweight DM government bonds over a five- to 10-year horizon.**

# Low rates, but for how long?

The policy response to the Covid-19 shock has sparked an unprecedented peacetime increase in sovereign debt levels to new record highs. In the U.S., the 2020 fiscal response amounted to about \$3.3 trillion. Current Covid support approved in late 2020 and proposed spending by the new U.S. administration could add up to another \$2.8 trillion to the fiscal bill as of February 2021. And even more is likely on the way in coming years.

The fiscal impulse is enormous relative to the size of the Covid-19 shock. Trying to identify how much of the shock is impacting supply versus demand – and thus how much slack there is in the economy – seems a futile exercise given its nature, in our view. What matters is the cumulative activity shortfall in the U.S. and Europe. We estimate it to be a fraction – less than a quarter – of the GFC. Yet the discretionary fiscal response in both regions is now a multiple of the response then – more than four times. See the charts below. And the objective of policy today is less to stimulate – there’s no point stimulating activity that’s been purposefully stopped – but more to provide a bridge to a post-Covid world. We see a large part of activity restarting on its own once the pandemic is under control even without fiscal support. That’s a very different environment compared with 2008 when debt deleveraging made the recovery so sluggish. Yet policymakers, academics, taxpayers and markets have been surprisingly relaxed so far about the implications of the large increase in debt. This is a stark contrast to the aftermath of the GFC when the focus quickly shifted to austerity.

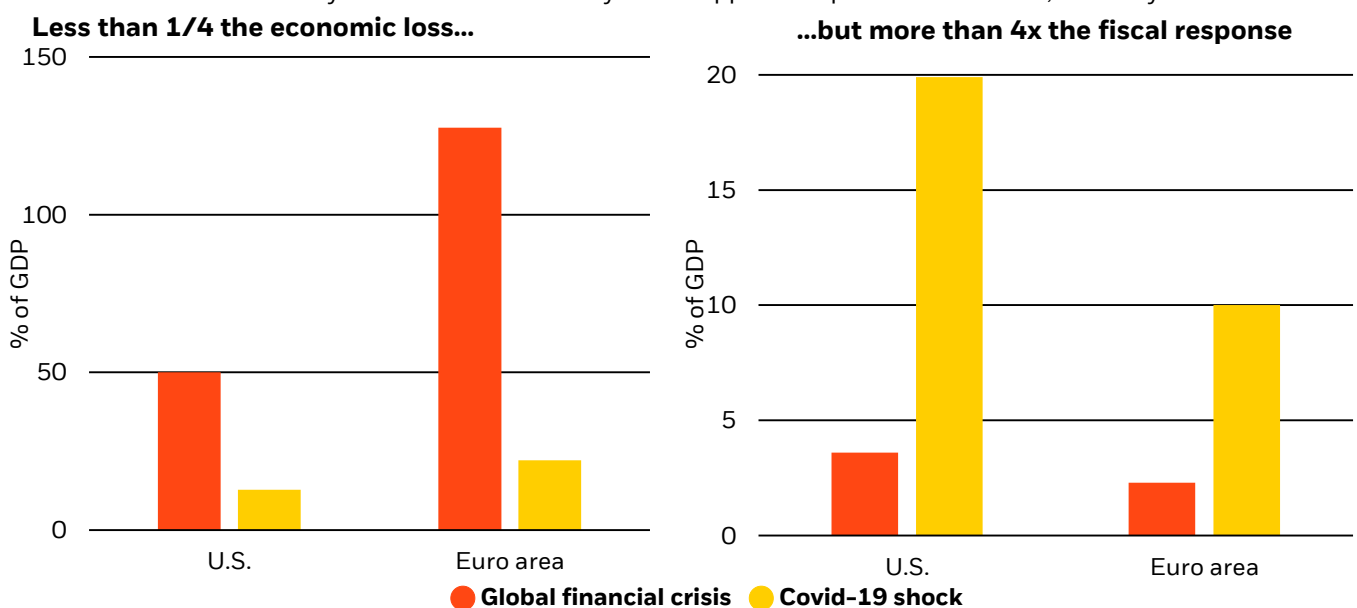
This month 10-year U.S. Treasury yields have risen to near 1.4% and are at the highest level in a year, reflecting for now the repricing of inflation expectations. In June of last year, we articulated why we believe inflation was one of the most underappreciated risks resulting from the 2020 joint fiscal-monetary policy revolution. Importantly, this view is not based on an assessment of economic slack but on higher global production costs (caused by making global supply chains more resilient) and on new central bank policy frameworks – and that has been at the core of our views since. We see a higher inflation environment as still supportive for risk assets as we expect government bond yields to keep showing a muted response to inflation compared with the past: in line with our *new nominal* theme, long-term real yields are well below their pre-Covid shock levels. But the market debate and media attention on the fiscal policy outlook has ramped up – and we think this is very important for investors.

The consensus view is that the low long-term rate regime is here to stay. This is the fundamental justification for current asset valuations and strategic allocations. But whether it lasts will depend crucially on the interplay between long-term rates, inflation and DM government debt. We think that for now we are in a world of fiscal and financial dominance which means that central banks will have strong incentives to lean against any rapid increase in nominal long-term bond yields. That’s why we are comfortable with a pro-risk stance over the next 6-12 months.

Yet even if major central banks don’t tighten policy as much in response to higher inflation, investors might start demanding a premium for holding long-term government bonds – a return of a long-dormant term premium – rather than paying a premium for their perceived safety benefits. We could see a narrative take shape around rising inflation and high debt levels making government debt more risky to hold – and this could eventually lead to a regime of higher long-term rates. This risk is increasing, particularly given the lack of guardrails on fiscal policy that we argued would be essential in August 2019. That is a key reason why we are underweight DM government bonds over a strategic horizon.

## Then and now

Estimate of Covid-19 activity shock and discretionary fiscal support compared with the GFC, February 2021



Forward-looking estimates may not come to pass. Sources: BlackRock Investment Institute, with data from Haver Analytics, February 2021. Notes: The charts show the cumulative GDP loss from the GFC (2008-2009), our expectation for Covid-19 (2020-2021) and the discretionary fiscal support for the U.S. and euro area during each period. For the estimate of U.S. discretionary support in 2021, we assume that the proposed spending measures translate into a fiscal impulse of \$1.7 trillion of direct Covid-related spending that is expected to take place in 2021. Other parts of the current proposed spending are likely to fall in 2022 and beyond.

# Record debt levels but falling interest cost

The fact that debt servicing costs are currently at record low levels certainly help justify the relaxed attitude. In the US, debt is poised to reach a record level of 135% of GDP based on IMF forecasts, twice as high as in the 1990s, but financing costs are only half what they were then as a share of GDP. See the top chart.

The academic consensus on debt and deficits has also experienced a 180-degree shift. While after the GFC the work of Reinhart & Rogoff (2008) provided the intellectual backing to quickly embark on fiscal consolidation and debt reduction, the consensus now finds its backing in the arguments of Blanchard & Summers (2017) and the greater and lasting fiscal space created by historically low long-term rates. Lower trend growth of economic activity – driven by ageing societies and low productivity growth – explains why real interest rates are on average lower. But the crux of the Summers & Blanchard argument is not only that real rates are low because economic growth is low, but in fact that they remain persistently below that subdued economic growth rate. Real rates below trend economic growth means that governments can run deficits while still keeping debt/GDP stable or even reducing it by rolling over debt at low rates and eventually growing out of the additional debt burden.

This might sound like a free lunch. But what it really means is that the consensus now assumes that a growing part of the debt will ultimately be repaid by debt holders who *de facto* are giving away to governments some of the capital returns they could otherwise earn through broad exposure to economic activity (return on capital). Moreover, debt holders accept an erosion of investment capital in real terms from any increase in inflation. It is this transfer of resources from debt holders to governments that provides the additional fiscal space in the current environment.

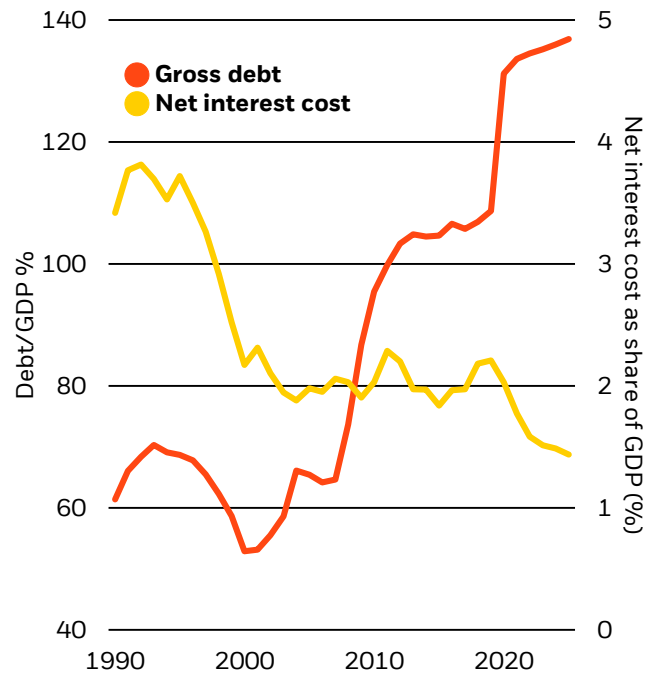
But this situation is a historical anomaly. Typically, investors want the opposite: to hold long-term debt, investors would demand a compensation for risk – including inflation risk – over and above economic growth. Why are investors now effectively *willing to pay* to hold government bonds rather than get a compensation for risk?

We argued in [November 2017](#) that the answer finds its root in higher uncertainty and risk aversion stoked by the late 1990s Asian crisis and magnified by the 2007-2008 global financial crisis. This led a global saving-driven bid for perceived “safety,” making government bonds be sought after primarily for their liquidity and perceived safety characteristics, despite their risks. Decades of long-term yields trending down – without any resurgence of inflation – have also made the risk of capital losses in government bonds easier to ignore.

The new fiscal consensus boils down to a belief that inflation stays low, keeping real rates below trend economic growth. This all hinges on the bid for safety to continue. But this historical anomaly could have elements of a “safety bubble”. Investors could be reminded that the risk of capital loss in government debt has, in fact, not gone away. As their perceived safety is questioned, interests rate would go up, the gap between real interest rates and trend economic growth rate would vanish – and so would the current fiscal space. This situation might not be as solid an equilibrium as the new fiscal consensus assumes.

## Twice the debt, half the cost

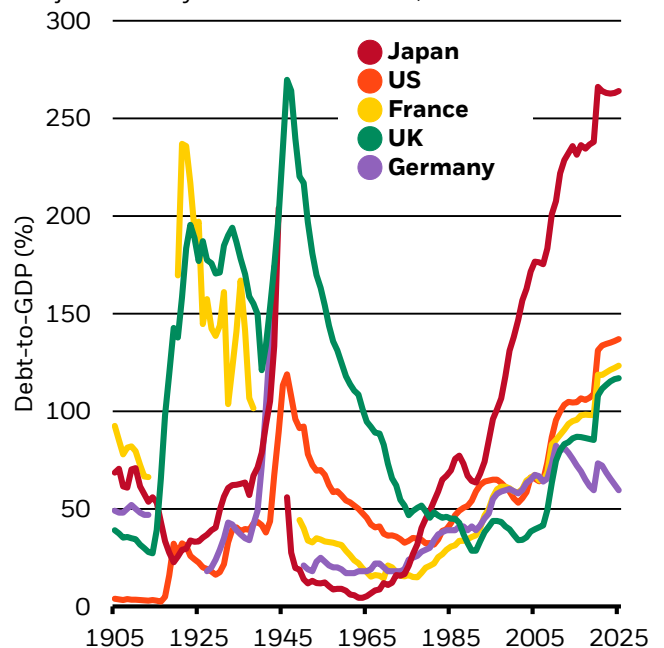
U.S. government debt and net interest cost, 1990-2025



Source: BlackRock Investment Institute, IMF and OECD, with data from Haver Analytics, February 2021. Note: Net interest cost shows the interest payments made by the government on the existing stock of government debt. Interest payments are expressed as a share of nominal GDP. For the period 1990-2000 data are from the OECD and for 2001 data are from the IMF. For the period 2021-2025 projections are provided by the IMF October 2020 World Economic Outlook. Forward-looking estimates may not come to pass.

## Global debt surge

Major economy debt-to-GDP ratios, 1905-2025



Sources: BlackRock Investment Institute and International Monetary Fund, with data from Haver Analytics, February 2021. Notes: The chart shows the debt-to-GDP ratios of major economies from the past 120 years. Forward-looking estimates may not come to pass.

# Limits to deficits

The shift in the academic zeitgeist does not come from a new understanding of how the economy works. Instead, this shift has been entirely shaped by a low inflation and low long-term rate regime becoming entrenched at the core of the current consensus. After the GFC, consensus expectations were that interest rates would rise back to historic levels and in line with growth rates. Yet the expected rise in rates never materialized. Now the consensus is about long-term rates staying low and – importantly – below trend economic growth for any relevant time horizon.

So the entire argument boils down to a belief that long-term bond yields will stay low even in the face of a significant increase in debt and rise in inflation. The entire logic of the new consensus breaks down if we were to move to a regime of higher real rates up to or above trend economic growth. Such a rise in real rates would not only cause debt levels to climb much faster but would also see debt rise further – even if governments brought budgets into balance.

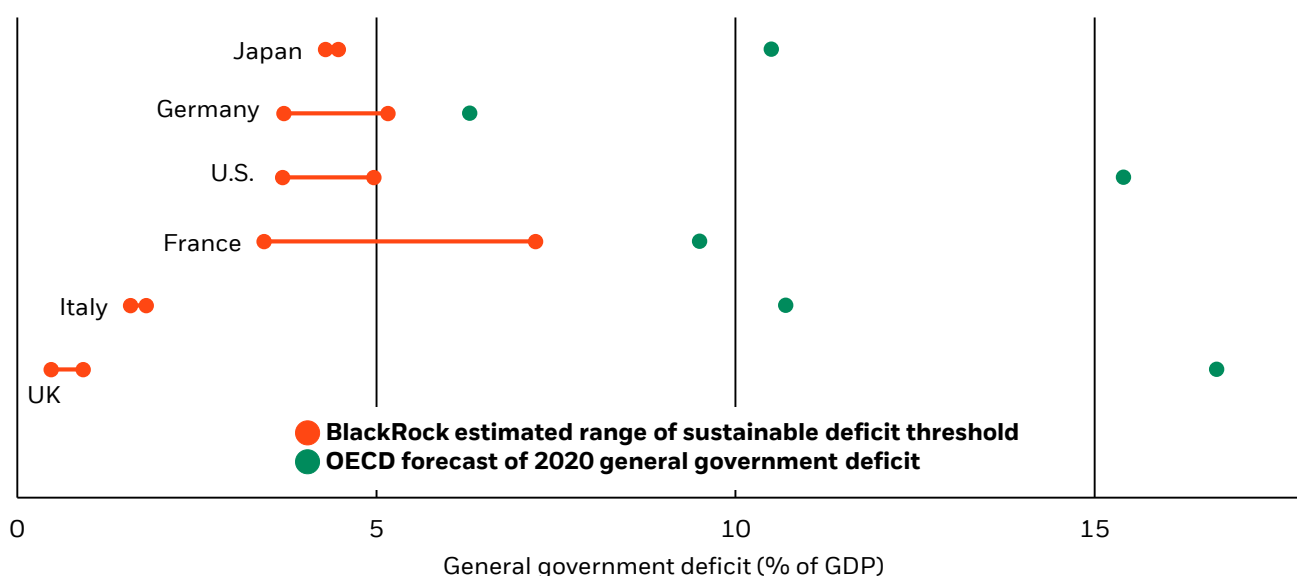
Politically, the illusion of a free lunch – also reflected by the growing attention to Modern Monetary Theory, which claims a limited link between monetary-financed deficits and inflation – has led to the consensus on loose fiscal policy. This was bound to happen due to much closer cooperation between monetary and fiscal policy. This is why we had stressed in our [August 2019](#) paper that the response to the next crisis would require having clear guardrails around such coordination – and that without them it will be politically very challenging to put the fiscal genie back in the bottle. At this juncture, there is no major political constituency globally worrying about deficits or debts unlike after the GFC. Even the International Monetary Fund and Organization for Economic Cooperation and Development are both pressing governments to spend now and worry about debt later – a stark change from 2009.

Yet even in a world where real rates were permanently below trend economic growth, which we would deem to be unlikely, there are limits to the size of deficits that countries can run. True, real interest rates below trend economic growth mean it is possible to increase deficits and still see debt-to-GDP ratios fall. But additional fiscal space does not imply that the fiscal space is unlimited. Even in the hypothetical case where interest rates remained below trend growth forever – an unlikely scenario – there would be clear limits to deficits and debt levels.

This debate has been enhanced by recent academic work ([Reis 2020](#)) providing a simple framework to calculate reasonable ranges of the maximum level deficits countries can run on a sustained basis while keeping intact the bubble premium described on the previous page. We apply this work to G7 economies in the chart below. The maximum range is higher in Germany and the U.S. at 4-5% of GDP, highlighting that the gap between the real return on capital and trend growth is larger. But for other economies, it is only a few percentage points of GDP. What is striking is how large the OECD’s projected deficits for 2021 are compared with the deficit levels that can be sustained in the long run. The bottom line: We may already be close to testing the limits of how large deficits can be sustained and how high deficits – and possibly debt levels – can go without yet seeing a shift in the perception of safety in government bonds.

## “Sustainable” deficits

Projections of sustainable general government deficits, February 2021



**Forward-looking estimates may not come to pass.** Source: BlackRock Investment Institute and OECD, with data from Haver Analytics, February 2021. Notes: Sustainable deficit thresholds are estimates of the maximum that a government can continually borrow to finance spending. The calculations follow a [December 2020](#) paper by Ricardo Reis. The thresholds are calculated by multiplying the difference between long-run GDP growth rates and long-term interest rates by the stock of private non-financial assets in the economy. Non-financial assets are considered a boundary to borrowing because the government can’t borrow more than the private sector assets within the economy.

# Increasingly fragile equilibrium

Long-term government bonds are in fact a risky investment – yet their safety and liquidity qualities are more valued for now. As we have established, a big driver of this low long-term rate regime has been heightened uncertainty and risk aversion. That has driven an increased demand for assets seen as “safe” and liquid like government bonds. Instead of investors receiving a premium as they typically do to invest in a risky asset – in this case, the term premium – investors are in fact paying an unusual premium to hold government bonds for three reasons: their store of value (providing neutral or positive real returns), their role as portfolio ballast against risk asset holdings and their liquidity.

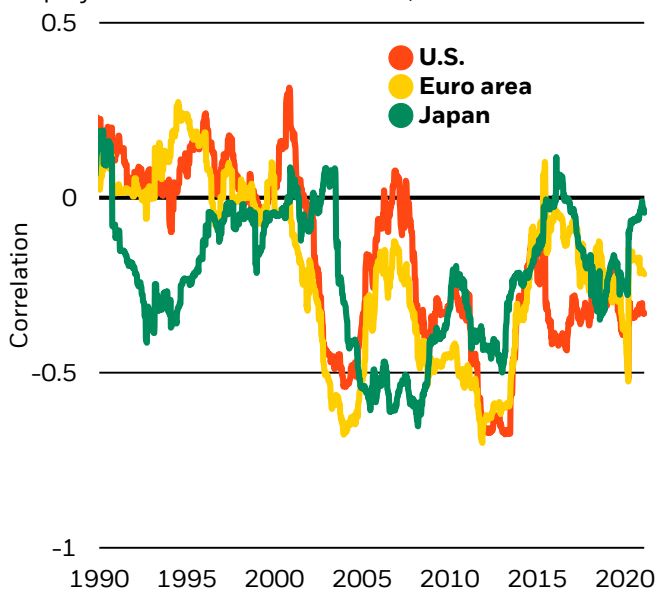
Large debt combined with rising inflation and nominal yields close to lower bounds implies both erosion of investment capital and less protection for multi-asset portfolios from DM government bonds. This is compounded by shrinking bond coupons and rising duration risk. At small or zero coupons, duration risk – how bond prices react to a given yield move – increases. Duration refers to the number of years it takes for investors to be repaid via a bond’s cash flows – and coupons are core to this cashflow. The lower the coupon, the longer it takes to get repaid and the more sensitive the bond price is to yield moves. A 100 basis point rise in 30-year German bund yields would spark twice the price loss today due to their zero coupons compared with a decade ago when those coupons were near 3% or 4%.

In the past year, Treasuries have also showed a lower propensity to post positive returns even when equities sell off. This is similar to what we’ve seen in German bunds and Japanese government bonds as their yields reached effective lower bounds, as our work from [August 2020](#) and the chart on the bottom left shows. And during the worst of the market volatility during the Covid-19 shock in March 2020, U.S. Treasuries added to the cross-asset volatility rather than offsetting it – and were posting negative returns until the Federal Reserve launched unprecedented bond purchases to restore liquidity. So both the perceived safety and liquidity roles of Treasuries broke down at a key moment of market stress, as the Bank for International Settlements noted in its [December 2020 review](#).

The safety premium we describe is all about perceptions and sentiment, making this equilibrium more fragile. A safety premium in long-term government bonds could quickly return to being a positive term premium in long-term bonds, meaning that investors demand a premium to hold the risk of such securities rather than sacrificing it. And the ramifications of a shift higher in long-term bond yields could not be more stark – for debt servicing costs and the valuations of risk assets that are now depending on low long-term interest rates. Higher debt levels mean small changes in interest rates will have a much bigger impact on debt servicing costs. The chart on the right sketches out different scenarios for U.S. debt servicing costs.

## Disappearing ballast role

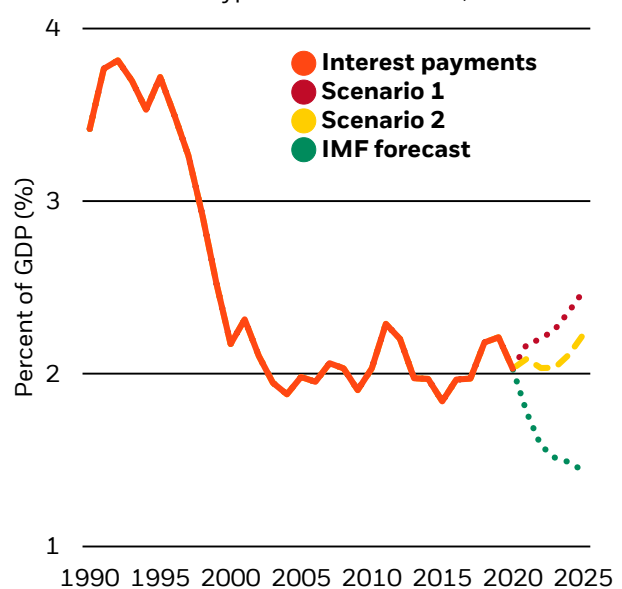
Equity vs. bond return correlations, 1990-2021



Source: BlackRock Investment Institute, with data from Haver Analytics, February 2021. Notes: The chart shows the rolling two-year correlation of weekly equity and 10-year government bond returns. We use the respective MSCI index for each country for equities. For the euro area government bond return, we use Germany as a proxy.

## Low for now

U.S. debt cost and hypothetical scenarios, 1990-2025



**Forward-looking estimates may not come to pass.** Source: BlackRock Investment Institute and IMF, with data from Haver Analytics, February 2021. Notes: Interest payments are calculated as the difference between U.S. general government net borrowing and U.S. general government primary deficit and expressed as a share of nominal GDP. The first scenario in red shows hypothetical interest costs assuming that the effective interest rate on the existing debt stock rises quickly to 2.5% and holds there over the next four years. The second scenario shows the hypothetical impact of a more gradual rise to 2.5% by 2025. The green line shows the IMF’s October 2020 projections. Hypothetical data results are based on assumptions applied retroactively with the benefit of hindsight, were not made under actual market conditions and, therefore, cannot completely account for the impact of economic risk



# How long can debt tolerance last?

With all this in mind, the question arises: how long can the current tolerance for the high debt, low yield regime last? For now, we see the *new nominal* theme still being firmly in play: nominal government bond yields will only show a muted reaction to rising inflation pressures. This is because the Fed has committed to tolerate above-target inflation rates for a while. We expect other central banks to follow suit.

Even if inflation overshoots become more concerning in the medium term, we believe central banks will likely find it politically more difficult to raise policy rates. Long before contemplating raising policy rates, central banks will likely tread carefully even in tapering their asset purchase programmes. Memories of the 2013 taper tantrum U.S. Treasury yield spike are still fresh, and the costs of a communication mishap are likely to be much bigger today given the higher debt. If markets were to misread central bank policy intentions and cause another tantrum – likely through a higher term premium in the chart below – central banks would likely be forced to lean against any sharp yield rise very quickly. For a while, we see central bank policy decisions likely dominated by financial stability and fiscal sustainability concerns.

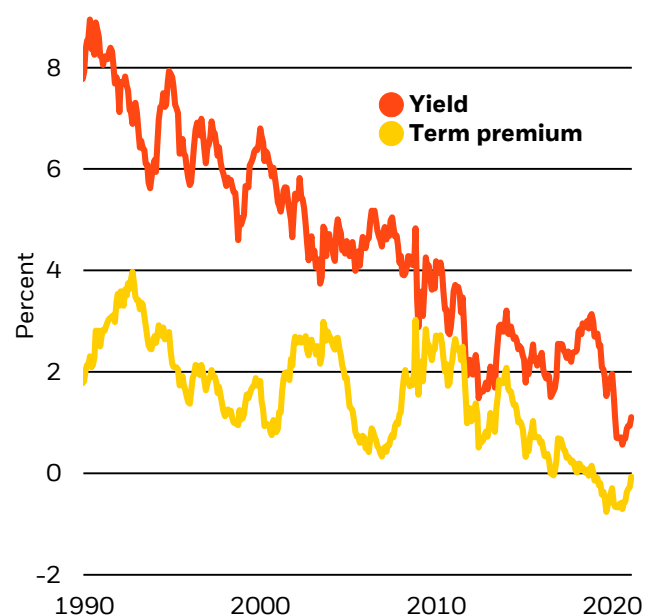
If central banks are increasingly seen as failing to deliver on their price stability mandates, something will have to give. Our estimate of the inflation risk premium – included in the term premium in the chart below – has already risen to the highest level since September 2014 – accounting for almost all of the increase in the term premium. While it is almost impossible to forecast the exact timing of the different phases in the monetary-fiscal policy interaction, the sequencing of events is clear. And so are signposts along the way. We warned in 2019 about the need to define clear guardrails around monetary-fiscal policy coordination that we saw in response to the Covid-19 shock. And even though unprecedented amounts of fiscal spending have already been deployed over the last year, we see more fiscal spending being lined up and at least so far have not seen any adverse consequences. This marks a stark contrast to the austerity drive after the GFC, which proved so unpopular that it will be much harder politically to restrain public spending once the post-Covid restart is completed.

Equally, raising interest rates will become more politically fraught for central banks against a backdrop of high debt levels. Central banks face the potential risk of both fiscal and financial dominance happening at the same time. Recent examples of financial dominance: During the euro crisis, the European Central Bank was initially seen as unwilling to come to the rescue of troubled countries, sparking volatility in DM government bonds akin to an emerging market debt crisis. When the future of the euro came into question, the ECB finally stepped in with sizeable interventions. The ECB was similarly forced to spring into action last March when sovereign spreads in the euro area started to widen sharply. In future, we could see the Fed forced to keep rates lower due to large public debt needing to be financed – a case of fiscal dominance. In principle, the Fed could assert its independence and push back on fiscal dominance. But if financial markets were to become unsettled, the Fed might be forced to change course and find itself under financial dominance too – bowing to market pressures instead of political ones.

**Bottom line:** The path forward for DM government bonds is narrowing as we see inflation rising back to and eventually above the Fed's policy target even as the low long-term rate regime continues. For now, this is still the dominant macro narrative, and it is difficult to predict when sentiment will change. If market concerns were to emerge, central banks will be forced to lean against them, at least for a while. This is why we continue to be pro-risk on a six- to 12-month horizon: our *new nominal* theme sees nominal bond yields being less sensitive to higher inflation expectations, keeping long-term real yields negative – a positive for risk assets. But this would change if long-term real rates show a sustained return to their historical sensitivity to higher inflation. This is key to watch because it would make current equity valuations look a lot more stretched. The prospect of higher inflation at such high debt levels could be a trigger. If this more fundamentally questions the perceived safety of government bonds, it will become difficult for central banks to contain. That is a key reason why we are strategically underweight DM government bonds over a five- to 10-year horizon.

## Risk perceptions

U.S. 10-year yield and term premium, 1990–2021



Past performance is not a reliable indicator of current or future results. Sources: BlackRock Investment Institute and Federal Reserve Bank of New York, with data from Haver Analytics, February 2021. Notes: This chart shows our estimate of the term premium in the U.S. 10-year Treasury note. It is estimated using a term structure model – based on the relationship between short- and long-term interest rates – similar to a New York Fed model.

# 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 intended for information purposes only, and does not constitute investment advice, a recommendation or an offer or solicitation to purchase or sell any securities to any person in any jurisdiction in which an offer, solicitation, purchase or sale would be unlawful under the securities laws of such jurisdiction. The opinions expressed are as of February 2021, and are subject to change without notice. Reliance upon information in this material is at the sole discretion of the reader. Investing involves risks. Asset allocation and diversification does not guarantee investment returns and does not eliminate the risk of loss.

In the **U.S. and Canada**, this material is intended for public distribution. **In EMEA** Until 31 December 2020, 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, has issued this document for access by Professional Clients only and no other person should rely upon the information contained within it. 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:(i) BlackRock Investment Management (UK) Limited for all outside of the European Union; and(ii) BlackRock (Netherlands) B.V. 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 your protection telephone calls are usually recorded. **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 the State of Kuwait**, those who meet the description of a Professional Client as defined under the Kuwait Capital Markets Law and its Executive Bylaws. **In the Sultanate of Oman**, to sophisticated institutions who have experience in investing in local and international securities, are financially solvent and have knowledge of the risks associated with investing in securities. **In Qatar**, for distribution with pre-selected institutional investors or high net worth investors. **In the Kingdom of Bahrain**, to Central Bank of Bahrain (CBB) Category 1 or Category 2 licensed investment firms, CBB licensed banks or those who would meet the description of an Expert Investor or Accredited Investors as defined in the CBB Rulebook. The information contained in this document, does not constitute and should not be construed as an offer of, invitation, inducement or proposal to make an offer for, recommendation to apply for or an opinion or guidance on a financial product, service and/or strategy. **In Singapore**, this is issued by BlackRock (Singapore) Limited (Co. registration no. 200010143N). This advertisement or publication has not been reviewed by the Monetary Authority of Singapore. **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). **In Latin America**, for institutional investors and financial intermediaries only (not for public distribution). No securities regulator within Latin America has confirmed the accuracy of any information contained herein. The provision of investment management and investment advisory services is a regulated activity in Mexico thus is subject to strict rules. For more information on the Investment Advisory Services offered by BlackRock Mexico please refer to the Investment Services Guide available at [www.blackrock.com/mx](http://www.blackrock.com/mx)

©2021 BlackRock, Inc. All Rights Reserved. BLACKROCK is a trademark of BlackRock, Inc., or its subsidiaries in the United States and elsewhere. All other trademarks are those of their respective owners.

**BlackRock**