Janus Henderson
INVESTORS

JANUS HENDERSON SOVEREIGN DEBT INDEX

Edition 3

MAY 2023

Marketing communication

CONTENTS

Nothing in this document should be construed as advice.

All dollar figures are in US dollars (USD) unless otherwise stated.

INTRODUCTION

JANUS HENDERSON IS AN ASSET MANAGER INVESTING IN GLOBAL EQUITY MARKETS ON BEHALF OF ITS CLIENTS THROUGHOUT THE WORLD FOR OVER 80 YEARS.

Formed in 2017 from the merger between Janus Capital Group and Henderson Global Investors, we are committed to adding value through active management. For us, active is more than our investment approach – it is the way we translate ideas into action, how we communicate our views and the partnerships we build in order to create the best outcomes for clients.

We take pride in what we do and care passionately about the quality of our products and the services we provide. While our investment managers have the flexibility to follow approaches best suited to their areas of expertise, overall our people come together as a team. This is reflected in our Knowledge Shared ethos, which informs the dialogue across the business and drives our commitment to empowering clients to make better investment and business decisions.

We are proud to offer a highly diversified range of products, harnessing the intellectual capital of some of the industry's most innovative and formative thinkers. Our expertise encompasses the major asset classes, we have investment teams situated around the world, and we serve individual and institutional investors globally. We have US$287 billion in assets under management, more than 2,000 employees and offices in 24 cities worldwide*. Headquartered in London, we are an independent asset manager that is dual-listed on the New York Stock Exchange and the Australian Securities Exchange.

What is the Janus Henderson Sovereign Debt Index?

The Sovereign Debt Index is a long-term study into trends in government indebtedness around the world, the investment opportunities this provides and the risks it presents. It measures the extent to which the world's governments are financing themselves with borrowings and how affordable and sustainable those borrowings are, comparing and contrasting trends around the world. (See methodology for further details)

The report aims to help readers better understand the world of fixed-income investment.

*As at 31 December 2022

EXECUTIVE SUMMARY

Overview of Global Sovereign Debt

- Global government debt rose 7.6% to a record $66.2 trillion in 2022
- The US accounted for more than half the global increase
- Nevertheless, the global debt-to-GDP ratio improved by one percentage point to 78% thanks to rapid economic growth
- But higher interest rates meant government interest bills soared 20.9%, the fastest rate of increase since 1984
- Interest paid on sovereign debt reached a record $1.38 trillion in 2022
- Debt per person globally of $13,525 in 2022 was $3,264 higher than before the pandemic began but varied widely from country to country

GLOBAL GOVERNMENT DEBT ROSE 7.6% TO A RECORD $66.2 TRILLION IN 2022

Outlook for Government Finances

- By 2025, the effective interest rate paid on government borrowing will likely rise from 2.2% in 2022 to 3.8% as bonds are refinanced or new ones issued
- Government interest costs will likely consume 2.8% of global GDP in 2025, almost double the average of the last ten years
- Interest costs in 2025 are set to be $2.80 trillion, double the 2022 total, costing each citizen on average an additional $288 per year by that time – but significantly more than this in rich countries
- 2025 global debt set to rise by one sixth to $77.2 trillion, but the global economy will possibly grow in nominal terms too (ie including the effect of inflation), so debt will only rise one percentage point to 79% of global GDP

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There is no guarantee that past trends will continue, or forecasts will be realised.

EXECUTIVE SUMMARY (CONTINUED)

Bond Markets

- Global sovereign bonds endured their worst bear market in decades in 2022
- But yields are more attractive today than at any time since 2007 and the outlook for bond prices is positive

Viewpoint

- The world economy is set to slow faster than markets expect and is likely to fall into recession
- This means interest rate increases will have to go into reverse – market rates will fall before policy rates do. This is very positive for bond markets
- We expect to see bonds of all maturities perform well – shorter dated bonds are already delivering the highest income in 15 years while longer-dated bonds will likely see the biggest capital gains as the economy falters

From QE to QT – Central Bank Holdings of Government Debt

- Central bank holdings fell from 29% of government debt in issue at the end of 2021 to 26% at the end of 2022
- This reflects central bank ambitions to cease or unwind Quantitative Easing programmes
- The Bank of England is most aggressively in exit mode, while the Bank of Japan is still active in an unsustainable attempt to hold down longer-term market interest rates
- QE holdings totalled $14.0 trillion at the end of 2022, up 1.3% year-on-year, rising much more slowly than government borrowing

QE: CENTRAL BANK HOLDINGS OF GOVERNMENT DEBT FELL FROM 29% OF THE TOTAL IN ISSUE AT THE END OF 2021 TO 26% AT THE END OF 2022

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The world has changed – governments face a reckoning with higher borrowing costs

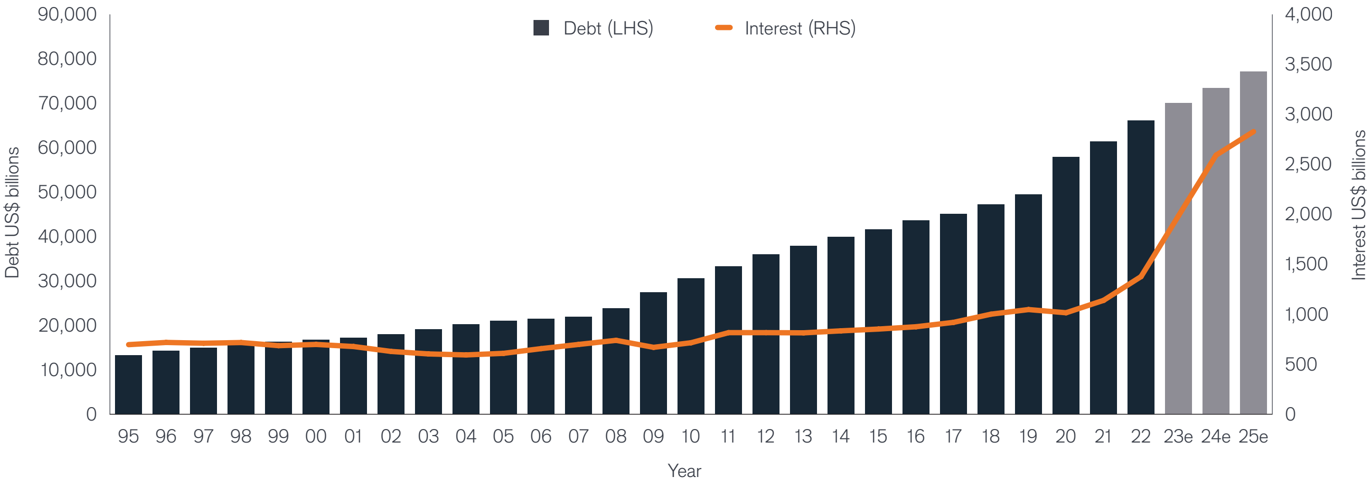
Since the Global Financial Crisis, governments have borrowed with astonishing freedom. Debt levels have more than doubled since 2008 (+117%), supported by a global economy that has expanded at less than half that pace (+56%). Until 2022, this debt appeared to be virtually cost-free. Years of near-zero interest rates and huge quantities of quantitative easing by central banks meant that government borrowing was essentially monetised – blurring the line between fiscal and monetary policy. 2022 saw dramatic changes for government finances around the world as the aftermath of the pandemic and the consequences of policy choices made to meet its various challenges unfolded. Inflation slipped its leash thanks to a combination of post-Covid supply chain snarl-ups, tight labour markets, and soaring energy prices, and it has been exacerbated by excess liquidity caused by central bank quantitative easing (and associated debt monetization), a late start to the rate-hike cycle, and by government deficits through the pandemic. This has caused a large rise in the cost of borrowing as central banks around the world raise interest rates to choke off accelerating prices.

SINCE THE GLOBAL FINANCIAL CRISIS, GOVERNMENTS HAVE BORROWED WITH ASTONISHING FREEDOM.

Costs are mounting sharply. Government interest bills jumped by almost one fifth in 2022 (+20.9% on a constant currency basis) to a record $1.38 trillion. This was the fastest increase since 1984 and reflected the interplay of rising rates with the swelling stock of sovereign borrowing. The effective interest rate rose in 2022 to just 2.2%, up by one seventh, year-on-year.

Meanwhile, the total value of government debt leapt by 7.6% on a constant currency basis to a record $66.2 trillion[1,2].

DEBT AND INTEREST – CONSTANT CURRENCY



[1.] Constant currency: Stock of debt uses 2022 year-end exchange rates; interest costs use average exchange rates through 2022

[2.] Gross debt – throughout the report we refer to gross debt to enable meaningful cross-border comparisons.Gross debt represents only the financial liabilities (debt securities, loans and deposits) of central and local government, while net debt deducts any liquid assets (official reserve assets and other cash or cash-like assets) from these financial liabilities.

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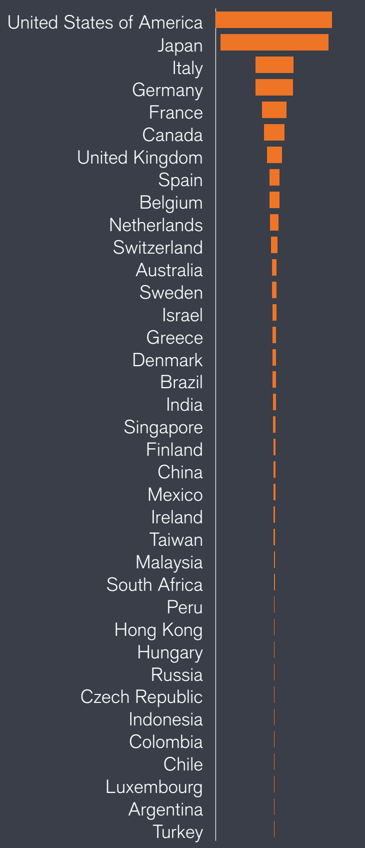
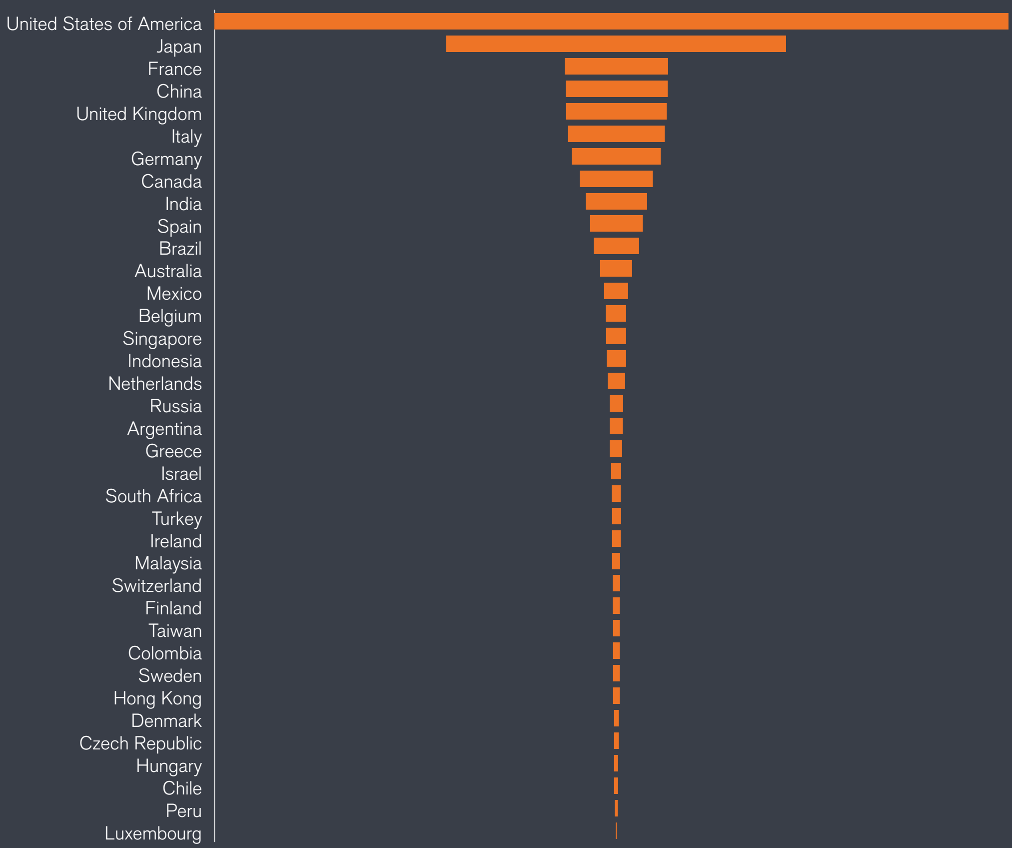
OVERVIEW AND OUTLOOK (CONTINUED)

WORLD PUBLIC DEBT
USD – 1995



WORLD PUBLIC DEBT
USD – 2022



GOVERNMENTS HAVE BORROWED WITH ASTONISHING FREEDOM. DEBT LEVELS HAVE MORE THAN DOUBLED SINCE 2008 (+117%), AGAINST GLOBAL GDP UP JUST +56%.

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The US government accounted for more additional borrowing in 2022 than every other country combined, even after allowing for exchange rate movements. Low interest rates since the Global Financial Crisis have made such a large expansion in governments' balance sheets possible, but bondholders are now demanding higher rates to compensate them for inflation and rising risks, and this is creating a significant and rising burden for taxpayers.

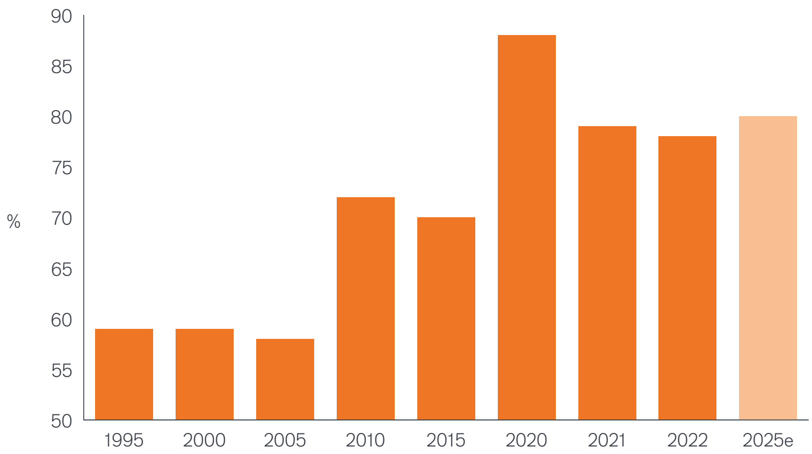
By the end of 2022, the average debt per person of $13,525 was $3,264 higher than before the pandemic began but varied widely from country to country.

The debt burden compared to GDP nevertheless fell slightly in 2022 to 78%[3], down from 79% in 2021. This is because the global economy grew faster than borrowing, up 9.0% (without adjusting for inflation), equivalent to a real-terms increase of 3.0%.

2022 was an epochal inflection point for bond markets. The risk is now that rising financing costs and rising debt burdens lead to a debt overhang that inhibits governments from funding their activities or investing for the future.

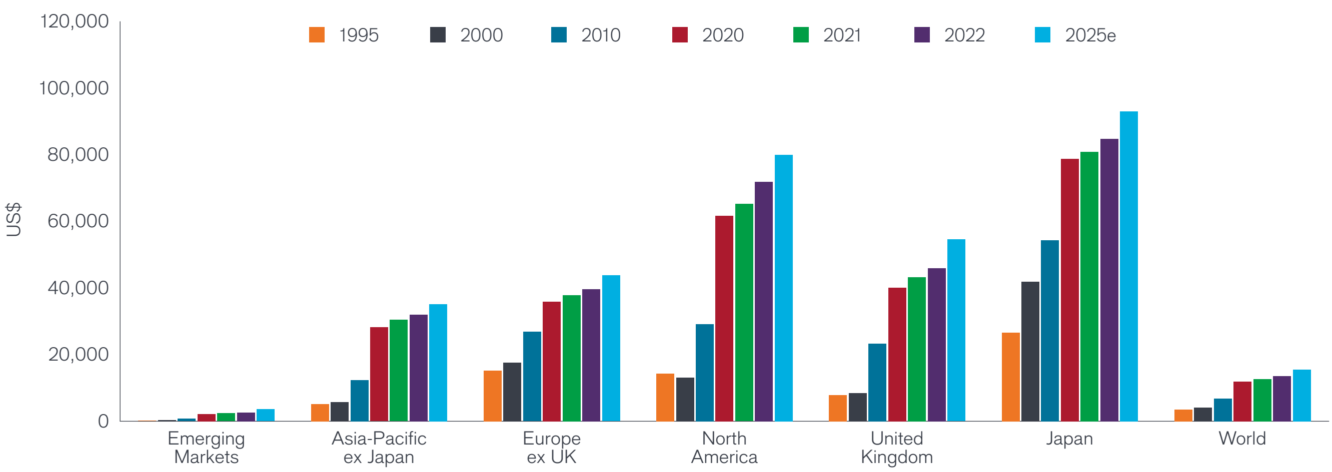
Please see country sections for local detail.

GLOBAL PUBLIC DEBT AS % OF GDP



Source: EIU, Janus Henderson, March 2023

GOVERNMENT DEBT PER PERSON – CONSTANT CURRENCY



Source: EIU, Janus Henderson, March 2023

[3] Debt to GDP ratios are calculated on the basis of gross debt.

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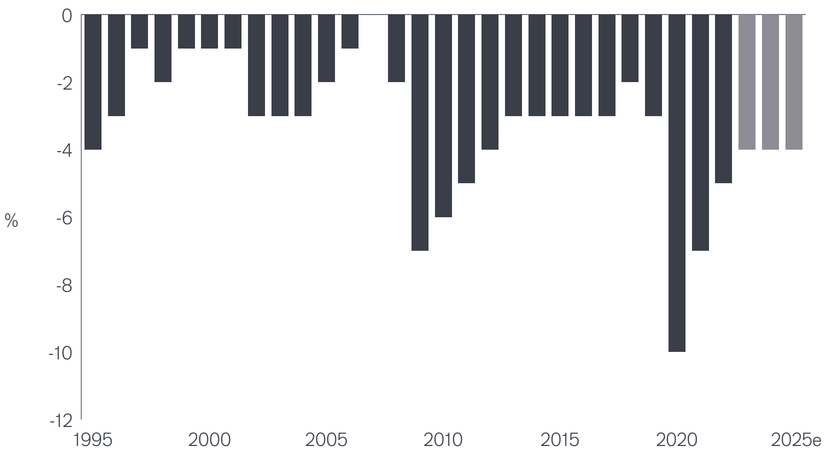
OVERVIEW AND OUTLOOK (CONTINUED)

Outlook

Outlook for Government Finances

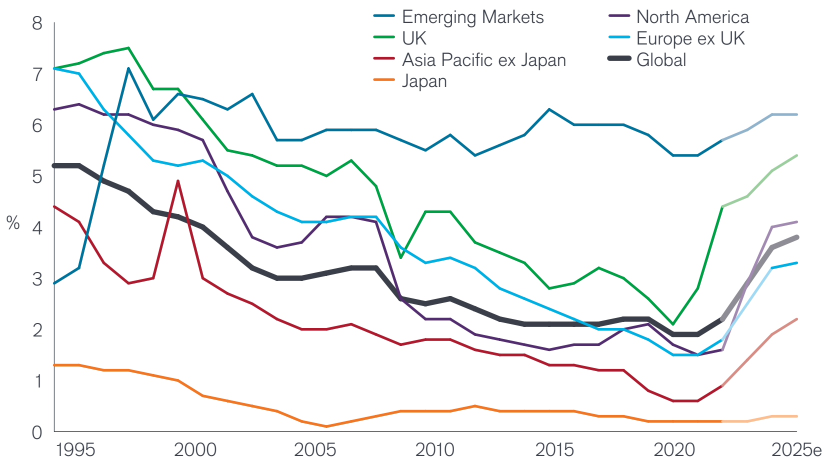
The coming years will see government finances bear growing strain as new bonds are issued at higher interest rates and existing bonds are refinanced at greater cost. The effective interest rate[4] in 2025 is set to be 3.8%, almost three quarters more than 2022's level. Interest costs will consume 2.8% of global GDP by 2025, having been locked at between 1.5% and 1.6% for a decade, diverting resources from other forms of public spending or requiring tax rises. The US is particularly exposed on this measure. This time last year, investor expectations suggested governments would pay around $1.64 trillion in interest by 2025. The higher inflation and interest rate environment means they now expect the bill to reach $2.80 trillion by that time, twice as much as the 2022 total.

WORLD BUDGET DEFICIT
AS % OF GDP



Source: EIU, Janus Henderson, March 2023

EFFECTIVE INTEREST RATE (DEBT-WEIGHTED)
BY REGION



Source: EIU, Janus Henderson, March 2023

On top of this come losses on central bank portfolios of QE bonds[5] which must be filled by tax dollars, reversing the pre-2022 flow of profits on these bonds paid by central banks to government finance departments.

Ongoing annual deficits mean the debt burden will continue to rise. Total debt is set to climb by around a sixth in nominal terms (ie including inflation) between now and 2025. But this must be set against rising nominal GDP (which includes inflation). Debt will climb only slightly faster than GDP, so 2025's global $77.2 trillion of total borrowing will reach 79% of GDP, one percentage point higher than in 2022.

Over the next three years, global average debt per person will rise by another $2,025 to $15,550, while governments will pay $288 more in interest per person compared to 2022 (+102%), with very significant differences from one part of the world to another.

[4] Interest bill over the year divided by stock of debt.

[5] See section below: From QE to QT – Central Bank Holdings of Government Debt.

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OVERVIEW AND OUTLOOK (CONTINUED)

Outlook for the Global Economy

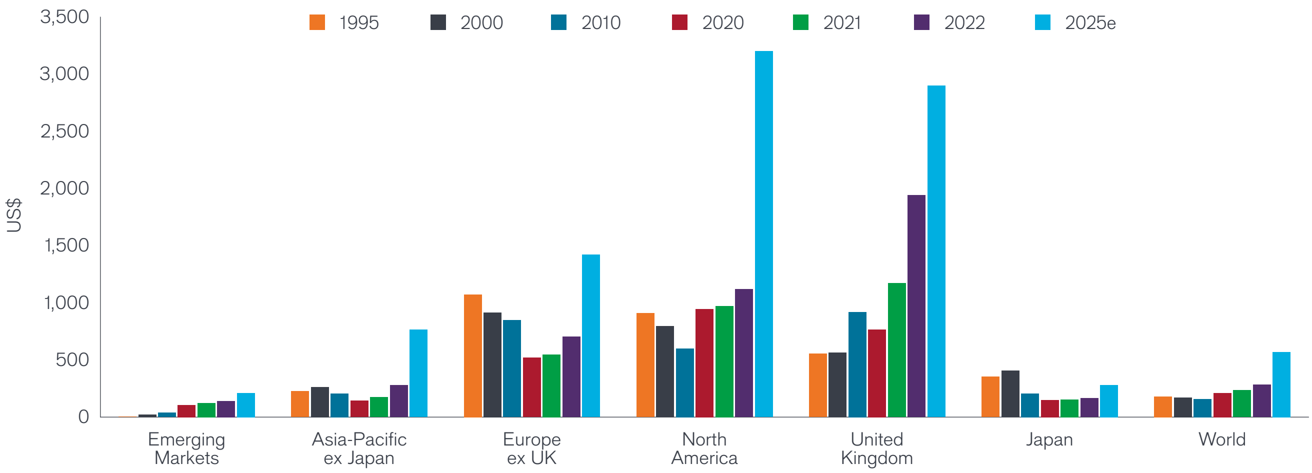
We expect the global economy to weaken markedly in the months ahead, and for inflation to slow more than most expect. The sheer volume of debt owed by governments, corporates and individuals nevertheless means that rates do not need to climb as high as in the past to have the same effect. The interest rate tightening cycle is nearing its end (see Viewpoint for more detail).

A WEAKENING ECONOMY MEANS BONDS ARE VERY ATTRACTIVE – OFFERING HIGH YIELDS TODAY AND THE PROSPECT OF CAPITAL GAINS

Outlook for Bond Markets

These trends present exciting opportunities for bond investors both for income and capital gains. First, the income available on each new dollar loaned to governments via bonds is significantly higher today than it has been in years so investors can lock in now at very attractive rates. Secondly, we expect to see yields fall significantly as the world economy falters and, since falling bond yields mean rising bond prices, this means bonds are likely to generate significant capital gains too. With greater variation than in recent years across the span of maturities and in yield levels from one sovereign to another, there are real opportunities for active fund managers to add value for investors (see Viewpoint for more detail).

GOVERNMENT INTEREST BILL PER PERSON – CONSTANT CURRENCY



Source: EIU, Janus Henderson, March 2023

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BOND MARKETS – 2022'S BEAR MARKET LEAVES BOND YIELDS AT THEIR MOST ATTRACTIVE SINCE 2007

BOND RETURNS ARE A COMBINATION OF CAPITAL AND INCOME (GLOBAL BONDS, USD)

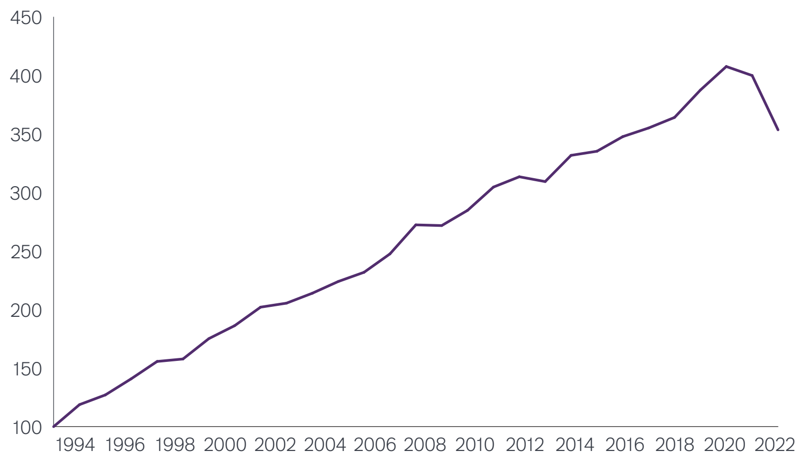
Source: Bloomberg, Janus Henderson, March 2023.

2022 suffered the worst bear market in bonds in decades. Bond prices fell (and yields rose) because central banks have raised short-term policy rates and because investors have demanded greater compensation from the risks that inflation and sovereign creditworthiness pose to their capital. By the time the global index of government bonds reached its low point at the end of October 2022, it had erased all the gains made since June 2017, and had fallen by one seventh from its peak.

Among the major countries in our index, UK government bonds have fallen most, down 29% between the peak in mid-2020 and the end of January 2023. This is much more about the UK's long maturity profile and very large weighting of inflation-linked bonds than it is about the political upheaval in the UK. Long-dated bonds and those linked to inflation are very sensitive to rising market interest rates. In the eurozone, declines range from 17% to 22% depending on the country, while in the US, the index has dropped by one sixth. The shorter maturity profile of US bonds has provided some relative downside protection. Markets in Asia-Pacific have fared significantly better than Europe, the UK and US.

Even after recovering some lost ground in recent weeks, bond yields are higher today than at any time since 2007 (see Viewpoint for more detail).

GLOBAL GOVERNMENT BONDS INDEX – TOTAL RETURN (CUMULATIVE USD HEDGED)



Source: Bloomberg, March 2023.

VIEWPOINT

BY JIM CIELINSKI

The level of government debt and how much it costs to service really matter to society at large, affecting decisions on taxation and public spending and raising questions of generational fairness. For bond investors, however, the absolute level of debt matters less than whether it is sustainable. Countries that issue bonds in their own currencies and whose finance ministries are trusted to balance the books on current spending over the economic cycle can sustain large debt levels relative to GDP. Moreover, debt taken on to fund investment that will grow the economy is usually encouraged because it can spark a virtuous circle of improving debt dynamics – and this is positive for bond prices.

For investors, the crucial determinant for bond-market returns is what happens to interest rates – not just overnight policy rates set by central banks, but also market rates (or yields) at every maturity along the yield curve. (see Box – Understanding Bond Returns)

The need to tame inflation has of course brought sharp rises in interest rates, driving 2022's fixed income bear market. The yield curve is already inverted, meaning that short-term interest rates are higher than long-term ones, conditions associated with an economic slowdown. But the market expects the world economy to have a relatively soft landing – a slowdown in growth, but no outright contraction, except in a handful of national economies.

We think this is wrong.

JIM CIELINSKI,
GLOBAL HEAD OF FIXED INCOME

Inflation is receding into the rear-view mirror faster than people realise – its current high level will quickly wash out of the numbers as the anniversary of the post-Covid supply shocks and high energy prices passes. 'Spot' inflation, or today's rate, is therefore a lagging indicator, yet central banks, focused on the need to re-establish anti-inflation credentials, continue to tighten monetary policy. Low unemployment, and associated high wage increases, are also lagging indicators tempting interest rates higher than they should be. Meanwhile, leading indicators, such as the extremely sharp contraction in global money supply suggest the inflation battle has already been won. Housing markets are also under pressure around the world – with those markets where mortgage borrowers are more likely to have short-term fixed, or even variable rates cracking first. This all means, in our view, that the world economy is in for a harder landing than people assume – in fact it is quite likely to shrink. This is likely to happen almost everywhere, with those economies that opened up first – the US, then the UK, followed by Europe and then eventually Australasia and finally China – falling back in a similar sequence.

This is very good news for bonds.

THE INTEREST RATE TIGHTENING CYCLE IS NEARING ITS END AND YIELDS WILL LIKELY FALL – THIS IS VERY GOOD NEWS FOR BONDS

There are lots of different ways investors can exploit these market conditions, but they are all positive. Bonds of all maturities are likely to see yields fall in the year ahead, meaning prices will rise. Short-dated bonds offer higher yields at present, because they are more closely connected to central bank policy rates. This is good for those wanting income and tolerating lower risk, but they will see less capital appreciation. The scope for capital gains is significantly greater for longer-dated bonds (see box – Understanding Bond Returns) which we expect to perform very well in the next year as the economy comes under pressure. We are positioning our client portfolios accordingly.

THERE ARE LOTS OF DIFFERENT WAYS INVESTORS CAN EXPLOIT TODAY'S MARKET CONDITIONS, BUT THEY ARE ALL POSITIVE.

Understanding Bond Returns

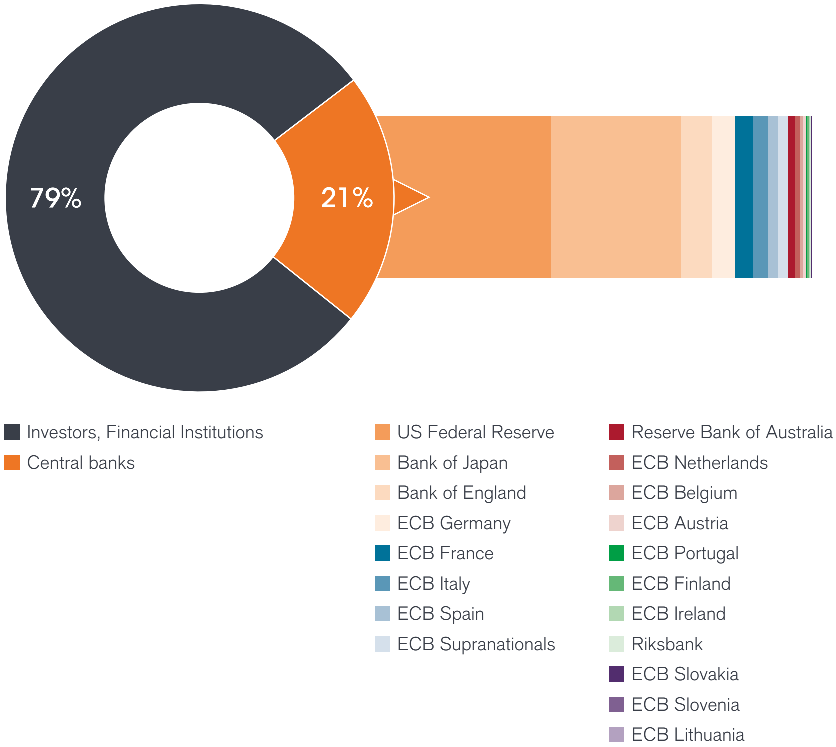
If you buy a bond issued by a highly rated sovereign borrower, take the annual income (or coupon) and hold it until it matures, your return is known from day one – this is the lowest risk form of investment there is. During its lifetime, however, a bond's price will move significantly to reflect the changing interest rate environment – not just the policy rates set by central banks, but also the rates the market sets for every maturity along the yield curve. As a bond nears maturity, its price converges on its repayment value, so it becomes less and less sensitive to market interest rates, or yields. The price of long-dated bonds, especially those with low coupons, is far more sensitive to changing yields, however, and can move very significantly as conditions change. Fund managers exploit the different ways all these kinds of bonds move to generate returns for investors.

FROM QUANTITATIVE EASING TO QUANTITATIVE TIGHTENING – CENTRAL BANK HOLDINGS OF GOVERNMENT DEBT

By the end of 2022 central banks around the world had amassed $14.0 trillion of government debt as part of their QE (quantitative easing) stimulus programmes, equivalent to 26% of the value of bonds in issue (compared to 29% at the end of 2021). The 1.3% constant-currency increase year-on-year is well below the 7.7% increase in sovereign debt during 2022 because monetary policy in most parts of the world has now moved on from years of easy money. Instead of scooping up bonds to keep interest rates low, central banks are raising interest rates to stamp out inflation. Most have either ended their QE programmes or begun to reverse them – a process known as QT (quantitative tightening).

The US Federal Reserve ceased new purchases in March 2022, allowing its portfolio to diminish naturally as bonds mature – at a rate of about 1% per month. Despite now being in decline, its holdings ended 2022 2.4x larger than at the end of 2019, before the pandemic began. The Reserve Bank of Australia has been following the same strategy since May 2022, while the Swedish Riksbank continued to replace maturing bonds until the end of 2022. Its portfolio entered run-off at the beginning of 2023. The ECB has not yet entered this phase, continuing to reinvest the proceeds of maturing bonds, even as it raises interest rates.

HOLDERS OF GOVERNMENT DEBT 2023



Source: EIU, US Federal Reserve, ECB, Bank of England, Bank of Japan, Riksbank.

FROM QUANTITATIVE EASING TO QUANTITATIVE TIGHTENING – CENTRAL BANK HOLDINGS OF GOVERNMENT DEBT (CONTINUED)

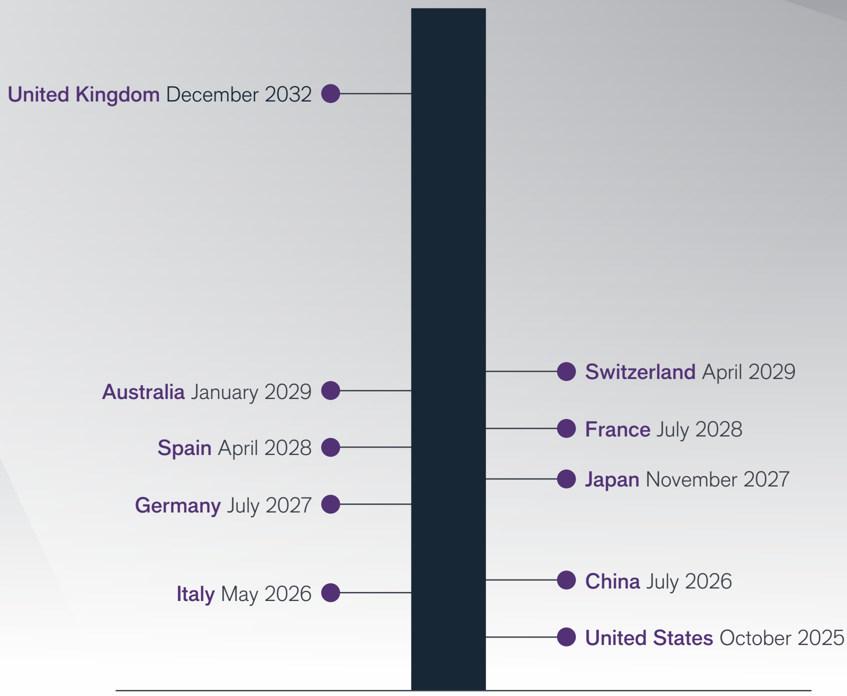
The Bank of England is being the most aggressive among the major central banks. It has begun actively disposing of UK gilts as well as allowing natural run-off. Its holdings are now 5% lower than their peak. The Bank of Japan by contrast is still buying bonds (at record levels in January 2023) as part of its attempts to influence the shape of the market yield curve. Investors are increasingly betting against the Bank of Japan's ability to defend its yield cap. Japan's large debts, its rising rate of inflation, the sharply higher global cost of capital and the pressure the policy is placing on the exchange rate all point to its clear unsustainability. It is just a matter of time before Japan will change course.

Central banks are now making significant losses on their bond holdings as higher market interest rates have pushed down bond prices – these crystallise as bonds are sold or mature. Moreover, there are cash costs too. These derive from the maturity mismatch of holding bonds bought at low or negative yields and creating commercial bank deposits in exchange that must be funded at the main policy rate. Taxpayers are on the hook for these losses after years in which central banks remitted profits on their QE operations to national treasuries. They will add a significant additional strain to national budgets in the next few years and keep annual fiscal deficits high.

BY THE END OF 2022 CENTRAL BANKS AROUND THE WORLD HAD AMASSED $14.0 TRILLION OF GOVERNMENT DEBT AS PART OF THEIR QE (QUANTITATIVE EASING) STIMULUS PROGRAMMES, EQUIVALENT TO 26% OF THE VALUE OF BONDS IN ISSUE (COMPARED TO 29% AT THE END OF 2021).

SPOTLIGHT ON REGIONS AND COUNTRIES

HALF EACH COUNTRY'S BONDS MUST BE REFINANCED BY THIS DATE:



Source: Bloomberg, Janus Henderson, March 2023

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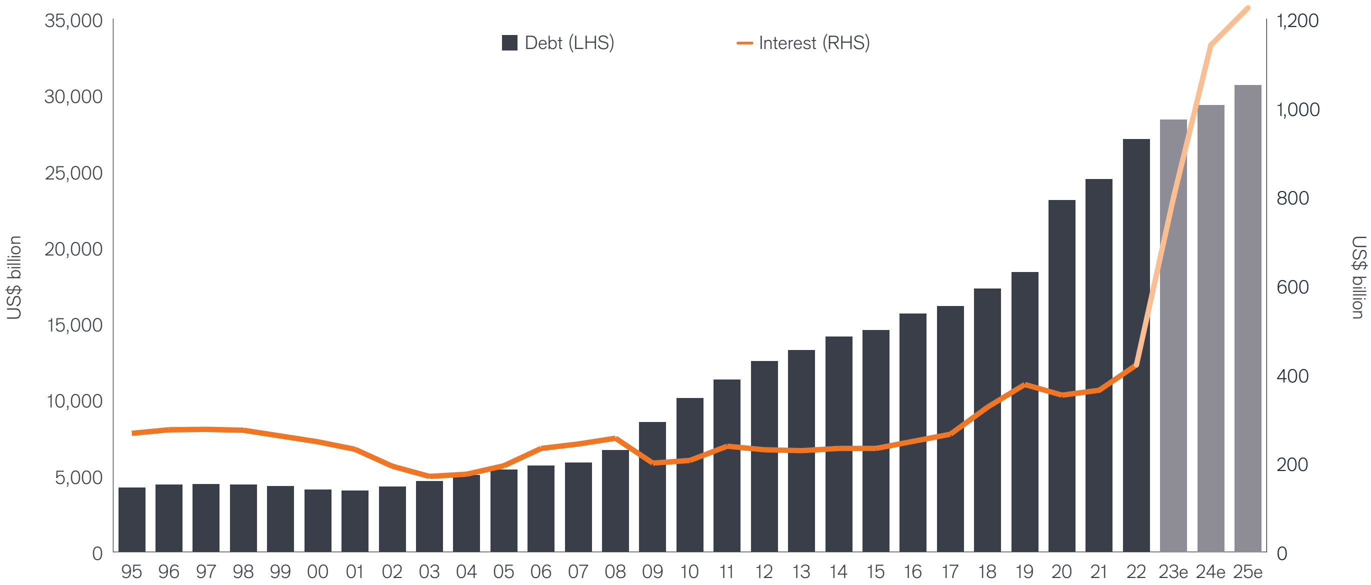
NORTH AMERICA – CONSTANT CURRENCY



Source: EIU, Janus Henderson, March 2023

North America

United States

The United States' public debt rose to $24.8[6] trillion in 2022, up 11.5% or $2.6 trillion year-on-year. Its total borrowings are almost as large as Japan, China, France, the UK, Italy and Germany combined. The 2022 increase funded a range of spending commitments by the Biden administration and accounted for over half the increase in global government debt last year, well ahead of the US's two-fifths share of global GDP. The US economy expanded by 9.2% once inflation is factored in (an estimated 2.1% in real terms) so the debt burden rose by one percentage point to 99% of GDP, though it remained a touch below its 2020 pandemic peak.

Economic growth will be much harder to come by in 2023, but borrowing will continue to rise to meet existing commitments, meaning the debt/GDP ratio may hit 111% over the next three years before stabilising.

US debt interest payments rose by one seventh during the year to a record $404.1bn, equivalent to one third of the country's social security budget. US bonds have a very short maturity profile – half of US debt must be refinanced by October 2025, far sooner than most of its peers. This means large quantities are being rapidly refinanced at higher rates. US debt interest is therefore likely to almost double in 2023 to $780bn and surge higher to almost $1.2 trillion by 2025, costing roughly 4.2% of national income by that time, absorbing almost three percentage points more than in 2021.

[6] Net of intragovernmental holdings.

Federal Reserve cash losses on its portfolio of QE bonds have now risen to $2bn per week[7] after December 2022's 0.5 percentage point interest rate rise, so are set to cost at least $100bn in 2023 (these are separate to its mark-to-market losses, which are very large but unrealised until bonds mature or are sold). These costs will find their way to the US taxpayer.

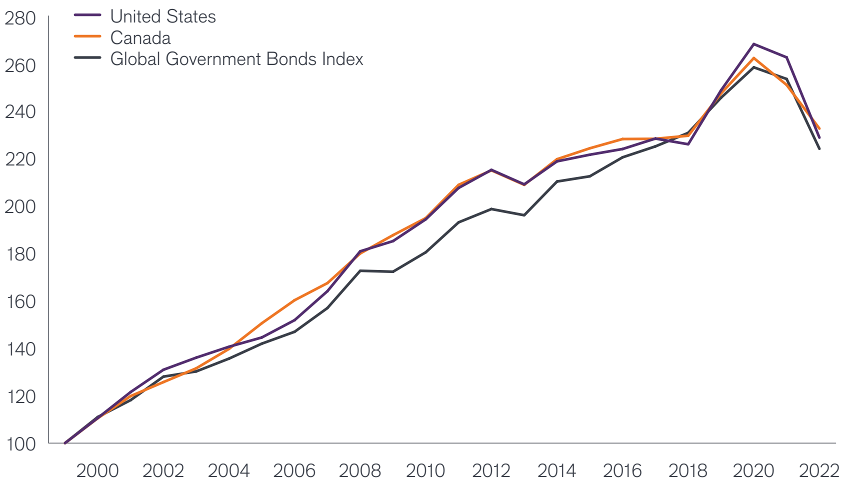
US DEBT INTEREST PAYMENTS ROSE BY ONE SEVENTH IN 2022 TO A RECORD $404.1BN, EQUIVALENT TO ONE THIRD OF THE COUNTRY'S SOCIAL SECURITY BUDGET.

DEBT PER PERSON – USD, CONSTANT CURRENCY

Country	2019	2022	2025e
Canada	$42,233	$58,568	$64,491
US	$50,253	$73,416	$81,792

Source: EIU, Janus Henderson, March 2023

SOVEREIGN BONDS TOTAL RETURN (INDEXED, USD HEDGED) – NORTH AMERICA



Source: Bloomberg, Janus Henderson March 2023

Europe ex UK

France

The French government saw its borrowings rise by 5.9% in 2022 to a record €2.99 trillion ($3.2 trillion), but rising interest rates meant that its servicing costs jumped by 43% to €47bn ($49bn), its highest in cash terms since 2013. In common with its peers, France's interest bill will surge in the coming years, doubling by 2024 and absorbing an additional 1.8 percentage points of GDP. It must also meet its share of ECB and Banque de France QE losses which are mounting as bonds bought, in some cases at zero or negative interest rates, are currently being financed at the main policy rate of 3.0%.

France's debt to GDP ratio of 113% in 2022 was the fourth highest in the world among major economies and was unchanged year-on-year. Per French person, French debt has climbed by €9,358 since the end of 2019 to reach €46,246 ($49,498) at the end of 2022.

Half of France's debts need not be refinanced until after July 2028, a year later than Germany and more than two years later than Italy.

Germany

Germany's debt servicing costs rose in 2022 for the first time since 2011 and jumped 42% to €30bn ($31bn), though this was still less than half the total paid a decade ago. Germany's borrowings rose 3.8% in 2022, to a record €2.57 trillion ($2.75 trillion). As the era of negative interest rates fades into history, Germany will refinance its bonds in the coming years at significantly higher interest rates. German interest payments are likely to almost triple by 2024, an extra funding cost worth about 1.2% of GDP in that year compared to 2022.

7. Federal Reserve H.4.1 report, January 2023.

The maturity mismatch problem that results from the confluence of the unexpectedly large jump in interest rates and the deposits created by the QE programme affects Germany more than most. Critics of QE will argue that the Bundesbank's early scepticism has been justified as losses mount on bonds purchased on negative yields (therefore incurring a cost to the central bank from day one) and financed today at the 3.0% main policy rate.

Germany's debt to GDP ratio is, however, far lower than its peers'. At 67% it is lower than 2021 and compares to the US at 99%, France at 113% and the UK at 106%. Per person, Germany owed €30,957 ($33,141) at the end of 2022, €6249 more than in 2019.

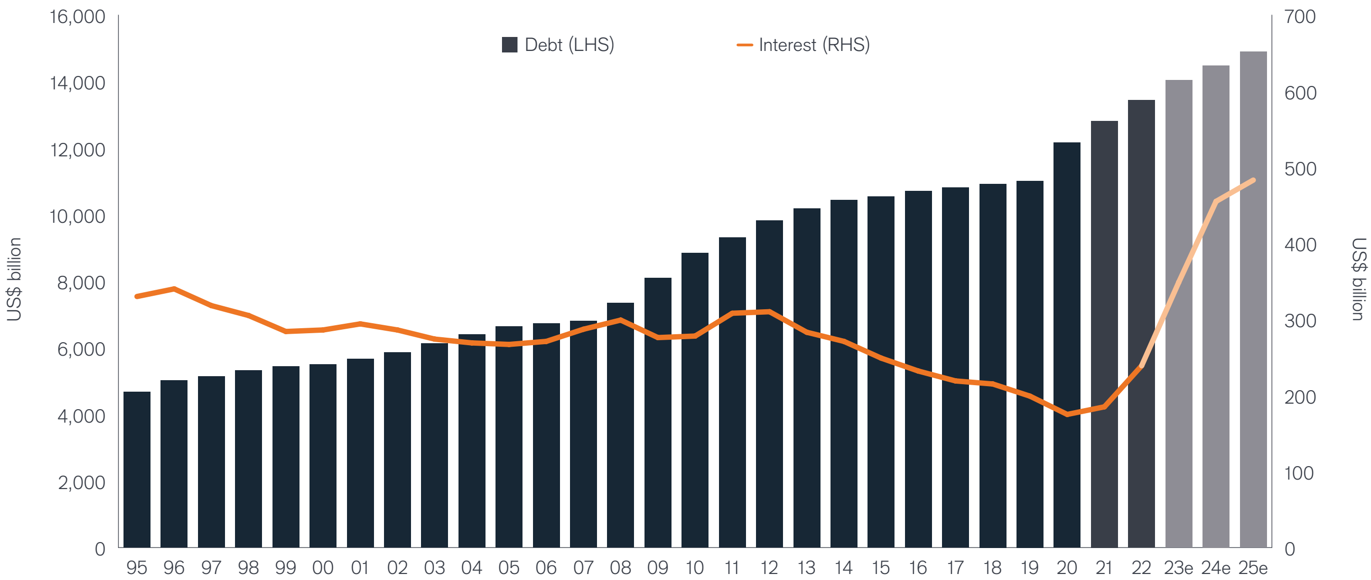
Half of Germany's debts must be refinanced before July 2027, earlier than most of its European peers, except Italy.

DEBT PER PERSON – USD, CONSTANT CURRENCY

Country	2019	2022	2025e
Belgium	$43,454	$53,280	$59,819
Denmark	$19,326	$23,218	$25,597
Finland	$30,182	$36,651	$40,786
France	$39,480	$49,498	$55,636
Germany	$26,451	$33,141	$36,511
Greece	$33,521	$36,789	$38,460
Ireland	$44,467	$51,577	$50,319
Italy	$43,196	$50,495	$56,449
Luxembourg	$24,104	$31,078	$33,650
Netherlands	$24,480	$30,731	$33,008
Spain	$27,788	$34,103	$38,212
Sweden	$16,971	$19,317	$20,470
Switzerland	$23,020	$25,964	$27,226
Europe ex UK	**$32,602**	**$39,604**	**$43,785**

Source: EIU, Janus Henderson, March 2023

EUROPE EX UK – CONSTANT CURRENCY



Source: EIU, Janus Henderson, March 2023

Unless otherwise stated all data is sourced by Janus Henderson Investors as of 31 December 2022. Nothing in this document should be construed as advice.

Past performance does not predict future returns. International investing involves certain risks and increased volatility. These risks include currency fluctuations, economic or financial instability, lack of timely or reliable financial information or unfavourable political or legal developments.

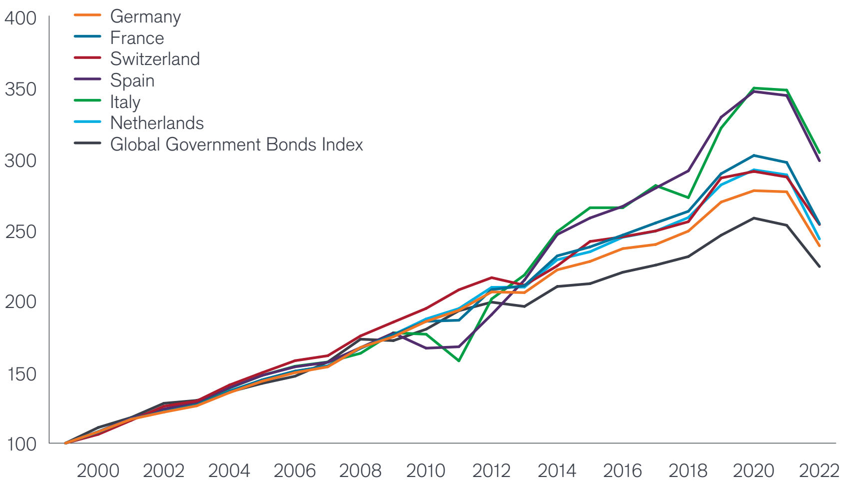
The value of an investment and the income from it can fall as well as rise and you may not get back the amount initially invested.

Italy

Italy remains the second-most indebted country in Europe after Greece, with borrowings at the end of 2022 totalling 146% of GDP (down from the pandemic peak of 155% thanks to 2022's economic rebound supplemented by inflation). Its total borrowings rose 4.0% to €2.78 trillion ($2.98 trillion) in 2022, a slower increase than its peers and the wider world. At the end of 2022, each Italian was responsible for €47,167 ($50,495), up by €6,817 since 2019.

Half of Italy's debt is due to be refinanced in the next three years, which, along with much higher market interest rates than its European peers, increases the country's vulnerability to an unsustainable debt spiral. In common with governments around Europe, Italy will bear its share of ECB losses on QE purchases too.

SOVEREIGN BONDS TOTAL RETURN (INDEXED, USD HEDGED) – EUROPE EX UK



Source: Bloomberg, Janus Henderson March 2023

Switzerland

Switzerland is among the least indebted countries in the world, with a debt to GDP ratio of 28%, beaten only by Luxembourg among the European countries we track. European governments ended 2022 with a collective debt burden nine percentage points higher (89% debt to GDP) than before the pandemic, but Switzerland breezed through with a mere 2.3 percentage point increase.

Its total borrowings rose 4.7% in 2022 to CHF211bn ($228bn) but the interest it paid more than doubled. This was unlikely to trouble the Swiss taxpayer, however, as the country's interest bill rose from a record low[8] CHF630m in 2021 ($660m) to an almost equally insignificant CHF1.3bn ($1.4bn), around 0.2% of GDP, compared to 0.8% in Germany in 2022. Interest expenses are likely to double again in 2023, taking them back to the level last seen in 2016, and will keep rising thereafter as bonds are refinanced at more normal interest rates after the negative-rate experiments of recent years. By the end of 2022, Swiss debts per person were CHF25,170 ($25,964), up just CHF2,722 since 2019.

Switzerland faces the largest QE losses of any country, at around 15% of 2022's GDP, but it has also accumulated enormous reserves of foreign assets as part of its attempts to hold down the value of the franc, so it finds itself in a more comfortable position than many.

Switzerland's bonds have a relatively long maturity profile. Half of them do not need to be refinanced until after April 2029.

[8] Earliest data available is 1980 – interest then was CHF1.8bn.

Spain

Spain's debt rose 6.1% during 2022 to a record €1.52 trillion ($1.62 trillion). But its nominal GDP expanded significantly faster than this (+8.6% including the effect of inflation), so its debt to GDP ratio declined by just over two percentage points to 116%, though this remains well above its 98% pre-Covid-19 level. Spain's interest bill rose by one fifth or €5bn in 2022, and this increase is likely to accelerate in the next three years, to a record high in 2025 of close to €56bn. Spain must also meet its share of ECB and Banco de Espana QE losses which are mounting as bonds bought at very low rates are currently being financed at the main policy rate of 3.0%. Its losses will be smaller than those countries that enjoyed negative interest rates for a time, however.

By the end of 2022, Spain's debt per person was €31,885 ($34,103), an increase of €5,899 compared to 2019.

Half of Spain's debts need not be refinanced until after April 2028, a similar maturity profile to France.

Belgium

At the turn of the century Belgium was the most indebted country in Europe. Since that time it has been overtaken by a number of others, including Greece, Italy, France and Spain. Its debt to GDP ratio ended 2022 at 105%, 7.6 percentage points higher than in 2019, but below its level in 2000. The €587bn ($621bn) of outstanding borrowing was 5.8% higher than a year before but grew slower than nominal GDP and so declined in size relative to the economy. Its debt interest payments rebounded from their record low of €8.5bn in 2021 to €10.6bn ($11.2bn) in 2022, and will double again by 2024 as bonds are refinanced at higher interest rates. Belgium, in common with other members of the eurozone, will also need to pay its share of losses on the QE programme. It has already flagged losses for 2022.

Per person, Belgian debt rose to €49,768 ($53,280) in 2022. It has risen by €9,178 since 2019.

Netherlands

Dutch government debts rose 11.6% in 2022, faster than any other European country in our index, and reaching a new record high of €501bn ($536bn). As one of the least indebted developed countries in the world, with a debt to GDP ratio of just 51%, it is well able to afford higher borrowings. Moreover, one of the highest inflation rates in the world meant that its nominal GDP (up by an estimated 15%) easily outstripped the increase in debt, so the debt burden fell in relative terms. Debt interest payments rose by a third to a still modest €6.3bn ($6.6bn). They are likely to double in 2023 and double again by 2025, at an additional cost of around 1.5 percentage points of GDP, but since they are coming from a low base, they will remain affordable. The Netherlands is one of those countries facing higher than average losses on its participation in the QE programme, having benefited from negative interest rates for a time. It has already flagged losses for 2022.

Per person, Dutch debt rose to €28,706 ($30,731) in 2022. It has risen by €5,839 since 2019.

Luxembourg

In Luxembourg, government borrowings totalled €18.8bn ($20.1bn) at the end of 2022, up 6.0% year on year. Interest payments soared by 71% but were still a mere €200m. They are set to triple over the next two years, but will remain very low. Luxembourg's debt to GDP ratio is the lowest in Europe at just 23.5%. The outstanding debt per person is €29,030 ($31,078), up €6,515 since 2019.

Sweden

Sweden's national debt crossed the SEK2 trillion mark for the first time in 2022 (SEK2.06 trillion, $198bn) but nevertheless only rose 4.1%, slower than the 5.3% European average. Notably, Sweden's GDP rose 10.9% in nominal terms (2.9% in real terms) so its debt to GDP ratio dropped just over two percentage points to 34%, placing it with Switzerland, Luxembourg, and Denmark as the least indebted countries in our index in Europe. It is also less than half the global 78%. Sweden's interest payments tripled last year to SEK37bn ($3.6bn) from its 2021 record low as the Riksbank raised its policy rate and bond yields climbed. Payments are set to continue increasing, likely up by another three quarters by 2024.

Sweden's debt per person rose to SEK201,220 in 2022 ($19,317), making it the lowest of any European country included in our index.

The Swedish Riksbank has warned of losses on its portfolio of government bonds purchased as part of its QE programme and of the need for tax transfers to fill the gap.

Denmark

Debt in Denmark rose to DKK949bn ($137bn) in 2022, up 3.5% year on year, but because the economy grew even faster in nominal terms, the debt to GDP ratio declined by over four percentage points to 32.2%, well below the global and European average. The Danish government did not pay any interest on its borrowings in 2022. This will begin to change rapidly from 2023 onwards. Denmark's outstanding debt per person is DKK161,306 ($23,218), up DKK27,043 or $3,892 since 2019.

United Kingdom

The UK's government finances have deteriorated significantly in the last twelve months. The squeeze comes from three sides. The biggest of these comes from the effect of inflation on interest payments. One quarter of UK government debt is issued in index-linked bonds whose interest payments are uplifted in line with inflation. This compares to 8% in the US and 5% in Germany. The cost of servicing these has shot up. In 2021, the UK government spent £64bn ($79bn at constant exchange rates) paying interest on its debts. £26bn of this was on index-linked debt, already much higher than in recent years. In 2022, the total bill soared to £106bn ($131bn) of which an astonishing £69bn reflected the impact of inflation on index-linked borrowing, almost as much as the UK spent on education (£77bn). In 2022 the UK spent twice as much of its GDP (4.3%) servicing debt as it did in 2019.

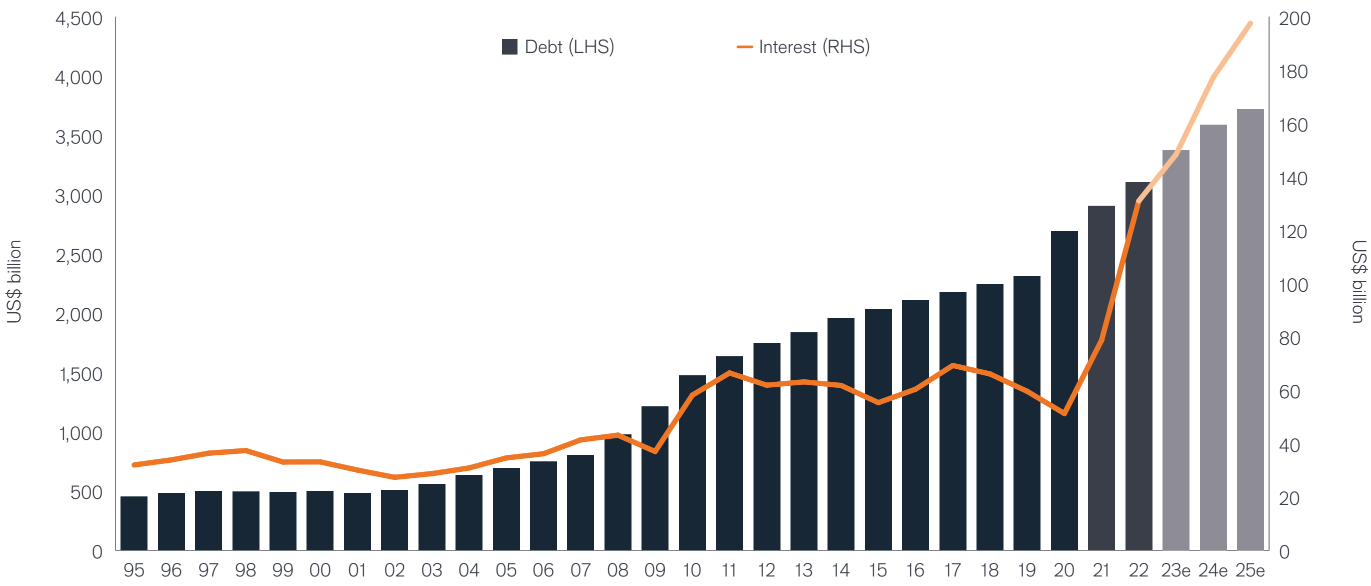
DEBT PER PERSON – USD, CONSTANT CURRENCY

Country	2019	2022	2025e
United Kingdom	$34,624	$46,002	$54,565

Source: EIU, Janus Henderson, March 2023

ONE QUARTER OF UK GOVERNMENT DEBT IS ISSUED IN INDEX-LINKED BONDS WHOSE INTEREST PAYMENTS ARE UPLIFTED IN LINE WITH INFLATION.

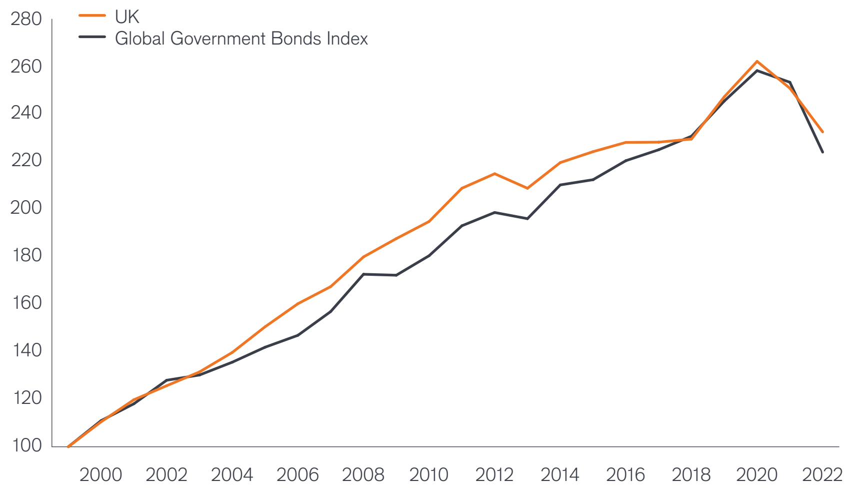
UNITED KINGDOM – CONSTANT CURRENCY



Source: EIU, Janus Henderson, March 2023

The second effect results from the Bank of England's £831bn ($1.00 trillion) holdings of government debt that resulted from its (now closed) QE programme. The Bank of England must pay the current bank rate (now 4.25%) mainly to commercial banks on the deposits they have made that match these bond holdings, yet it has locked into very low yields on those bonds, creating a loss that must be borne by the government. It also faces lower prices for bonds it sells than it paid for them in the first place. The first £828m payments were made from the Treasury in Q4 2022 and in cash terms are on track to total more than £30bn in 2023 (1.5% of GDP), according to the Bank of England. The higher interest rates go, the bigger these costs will be. This unwanted QE side-effect also neutralizes the UK's impressively long debt maturity profile (only half the UK's bonds must be refinanced in the next decade), essentially swapping long-dated debt for overnight liabilities.

SOVEREIGN BONDS TOTAL RETURN (INDEXED, USD HEDGED) – UK



Source: Bloomberg, Janus Henderson March 2023

And finally, there is daily spending. Energy subsidies to households and companies may not have turned out as expensive as feared, but a House of Commons briefing in January 2023 puts the cost at £21bn ($26bn) in the current financial year, equivalent to 1% of GDP, at a time when the budget deficit is already uncomfortably large.

With so many pressures, the UK's budget deficit is going to rise again in 2023 and will only begin to fall when big tax rises begin to kick in and when the economic downturn passes. The UK's 106% debt/GDP ratio, which has been stable since 2020, will rise again over the next two years before flattening out. The country now owes a record £2.57 trillion ($3.1 trillion), up 6.9% year-on-year.

The UK's debt per person has risen by £9,417 since the end of 2019 and now stands at £38,017 ($46,002).

WITH SO MANY PRESSURES, THE UK'S BUDGET DEFICIT IS GOING TO RISE AGAIN 2023 AND WILL ONLY BEGIN TO FALL WHEN BIG TAX RISES BEGIN TO KICK IN AND WHEN THE ECONOMIC DOWNTURN PASSES.

Asia Pacific ex Japan

Australia

Australia's national debt rose 4.6% to a record A$1.45 trillion at US$987m, just shy of the one trillion US$ threshold. Compared to its GDP, Australia's debts are below the global average and well below the country's industrialised peers. At 61%, its debt to GDP ratio fell by three percentage points in 2022. Nevertheless, Australia's debts have grown very fast from their very low pre-Global Financial Crisis baseline. Since 2007, they have expanded ten-fold, compared to a tripling of global government debt on a constant-currency basis. Today Australia owes A$55,550 per person, equivalent to US$37,802.

Australia paid A$20bn in interest in 2022, up from a record low of A$8bn in 2020. With interest rates already sharply higher so that new and maturing bonds are financed at higher cost, Australia's interest bill is set to more than triple by 2025, meaning interest expenditure in that year will be approximately eight times higher than in 2020.

The Reserve Bank of Australia is in the same boat as many other central banks around the world. It has already reported an accounting loss of A$37bn on its QE bond holdings and will also experience cash costs on the maturity mismatch between bond holdings and interest paid on the resulting deposits.

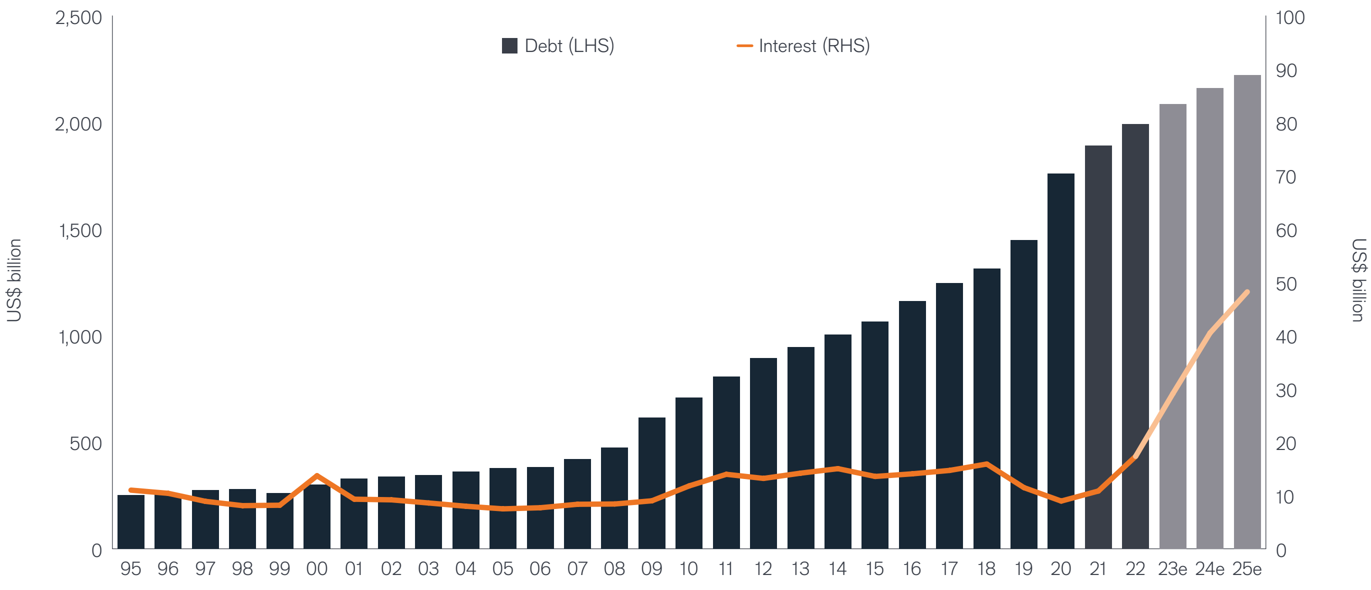
Australia has a relatively long maturity profile. Only half its bonds need refinancing in the next six years, similar to Switzerland.

DEBT PER PERSON – USD, CONSTANT CURRENCY

Country	2019	2022	2025e
Australia	$25,150	$37,802	$41,137
Hong Kong	$21,171	$26,609	$29,309
Singapore	$83,913	$108,407	$115,599
Taiwan	$7,350	$8,570	$9,922

Source: EIU, Janus Henderson, March 2023

ASIA PACIFIC EX JAPAN – CONSTANT CURRENCY



Source: EIU, Janus Henderson, March 2023

Hong Kong

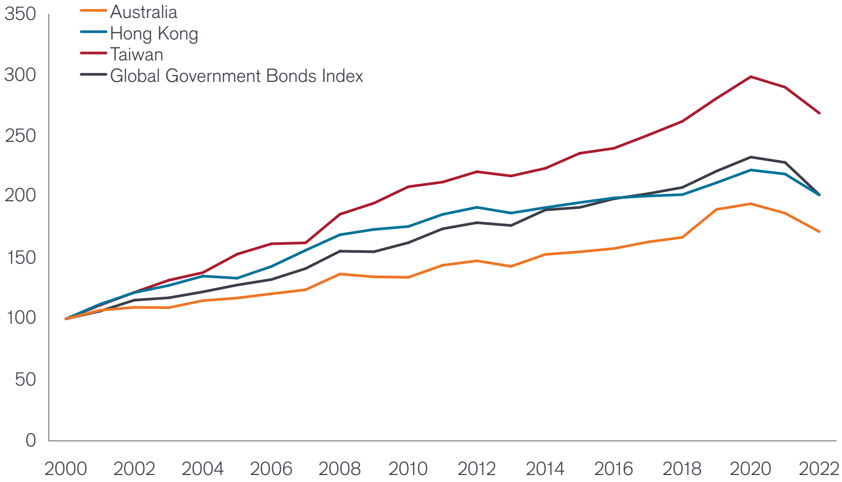
A 8.0% rise in Hong Kong's outstanding debts in 2022 to a record HK$1.53 trillion ($196bn) was faster than the global average and reflected the economic strains of strict Covid-19 restrictions for most of the year. The jump in borrowing coincided with a contraction in the economy meaning Hong Kong was one of relatively few markets to see its debt to GDP rise significantly during the year, up four percentage points to 54%.

Government debt per person in Hong Kong stands at HK$207,589 ($26,609).

Taiwan

The Taiwanese government is among the least indebted in the world with a debt to GDP ratio of just 27% last year, and it is one of the only ones to see this ratio decline in the last three years. Its outstanding borrowings also rose 7.2%. With just TW$263,164 ($8,570) the market's debt per person is also exceptionally low.

SOVEREIGN BONDS TOTAL RETURN (INDEXED, USD HEDGED) – ASIA PACIFIC EX JAPAN



Source: Bloomberg, Janus Henderson March 2023

Singapore

Singapore appears to be among the most indebted countries in the world, at least as far as gross debt is concerned. Its debt to GDP ratio of 148% is on a par with Italy, yet the gross figure is a little misleading because it has largely not been used to support current spending. In this analysis we only look at gross debt because it is very hard to compare financial assets across so many different countries. The Singapore government has invested much of the proceeds of its bond issuance, so its net debt is actually far smaller than the headline figures suggest. It has nevertheless markedly increased its borrowing through the pandemic to provide support to the economy.

THE SINGAPORE GOVERNMENT HAS INVESTED MUCH OF THE PROCEEDS OF ITS BOND ISSUANCE, SO ITS NET DEBT IS ACTUALLY FAR SMALLER THAN THE HEADLINE FIGURES SUGGEST. IT HAS NEVERTHELESS MARKEDLY INCREASED ITS BORROWING THROUGH THE PANDEMIC TO PROVIDE SUPPORT TO THE ECONOMY.

Emerging Markets

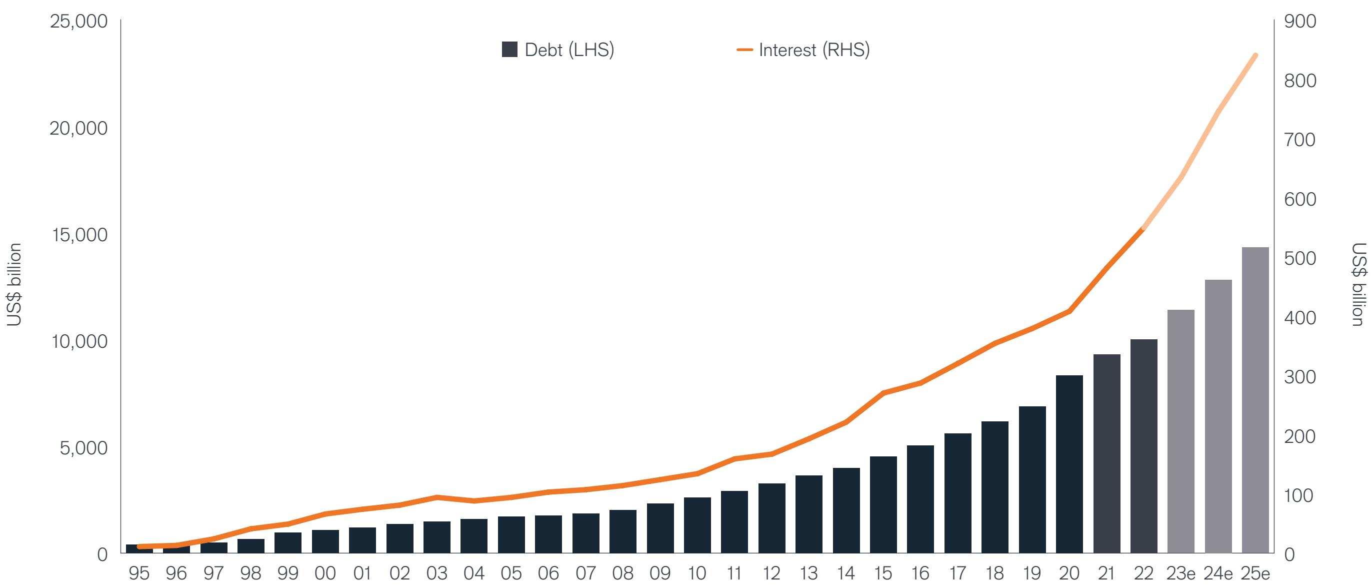
Brazil

Brazil's BRL7.29 trillion ($1.40 trillion) public debt rose 4.7% in 2022, slower than the global increase but its interest costs jumped by a third owing to higher interest rates. At 76% Brazil's debt to GDP is in line with the global average but it is high by emerging-market standards, second only to Argentina among those in our index. Per person, Brazilian sovereign debt totalled BRL34,829 in 2022 ($6,675). Borrowing looks set to rise quicker in 2023, up by around a tenth, and interest payments will rise too by around one sixth.

Mexico

The Mexican government had outstanding debts of MXP14.3 trillion ($736bn) in 2022 up 6.3% year-on-year, a slightly slower increase than the global average. Its 51% debt to GDP ratio is lower than the global average but middle of the pack among its emerging-market peers. At MXP818bn ($41bn) in 2022, interest costs were just under a fifth higher year-on-year and are set to rise by a quarter in 2023. Per person, Mexican sovereign debt totalled MXP112,501 ($5,769), in line with its Latin American peers.

EMERGING MARKETS – CONSTANT CURRENCY



Source: EIU, Janus Henderson, March 2023

Colombia

Colombia's sovereign debt reached COP956 trillion ($199bn) in 2022 up 11.8% year-on-year, a faster increase than the global average. Its 68% debt to GDP ratio is higher than its emerging-market peers. It paid COP42 trillion ($9.9bn) in interest in 2022, an increase of almost a quarter year-on-year. Per person, Colombian sovereign debt totalled COP18.4m ($3,830), lower than its Latin American peers reflecting lower per capita incomes.

India

India's outstanding debt jumped by one eighth to a record $1.9 trillion in 2022, though its economy expanded at almost the same pace in nominal terms, meaning that it held its debt to GDP ratio stable at 59%. Its debt per capita is just $1,337 reflecting the large population and low average incomes. India's $119bn interest bill in 2022 was one seventh higher year-on-year and is set to jump by a third this year as higher interest rates feed through to government finances.

DEBT PER PERSON – USD, CONSTANT CURRENCY

Country	2019	2022	2025e
Brazil	$5,118	$6,675	$8,423
Chile	$3,385	$5,919	$7,945
China	$1,730	$2,250	$3,014
Colombia	$2,442	$3,830	$4,840
Czech Republic	$7,303	$12,326	$15,519
Hungary	$8,482	$12,294	$15,362
India	$926	$1,337	$1,736
Indonesia	$1,376	$2,180	$2,373
Malaysia	$5,478	$7,138	$8,680
Mexico	$4,685	$5,769	$6,992
Peru	$1,666	$2,568	$2,906
Russia	$1,483	$2,815	$4,167
South Africa	$3,295	$4,595	$5,614

Source: EIU, Janus Henderson, March 2023

INDIA'S $119BN INTEREST BILL IN 2022 WAS ONE SEVENTH HIGHER YEAR-ON-YEAR AND IS SET TO JUMP BY A THIRD THIS YEAR AS HIGHER INTEREST RATES FEED THROUGH TO GOVERNMENT FINANCES.

Japan

Japan is famously the most indebted country in the world, with borrowings equivalent to 244% of its GDP in 2022. Japan's debt mountain totalled $10.5 trillion at the end of 2022 but rose slower than the global average, up 4.4% last year. This was faster than the rise in nominal GDP but because the debt to GDP ratio is so large, borrowing must rise at no more than 40% of the pace of economic growth in order merely to hold debt to GDP steady.

Japan's $21bn of debt interest in 2022 is exceptionally low compared to the size of its borrowings (an effective interest rate of just 0.2%), and reflects years of concerted action by the Bank of Japan to keep interest rates across the yield curve as low as possible. The growing gap between Japanese rates and those elsewhere has caused extreme weakness in the yen and prompted a reset in Japan's Yield Curve Control policy.

The cost of financing Japan's borrowings is therefore now rising and is likely to push debt servicing costs up by almost half over the next three years, though the fiscal burden of this interest will remain low compared to GDP and to other countries.

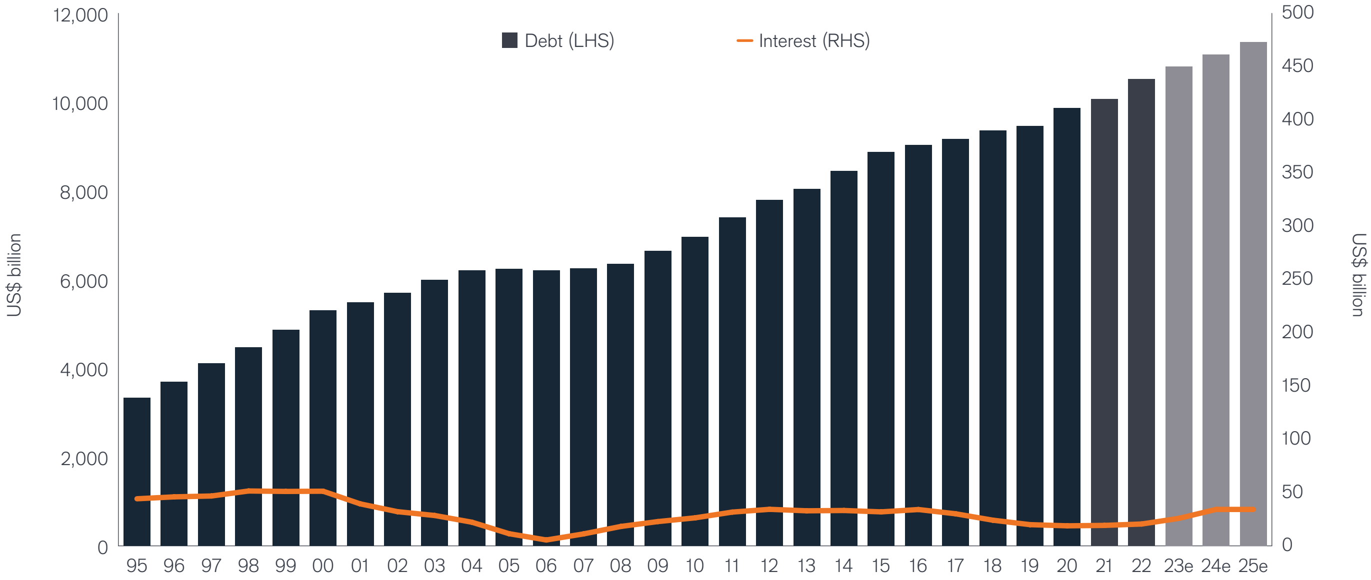
Japan's large debts, its rising rate of inflation, the sharply higher global cost of capital and the pressure on the exchange rate all point to the clear unsustainability of the Yield Curve Control policy. It is just a matter of time before Japan will change course.

DEBT PER PERSON – USD, CONSTANT CURRENCY

Country	2019	2022	2025e
Japan	$75,252	$84,837	$93,068

Source: EIU, Janus Henderson, March 2023

JAPAN – CONSTANT CURRENCY



Source: EIU, Janus Henderson, March 2023

Government Borrowing – why it matters

Governments borrow to finance a shortfall between their spending plans and their ability to raise taxes. During economic downturns, governments increase their borrowing significantly both because tax receipts fall and borrowing is needed to keep policy programmes going, but also with the deliberate aim of sustaining demand in the economy. When a government spends borrowed money, it does so by employing public-sector workers, paying welfare, investing in infrastructure etc. This spending offsets the much-increased saving that takes place in the private sector during a recession. It helps support the economy and prevents the downturn from getting worse.

This has been the story of the pandemic in countries all around the world.

Government Bonds – the foundation stone of financial markets

To raise cash, governments issue bonds that can be freely traded on exchanges. Usually, these bonds pay a fixed amount to investors each year by way of interest – the so-called coupon – and have a set maturity – say 10 years. A 3% coupon on a $100 bond means annual interest of $3.

Even if prevailing interest rates change, the coupon remains fixed at $3, so the price of the bond adjusts. For example, if rates fall to 1.5%, then an investor will pay nearer $200 for that bond, generating a capital gain for anyone who bought the bond when it was issues. The exact price change is dependent on a few other factors, such as how long the bond has to run before it is repaid, but this dynamic is why bond markets offer such a wealth of investment options, spanning risk management, income generation, capital preservation and capital gains. There is a strategy to achieve all these differing aims.

Although central banks have the power to set interest rates for very short time periods, it is the bond markets determine the interest rates borrowers, including governments, must pay for longer periods. The so-called yield curve plots the different interest rates for overnight borrowing right out to thirty years or longer.

The yield curve does not only enable investors to value bonds accurately, but it also underpins the valuation of every other kind of asset. This is because government bonds are risk free, at least from countries with a solid credit rating. You know for sure from day one exactly how much cash you will receive in interest and how much when the bond is repaid. This risk-free rate sets a floor for asset returns. If the prospective returns from a riskier asset don't stack up against the risk-free rate, its value will fall. If you know what the lowest risk asset, a government bond, will return, then you can therefore work out how much assets with higher potential returns should cost given their higher risk. Not only that, adding government bonds to a portfolio of risky assets like shares can reduce your overall risk without diminishing your returns, thanks to the mathematically reassuring alchemy of portfolio theory.

That is obviously good for savers, but it also helps capital markets efficiently fund productive investment – which is good for everyone.

METHODOLOGY

Janus Henderson sourced data on government debt, GDP, debt interest payments and budget deficits from EIU, supplementing it with data from individual country sources where necessary. To enable full comparability between different data sets, all data is in nominal USD (i.e. not adjusted for inflation), unless stated otherwise. Bond market data was sourced from Bloomberg. Janus Henderson sourced other data from national central banks, the OECD, the IMF and World Bank.

The countries in Janus Henderson's index together account for 88% of global GDP and two thirds of the world's population. Figures are not scaled up to take account of parts of the world not in the sample.

GLOSSARY

Bear market – A financial market in which the prices of securities are falling. A generally accepted definition is a fall of 20% or more in an index over at least a two-month period. The opposite of a bull market.

Bond – A bond is parcel of debt. By buying a bond, investors give money to a borrower, usually for a fixed term and for a fixed rate of interest. Bonds can be bought and sold on financial markets, and the value changes over time with varying market conditions.

Counter-cyclical government spending – When the economy is weak, the government spends money to support activity. When the economy is strong the government can cut spending to slow activity and help prevent overheating.

Fiscal consolidation – When a government is reducing the budget deficit.

Fiscal surplus – When a government is raising more in tax than it spends on services.

Government budget deficit – The annual shortfall between spending and taxation (if taxes exceed spending, governments have a budget surplus).

Government debt – The total amount of outstanding borrowing.

Monetary policy – The policies of a central bank, aimed at influencing the level of inflation and growth in an economy. It includes controlling interest rates and the supply of money. Monetary stimulus refers to a central bank increasing the supply of money and lowering borrowing costs. Monetary tightening refers to central bank activity aimed at curbing inflation and slowing down growth in the economy by raising interest rates and reducing the supply of money.

Quantitative easing – Central banks buy bonds and other assets in exchange for newly created money as a means of increasing liquidity in the economy and suppressing interest rates. The objective is to support economic activity.

Quantitative tightening – Quantitative tightening (QT) is the reduction of the amount of overall money in the banking system.

Running yield – The interest paid on a bond divided by its current market value.

Volatility – Rapid, unpredictable, changeability.

Yield curve – A graph that plots the yields of similar quality bonds against their maturities. In a normal/upward sloping yield curve, longer maturity bond yields are higher than short-term bond yields. A yield curve can signal market expectations about a country's economic direction.

Yield to maturity – The interest paid on a bond divided by its current market value, taking account of the capital gain or loss that will occur when the bond matures and is repaid.

APPENDICES

DEBT/GDP RATIO

Region	Country	Debt/GDP 2019	Debt/GDP 2022	Expected debt/GDP 2025
Asia-Pacific ex Japan	Australia	47%	61%	61%
	Hong Kong	44%	54%	51%
	Singapore	125%	146%	140%
	Taiwan	28%	27%	28%
Emerging markets	Brazil	74%	76%	84%
	Chile	28%	38%	40%
	China	17%	18%	20%
	Colombia	56%	68%	70%
	Czech Republic	30%	46%	46%
	Hungary	65%	75%	68%
	India	53%	59%	61%
	Indonesia	36%	49%	44%
	Malaysia	52%	64%	69%
	Mexico	47%	51%	52%
	Peru	27%	36%	35%
	Russia	13%	18%	22%
	South Africa	57%	70%	69%
Europe ex UK	Belgium	98%	105%	107%
	Luxembourg	22%	24%	23%
	Denmark	34%	32%	32%
	Finland	65%	68%	68%
	France	97%	113%	113%
	Germany	59%	67%	64%
	Greece	181%	176%	164%
	Ireland	57%	47%	38%
	Israel	58%	62%	58%
	Italy	134%	146%	143%
	Netherlands	49%	51%	48%
	Spain	98%	116%	112%
	Sweden	35%	34%	33%
	Switzerland	26%	28%	28%
Japan	Japan	224%	244%	244%
North America	Canada	93%	111%	113%
	United States of America	79%	99%	101%
UK	United Kingdom	85%	106%	111%
World		**72%**	**78%**	**79%**

DEBT – USD BN BY COUNTRY (AT 2022 EXCHANGE RATES)

		Debt USD bn						Expected debt USD bn	Increase in Debt USD bn	Increase in Debt %
Region	**Country**	**1995**	**2000**	**2019**	**2020**	**2021**	**2022**	**2025**	**2019-2022**	**2019-2022**
Asia-Pacific ex Japan	Australia	$139	$106	$638	$890	$943	$987	$1,107	$349	55%
	Hong Kong	$13	$17	$159	$162	$182	$196	$218	$38	24%
	Singapore	$65	$100	$479	$526	$581	$611	$669	$132	28%
	Taiwan	$36	$80	$173	$180	$186	$199	$228	$26	15%
Emerging Markets	Brazil	$97	$143	$1,054	$1,268	$1,335	$1,398	$1,789	$344	33%
	Chile	$06	$06	$64	$76	$102	$116	$156	$52	80%
	China	$55	$390	$2,405	$2,990	$3,331	$3,145	$4,238	$740	31%
	Colombia	$06	$21	$123	$149	$178	$199	$255	$76	62%
	Czech Republic	$10	$18	$77	$95	$113	$134	$163	$57	74%
	Hungary	$13	$20	$83	$102	$113	$123	$152	$40	48%
	India	$85	$157	$1,281	$1,519	$1,691	$1,895	$2,526	$614	48%
	Indonesia	$09	$73	$365	$435	$518	$593	$661	$228	63%
	Malaysia	$21	$28	$180	$199	$222	$242	$304	$63	35%
	Mexico	$47	$105	$586	$638	$692	$736	$911	$150	26%
	Peru	$15	$22	$54	$65	$83	$86	$100	$32	59%
	Russia	$12	$61	$221	$304	$326	$416	$610	$195	88%
	South Africa	$16	$23	$191	$231	$251	$275	$346	$84	44%
Europe ex UK	Belgium	$296	$301	$500	$552	$587	$621	$702	$121	24%
	Luxembourg	$02	$02	$15	$17	$19	$20	$22	$05	35%
	Denmark	$100	$100	$112	$141	$132	$137	$153	$25	22%
	Finland	$58	$66	$167	$191	$195	$203	$227	$36	22%
	France	$745	$932	$2,542	$2,844	$3,021	$3,199	$3,616	$656	26%
	Germany	$1,156	$1,340	$2,191	$2,479	$2,646	$2,747	$3,021	$556	25%
	Greece	$108	$159	$354	$365	$378	$382	$395	$27	8%
	Ireland	$46	$42	$218	$233	$253	$259	$258	$41	19%
	Israel	$118	$121	$238	$286	$304	$307	$348	$69	29%
	Italy	$1,174	$1,449	$2,580	$2,754	$2,867	$2,981	$3,303	$401	16%
	Netherlands	$258	$252	$423	$466	$481	$537	$583	$114	27%
	Spain	$303	$401	$1,310	$1,441	$1,528	$1,622	$1,812	$312	24%
	Sweden	$126	$116	$171	$191	$190	$198	$213	$27	16%
	Switzerland	$186	$223	$198	$213	$218	$228	$243	$30	15%
Japan	Japan	$3,336	$5,310	$9,467	$9,868	$10,073	$10,520	$11,354	$1,053	11%
North America	Canada	$628	$689	$1,585	$2,066	$2,184	$2,252	$2,543	$667	42%
	United States of America	$3,604	$3,410	$16,801	$21,017	$22,284	$24,836	$28,104	$8,035	48%
United Kingdom	United Kingdom	$454	$501	$2,312	$2,692	$2,906	$3,106	$3,720	$793	34%
World		**$13,344**	**$16,788**	**$49,499**	**$57,911**	**$61,480**	**$66,167**	**$77,164**	**$16,668**	**34%**

APPENDICES (CONTINUED)

DEBT – USD BN BY REGION (AT 2022 EXCHANGE RATES)

	Debt USD bn						Expected debt USD bn	Increase in Debt USD bn	Increase in Debt %
Region	1995	2000	2019	2020	2021	2022	2025	2019-2022	2019-2022
Emerging Markets	$392	$1,073	$6,867	$8,337	$9,324	$10,020	$14,325	$3,152	46%
Asia-Pacific ex Japan	$253	$302	$1,449	$1,759	$1,892	$1,993	$2,222	$545	38%
Europe ex UK	$4,676	$5,503	$11,019	$12,172	$12,818	$13,441	$14,896	$2,422	22%
North America	$4,233	$4,099	$18,385	$23,083	$24,468	$27,088	$30,647	$8,703	47%
United Kingdom	$454	$501	$2,312	$2,692	$2,906	$3,106	$3,720	$793	34%
Japan	$3,336	$5,310	$9,467	$9,868	$10,073	$10,520	$11,354	$1,053	11%
World	$13,344	$16,788	$49,499	$57,911	$61,480	$66,167	$70,101	$16,668	34%

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