JANUS HENDERSON SOVEREIGN DEBT INDEX

Edition 1

APRIL 2021

For promotional purposes.

CONTENTS

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

INTRODUCTION

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. Our investment managers have the flexibility to follow approaches best suited to their areas of expertise, but 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$401.6bn in assets under management, more than 2,000 employees and offices in 26 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 the first edition in 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 2020

EXECUTIVE SUMMARY

Government borrowing – why it matters

- When governments borrow, they owe their debts to us
- Government borrowing is essential in bad economic times
- Government debt is the foundation stone for capital markets

Record national debts but cheaper than ever to finance, thanks partly to central banks

- Global government debt rose from $16.7 trillion to $53.3 trillion between 1995 and 2019, from $4,371 to $13,050 for every person
- GDP also expanded, but debt outstripped economic growth by a fifth – debt to GDP rose from 59% to 70%

GLOBAL GOVERNMENT DEBT ROSE FROM $16.7 TRILLION IN 1995 TO $62.5 TRILLION IN 2020, EQUIVALENT TO $13,050 FOR EVERY PERSON

- Covid-19 caused a step change – debt rose $9.3 trillion during 2020, equal to eight years of borrowing or an extra $1,863 for every person
- The US accounted for almost one third of 2020 borrowing, but the biggest borrower relative to GDP was the UK
- The cost of financing all this debt has fallen dramatically – the world's interest bill has only risen by a fifth between 1995 and 2020 though debts have quadrupled
- Many countries are now taking on new debt at negative interest rates
- Central banks purchased half of 2020 borrowing
- By the end of 2020, central banks owned 24% of global government debt, up five percentage points, or $4.8 trillion in just one year

EXECUTIVE SUMMARY (CONTINUED)

Outlook for government borrowing

- 2021 will see debt jump by around $4 trillion, or $768 per person
- Debt interest costs will barely increase in 2021 and will likely fall in 2022
- Compared to the size of the world economy, debt levels have peaked

Investing in government debt

- Bond markets determine the interest rate governments must pay
- Bonds have delivered strong returns for investors – 308% since 1995
- In a world of low interest rates, capital returns have come to the fore

2021 WILL SEE DEBT JUMP BY AROUND $4 TRILLION, OR $768 PER PERSON

Viewpoint

- The recovery from Covid-19 will be uneven around the world, presenting opportunities for investors
- Service economies will do better in 2020 as will countries working fastest on vaccination – their bonds may perform less well
- Central banks will continue to suppress interest rates across the yield curve for some years yet, keeping finance costs low for governments

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GOVERNMENT BORROWING – WHY IT MATTERS

When governments borrow, they owe their debts to us

When a government wants to spend more than it gathers in taxes it must borrow the difference. The accumulation of each year's budget deficits is the total public debt. Some of this borrowing funds investment that will help grow the economy in future (for example in infrastructure), but mainly borrowing simply finances day-to-day spending on welfare and public services, as well as paying the interest bill on debt the government has already built up. One way or another, households are the ultimate lenders to governments. This doesn't quite hold true in individual countries – especially those with persistent trade deficits or surpluses – but it does at the global level.

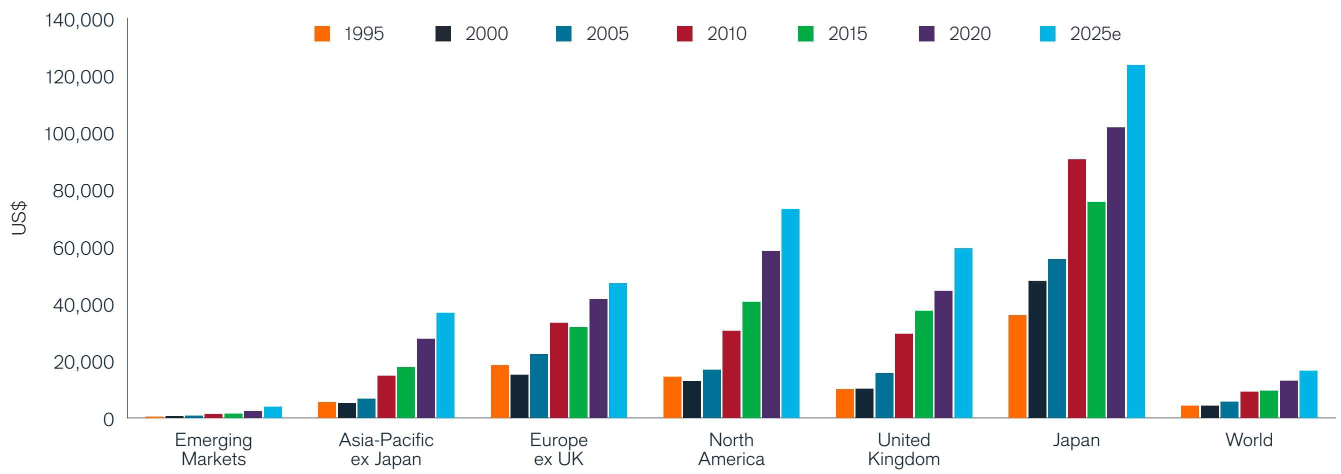
Debt often comes laden with moral baggage that suggests it should be avoided, but a hair-shirted view both misunderstands the importance of government borrowing for the smooth functioning of an economy and the vital role it plays for investors of all kinds.

GOVERNMENTS SPEND FREELY IN RECESSIONS TO FILL THE GAP CREATED WHEN HOUSEHOLDS AND COMPANIES PULL IN THEIR HORNS. THIS SPENDING HELPS BOOST THE ECONOMY AT A CRITICAL TIME.

Government borrowing is essential in bad economic times

Governments spend freely in recessions to fill the gap in demand created when households and companies become more cautious with their spending. That spending creates cascades of transactions that support incomes and generate tax revenue back to the government. It's not a perfect system – money can leak abroad via imports, for example, so you end up boosting someone else's economy instead of your own – but without counter-cyclical* deficit spending by governments, economies can quickly spiral into protracted depressions that leave everyone poorer. That is what happened in the 1930s, before economists, like Keynes, showed that governments had a role to play in managing demand. Exactly how much to spend and in what way is where it can become politically charged, but the principle holds true. In economic booms, the idea is that governments should drain

GOVERNMENT DEBT PER PERSON



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* Please refer to the glossary of terms found on page 26.

GOVERNMENT BORROWING – WHY IT MATTERS (CONTINUED)

some of the excessive demand away to stop the economy overheating and to pay down some of its debt. Politics usually stops that happening very effectively, however.

The key point here is that a government is not like a household. If a single family cuts back on its spending and saves its cash, it ends up in a better financial position without having any effect on the wider economy. It's simply too small. But if a government cuts back, it ultimately reduces the income of thousands of families. The impact is so large that it takes a bite out of the whole economy. Again, it can get very political here, but governments of all stripes use these tools to a greater or lesser extent and mainly just argue about how far they should go. The spending lever has come to the fore in a big way during the pandemic because central banks have been unable to pull their lever of choice to boost the economy – cutting interest rates – since these were already at rock-bottom levels before the Covid-19 pandemic. Central banks have been busy in other ways, which we will come to later.

Government debt is the foundation stone for capital markets

Government borrowing is helpful for investors too – in two ways. First, lending to the government is the least risky way to save in all big, developed economies, providing capital security and (historically at least) a guaranteed income. Secondly, government securities, or sovereign bonds, are the foundation stones upon which the valuation of assets of all kinds are based. If you know what the lowest risk asset, a government bond, will return, then you can work out how much assets with higher potential returns should cost, given their higher risk. Not only that, but 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 efficiently fund productive investment – which is good for everyone.

THE VALUE OF ASSETS OF ALL KINDS DEPENDS ON THE INTEREST RATES GOVERNMENTS MUST PAY TO BORROW

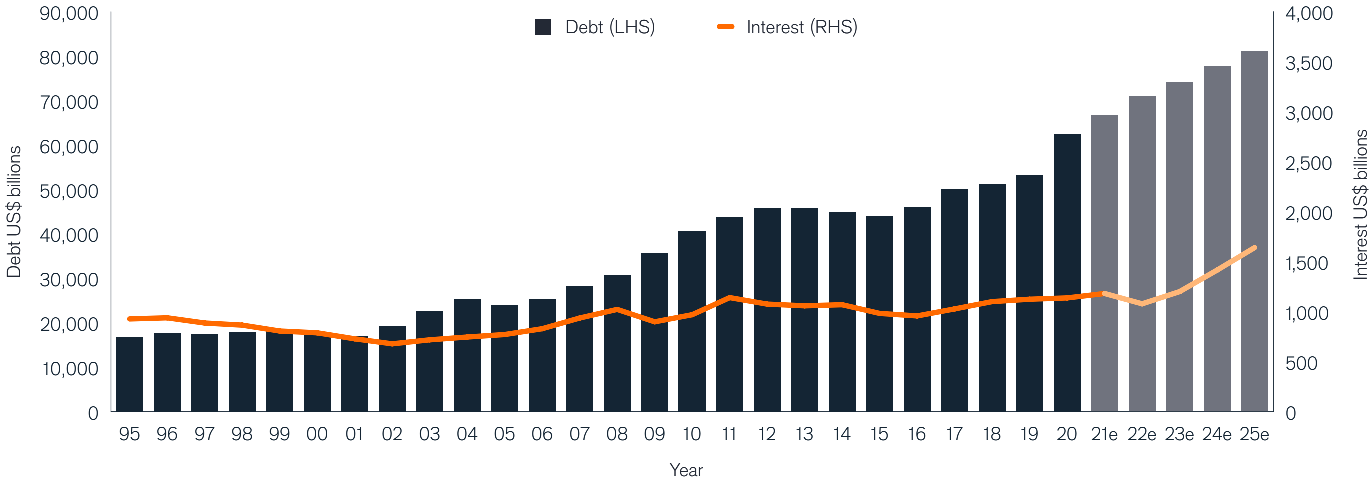
How much debt is too much?

Of course, there is such a thing as too much government debt, though the goalposts of debt sustainability have moved a long way in the last decade. A host of factors come into play such as the level of interest rates, demographics or whether a government is locked into spending plans that can never be covered by its income (a so-called structural deficit). One of the most important considerations is whether a country is primarily borrowing in its own currency or not. Those that build up huge foreign currency obligations are usually considered the least creditworthy in the first place, but they are also entirely dependent on the kindness of strangers. If foreign investors jump ship and the exchange rate falls, a country can quickly fall into a debt crisis and go bust. Governments that borrow in their own currency can always turn to the printing press to pay back their debts so they need never default. Eventually this too will push down the exchange rate, reducing the relative wealth of its citizens compared to the rest of the world, so it's not a free lunch, but the experience of the last ten years with Quantitative Easing* (see section below) shows the limits of this approach are further than previously thought.

* Please refer to the glossary of terms found on page 26.

RECORD NATIONAL DEBTS ARE CHEAPER THAN EVER TO FINANCE

GLOBAL GOVERNMENT DEBTS V INTEREST PAYMENTS



Government debt has soared to new records

Even before the pandemic struck, the world's governments ran deficits in every one of the last 25 years. As spending ran ahead of tax collection, debts rose inexorably from $16.7 trillion in 1995 to $53.3 trillion in 2019. That's an increase from $4,371 to $11,187 for every person[1]. The world economy also grew substantially, underpinning the debt edifice with a larger tax base, but the increase in sovereign debt has nevertheless outstripped economic growth by a fifth. The size of the shortfall has expanded in bad times and shrunk in good times, as it should to help smooth the economic cycle, and the picture is very different from one part of the world to another. For example, governments almost managed to balance the books during the 2007 economic boom, just before the global financial crisis (GFC), but within two years they were borrowing $1 of every $15 that they spent. As a result, the growing debt mountain was worth 70% of global income by 2019, up from 59% in 1995.

AS SPENDING RAN AHEAD OF TAX COLLECTION, DEBTS ROSE INEXORABLY FROM **$16.7 TRILLION** IN 1995 TO **$53.3 TRILLION** IN 2019. 2020 SAW AN ADDITIONAL **$9.3TRILLION**.

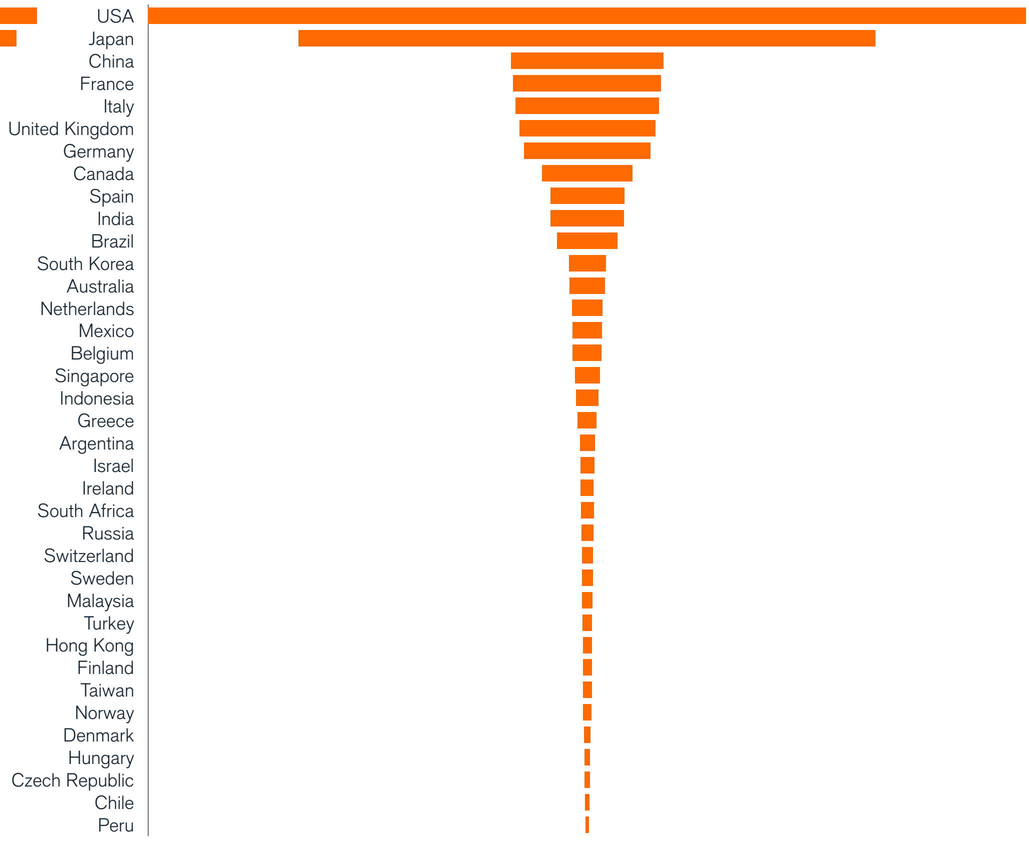
The Covid-19 global pandemic has caused a step change. In 2020 as the pandemic forced large parts of the economy all over the world to shut down, eight in ten countries in our index slipped into a recession. To battle slumping demand and fund the pandemic response, governments borrowed more than in the previous eight years combined, adding $9.3[2] trillion to their tab, or an extra $1,863 for each one of us. This is equivalent to 14.8% of 2020's GDP[3], a bigger slice than was needed to shore up the economy in the aftermath of the GFC. The world's government-debt tally ended the year at $62.5 trillion, almost four times its 1995 total (+273%).

1. Countries in our index represent 67% of the world's population in 2020
2. If we take out the effect of changing exchange rates, the increase was $8.1 trillion
3. Countries in our index represent 88% of global GDP

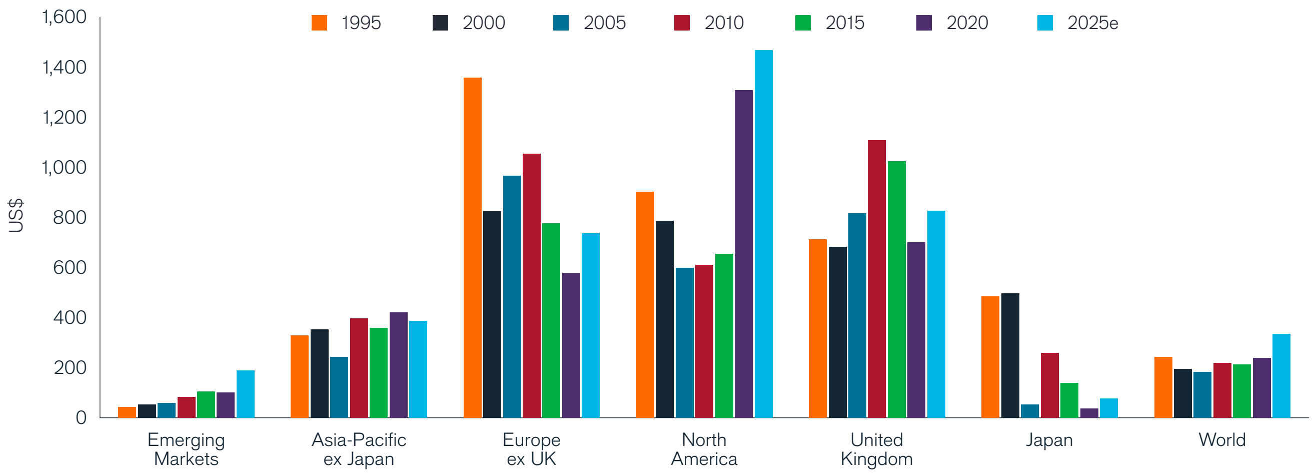
RECORD NATIONAL DEBTS ARE CHEAPER THAN EVER TO FINANCE (CONTINUED)

WORLD PUBLIC DEBT USD – 1995

WORLD PUBLIC DEBT USD – 2020



GOVERNMENT INTEREST BILL PER PERSON



Source: EIU, Janus Henderson, March 2021

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RECORD NATIONAL DEBTS ARE CHEAPER THAN EVER TO FINANCE (CONTINUED)

Some countries have taken on more debt than others to meet the challenges of the last year. In absolute terms, of course, the biggest economies have added most to their borrowing. The US alone accounted for $30 of every $100 of the world's new government borrowing in 2020, Japan took on another $12, while China added $10. Compared to the size of their economies, however, a third of the countries in our index ran double-digit budget deficits in 2020. The biggest borrower was the UK with a deficit worth one fifth of its economy, but the US, Brazil, South Africa, Spain, Canada, Japan and Singapore all ran deficits at least one eighth the size of their economies too. Sweden and Switzerland are among those that have borrowed the least, but none come close to Taiwan whose debts remained almost unchanged year-on-year relative to GDP as a robust response to the outbreak enabled its economy to expand even as most countries fell into recession.

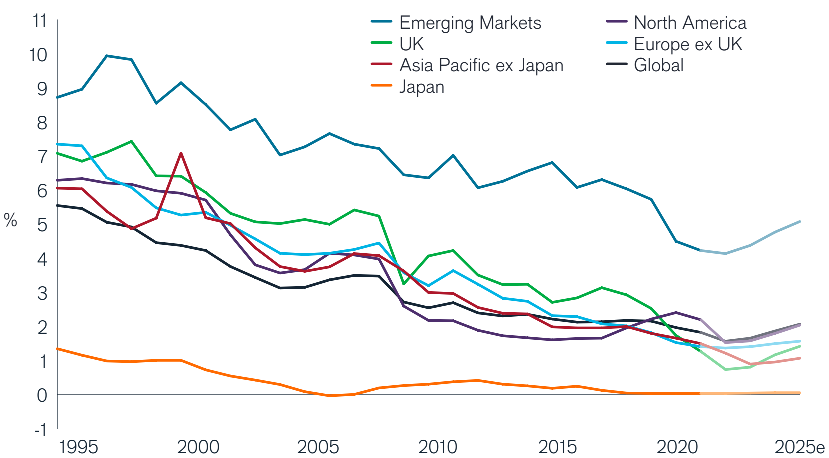
How can governments afford all this new debt?

Conventional wisdom has always had it that increasing indebtedness means greater risk for lenders who therefore demand a higher interest rate by way of compensation. Although it's still true that sovereign borrowers considered riskier have to pay more for their loans than their peers, there are no countries in our index that paid a higher interest rate in 2020 than in 1995 – rates have been on a declining trend over this period. In 2020, the world's governments had to pay just 2.0% for their loans[4], compared to 7.6% in 1995. This huge drop in rates means the world's interest bill has only gone up by just over a fifth to $1.14 trillion between 1995 and 2020, despite debts almost four times higher. Interest payments last year consumed less than half as much of the world's annual income as they did in 1995 (1.5% v 3.3%).

For new borrowing, many European countries have now followed Japan into negative interest-rate territory – actually earning interest even as they take on more debt. This means the effective interest rate the world's governments are paying will continue to fall for a couple more years as older, more expensive debt is retired in favour of cheaper new borrowing.

THIS HUGE DROP IN RATES MEANS THE WORLD'S INTEREST BILL HAS ONLY GONE UP BY JUST OVER A FIFTH TO $1.14 TRILLION BETWEEN 1995 AND 2020, DESPITE DEBTS ALMOST FOUR TIMES HIGHER

EFFECTIVE INTEREST RATE (DEBT-WEIGHTED) BY REGION



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[4] Debt interest payments divided by average public debt

RECORD NATIONAL DEBTS ARE CHEAPER THAN EVER TO FINANCE (CONTINUED)

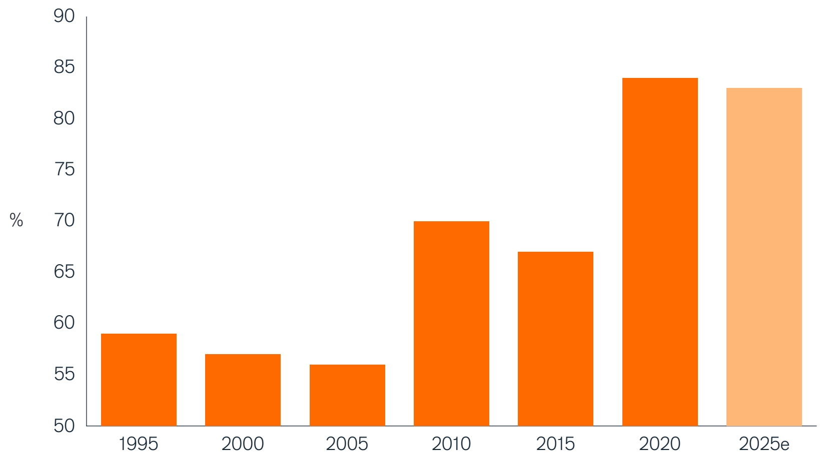
Low interest rates have come about for a variety of reasons. The growing credibility of central banks around the world in the late 90s and early 2000s enabled them to successfully anchor lower inflation rates in the collective consciousness. At the same time global productivity improved, meaning economies could expand without causing inflation. The rise of China was part of this story as its rapidly growing manufacturing industries provided goods far cheaper than developed economies could make them. New technologies have played a role too. Moreover, ageing populations have increased savings rates, sucking demand out of the global economy, while the aftermath of the GFC has forced central banks to go to extreme lengths to keep the cost of finance low and stave off recession. The pandemic has obviously now caused one anyway, and this has pushed interest rates even lower still.

Outlook for government borrowing

2021 will see another big jump in government borrowing of around $4 trillion, or $768 for each of the 4.9 billion citizens in the countries in our index as the pandemic continues to exact its toll. Nevertheless, this increase is less than half the 2020 borrowing need as the world economy begins to get back on its feet. With interest rates so low and still feeding into the stock outstanding debt as it matures and gets refinanced, the world's interest bill will only rise a little this year and will fall in 2022. Compared to the size of the world economy, debt levels have likely already peaked.

The 2020 recession notwithstanding, interest rates have fallen below GDP growth rates in recent years in many parts of the world. The compound growth rate of the economy therefore exceeds

GLOBAL PUBLIC DEBT
AS % OF GDP



2021 WILL SEE ANOTHER BIG JUMP IN GOVERNMENT BORROWING OF AROUND $4 TRILLION, OR $768 FOR EACH OF THE 4.9 BILLION CITIZENS IN OUR INDEX COUNTRIES AS THE PANDEMIC CONTINUES TO EXACT ITS TOLL

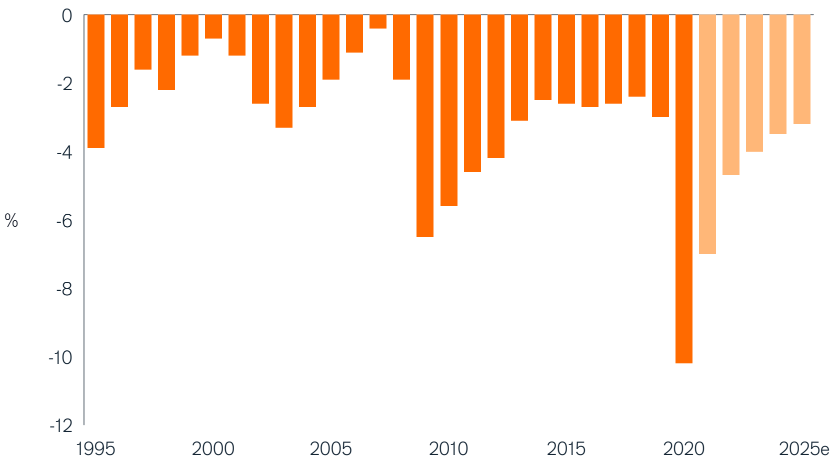
RECORD NATIONAL DEBTS ARE CHEAPER THAN EVER TO FINANCE (CONTINUED)

the compound interest effect in these places. As a result the debt/GDP ratio need not rise, even if a government is running a modest budget deficit. So-called fiscal consolidation* can therefore take place even without having to run a fiscal surplus*. This will ease the route out of the pandemic for many governments.

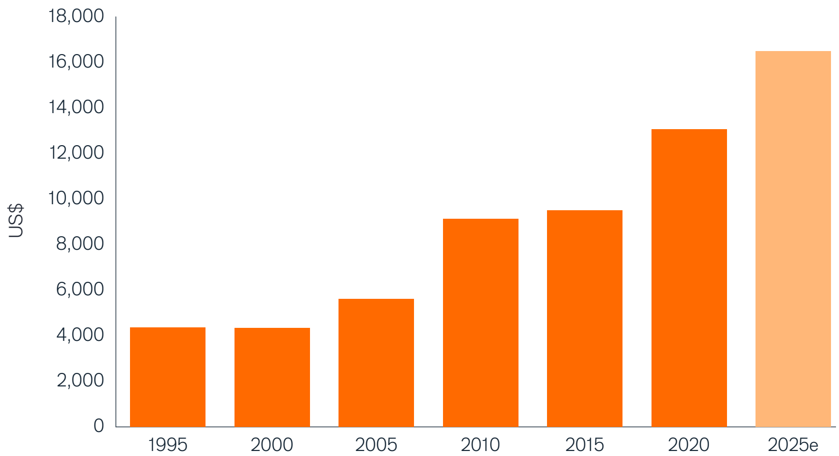
Quantitative Easing – central banks are now big lenders to governments

With limited room to cut interest rates any further, the world's main central banks have been flooding the system with cash to ensure a plentiful supply of cheap credit in an attempt to stimulate economic activity. Euphemistically called quantitative easing, they have essentially created new money and used it to buy assets (initially just government bonds, but now all manner of securities). The Federal Reserve, ECB, Bank of Japan and Bank of England as well as the Swedish Rijksbank are therefore funding their governments and signalling loud and clear that public debt is not at risk of default. Crucially, the government debt on central bank balance sheets does not strain national budgets. Twenty years ago this policy would have been considered economic heresy – the markets would have punished countries that took this path.

WORLD BUDGET DEFICIT AS % OF GDP



GLOBAL GOVERNMENT DEBT PER PERSON



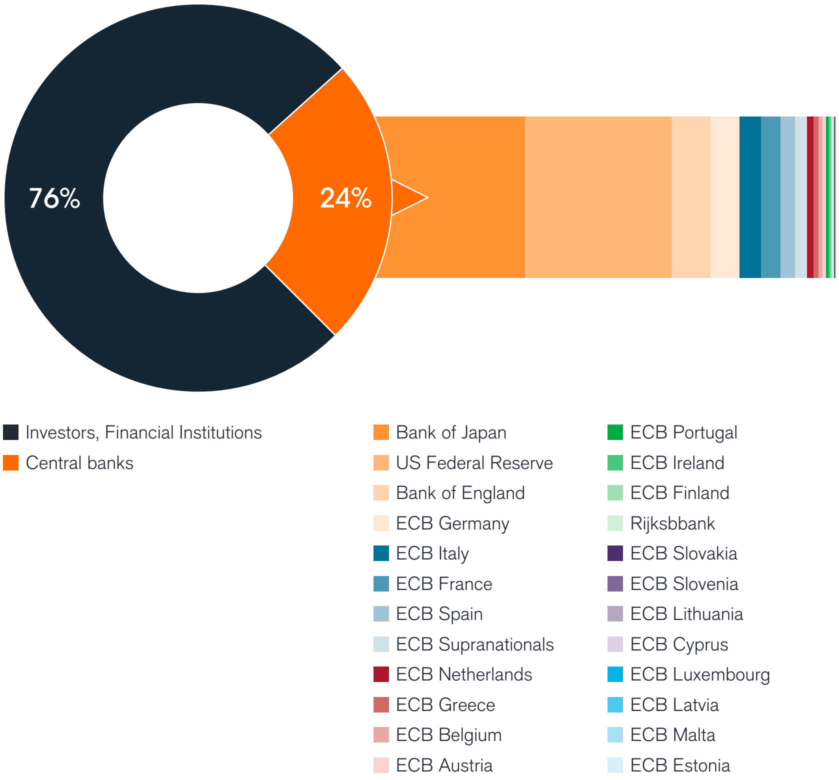
Source: EIU, OECD, Janus Henderson, March 2021

* Please refer to the glossary of terms found on page 26.

RECORD NATIONAL DEBTS ARE CHEAPER THAN EVER TO FINANCE (CONTINUED)

By the end of 2020, central banks owned 24% of global government debt, up five percentage points, or $4.8 trillion in just one year. Incredibly more than half (52%) of all new government borrowing in 2020 was paid for with newly minted cash from central bankers. This proportion was obviously much higher in the countries that have active QE policies. In the US, 85% of 2020 borrowing was provided by the Federal Reserve, while in the UK two thirds was funded by the Bank of England. In Japan, where the pandemic has been less severe, the Bank of Japan furnished one third of the government's 2020 borrowing needs. The picture is more complex in Europe given the shared use of the ECB, but it has been very large there too.

HOLDERS OF GOVERNMENT DEBT



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

BY THE END OF 2020, CENTRAL BANKS OWNED 24% OF GLOBAL GOVERNMENT DEBT, UP FIVE PERCENTAGE POINTS, OR $4.8 TRILLION IN JUST ONE YEAR.

INVESTING IN GOVERNMENT DEBT

What is a bond?

Governments finance their deficits by issuing bonds to investors. A bond is simply a loan that can typically be bought and sold on financial markets. A government (or a company or other organisation) will issue a bond usually with a fixed annual coupon (the amount of interest) and will agree to pay back the principal in full after a set term, say thirty years. Simply put, a bond paying a $5 coupon for every $100 of principal will be worth $100 if prevailing interest rates are 5%. But if a little while later a government can no longer borrow so favourably, it may have to offer a $7 coupon for every new $100 bond to entice investors. These new credit terms influence the price of all other bonds in issue – a bond with a $5 coupon will fall in value so that anyone who buys it will now earn 7% on the capital they put up[5]. By contrast if prevailing interest rates fall bond prices rise. Importantly, a higher yield does not mean the government must pay more for the bonds already outstanding – the coupon is unchanged. It's new borrowing that is affected.

Bond markets determine interest rates

Since most governments issue bonds to finance themselves, the bond markets are very large. They are also enormously liquid which makes them a huge machine for judging the creditworthiness and economic performance of each country. Central banks can only fix interest rates for the very shortest time periods, so it has always been up to the bond markets to determine how much a government must pay if it wants to borrow for longer – say 10 years. The buying and selling of bonds already in issue determines the effective interest rate for any term: if investors think a government is going to become less creditworthy, or if they judge that higher inflation may take a bite out of their capital, they will sell bonds and drive up interest rates until a new equilibrium is reached. Equally, if investors see inflation falling or creditworthiness improving, they will not demand such high compensation. Yields will fall and bond prices will rise. Central banks are now active in the bond markets at longer maturities, so they are influencing interest rates across the whole yield curve[6], but they are only all-powerful for overnight money.

For investors sovereign bonds have two functions. First, they are the lowest risk assets around. If you buy a bond issued by, say the US or German government in its own currency, and hold it until it matures you know precisely what your return is going to be with certainty. That is the definition of zero risk.

Secondly, because the value of bonds changes all the time as the markets re-evaluate economic prospects, and because you can trade them, they also have the potential to generate capital gains if prospects improve and losses if they deteriorate.

SOVEREIGN BONDS ARE THE LOWEST RISK ASSETS AROUND. THE BOND MARKETS SET INTEREST RATES AND HELP DETERMINE THE PRICE OF ALL ASSETS.

[5] The exact price to which the $5 bond will fall mainly depends on how long it will be before the bond is due to be repaid. It will stay near $100 if repayment is imminent, but it will drop towards $71 if repayment is a very long way off (because 5/71=7%).

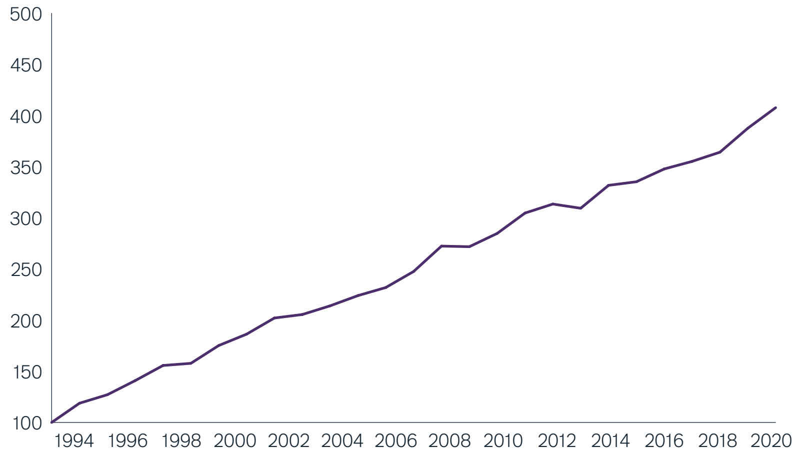
[6] The yield curve plots interest rates for bonds of different maturities.

Bonds have generated significant returns over the last 25 years

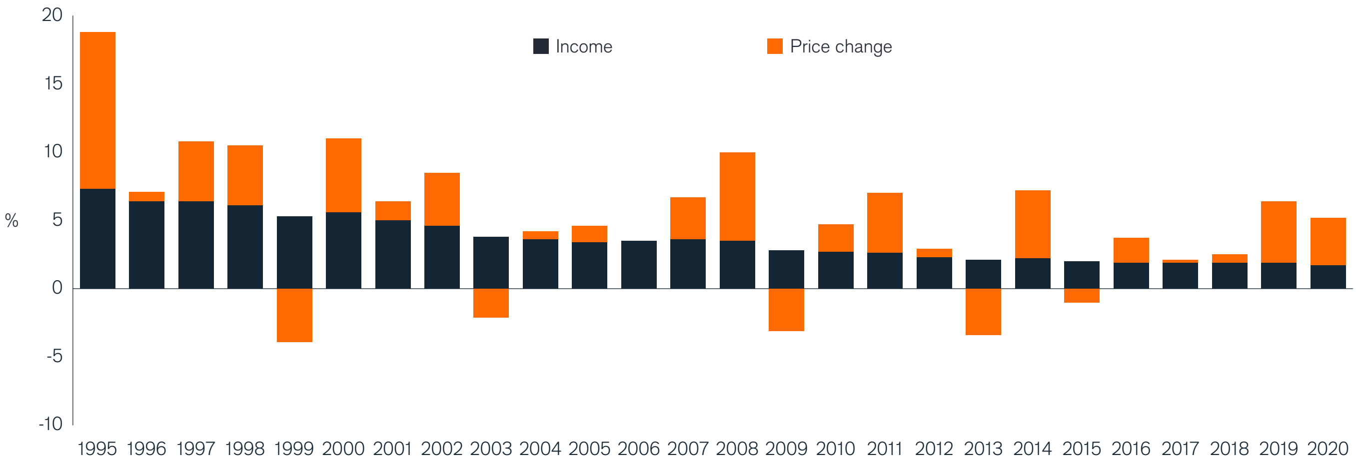
The steady decline in interest rates over the last 25 years has driven significant returns for bond investors. Between 1995 and 2020 the Global Government Bonds Index[7] generated a total return of 308% in USD terms, nearly five times the rate of inflation over the same period.

The total return is part capital gains and part income. The income component has of course got steadily smaller for the reasons we have already discussed. Over the last two years, by contrast, capital gains have contributed two thirds of investors' returns. With bond yields now so low, the income element will continue to shrink even after interest rates begin to rise because there is a very large stock of ultra-low yielding bonds that will take a long time to mature and be replaced by higher yielding ones. This means seeking capital gains (and avoiding capital losses) will remain the chief goal of sovereign bond investors in the medium term.

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



INCOME HAS BECOME SMALLER AS A PROPORTION OF BOND RETURNS (GLOBAL BONDS, USD)



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[7] Bloomberg: W0G0, Total return, USD, Hedged.

VIEWPOINT

BY BETHANY PAYNE AND HELEN ANTHONY

Sovereign bond markets are incredibly diverse. As conditions change, bonds that will be repaid soon behave very differently to those that have a long maturity. The prices of bonds with very large coupons versus those that pay next-to-nothing also adjust in very different ways. Those with good credit ratings diverge from those with bad ones. All this diversity provides huge opportunities for investors who want to take some risk to earn very significant returns.

It's important to remember that bond prices tend to fall (and yields rise) in countries with faster-growing economies. As the world recovers from Covid-19 sovereign bond markets overall therefore look less attractive. Crucially, the recovery is going to be very uneven. Service-driven economies that depend on human interaction like the UK did very badly in 2020 as consumers were unable to go out and about. But as lockdowns come to an end, these countries will see a much sharper rebound than manufacturing-driven economies that were less affected by the drop in global demand in 2020. The speed at which lockdowns are lifted following successful vaccination will also make a big difference, separating the fastest-vaccinating countries from those with the slowest rollout, whether they are developed or emerging. Within this framework, broadly speaking we are less keen on developed markets and more positive on countries that have done less deficit-spending and which have left their central banks to do more of the work. These parts of the world will see bond yields rise more slowly.

It is surprising how much short-dated debt governments have issued over the last year, especially in the US. With long-term interest rates still near historic lows, there are real advantages in locking in cheap finance for years to come. By focusing too much on short-term bonds, there is a real risk of being caught out having to refinance large amounts of debt at uncomfortably higher rates in future. There is also significant demand from investors for longer-dated bonds, but with issuance skewed towards short-dated bonds and central banks snapping up a lot of the longer maturities, long bonds are in short supply. We think some governments will address this problem later this year.

SOVEREIGN BOND MARKETS ARE INCREDIBLY DIVERSE. AS CONDITIONS CHANGE, BONDS THAT WILL BE REPAID SOON BEHAVE VERY DIFFERENTLY TO THOSE THAT HAVE A LONG MATURITY. THE PRICES OF BONDS WITH VERY LARGE COUPONS VERSUS THOSE THAT PAY NEXT-TO-NOTHING ALSO ADJUST IN VERY DIFFERENT WAYS. THOSE WITH GOOD CREDIT RATINGS DIVERGE FROM THOSE WITH BAD ONES.

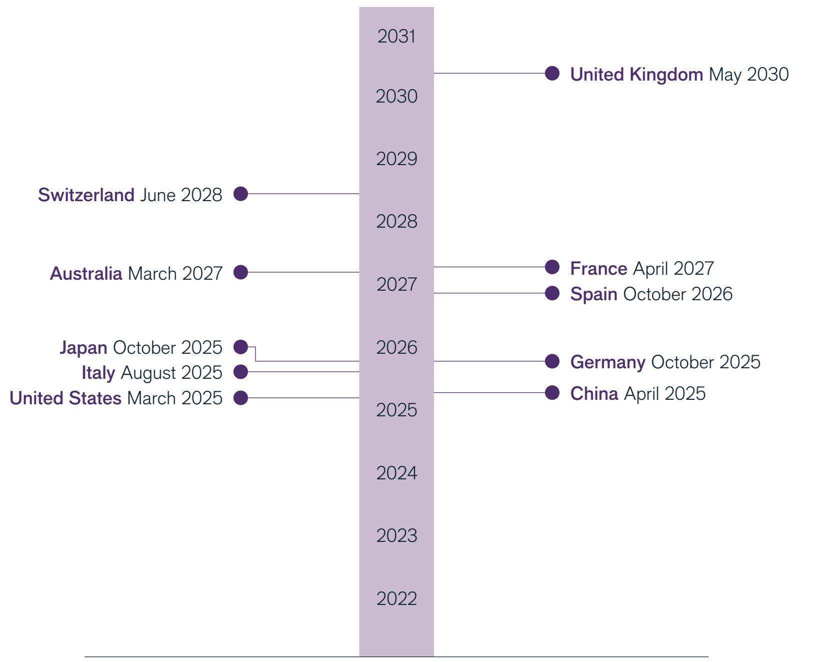
The central banks are not going to go away any time soon as they continue to be active in the markets for years to come, so yields are likely to rise less than the rebound in economies would otherwise imply. They also know that governments need to refinance record levels of debt so they are incentivised to keep interest rates low across the yield curve. And there is just so much demand from investors for bonds too.

The companion of such low interest rates is low inflation which ensures that today's debts will persist rather than shrinking in relative terms from mountains to molehills as incomes and prices rise. Pursuing economic growth, trimming spending, or both are the likely routes governments will take to reduce their debt burden, but with the cost of finance so low they have breathing room to do so.

One way or another, everyone has a stake in the bond markets. People can own bonds in their own right, or they can choose to own them via fixed-income investment funds. Some people might not even know they own bonds – for example everyone's pension fund uses the returns on bonds to help fund retirement incomes. Insurance companies use them to manage risks and fund payouts. The banking system, mortgages and savings rates all depend on the bond markets too. Without the bond markets modern economies simply could not function.

IT'S IMPORTANT TO REMEMBER THAT BOND PRICES TEND TO FALL (AND YIELDS RISE) IN COUNTRIES WITH FASTER-GROWING ECONOMIES. AS THE WORLD RECOVERS FROM COVID-19 SOVEREIGN BOND MARKETS OVERALL THEREFORE LOOK LESS ATTRACTIVE

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

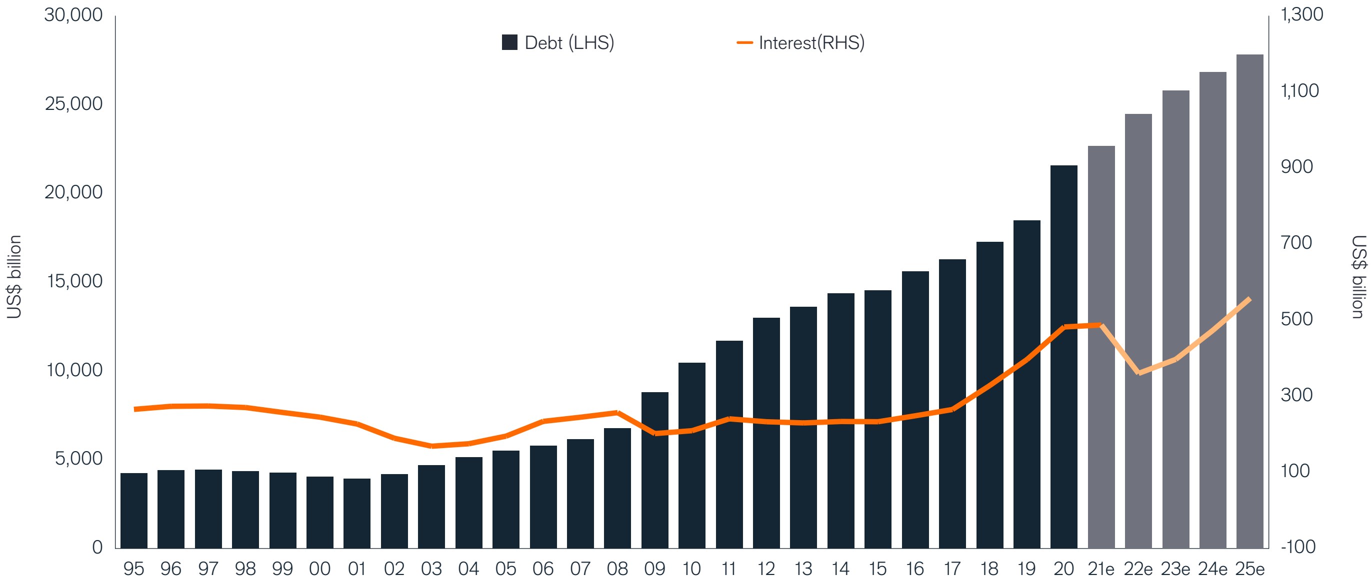


North America

By the end of 2020, US government debt stood at $19.6 trillion, almost one third of the total of all the countries in our index. It has soared from just $3.6 trillion in 1995, an increase of 443% (almost twice as fast as the rest of the world: 230%). Over the same period, GDP expanded just 175%[8], meaning that debts have grown 2.5x faster than the US economy. By the end of 2020, the US government owed $59,109 per US citizen, borrowing $8,053 on behalf of each of them during the first year of the pandemic, with another $2,600 set to add to the tally this year. Only Japan and Singapore owe more per person in total. Indeed, the budget deficit is unlikely to return to historic averages for another five years.

The cost of servicing all this debt is higher in the US than the rest of the world. The interest bill in 2020 was $479bn, or $1,447 per person, equivalent to an interest rate of 2.6%, well above the 1.5% paid by the rest of the world.

NORTH AMERICA



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[8]. Nominal GDP ie not adjusted for inflation in order to be comparable to the debt figures.

SPOTLIGHT ON REGIONS AND COUNTRIES (CONTINUED)

New borrowing is cheaper, however. The effective yield[9] on US bonds, which represents the interest rate the government pays on new loans, was only 0.7% at the end of January 2021, not far above the record lows it reached in July. US bonds tend to be for shorter maturities than in many of its peers – roughly half today's outstanding total will have been refinanced within the next four years, though the tail is long after that giving a weighted average maturity date of March 2028. The older, more expensive bonds will therefore quickly be replaced with cheaper alternatives. With such high levels of debt and such short maturities, the US is, however, more vulnerable to a future increase in rates than many other countries.

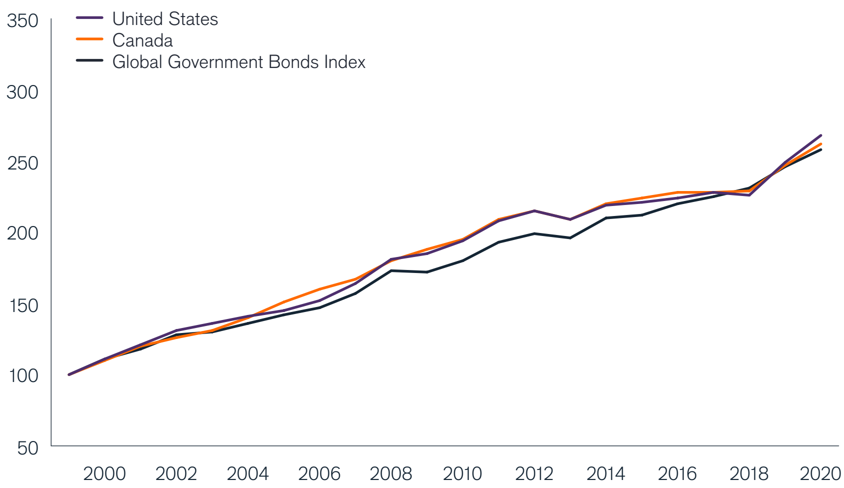
DEBT PER PERSON – USD

Country	1995	2020	2025e
Canada	21,387	53,360	64,250
US	13,593	59,109	74,332
North America	**4,371**	**13,050**	**16,484**

↑443%

US GOVERNMENT DEBT HAS GROWN ALMOST TWICE AS FAST AS THE REST OF THE WORLD AND 2.5x FASTER THAN THE US ECONOMY

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



US bonds have also proved a good investment in absolute terms. Since 2000, they have produced total returns for investors of 168%[10], slightly ahead of the global average of 158%.

Over the next few years, US government debt is set to rise further, as much as $15,000 more per person by 2025. The cost of financing all this borrowing will drop over the next two years because of the cycle of retiring older debt and replacing it with cheaper loans, but after that it will climb rather quickly.

Across the border in Canada, debts have risen much more slowly than in the US both in absolute terms and relative to economic growth. They have just over tripled in value since 1995 (+223%) compared to GDP that has risen by 173%. The Canadian government owes $53,360 for every citizen (the sixth highest tally in the world); the total rose $8,576 in the 2020. It too will continue to borrow to support the economy so this will rise further this year. The effective yield on Canadian bonds was just 0.58% at the end of January 2021 – towards the end of 2018 it was four times higher.

9. This is the weighted average yield across all maturities of debt in issue, taking account of the frequency of coupon payments
10. By 31/12/2020.

Europe ex UK

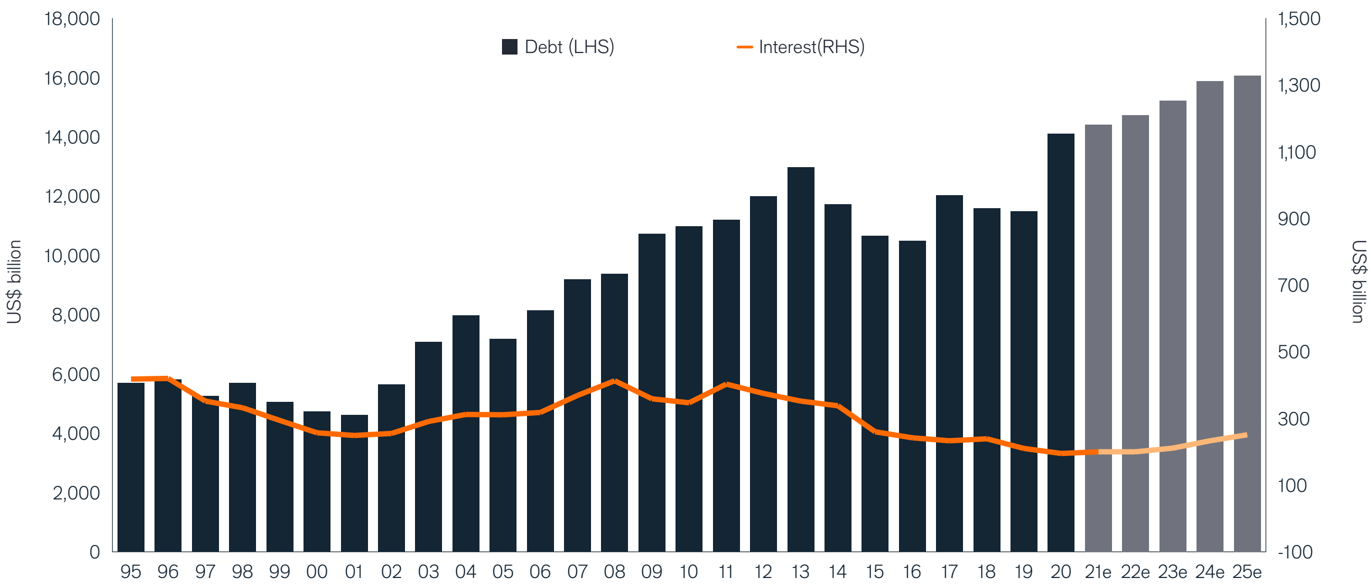
The last 25 years have been eventful in Europe. They have seen the foundation of the euro as well as the GFC, a major sovereign debt crisis in a number of European countries and now the pandemic. Even so, debts have not risen as fast as elsewhere. Across the continent, the total rose from $5.7 trillion in 1995 to $14.1 trillion in 2020, an increase of 147%, less than half the pace of the rest of the world, but twice as fast as the expansion in European GDP (+75%). In 2020, European government debt jumped 15% in local-currency terms, though a weaker dollar meant the USD equivalent was 23% higher.

There are very large differences from one country to another. Denmark and Sweden have seen the lowest growth in debts over the longer term and along with Switzerland also have the lowest debts per capita of any European country, around two fifths less than the European average of $41,607. By contrast, Spain has seen its debts grow almost three times as fast as its economy, up 347% in 25 years. Its outstanding loans are now worth 120% of its GDP, second only to Italy at 159%. Italy, after Japan, is the second-most indebted country in our index relative to the size of its economy. The Italian government's debt is $52,855 per person, the seventh highest in the world.

DEBT PER PERSON – USD

Country	1995	2020	2025e
Belgium	35,655	55,765	61,790
Denmark	24,125	24,953	25,579
Finland	13,966	35,544	42,906
France	15,830	50,537	58,221
Germany	17,346	33,933	38,130
Greece	12,322	40,687	43,801
Ireland	15,752	57,161	63,121
Israel	24,736	33,399	39,500
Italy	25,208	52,855	60,560
Netherlands	20,537	38,647	41,814
Spain	9,363	35,085	41,412
Sweden	22,363	23,665	25,247
Switzerland	21,217	28,354	25,589
Europe ex UK	**18,484**	**41,607**	**47,149**

EUROPE EX UK



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France is Europe's biggest borrower overall, owing $3.4 trillion, or $50,537 per person, the eighth highest in the world. Its debts have soared 274% since 1995, an increase almost exactly in line with the global average, but well ahead of its neighbours. The French economy has been stuck in the slow lane, however, expanding just 63% in the last 25 years. Its debts are nevertheless easily affordable. France's effective interest rate in 2020 was just 1.1%, well below the global average, costing each French person $518. In 2008, the bill was far higher at $1,355 per head, even though its debts were two fifths smaller.

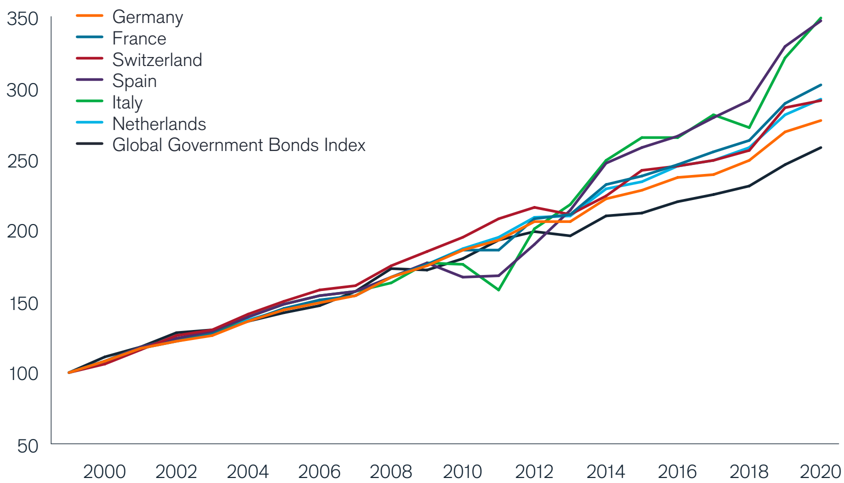
Despite having easily the largest economy, Germany is only Europe's third largest borrower. Thanks to a fiscal doctrine that demanded the government run annual surpluses, Germany's outstanding debt fell by 21% in USD terms between 2012 and 2019, while its economy expanded by a tenth. The debt decline was a more modest 7% in euro. In 2020 the government borrowed less than France and Italy, despite having a much larger economy to support. Its debts were $33,933 per person by the end of the year, only a little over half the level of the US.

In the European bond markets, Switzerland was the first country to see a negative effective yield, which, along with low overall debt, explains why its interest burden is among the lowest in the world. It has been joined by Germany, France, the Netherlands, Sweden and Luxembourg. New debt for all these countries therefore comes with interest income, rather than a cost. Even Spain, the fourth most indebted country in the world[11], can now borrow at negative rates.

By 2025 European governments will have borrowed another $2.0 trillion, $5,500 more per person. The interest burden is not set to escalate, however, rising roughly in line with debt levels as refinancing costs should remain relatively attractive. Denmark and the Netherlands look set to see debts expand most slowly, while Spain and France will see the most additional borrowing. Switzerland is likely to repay some of its debt. Germany and Italy will need to refinance half of their bonds within the next five years, but France and Switzerland enjoy the security of longer maturity.

From a performance perspective, German bonds have lagged behind neighbouring countries returning 177% in the last 20 years. This is because its interest rates started low and its credit rating was already top notch so there was less room for improvement. Italian and Spanish bonds have done the best.

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



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11. Spain: Debt to GDP ratio 120% in 2020.

United Kingdom

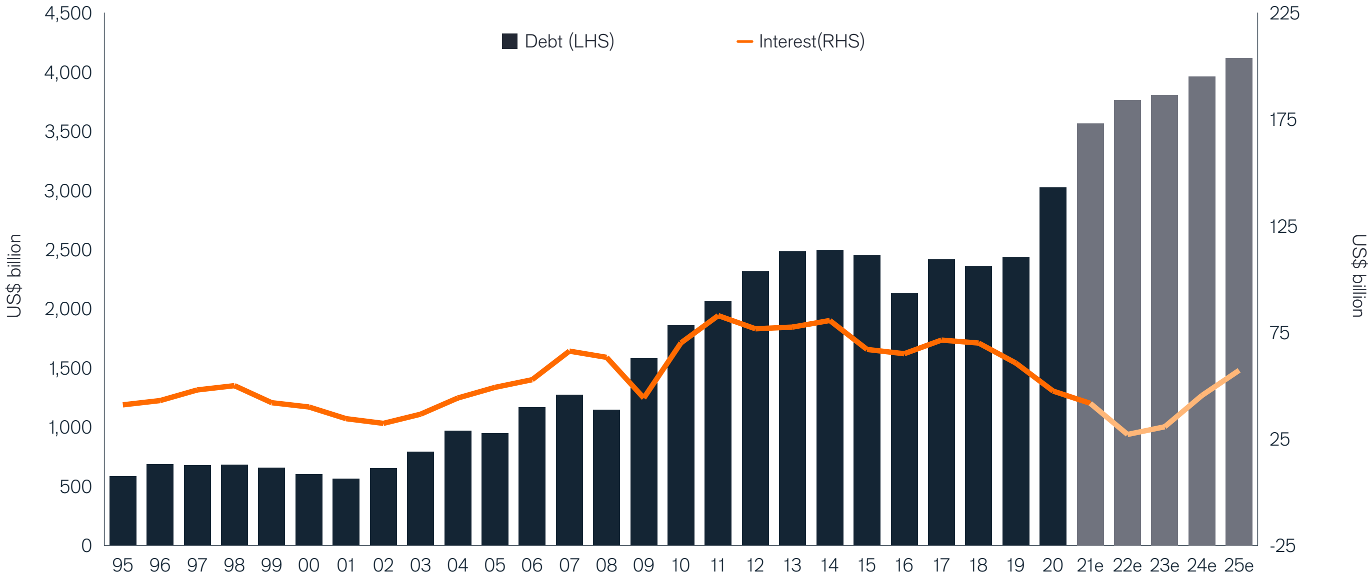
The UK owed $3.0 trillion by the end of 2020, equivalent to 113% of its national income, placing it towards the top end of most indebted countries, but in line with comparable nations like France and Canada. Britain's national debt has grown 418% since 1995, far faster than its European neighbours, and far outstripping economic growth of 94%. The biggest contributor has been the GFC which hit the UK much harder than it did Europe and prompted huge borrowing. Britain now owes $44,559 per person, the ninth most in the world. During 2020 the British government borrowed almost $8,500 per person to combat the pandemic and its economic impact. It will continue to see debts rise for the next few years in cash terms, but they will become smaller relative to national income more quickly than for the rest of the world.

DEBT PER PERSON – USD

Country	1995	2020	2025e
United Kingdom	10,065	44,559	59,457

THE UK OWED $3.0 TRILLION BY THE END OF 2020, EQUIVALENT TO 113% OF ITS NATIONAL INCOME, PLACING IT TOWARDS THE TOP END OF MOST INDEBTED COUNTRIES, BUT IN LINE WITH COMPARABLE NATIONS LIKE FRANCE AND CANADA

UNITED KINGDOM



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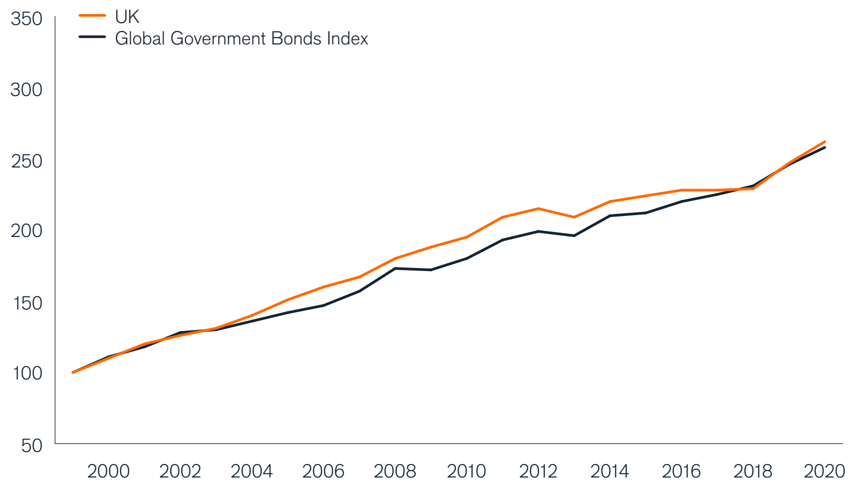
Funding costs are exceptionally low. In 2020, the UK paid an average interest rate of 1.7% across all its borrowings, down from 7.1% in 1995. This is going to fall even lower, dropping to just 0.7% in 2022. Britain's $27bn interest bill in 2022 will be half the level in 2019, even though debts will be more than 50% higher.

At the end of 2020, the effective yield on UK bonds (the rate at which the country can now borrow) was just 0.33%. This has risen a touch since, in common with bond yields everywhere, as investors anticipate an economic recovery. The UK is unique in that it has an exceptionally long payment profile for its bonds, meaning it has significantly lower refinancing risk than its peers. Half of British government debt is not due for repayment until after May 2030, years later than all other major industrialised countries. The weighted average maturity date is even longer at May 2035.

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



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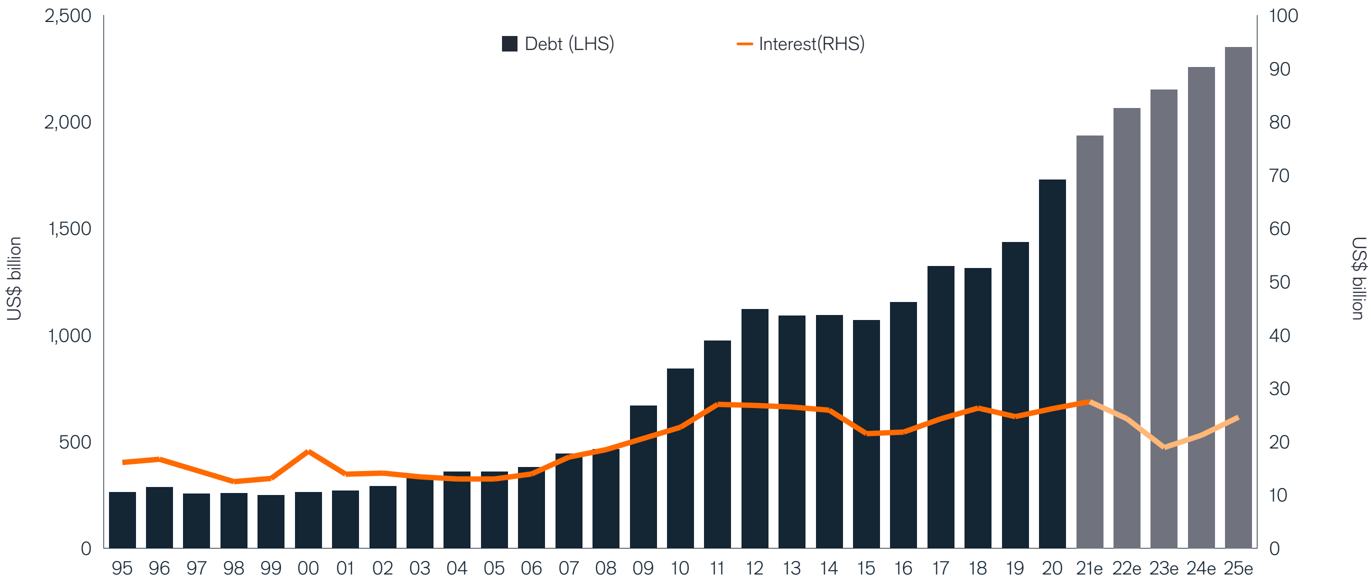
Asia Pacific ex Japan

Australia's profile looks in some ways like its European and North American peers, and in others like its Asian neighbours. The national debt has risen 420% since 1995, the same rate of growth as the UK, but its economy has expanded 257% (almost three times faster than the UK) on the back of rapid population growth and a strong orientation to the rapidly growing Asian market. This means its debt to GDP ratio in 2020 was only 55%, similar to Hong Kong and South Korea. This is among the lowest in the developed world and half the level of the UK. The Australian government owed $30,919 per person in 2020, half the amount owed on behalf of US citizens and one third less than that owed by the British government per person. The per capita national debt

DEBT PER PERSON – USD

Country	1995	2020	2025e
Australia	8,381	30,919	45,697
Hong Kong	2,232	26,350	32,081
South Korea	785	15,968	22,568
Taiwan	1,892	8,303	8,628

ASIA PACIFIC EX JAPAN



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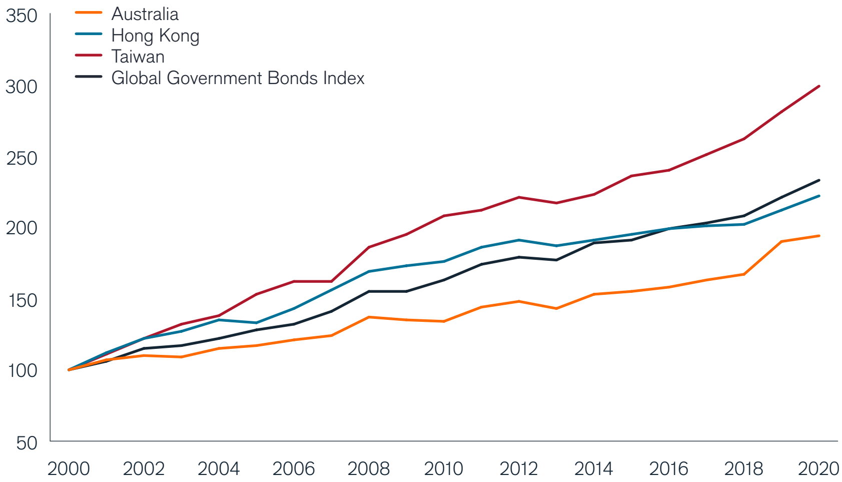
rose $6,102 in 2020 thanks to the pandemic support provided to the economy and will continue to rise in the next few years. Australia's 0.76% effective yield on its bonds in issue is much higher than for comparable countries because its economy has been performing more strongly.

Hong Kong had almost no debt in 1995 ($14bn) but this had risen to $198bn by the end of 2020, equivalent to $26,350 per person or 55% of GDP. Its economy has grown 157% in the same period. Taiwan's debt is half the level of Hong Kong's compared to GDP and is only $8,303 per person. Both territories can now finance themselves as cheaply as the UK, with new bonds being issued on average at 0.3%-0.4%. Hong Kong's market has, however, underperformed the global average over the last 20 years. Singapore stands out with debts of $96,417 per person, the second highest in the world and it has a debt to GDP ratio of 155%, the third highest after Italy and Japan. However, Singapore has borrowed enormously to invest in infrastructure so there are huge assets on the national balance sheet too. It is set to continue borrowing over the next few years, but the growth in debt from here is likely to be roughly in line with economic growth.

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



AUSTRALIA'S DEBT PROFILE LOOKS IN SOME WAYS LIKE ITS EUROPEAN AND NORTH AMERICAN PEERS AND IN OTHERS LIKE ITS ASIAN NEIGHBOURS.

Emerging Markets

Emerging markets are a mixed bag of countries with hugely different characteristics. Crucially they are all considered higher risk and this constrains how much debt they can take on because it means higher interest rates. They also tend to be much more dependent on foreign financing (with notable exceptions like China), which leaves them vulnerable to volatile exchange rates. Their debt/GDP was only 37% in 2020 as a consequence, though this was up sharply compared to 2019. Collectively, their debts have risen 557% since 1995, matching the growth in their economies. China is easily the biggest contributor to the growth in debts. In 1995 it owed just $1 in every $30 among emerging markets. Last year this had risen to $1 in every $3.

DEBT PER PERSON – USD

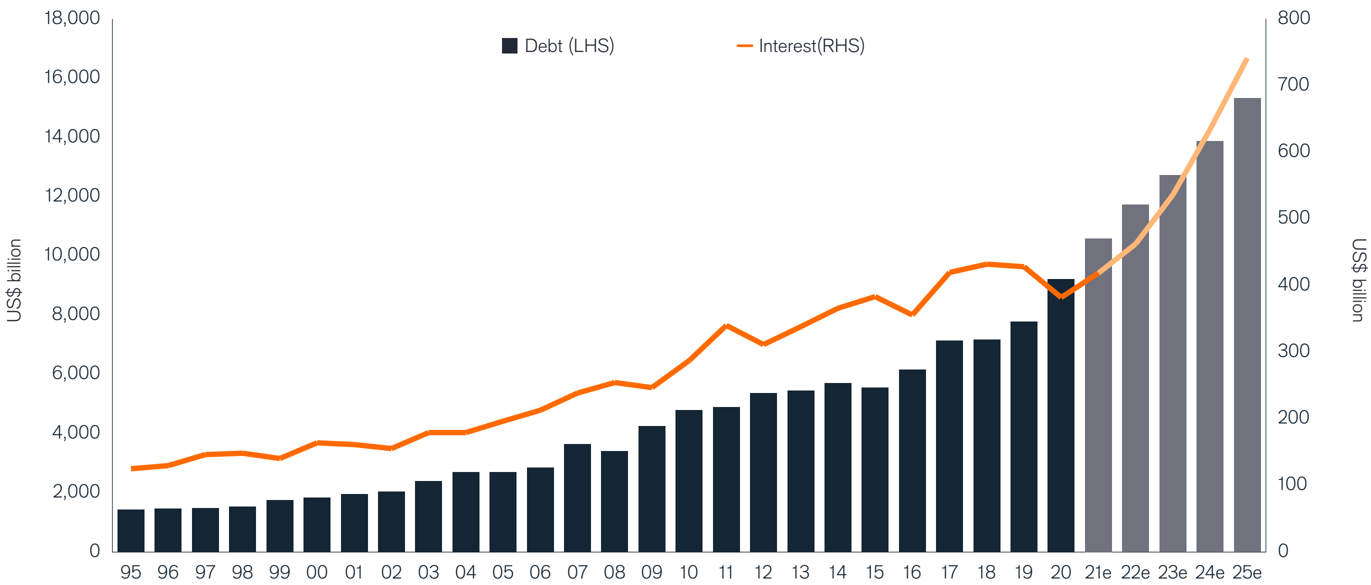
Country	1995	2020	2025e
Argentina	2,501	7,375	8,567
Brazil	3,164	6,332	9,355
Chile	865	5,033	8,785
China	38	2,429	5,231
Czech Republic	786	10,508	13,602
Hungary	3,402	12,252	17,690
India	207	1,186	1,459
Indonesia	301	1,871	2,033
Malaysia	1,754	6,908	10,113
Mexico	1,308	5,046	5,498
Peru	1,046	2,123	3,347
Russia	1,059	1,734	3,386
South Africa	1,850	4,738	5,297
Turkey	983	2,480	3,657

CHINA IS EASILY THE BIGGEST CONTRIBUTOR TO THE GROWTH IN DEBTS. IN 1995 IT OWED JUST $1 IN EVERY $30 AMONG EMERGING MARKETS. LAST YEAR THIS HAD RISEN TO $1 IN EVERY £3

The more volatile nature of emerging market bonds makes them interesting for bond-market investors. The higher risks mean there is the potential for higher returns.

The tables in the appendix help show how different the picture is from one country to another.

EMERGING MARKETS



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Japan

Japan is the global outlier. After years of economic stagnation, its borrowings have soared from 49% of GDP in 1995 to 250% in 2020 as the government attempted to keep the economy afloat. The Bank of Japan, having run out of room years ago to cut interest rates, has been pumping vast amounts of cash into the economy to suppress interest rates at all maturities and to attempt to reflate the economy. It now owns 37% of Japanese government debt by value, worth more than the Federal Reserve's holdings of US debt. Per person, Japanese debt is worth $101,644 at present, easily the most in the world, and is going to keep rising quickly. Japanese households defy policymakers at every turn, choosing to save both domestically and overseas rather than spend. This explains the big offsetting increase in government borrowing.

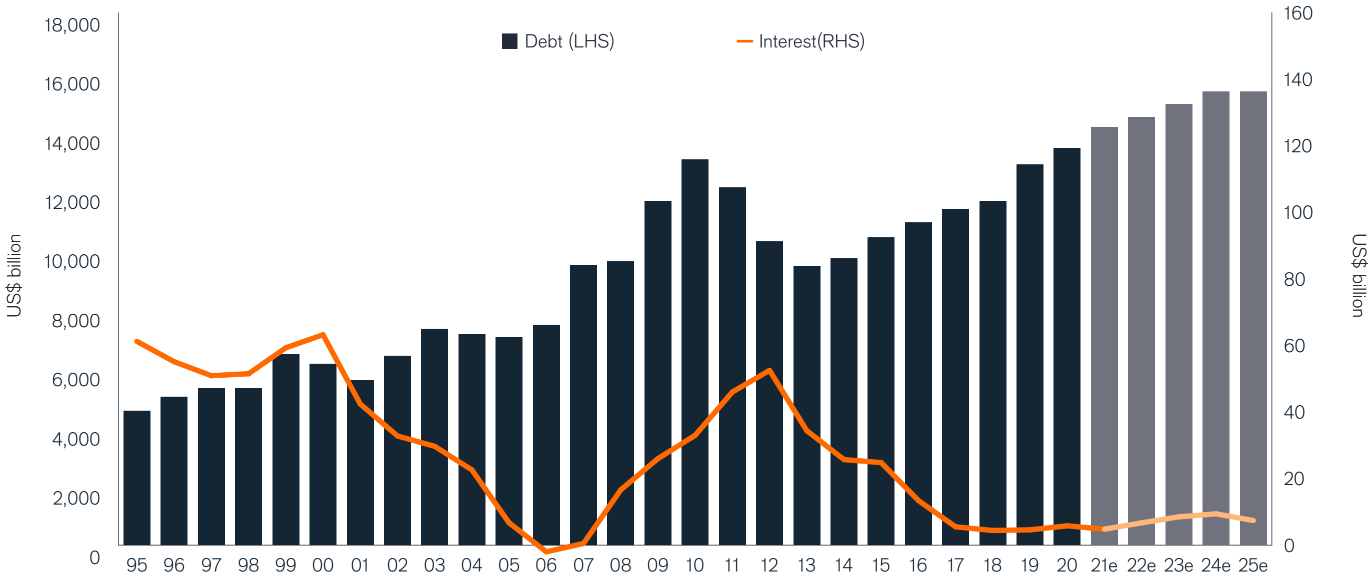
DEBT PER PERSON – USD

Country	1995	2020	2025e
Japan	35,876	101,644	123,582

The consequences for the national budget have been minimal. Despite being the world's second largest borrower after the US, Japan's 2020 interest bill was about the same as Hong Kong's. Its average interest rate was 0.04%. New borrowing comes with a negative interest rate.

JAPAN IS THE GLOBAL OUTLIER. AFTER YEARS OF ECONOMIC STAGNATION, ITS BORROWINGS HAVE SOARED FROM 49% OF GDP IN 1995 TO 250% IN 2020 AS THE GOVERNMENT ATTEMPTED TO KEEP THE ECONOMY AFLOAT.

JAPAN



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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 (ie 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

GOVERNMENT DEBT	–	The total amount of outstanding borrowing
GOVERNMENT BUDGET DEFICIT	–	The annual shortfall between spending and taxation (if taxes exceed spending, governments have a budget surplus)
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
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.
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.
RUNNING YIELD	–	The interest paid on a bond divided by its current market value
VOLATILITY	–	Rapid, unpredictable, changeability
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 BY COUNTRY IN USD BILLIONS

Region	Country	1995	2000	2005	2010	2015	2020	2025 Expected debt	2019-2020 Increase in debt
Asia-Pacific ex Japan	Australia	151	97	107	350	486	788	1,228	163
	Hong Kong	14	17	25	95	125	198	249	39
	Singapore	61	78	120	249	298	548	672	72
	Taiwan	40	74	108	149	160	196	203	19
Emerging markets	Argentina	87	128	129	164	241	333	404	10
	Brazil	514	381	621	1,207	1,006	1,341	2,049	-23
	Chile	12	10	09	20	39	96	169	22
	China	46	329	404	1,020	1,642	3,389	7,354	984
	Czech Republic	08	11	37	79	74	113	146	36
	Hungary	35	26	64	105	92	118	168	13
	India	200	276	524	906	1,070	1,637	2,109	163
	Indonesia	60	120	121	193	246	500	566	87
	Malaysia	36	33	60	132	147	224	347	30
	Mexico	120	214	276	360	490	650	744	44
	Peru	25	24	30	36	42	70	116	08
	Russia	157	136	99	113	104	258	501	36
	South Africa	77	53	84	151	130	281	333	48
	Turkey	58	95	247	308	233	209	317	-14
Europe ex UK	Belgium	363	261	348	487	477	646	727	122
	Denmark	126	87	94	137	118	145	151	28
	Finland	71	54	78	118	146	197	239	37
	France	915	810	1,404	2,273	2,288	3,299	3,845	625
	Germany	1,419	1,159	1,818	2,821	2,383	2,811	3,155	504
	Greece	132	138	252	442	339	424	445	52
	Ireland	57	37	52	193	220	282	322	53
	Israel	137	105	121	173	191	308	399	65
	Italy	1,441	1,259	1,878	2,566	2,438	3,196	3,626	488
	Netherlands	317	219	324	506	486	670	738	226
	Spain	373	349	464	867	1,165	1,640	1,929	305
	Sweden	198	128	180	202	221	239	263	51
	Switzerland	149	127	172	195	192	246	226	52
Japan	Japan	4,533	6,130	7,133	11,632	9,687	12,858	15,324	1,224
North America	Canada	624	623	924	1,448	1,409	2,014	2,527	338
	United States of America	3,604	3,410	4,592	9,019	13,117	19,565	25,303	2,764
UK	United Kingdom	584	602	948	1,861	2,455	3,025	4,119	589
World		**16,744**	**17,600**	**23,846**	**40,579**	**43,955**	**62,515**	**18,499**	**9,258**

DEBT BY REGION IN USD BILLIONS

Region	1995	2000	2005	2010	2015	2020	2025 Expected debt	2019-2020 Increase in debt
Emerging Markets	1,435	1,836	2,705	4,795	5,555	9,221	6,104	1,442
Asia-Pacific ex Japan	266	265	360	844	1,070	1,730	622	293
Europe ex UK	5,698	4,734	7,184	10,981	10,663	14,102	1,963	2,607
North America	4,228	4,033	5,516	10,467	14,526	21,579	6,251	3,103
United Kingdom	584	602	948	1,861	2,455	3,025	1,094	589
Japan	4,533	6,130	7,133	11,632	9,687	12,858	2,466	1,224
World	16,744	17,600	23,846	40,579	43,955	62,515	18,499	9,258

DEBT AND INTEREST PER PERSON BY COUNTRY

		Debt per person USD		Expected debt per person USD	Interest bill per person USD		Expected interest per person USD	Average interest rate paid %	Average Interest rate paid %
Region	**Country**	**1995**	**2020**	**2025**	**1995**	**2020**	**2025**	**1995**	**2020**
Asia-Pacific ex Japan	Australia	8,381	30,919	45,697	541	238	129	6.6	0.9
	Hong Kong	2,232	26,350	32,081	136	574	619	6.1	2.4
	Singapore	17,355	96,417	116,284	971	2,177	2,223	6.1	2.4
	Taiwan	1,892	8,303	8,628	100	147	151	5.7	1.9
Emerging markets	Argentina	2,501	7,375	8,567	117	170	254	4.9	2.3
	Brazil	3,164	6,332	9,355	380	281	553	12.0	4.4
	Chile	865	5,033	8,785	82	96	613	9.1	2.1
	China	38	2,429	5,231	00	80	223	0.0	3.9
	Czech Republic	786	10,508	13,602	04	171	406	0.6	1.9
	Hungary	3,402	12,252	17,690	399	623	849	11.7	5.4
	India	207	1,186	1,459		64	77	8.0	5.7
	Indonesia	301	1,871	2,033	15	67	73	5.0	3.9
	Malaysia	1,754	6,908	10,113	127	222	359	7.2	3.4
	Mexico	1,308	5,046	5,498	144	255	378	11.3	5.2
	Peru	1,046	2,123	3,347	79	99	170	7.7	5.0
	Russia	1,059	1,734	3,386	85	73	116	8.0	4.5
	South Africa	1,850	4,738	5,297	197	239	340	11.3	5.5
	Turkey	983	2,480	3,657	215	217	358	22.6	8.5
Europe ex UK	Belgium	35,655	55,765	61,790	2,546	1,083	1,492	7.1	2.1
	Denmark	24,125	24,953	25,579	1,343	-21	77	5.6	-0.1
	Finland	13,966	35,544	42,906	1,006	350	543	7.2	1.1
	France	15,830	50,537	58,221	956	518	366	6.0	1.1
	Germany	17,346	33,933	38,130	1,109	336	481	6.4	1.1
	Greece	12,322	40,687	43,801	1,363	350	668	11.1	0.9
	Ireland	15,752	57,161	63,121	990	647	663	6.3	1.2
	Israel	24,736	33,399	39,500	1,502	947	1,294	6.1	3.2
	Italy	25,208	52,855	60,560	2,511	1,085	1,413	10.0	2.2
	Netherlands	20,537	38,647	41,814	1,419	369	830	6.9	1.1
	Spain	9,363	35,085	41,412	667	632	855	7.1	2.0
	Sweden	22,363	23,665	25,247	1,532	198	299	6.9	0.9
	Switzerland	21,217	28,354	25,589	403	73	79	2.1	0.3
Japan	Japan	35,876	101,644	123,582	485	37	76	1.4	0.0
North America	Canada	21,387	53,360	64,250	1,158	97	322	5.7	0.2
	United States of America	13,593	59,109	74,332	875	1,447	1,602	6.6	2.6
UK	United Kingdom	10,065	44,559	59,457	712	700	826	7.6	1.7
World		**4,371**	**13,050**	**16,484**	**242**	**238**	**334**	**5.5**	**2.0**

DEBT AND INTEREST PER PERSON BY REGION

	Debt per person USD		Expected debt per person USD	Interest bill per person USD		Expected interest per person USD	Average interest rate paid %	Average Interest rate paid %
Region	1995	2020	2025	1995	2020	2025	1995	2020
Emerging Markets	479	2,410	3,892	42	100	188	8.7	4.5
Asia-Pacific ex Japan	5,432	27,791	36,784	329	421	386	6.1	1.7
Europe ex UK	18,484	41,607	47,149	1,359	578	737	7.4	1.5
North America	14,365	58,520	73,287	903	1,308	1,469	6.3	2.4
United Kingdom	10,065	44,559	59,457	712	700	826	7.1	1.7
Japan	35,876	101,644	123,582	485	37	76	1.4	0.0
World	**4,371**	**13,050**	**16,484**	**242**	**238**	**334**	**5.5**	**2.0**

DEBT AS A PERCENTAGE OF GDP BY COUNTRY

Country	1995	2020	Expected debt 2025
Australia	40	55	67
Hong Kong	n/a	55	53
Singapore	70	155	155
Taiwan	15	29	25
Argentina	31	105	78
Brazil	n/a	95	99
Chile	17	35	46
China	6	22	33
Czech Republic	14	43	42
Hungary	84	76	68
India	57	62	58
Indonesia	25	44	40
Malaysia	39	63	69
Mexico	40	57	50
Peru	50	36	40
Russia	48	18	25
South Africa	48	79	84
Turkey	30	34	31
Belgium	131	113	111
Denmark	n/a	40	35
Finland	55	68	73
France	57	118	113
Germany	57	73	65
Greece	106	209	178
Ireland	79	66	57
Israel	n/a	73	74
Italy	111	159	156
Netherlands	73	70	62
Spain	62	120	112
Sweden	69	40	39
Switzerland	41	31	29
Japan	90	250	271
Canada	102	116	117
United States of America	48	93	97
United Kingdom	44	113	108
World	**59**	**84**	**83**

APPENDICES (CONTINUED)

DEBT AS A PERCENTAGE OF GDP BY REGION

Region	1995	2020	Expected debt 2025
Emerging Markets	38	37	42
Asia-Pacific ex Japan	18	40	43
Europe ex UK	71	100	88
North America	51	95	98
United Kingdom	44	113	108
Japan	90	250	271
World	**59**	**84**	**83**

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